

行政院國家科學委員會專題研究計畫成果報告

國立交通大學貴重儀器使用中心服務計畫

九十一年度成果報告

計畫編號：NSC91-2731-P009-001

執行期間：91年1月1日至91年12月31日

計畫主持人：~~張仲儒~~ 教授  
許千楨

執行單位：國立交通大學

# 目 錄

一、 本中心年度工作重點.....	1
二、 各儀器本年度工作重點以及服務成果	
(一)氣相層析質譜儀.....	14
(二)液相層析串聯質譜儀.....	16
(三)掃描穿透式電子顯微鏡.....	18
(四)掃描式電子顯微鏡.....	21
(五)掃描探針顯微鏡/奈米壓痕儀.....	22
(六)半導體領域.....	28
雷射圖型產生系統、光罩對準曝光機與光阻處理系統、 氧化/擴散系統、低壓化學氣相沉積系統、 快速退火化學氣相沉積系統、熱阻絲蒸鍍系統、 雙電子鎗蒸鍍系統、真空濺鍍系統、活性離子蝕刻機、 高解析度場射掃描式電子顯微鏡、展阻量測分析儀	
三、 各儀器支援之研究成果-----發表論文紀錄表	
(一)氣相層析質譜儀.....	74
(二)液相層析串聯質譜儀.....	91
(三)掃描穿透式電子顯微鏡.....	97
(四)掃描式電子顯微鏡.....	100
(五)掃描探針顯微鏡/奈米壓痕儀.....	102
(六)半導體領域.....	110
雷射圖型產生系統、光罩對準曝光機與光阻處理系統、 氧化/擴散系統、低壓化學氣相沉積系統、 快速退火化學氣相沉積系統、熱阻絲蒸鍍系統、 雙電子鎗蒸鍍系統、真空濺鍍系統、活性離子蝕刻機、 高解析度場放射掃描式電子顯微鏡、展阻量測分析儀	



## 一、本中心年度工作

本中心依「國科會貴重儀器服務中心」之宗旨，有效運用國科會補助本校貴重儀器資源，協助各大學及研發單位進行研究，並進而擴大對各研究需求的服務；此外，由於跨領域研究日益普遍，對儀器服務需求亦日漸走向多元化發展，本中心除現有儀器服務項目外，更致力於擴充各儀器的週邊設備，提供更為完善的服務品質。

目前本校貴重儀器中心依性能及服務對象可區分為半導體領域及材料科學暨化學分析領域二大貴重儀器群，目前共有十六部儀器提供服務。今年度各儀器服務績效相當良好，統計如表一。服務件數為校內 19,563 件，校外 17,989 件，總計 37,552 件；服務時數為校內 15,623 小時，校外 14,130 小時，總計 29,753 小時；服務金額為校內 14,312,510 元，校外 16,434,110 元，總計 30,746,620 元。各儀器服務件數、時數及金額之校內外分佈情形如圖一、二、三所示，其中服務件數以單幕對準系統最高，服務時數及服務金額以雷射圖形產生系統最高，尤以校外服務獨佔鰲頭。

科技不繼在創新，各類精密儀器推陳出新，有鑑於未來國內各界研究發展之需求，學校已於近三年投入 16,353 萬元補助添購先進儀器並加入貴儀服務的行列。本校貴重儀器使用中心是以服務區域內之學術研究單位為宗旨，交大貴儀中心各儀器均秉持此一目標，積極對外服務，我們期望國科會能給予充份的支持，以維持本中心之服務績效與品質。

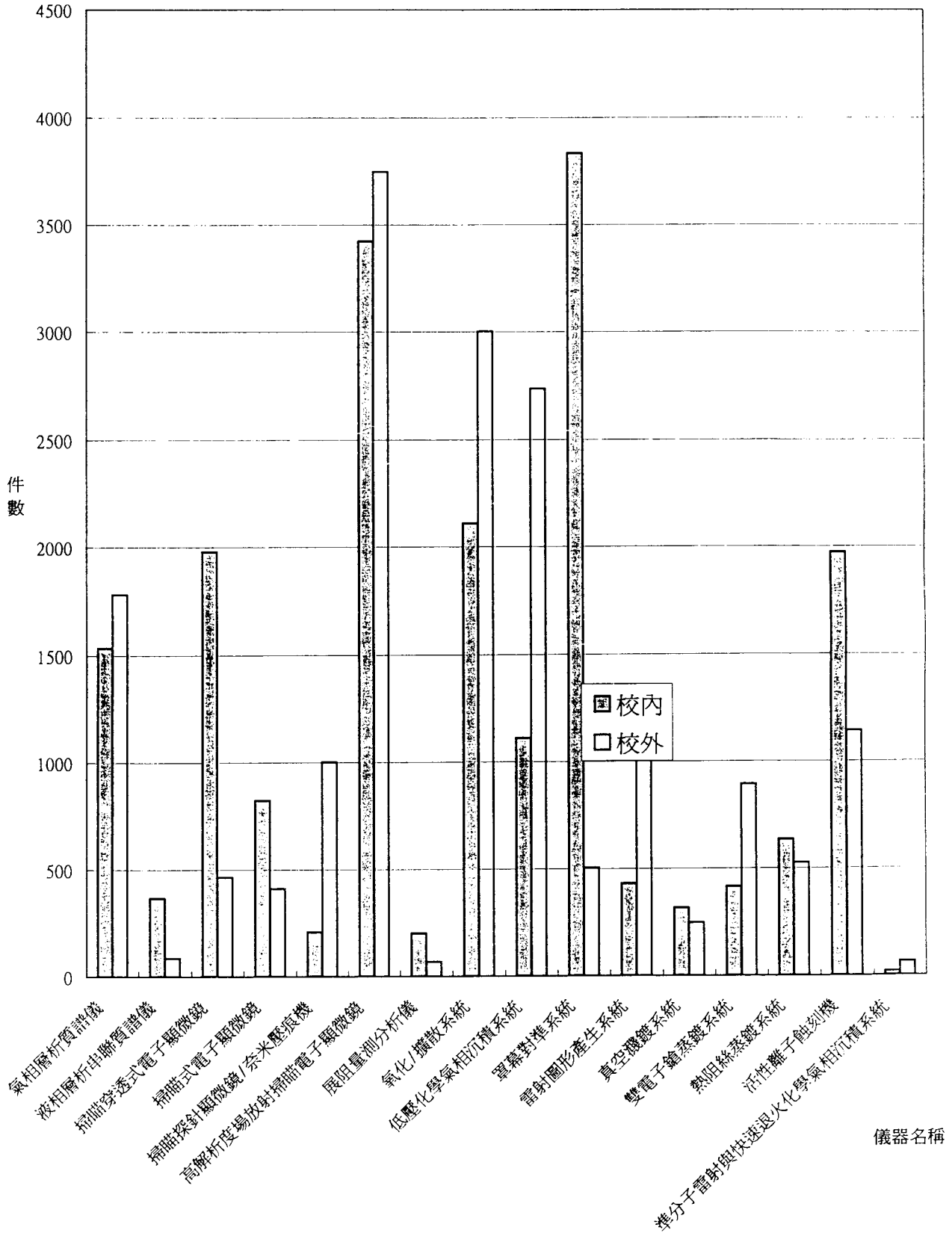
表一、本中心儀器服務明細表

91 年度服務績效總表(九十一年一月一日起至九十一年十二月卅一日止)

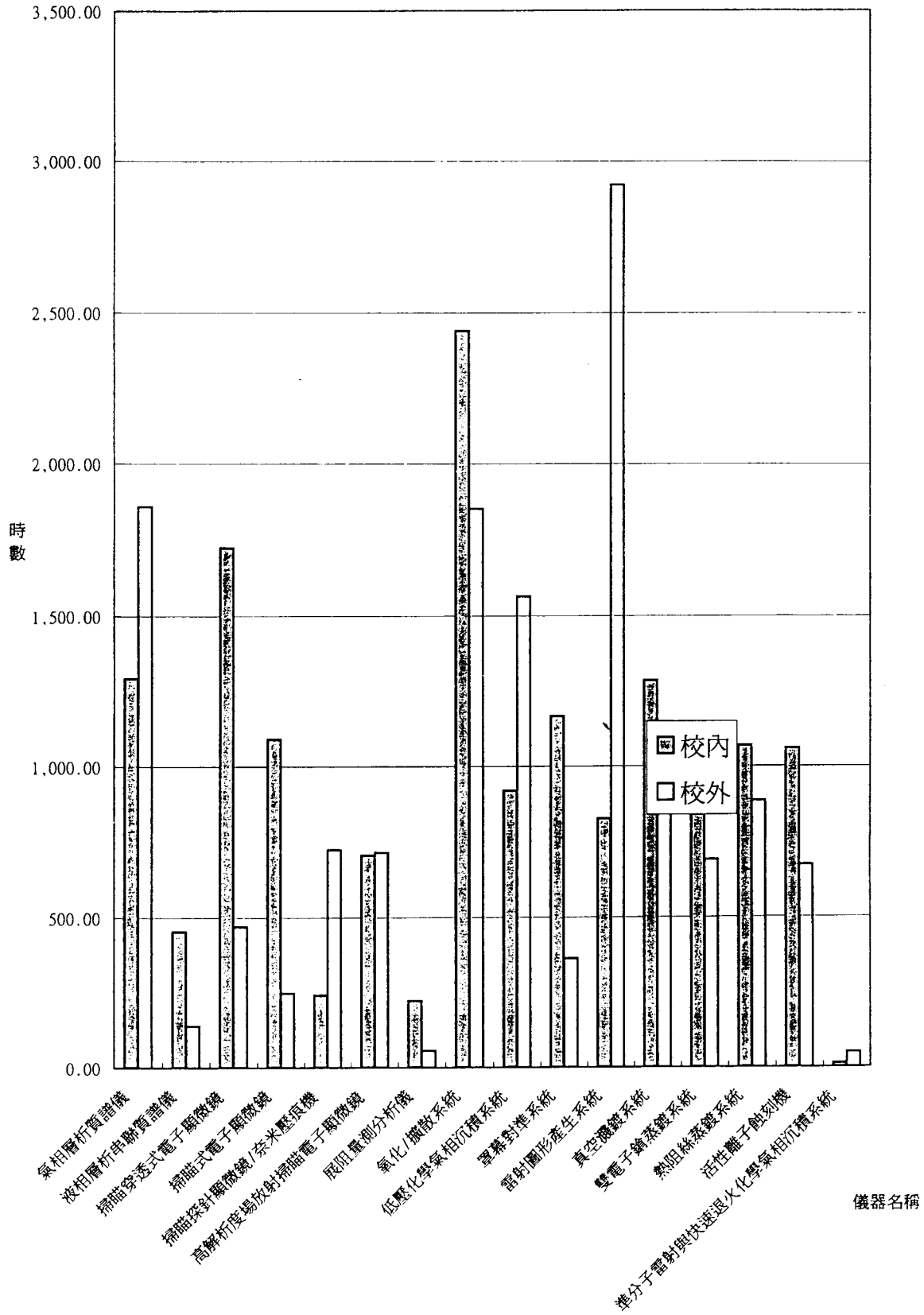
儀器名稱	件數		時數	費用	合計		
					件數	時數	費用
氣相層析質譜儀	校內	1,534	1,291.5	1,080,600	3,314	3,150	2,408,600
	校外	1,780	1,858.5	1,328,000			
液相層析串聯質譜儀	校內	367	454	615,500	453	595	827,400
	校外	86	141	211,900			
掃描穿透式電子顯微鏡	校內	1,978	1,725	674,360	2,443	2,195	1,163,590
	校外	465	470	489,230			
掃描式電子顯微鏡	校內	822	1,089	877,850	1,234	1,339	1,087,350
	校外	412	250	209,500			
掃描探針顯微鏡/奈米壓痕儀	校內	209	244	247,000	1,211	969.5	972,510
	校外	1,002	725.5	725,510			
高解析度場放射掃描式電子顯微鏡	校內	3,423	705.5	849,420	7,172	1,420.5	1,725,180
	校外	3,749	715	875,760			
展阻量測分析儀	校內	203	225	205,000	272	282	248,500
	校外	69	57	43,500			
氧化/擴散系統	校內	2,110	2,441	804,780	5,113	4,293	1,410,040
	校外	3,003	1,852	605,260			
低壓化學氣相沉積系統	校內	1,112	920	681,500	3,848	2,485	2,583,150
	校外	2,736	1,565	1,901,650			
罩幕對準系統	校內	3,834	1,165	3,446,100	4,340	1,529	3,901,500
	校外	506	364	455,400			

儀器名稱	件數		時數	費用	合計		
					件數	時數	費用
雷射圖形產生系統	校內	432	827	2,519,000	1,658	3,750	10,657,500
	校外	1,226	2,923	8,138,500			
真空濺鍍系統	校內	318	1,283	396,900	566	2,163	661,500
	校外	248	880	264,600			
雙電子鎗蒸鍍系統	校內	416	1,026	310,200	1,309	1,716	528,700
	校外	893	690	218,500			
熱阻絲蒸鍍系統	校內	635	1,068	279,500	1,161	1,954	486,300
	校外	526	886	206,800			
活性離子蝕刻機	校內	1,972	1,059	1,184,000	3,115	1,731	1,848,100
	校外	1,143	672	664,100			
快速退火化學氣相沉積系統	校內	20	13	10,300	85	63	67,200
	校外	65	50	56,900			
總計	校內	19,563	15,623	14,312,510	37,552	29,753	30,746,620
	校外	17,989	14,130	16,434,110			

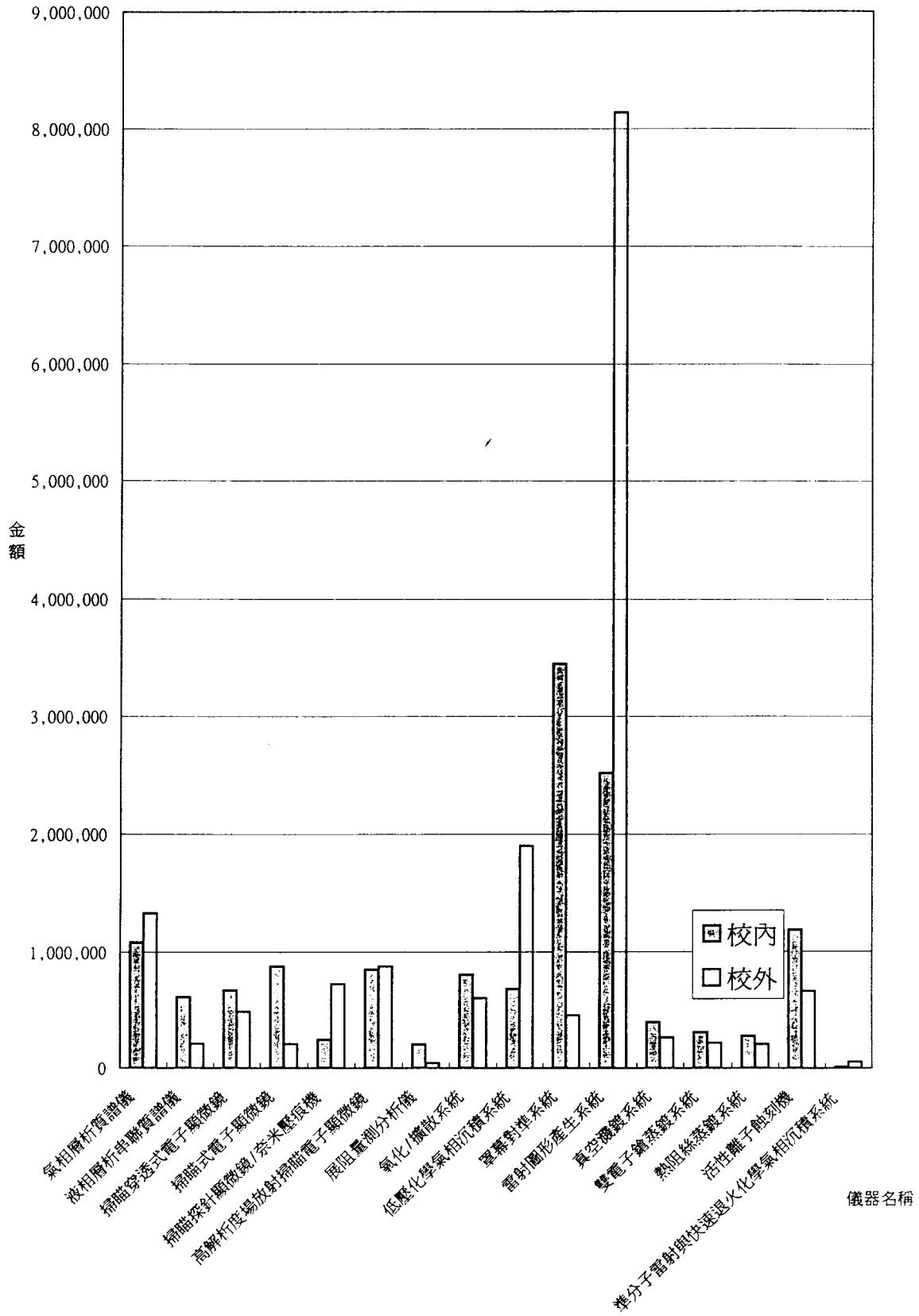
圖一、各儀器服務件數分析圖



圖二、各儀器服務時數分析圖



圖三、各儀器服務金額分析圖



### 材料科學暨化學分析領域：

材料科學暨化學分析領域的貴重儀器群目前共有五部儀器，分別由材料科學與工程學系及應用化學系負責管理，這些儀器除了提供本校相關系所教授的研究之外，亦對區域內其他學校及產業界提供服務，如掃描穿透式電子顯微鏡，疏解了區域內其他貴儀中心的服務負荷，另如掃描式電子顯微鏡已於 91 年汰舊換新，設備及功能更符合使用者需求；化學分析方面之儀器，因液相層析串聯質譜儀之加入，使其服務陣容更為加強。因此經過這些年的運作後，本領域之服務績效已達一定水準，未來將陸續改善現有儀器之功能，提高服務品質與水準，此領域儀器之指導教授及技術員分列如下：

氣相層析質譜儀由謝有容教授擔任儀器專家，儀器操作員為李蘊明；  
液相層析串聯質譜儀由李耀坤教授擔任儀器專家，操作員為李蘊明；  
掃描穿透式電子顯微鏡由謝宗雍教授擔任儀器專家，儀器操作員為鄭美莉；  
掃描式電子顯微鏡由陳智助理教授擔任儀器專家，儀器操作員為麥威方；  
掃描探針顯微鏡/奈米壓痕機之儀器專家為郭正次教授，儀器操作員為蔡欣瑩。

### 半導體領域：

半導體領域的貴重儀器群，由半導體中心負責管理，本年度共有 11 部儀器提供服務。(1) 雷射圖形產生系統(2) 光罩對準曝光機、光阻處理系統(3) 氧化擴散系統(4) 低壓化學氣相沉積系統(5) 快速退火化學氣相沉積系統(6) 熱阻絲蒸鍍系統(7) 雙電子鎗蒸鍍系統(8) 真空濺鍍系統(9) 活性離子蝕刻機(10) 高解析度場放射掃描式電子顯微鏡(11) 展阻量測分析儀。本中心獨特半導體潔淨室實驗空間之設施（含純水、特殊氣體、廢棄廢酸處理等），開放上述 11 部設備系統給校內、校外之學術單位執行國科會研究計畫。

目前國科會國家奈米元件實驗室每年購入昂貴之設備，為發展奈米元件之製程，並使用六吋晶圓。相對地，功率元件、平面顯示器元件、微機電、光電元件等常不須作成奈米尺寸，甚至須加大元件尺寸以利耐

壓及耐電流之特色，所以本中心即以此 1 微米左右元件製程為主，並區分為矽基製程及化合物半導體製程，玻璃或石英基板之製程亦為本中心加強之方向。提供除了新竹地區清華大學、交通大學、國家奈米元件實驗室、工研院、科學園區，乃至其他地區台灣大學、中央大學、成功大學、中興大學、台灣科技大學、逢甲大學、中原大學、大葉工學院，甚至其他專科及技術學院之老師與學生使用，也因功率元件及積體電路、平面顯示器元件、微機電等越來越蓬勃發展，使用者遍及全國包括電機、電子、材料、物理、化學、機械、控制、光電、生物、化工等科系所。

本半導體中心以矽半導體材料為主之研究領域有高、低介電常數材料、鐵電材料研究、平面顯示器技術研究、光電元件研究、高頻元件研究、功率元件研究、微光機電研究、微光學研究、封裝技術等，除已有之相當基礎矽製程技術發展外，現今加強推動幾個重點實驗室：(1)『化合物半導體實驗室』、(2)『微光機電實驗室』、(3)『平面顯示器實驗室』及支援(4)『奈米科技中心』之研究發展。(1)『化合物半導體實驗室』可提供先進雷射及光電基礎、尖端光電材料與元件、微光電系統技術、無線通訊及光纖通訊元件與電路等主題之研究。(2)『微光機電實驗室』(MEMS/Optical MEMS) 可提供微光機電基礎科學、微光機電元件設計、微光機電製作加工技術、生物晶片(Biochip)、微光機電元件製造技術、微光機電檢測技術等主題之研究。(3)『平面顯示器實驗室』可提供平面顯示器元件、平面顯示器發光材料、平面顯示器光電物理、有機電子發光顯示器及有機發光二極體(OLED)、平面顯示器之省能背光和前光源、反射式省能液晶顯示器等主題之研究。支援之(4)『奈米科技中心』研究發展方向則有(i)奈米材料(Nano materials): 包括奈米尺寸過渡金屬(transition metals) 材料含過渡金屬碳化物(transition metal carbides) 、過渡金屬氮化合物(nitrides)與碳基材料函含奈米尺寸石墨(nano-sized graphite) 、carbon onions、碳奈米管(carbon nanotubes) 之合成;(ii)奈米科學(Nano sciences): 包括介觀系統(mesoscopic systems)之量子傳輸(Quantum transport)、介觀及奈米結構之電子去同調(electron



decoherence)、量子浸透(quantum percolation)、奈米尺寸金屬膜之電子跳躍/穿隧(electron hopping/tunneling)、介觀超導系統、量子電子 pumping 機制等之探討；(iii)奈米技術(Nano technologies)：包括量子點(quantum dot)製造技術、各種量子點元件含雷射(lasers)、遠紅外光檢測器(infrared photodetectors)、共振腔(resonant cavity)檢測器、穿隧元件(tunneling devices)及二維電子 Gunn 振盪器(oscillators)等之製作、半導體奈米結構之特性量測分析(characterization)。

本中心之設備，以配合服務各大專院校教授之研究為主，注重半導體應用領域，與國家奈米元件實驗室注重 0.1 微米小尺寸元件相輔相成，功能區分，亦與其他各大專院校重點研究各具特色，以服務廣大學術研究領域為目標。

由於半導體製程設備需要於潔淨室才得以運轉、維護與使用，使用前也必須接受特殊訓練才準進入潔淨室。例如申請儀器操作訓練，經儀器專家審查資格核可後，及學長訓練、考核通過後，方可自行操作。因此，半導體部分之 11 部貴儀設備，從運轉、維護、申請訓練到考核，可說均有嚴謹作業流程。申請作業期間助理及儀器專家均要花時間審核，訓練考核期間博士班學長及技術員也要花很長時間。開放一位學生申請使用一部儀器，就須使用相當之中心人力資源，何況一位學生往往申請使用多項設備。而前述潔淨室使用特殊空調、純水、毒性氣體、化學藥品，廢水、廢棄物之處理，除了水、電、氣、藥品等消耗支出很大外，需要專業的廠務技術人員支援。且為了校內外學生能於共同維護實驗室安全維生，都有定期舉辦安全、防災、逃生教育演習，凡此種種都因本中心有健全運作制度，方能長年服務校內、校外學生，為作育英才做貢獻。

本中心執行 91 年度 (91/01~91/12) 貴重儀器計畫中半導體部份 11 部設備系統之服務，服務業績如下：

- 一.本中心除委託代工外，亦提供訓練、考核，可 24 小時自行操作。各儀器訓練、核可自行操作人數如下表所示，本年度總計 253 人。
- 二.各儀器對校內、校外服務績效為：校內時數：10,272 小時，校外：10,771

小時，合計 21,043 小時；校內件數：13,841 件，校外件數：13,814 件，合計：27,655 件；服務金額為校內 10,552,850 元，校外 13,732,120 元，合計：24,284,970 元，按校內與校外分別比較，對校外服務量已達總服務量一半以上。校內、校外使用量，幾乎各占一半。

91年91.01.01-91.12.31半導體中心貴儀使用統計表 製表日920127

儀器名稱	分項	使用時數	使用件數	收費金額
1. 雷射圖型產生系統	校外	2,888	1,216	8,056,500
	校內	819	426	2,489,000
	小計	3,707	1,642	10,545,500
2. 光罩對準曝光機、光阻處理系統	校外	346	503	452,700
	校內	1,155	3,811	3,425,400
	小計	1,501	4,314	3,878,100
3. 氧化擴散系統	校外	1,925	2,907	1,071,160
	校內	2,348	1,879	857,980
	小計	4,273	4,786	1,929,140
4. 低壓化學氣相沈積系統	校外	1,421	2,291	1,717,840
	校內	878	987	676,550
	小計	2,299	3,278	2,394,390
5. 快速退火化學氣相沉積系統	校外	0	0	0
	校內	0	0	0
	小計	0	0	0
6. 熱阻絲蒸鍍系統	校外	1,033	724	259,800
	校內	827	492	219,000
	小計	1,860	1,216	478,800
7. 雙電子鎗蒸鍍系統	校外	749	845	221,400
	校內	1,026	418	310,200
	小計	1,775	1,263	531,600
8. 真空濺鍍系統	校外	894	266	275,700
	校內	1,235	304	382,300
	小計	2,129	570	658,000
9. 活性離子蝕刻機	校外	731	1,247	729,100
	校內	990	1,846	1,108,000
	小計	1,721	3,093	1,837,100
10. 高解析度場射掃描電子顯微鏡	校外	689	3,700	846,320
	校內	753	3,453	897,620
	小計	1,442	7,153	1,743,940
11. 展阻量測分析儀	校外	57	69	72,000
	校內	228	205	176,500
	小計	285	274	248,500
總合計	校外	10,771	13,814	13,732,120
	校內	10,272	13,841	10,552,850
	合計	21,043	27,655	24,284,970

91 自行操作研究生碩博士畢業生統計表

製表日 920227

系所學校	博士班	碩士班	總計人數
交通大學電子工程系	16	48	64
交通大學光電工程所	1	15	16
交通大學電子物理系		8	8
交通大學材料工程系	5	32	37
交通大學應用化學系	1	5	6
交通大學機械工程系	1	11	12
交通大學電機控制系		1	1
合計人數	24	120	144

系所學校	博士班	碩士班	總計人數
清華大學電子工程系		2	2
清華大學動力機械系	1	3	4
清華大學材料工程系		8	8
清華大學工程科學系	1	5	6
清華大學原子科學系		3	3
清華大學化學工程系		1	1
台北科技大學光電系		1	1
成功大學電機工程系		1	1
成功大學航太系		1	1
雲林科技大學電資系		3	3
中央大學光電所		1	1
中山大學物理系		5	5
逢甲大學電機系		1	1
逢甲大學化學工程系		1	1
中正理工兵研系		1	1
陽明大學醫工系		1	1
合計人數	2	38	40

各儀器自行操作人次數統計表（一）製表日 92.02.14

儀器名稱	校內	校外	合計
1. 雷射圖型產生系統（委託代工） Laser Pattern Generator	3	0	3
2. 光罩對準曝光機與光阻處理系統 Mask Aligners and Photoresist Processing Systems	86	6	92
3. 氧化擴散系統 Oxidation and Diffusion Furnaces	32	7	39
4. 低壓化學氣相沉積系統 Low Pressure Chemical Vapor Deposition System	7	4	11
5. 快速退火化學氣相沉積系統 Rapid Thermal Process Chemical Vapor Deposition System	3	0	3
6. 熱阻絲蒸鍍系統 Thermal Evaporation Coater	26	5	31
7. 雙電子鎗蒸鍍系統 Dual E-Gun Evaporation System	20	6	26
8. 真空濺鍍系統 Sputter System	21	2	23
9. 活性離子蝕刻系統 Reactive Ion Etching System	8	10	18
10. 高解析度場射掃描電子顯微鏡（委託代工） High Resolution Cold Field Emission Scanning Electron Microscope	6	1	7
11. 展阻量測分析儀（委託代工） Spreading Resistance Probe System	0	0	0
合計	212	41	253

## 二、各儀器本年度工作重點以及服務成果

### (一) 儀器名稱：氣相層析質譜儀(GC-MS)

本部儀器由應用化學系於民國八十一年購置，總經費約六百萬元，為一四極式質譜儀，另配有 HP 之氣相層析儀，可提供 EI、CI、FAB 及 GC-MS 等多種服務項目，本年度該儀器除週一上午進行一到二小時的例行校正維護外，依使用者需求將週一至週五共十個時段(每次四小時)全部開放使用，可提供化合物的分子量、結構式鑑定分析及混合物的氣相層析/質譜分離鑑定，以充分配合使用者的需求，提供最即時完整的測試結果。

為提昇服務績效，本儀器除提供交大應化系、材料系、生科系等校內研究群測試分析樣品外，經積極利用文宣及電子郵件等方式拓展校外服務範圍，對於外校使用者給予優先服務，並將一般貴儀質譜因操作費時費事而不願開放的 GC-MS 分析項目開放服務，配合上快速確實的量測結果，獲得全省各學術單位及企業界的肯定。因此服務績效於八十九年開始大幅成長，到九十一服務時數近乎滿載，而校外服務比例顯著提昇至 50% 以上，校外時數件數及金額亦較九十年成長 40% (詳細資料請參閱附表一、二、三、四)。顯示本儀器之服務範圍持續擴大，對象遍及北部、中部及東部，是一部使用頻率高、服務範圍廣的儀器。雖然本中心質譜儀僅是低解析之 GC/MS，但服務績效(時數、件數)相對於其他中心之質譜儀，應是相當突出的。

為提供使用者最快速確實的服務，本儀器一般清潔及例行維護工作，都儘量配合切換游離源時一併進行，以減少停機時間。本年度因操作維護得宜並未發生大型故障而停機，一般小故障均由操作員於一兩天內自行修復，年度清潔維護工作則委請儀器廠商利用學校長假時間進行，因此幾乎所有的上班天均可開放委託操作服務，故服務績效能未增加人力下屢創新高，而回件時間仍可維持在三個工作天內。此外，本儀器在畢業旺季仍能依使用者需求協助趕件，並接受不穩定樣品之隨送隨測，服務效率相信在同類儀器中亦是名列前茅的。

本儀器購置運作即將進入第十二年，雖然運作正常且服務績效良好，

但因適用於較易揮發之小分子物質且解析度有限，而未來對生化、高分子及材料科學等大分子的研究需求與日遽增，九十一年本系新購之液相層析質譜儀(LC/MS/MS)加入貴儀服務後，其適用於高極性難揮發分子且質量範圍大、解析度高、可進行串聯質譜分析等優點，恰與本 GC-MS 相輔相成，提供了使用者全方位之質譜量測服務，有利於整體服務績效的拓展，希望國科會能繼續給予兩部儀器大力支持，以嘉惠國內廣大的研究團體。

附表一

項 目	時 數	件 數	收 入 金 額(元)
校 內	841(57.4%)	916(67.1%)	616,600(65.8%)
校 外	623(42.6%)	449(32.9%)	321,100(34.2%)
合 計	1464	1365	937,700

附表二

項 目	時 數	件 數	收 入 金 額(元)
校 內	2257(58.5%)	1763(64.3%)	1,121,500(60.8%)
校 外	1602(41.5%)	979(35.7%)	722,200(39.2%)
合 計	3859	2742	1,843,700

附表三

項 目	時 數	件 數	收 入 金 額(元)
校 內	1890(57.4%)	2245(63.3%)	1,416,300(60.8%)
校 外	1400(42.6%)	1303(36.7%)	914,500(39.2%)
合 計	3290	3548	2,330,800

附表四

項 目	時 數	件 數	收 入 金 額(元)
校 內	1289.5(40.9%)	1534(46.3%)	1,080,300(44.9%)
校 外	1860.5(59.1%)	1780(53.7%)	1,328,300(55.1%)
合 計	3150	3314	2,408,600

## (二) 儀器名稱：液相層析串聯質譜儀

本儀器為應化系李耀坤老師於九十年七月購置，為一飛行時間式之串聯質譜儀，第一段質譜為四極式，中間為四極式反應區，第二段質譜為飛行時間式分析器(TOF)，目前開放的服務項目有經 LC 管柱分離或直接進樣、正負離子之電灑法 (ESI) 游離源、TOF 或串聯式質譜分析等，可依使用者的樣品性質及需求作搭配組合，適用於能溶於水、Methanol、Acetonitrile 等溶劑之極性較高的大、小分子、生物分子 (醣類、蛋白質或 peptide) 及難揮發之化合物。此外藉著第一階段四極式分析器 (Quadrupole) 及第二階段飛行式分析器 (Time of Flight) 之串聯質譜儀，僅需少量樣品，無須事先分離，即可在短時間內以第一段質譜測得混合物中每個化合物質量，再用第二段質譜分析各化合物的結構，解析度可達 5000 以上，質量範圍(M/Z) 到 10000。服務時間方面除週一上午進行約一小時的例行維護外，週一至週五共十個時段(每次四小時)全部開放使用。本儀器自九十一年五月獲准正式加入貴儀後，僅八個月的時間裡便有 453 件 595 小時、827,400 元的成績，其中校外樣品約佔 20% (詳見附表一)，且幾乎初次使用者在取得分析資料後都對結果表示滿意並再次送件，本儀器並開放固定時段讓校外使用者優先使用，配合積極利用網路及文宣傳播儀器訊息，希望能提高本儀器的知名度擴大服務範圍。雖然初期使用過本儀器的人不多，但我們相信在貴儀中心同質性並開放服務的儀器極少，串聯式質譜(MS/MS)分析及液態層析串聯式質譜(LC/MS/MS)之服務更尚未見諸於各貴儀中心，並隨著國家刻正積極進入生物科技領域發展，相關的研究將愈來愈多，可預期未來對生化分子之分析鑑定的服務需求將愈來愈大。隨著愈來愈多人知道這部儀器，服務績效定將逐漸提升。

本部 LC(ES)/MS/MS(TOF) 所提供之服務和並與本系另一台貴重儀器 GC-MS 具有相輔相成的效果，此儀器特別適用於高極性難揮發的較大分子如蛋白質、peptide 及醣類之分析鑑定，並克服困難首創 LC/MS/MS 之服務。而 GC-MS 則適用於低極性、揮發性好的小分子，甚至氣體樣品等，兩部儀器可提供貴儀使用者全方位之質譜測量服務，我們期望中心能夠繼續給予支持，以發揮兩部儀器各自所長，將其特殊功能，提供國內的研究學者



充分運用，提升研究的質與量。

附表一

91 年度 LC/MS/MS 服務成果統計表(91.5.1~91.12.31)			
項 目	時 數	件 數	收 入 金 額 (元)
校 內	454(76.3%)	367(81%)	615,500(74.4%)
校 外	141(23.7%)	86(19%)	211,900(25.6%)
合 計	595	453	827,400

附註：本儀器 91 年 5 月才正式加入貴儀

### (三) 儀器名稱：掃描穿透式電子顯微鏡/電子能量散佈分析儀

本實驗室所屬之儀器為穿透式電子顯微鏡，其廠牌為 Philips 之 Tecnai 20 機型，配備兩項分析儀器：X 光能量散佈分析儀 EDAX，以及 Gatan 公司的電子能量損失能譜儀 GIF200。主要服務項目包括一般的 TEM 顯微觀察，例如：奈米管、奈米線、奈米顆粒的尺寸估量；或是針對半導體薄膜試片的橫截面觀察以了解鍍膜良窳；或是合金、陶瓷等試片微細組織與缺陷之觀察。配合電子繞射圖案可以獲得結晶方面的資訊，有助於釐清相變化的情形並探討製程對試片的影響。電子能量散佈分析儀 EDS 是元素分析不可或缺的工具，主要功用為材料之定性與半定量分析，從而得到局部區域之元素組成資料；而電子能量損失能譜儀 EELS 應用在輕元素分析，彌補了 EDS 在輕元素分析上的缺憾，面對研究人員想要了解碳、氧、氮、硼這幾種元素的含量時能派上用場，此外，尚能利用其影像擷取的功能得到晶格影像甚至是元素分佈圖，更進階的功能如特殊的化學資訊的獲取與分析則是可再發揮的領域。

其他的相關儀器：離子研磨機、超薄切片機為 TEM 試片製備所需之設備，舉凡電子半導體材料、金屬、高分子、陶瓷等試片，提供了研究人員試片薄化、切片的幫助。真空蒸鍍機則針對導電性不佳的 SEM、TEM 試片提供鍍碳的服務。

本實驗室九十一年度所服務對象有：中研院物理所、原分所；工研院化工所；NDL；台大化學所；中原大學化工所、化學所；中央化工所；交大材料所、應化所、機械所、電子所；清大材料所、化學所、材料中心、化工所、生科所；東海環境科學；中興大學化工所、材料所；彰師化學系所；成功大學化工所、材料所；台科大化工所；台北科大材料、機械、製造科技所；南台科大機械系所；萬能技術學院化工系；虎尾技術學院材料系等等。

在本年度(91/1~91/12)中，主項儀器加上各細項儀器的總服務績效為：服務時數 2 195 小時、服務件數 2 443 件、服務費用達 1 163 590 元。其中只計主項儀器，也就是扣除細項儀器服務績效之後，電子顯微鏡的服務績效列表如下

	件數	時數	費用
校內	466	626	521 210
校外	343	391	468 120

細項儀器由於限定有執照者使用，目前使用者以本校居多；為了保障校外的使用比例，主項儀器--電子顯微鏡開放委託操作的時間與自行操作的時間各佔總開放時間的一半，使校外與校內的服務績效不致太懸殊。

在未來的年度裡，本實驗室一方面力求各設備正常運作，以配合使用者的研究進度，一方面也希望充分發揮儀器的功能，為科學研究貢獻心力。

## 91 年度 TEM/EDS 實驗室使用單位以及使用者列表：

台灣大學	化學所：陳逸聰
中研院	物理所：陳洋元 原分所：陳貴賢
交通大學	材料所：劉增豐、林健正、韋光華、張立、陳三元、涂肇嘉、黃華宗、林鵬、郭正次、朝春光、陳家富、謝宗雍、陳智、張翼
	應化所：裘性天、余艇
	電子所：崔秉鉞、陳茂傑、黃調元、曾俊元、王興宗
	機械所：陳仁浩、周長彬
清華大學	材料所：施漢章
	材料中心：李紫原
	化學所：黃國柱、韓建中、凌永健
	化工所：周更生、王詠雲、馬振基
	生科所：李家維
中央大學	化工所：高振宏
中興大學	化工所：何榮銘
	材料所：何永鈞
東海大學	環境科學：鄧宗禹
中原大學	化工所：魏大欽
	化學所：陳玉惠、葉瑞銘
彰師大	化學系：林秋薰
萬能技術學院	化工系：李訓清
虎尾技術學院	材料系：蔡丕椿、許振聲、黃俊哲
台北科技大學	材料：梁誠
	機械：林舜天、張合
	製造科技所：鍾清枝
台灣科技大學	化工：李嘉平
南台科技大學	機械：楊政峰
成功大學	化工所：洪昭南、吳季珍
	材料所：陳引幹
NDL	吳文發
工研院	化工所：江日舜

(四) 儀器名稱：掃描式電子顯微鏡(SEM)

- 1、以 SEM 儀器對系內及系外之試片進行微觀結構之觀察及成份分析作服務之成果(包括服務對象、服務件數、服務工時等)如附件所示。
- 2、已部分開放材料系外之使用人員接受訓練並考試合格而自行上機使用。
- 3、本系所新購之熱場發射電子顯微鏡，預計將於下年度加入貴儀對外服務的行列，為此系上將對新儀器的操作使用對象、人員訓練方式、開放服務範圍等相關事項，參考其他儀器單位的規定，訂定出一套合適的規定及辦法，希望使新的儀器能正常運作。
- 4、對於新版本之國科會貴儀預約軟體，待測試無誤後擬將新的 SEM(JEOL JSM6500F)資料輸入軟體中，以方便預約人員預約使用。而舊的 SEM(HITACHI S2500) 則考慮以儀器細項方式接受預約使用。

## (五) 儀器名稱：掃描探針顯微鏡/奈米壓痕儀

### A.儀器功能簡介：

掃描探針顯微鏡(SPM)，目前運作狀況良好，主要功能為分析材料表面形貌。本機型為接觸式(contact mode)，利用探針之針尖與待測物表面之原子力交互作用，使探針懸臂產生偏折，此時用特殊微小之雷射光照射探針臂背面，被探針臂反射之雷射光以 photo diode (雷射光相位偵檢器) 來記錄雷射光被探針臂偏移的變化。將此訊號經由電路計算，回饋至掃描裝置上，來控制探針與待測物的相對位置。若此時探針與待測物之間作相對之 X 及 Y 軸掃描，則系統可得到 X, Y, Z 三軸之訊號，將此 X, Y, Z 三軸之訊號處理後，即可得到待測物之立體影像。Contact mode AFM 與材料表面之作用力約  $10^{-6}$  至  $10^{-9}$  牛頓。

目前本儀器使用兩種掃描器，其掃描最大範圍為 15 m x 15 m 和 125 m x 125 m，可以放置的試片尺寸約為 10 mm x 10 mm x 5 mm。如果配合良好的防震桌，可再加裝更小的掃描器，如 0.4 m x 0.4 m，則可以觀察表面原子排列狀況。此種精密微小掃描器尚待購買。視觀察面積之大小及精準度，可以選用不同的掃描器。圖像可以經由影像處理軟體分析其表面粗糙度，晶粒形狀大小及分佈等。

奈米壓痕儀 (NIP, or nano-indentation probe)系統，主要是以鑽石探針安裝在一特別基座上，以代替原來 SPM 探針。主要功能是量測薄膜機械性質，例如硬度、楊氏係數、磨擦係數、塑性行為、等等性質。目前並無其他實用的儀器可以評估薄膜微小區域之機械性質，亦即可以評估薄膜機械性質之分佈，它是近年來發展出來的量測技術，這也是本貴重儀器最大的特色。它亦具觀察表面形貌之功能、但不如掃描探針顯微鏡(SPM)之解析度。

### B.本年度工作重點:

1. 學期間多次舉辦 SPM 及 NIP 的訓練課程。
2. 接受本校、外校及民間機構的委託測試案件。
3. 本年度繼續開放訓練課程給與外校使用者參加,訓練困難度增加,但成果

良好,未來會繼續辦理。

4. 本儀器在 91 年度因有國科會的設備費補助,得進行操作控制平台升級,由原來的 D3000 control station (DOS 介面),更換成 D3100 control station。D3100 是 Windows NT 介面,在實驗後的數據處理,與 PC 的相容性高,可節省實驗數據處理的時間。而且可連接網路,經由網路來傳輸實驗數據,快速且節省資源。
5. 亦是國科會設備費補助,本年度添購試片對準系統,輔助使用者能準確且快速找到要分析觀察的區域。且能輔助初學者估算試片與探針的距離,減少在下探針時因距離估算錯誤,而導致探針損壞。

### C.服務成果

本儀器於 87 年上半年度加入貴儀的服務行列。初期使用者以本系學生佔多數,是因為多數人不知本儀器的功能。後來經過本研究室的宣導以及文獻報導日益增多,且本研究室將儀器維持在最佳的運作狀態,並且開放提供上機訓練的機會給外校的使用者,所以自行上機操作者大幅增加。

91 年 1 月 1 日至 91 年 12 月 31 日共計完成校內 209 件 244 小時,校外 1002 件 725.5 小時,合計共 1211 件 969.5 小時,總共收入為 NT\$ 972,510。其中校外的使用率約為 75%,顯示服務績效深受校內外肯定。但今年的服務績效較 90 年度略為下降,原因之一是 NIP 的 Transducer 損壞,送回美國原廠維修;原因之二是由於 SPM 的發展非常快速,應用領域推陳出新,新材料的開發研究(如奈米科技)都能應用得上,所以不論學術研究機構或是業界,自行投資購買類似儀器者,愈來愈多。這也是本儀器之使用與推廣所得的成果之一。

參加訓練課程後,通過上機考核的合格使用名單如表 1-1 及表 1-2 所示。91 年 1 月 1 日至 91 年 12 月 31 日的服務成果統計如表 2 所示。

表 1-1.合格使用者名單

AFM 部分

姓名	單位	指導教授	電話
蕭章能	交大材料	朝春光	55357
何佩蓉	交大材料	涂肇嘉	55351
游璨璋	交大材料	朝春光	55357
陳榮倫	交大材料	郭正次	31950
葉俊銓	交大材料	林健正	55354
陳啓晉	交大材料	謝宗雍	81407
趙立德	清大材料	施漢章	5715131-3846
李幸崑	交大材料	謝宗雍	88411
陳怡靜	交大材料	謝宗雍	88064
李延煒	交大材料	陳家富	55334
駱伯遠	交大材料	郭正次	31950
藍邦強	交大材料	陳三元	55356
徐榮瑞	交大材料	陳三元	55356
陳俊雄	交大材料	陳三元	55356
許智明	交大材料	郭正次	31950
徐守謙	交大材料	黃華宗	55347
董恆毅	交大材料	林健正	55354
李顯億	交大電工	曾俊元	54168
徐士偉	交大材料	林鵬	55344
林于順	交大材料	林鵬	55344
蔡陳永	交大材料	朝春光	55357
曾昭璋	交大材料	林鵬	55344
彭羽筠	交大材料	林鵬	55344
黃智遠	交大材料	陳三元	55356
陳柏林	交大材料	郭正次	31950
沈柏元	交大材料	林鵬	55344
王志豪	交大材料	謝宗雍	88411
廖正傑	交大材料	黃華宗	55347
鄭欽峰	交大材料	韋光華	55347
楊適存	交大材料	林鵬	55344
吳偉誠	交大材料	林鵬	55344
李仁豪	交大材料	林鵬	55344



表 1-2.合格者名單

NIP 部分

姓名	單位	指導教授	電話
陳榮倫	交大材料	郭正次	31950
許智明	交大材料	郭正次	31950
駱安亞	交大材料	郭正次	31950
趙立德	清大材料	施漢章	5715131-3846
簡士哲	中科院原分所	林麗瓊	02-23668248
羅鴻鈞	中科院原分所	陳貴賢	02-23668248
鄒慶福			0927-861227
駱伯遠	交大材料	郭正次	31950
林建良	交大材料	陳家富	55346
丁永德	交大材料	陳家富	55346
王彥博	交大材料	韋光華	55348
李中斌	交大材料	韋光華	55348
歐耿良	交大機械	周長彬	51950
周文俊	清大工科	黃嘉宏	5715137-5813
葉翳民	中山科學研究院		
姚寶順	成大材料	黃肇瑞	06-2754410
陳柏林	交大材料	郭正次	31950
汪俊翰	交大材料	郭正次	31950
李淑幸	工研院材料所		5915263
李逢治	中山材料		8124
鄭欽峰	交大材料	韋光華	55348
彭羽筠	交大材料	謝宗雍	88347
施士塵	交大材料	陳家富	55346

表 2. 91 年度服務成果 (91.01.01~91.12.01)

單位名稱	使用者	時間 (小時)	件數	費用 (元)
成大材料	黃肇瑞	100	130	95005
成功大學	陳正士	45	25	45000
交大材料	王宇洋	36	37	39000
中山電機	陳永育	34	79	34000
中研院原分所	林宏裕	34	18	34000
清大工科	周文俊	31	22	31000
台北科技大學	梁誠	31	31	31000
交大材料	江良祐	30	29	30000
成功大學	張易安	29	23	29000
中山電機	石仲民	28	48	28000
成功材料	張天益	28	19	28000
成功材料	姚寶順	26	29	26000
清大工科	何其欣	25	33	25000
清大化工	林逸欣	24	35	19005
虎尾技術學院	蔡丕椿	22	35	22000
中山電機	陳冠博	21	45	21000
海軍官校	李丁福	20	33	21000
清大化工	王武敬	19	56	19000
元智化工	曾宦雄	18	34	18000
交大材料	葉孝蔚	18	18	18000
成大材料	林光隆	18	42	18000
交大材料	徐守謙	17	8	17000
清大工科	林郁洧	17	24	27000
交大材料	鄭欽峰	16	10	16000
交大材料	王志豪	15	4	15000
文化大學	曹春暉	15	21	15500
交大材料	李仁豪	15	4	15000
交大材料	楊適存	12	11	12000
成大材料	甘明吉	12	22	12000
大同材料	鄭銘章	11	23	11000
清大化工	徐雍瑩	11	21	11000
交大材料	陳榮倫	11	9	11000
海洋大學	朱瑾	10	10	10000
中山電機	何程琳	10	20	10000
中山光電	李蘄倫	10	5	10000
中原化工	甘世維	9	22	9000
交大材料	林晉慶	8	6	8000
交大材料	涂肇嘉	8	11	8000
交大材料	陳妙琪	8	10	8000

續上頁

單位名稱	使用者	時間(小時)	件數	費用(元)
清大化工	田廣仁	6	18	6000
中山光電	黃裕家	6	5	6000
交大材料	葉通迪	6	1	6000
交大材料	蔡陳永	6	13	6000
交大材料	陳建銘	5	10	5000
中山電機	石忠民	5	9	5000
中興大學	張銀祐	5	6	5000
交大材料	翁錦成	5	8	5000
中興材料	陳弘穎	4	7	4000
逢甲大學	陳士	4	5	4000
交大材料	黃智遠	4	2	4000
清華大學	黃至鴻	4	7	4000
南亞技術學院	于大光	4	5	4000
交大材料	洪金賢	4	1	4000
交大材料	林子順	4	6	4000
交大材料	沈柏元	4	1	4000
	王昭凱	4	5	4000
	林原慶	3	2	3000
交大材料	葉翳民	3	6	3000
交大材料	駱伯遠	3	5	3000
交大電子	李顯億	3	1	3000
	姚永德	3	5	3000
台灣科技大學	潘漢昌	3	5	3000
交大材料	陳柏林	3	1	3000
清大化工	陳嘉祈	1	1	1000
清大化工	吳美玲	1	1	1000
總計	65 人次	969.5 小時	1211 件	972,510 元

## (六) 儀器名稱：雷射圖型產生系統

本中心之『雷射圖型產生系統』，另外包括光罩化學處理槽製作光罩，以及個別的工作站、個人電腦，提供設計圖型、檢查交件圖型檔案格式、轉換成機器工作檔案、傳輸工作檔案至設備以執行工作等功能。舉凡電子元件、積體電路、光電元件、平面顯示器元件、光電積體電路、微波元件與積體電路（MMIC）、感測器（sensor）、微機電（micromachining）、薄膜元件（thin film devices）、功率元件、積體電路構裝（packaging），以至生物晶片(biochip)等各式各樣元件製作，需要微小圖案者，皆須製作光罩。因此，本實驗室設備之使用率及使用需求極高，全國各大專院校及研究機構，皆經常使用本實驗室使用(使用單位及人員，如後所述)。本實驗室在國科會歷年的大力支援及實驗室同仁有效的管理及維護下，設備之服務績效極佳，對國內學術單位之研發工作貢獻匪淺，成為國內學術單位在此領域不可或缺的使用場所。

服務成果如後所列。

儀器名稱	項 目	時 數	件 數	金 額
雷射圖型產生系統	校 外	2,888	1,216	8,056,500
雷射圖型產生系統	校 內	819	426	2,489,000
合 計		3,707	1,642	10,545,500

## 雷射圖型產生系統—校外使用者名單

排名	指導教授	服務單位	時數	件數	費用
1	曾繁根	清華大學工程與系統科學系	245	96	658,000
2	張培仁	台灣大學應用力學所	256	89	602,000
3	劉承賢	清華大學動力機械系	201	63	439,500
4	李世光	台灣大學應用力學所	162	60	420,000
5	孫允武	中興大學物理系	78	54	361,000
6	方維倫	清華大學動力機械系	81	30	210,000
7	綦振瀛	中央大學電機工程系	68	28	196,000
8	張忠誠	海洋大學電機工程系	80	32	192,000
9	黃瑞星	清華大學電子工程所	68	27	189,000
10	周元昉	台灣大學機械工程系	66	27	189,000
11	張忠誠	海洋大學材料工程系	54	26	156,000
12	劉博文	吳鳳技術學院電子工程系	53	26	156,000
13	龐大成	高雄應用科技大學機械工程系	62	21	147,000
14	彭隆瀚	台灣大學光電工程所	29	23	138,000
15	潘吉祥	勤益技術學院機械系	41	21	135,000
16	周振嘉	台灣科技大學機械工程系	53	22	133,000
17	蘇炎坤	成功大學電機工程系	33	21	129,000
18	方維倫	清華大學動力機械系	46	18	126,000
19	許文震	清華大學動力機械系	43	18	126,000
20	黃惠良	清華大學奈米與微系統中心	40	17	112,000
21	許渭州	成功大學微電子工程所	28	18	108,000
22	齊正中	清華大學材料科學中心	26	17	102,000
23	蔣小偉	清華大學動力機械系	40	14	98,000
24	李雅明	清華大學電子工程所	35	16	98,000
25	孫啟光	台灣大學光電工程所	24	16	94,000
26	楊啟榮	台灣師範大學工業教育學系	38	13	84,000
27	朱安國	中山大學光電工程所	29	14	84,000
28	黃榮山	台灣大學應用力學系	26	12	84,000
29	楊鴻昌	台灣大學物理系	16	13	78,000
30	楊龍杰	淡江大學機械工程系	32	11	77,000
31	紀國鐘	中央大學物理學系	24	11	77,000
32	陳炳輝	台灣大學機械工程系	22	10	70,000
33	陳貴賢	中央研究院原子與分子科學系	27	11	66,000
34	李丕耀	海洋大學材料工程系	16	10	66,000
35	洪勝富	清華大學電子工程所	29	9	63,000
36	蔡哲正	清華大學材料工程系	25	9	63,000
37	吳孟奇	清華大學電子工程所	24	10	60,000
38	陳榮順	清華大學動力機械系	20	9	60,000

39	王水進	成功大學微電子工程所	10	5	60,000
40	江國寧	清華大學動力機械系	26	8	56,000
41	張家歐	台灣大學應用力學系	24	8	56,000
42	賴朝松	長庚大學電子工程系	22	8	56,000
43	黃榮堂	台北科技大學機電整合所	20	8	56,000
44	吳政忠	台灣大學應用力學所	12	7	56,000
45	吳朗	成功大學電機工程系	19	8	54,000
46	羅勝益	華梵大學機電工程所	20	7	49,000
47	錢景常	清華大學工程與系統科學系	15	7	49,000
48	高慧玲	中原大學電子工程系	15	7	49,000
49	武東星	中興大學材料工程系	24	8	48,000
50	朱聖緣	成功大學電機工程系	17	8	48,000
51	施文欽	大同大學光電工程所	15	8	48,000
52	黃衍介	清華大學電機工程系	20	6	42,000
53	鄭仙志	逢甲大學航空工程系	14	6	42,000
54	胡振國	台灣大學電子工程所	13	7	42,000
55	馮武雄	長庚大學工學院	10	6	42,000
56	簡瑞與	中興大學精密工程所	10	6	41,000
57	蘇炎坤	成功大學電機工程系	29	6	39,000
58	吳仲卿	彰化師範大學物理系	15	6	36,000
59	辛裕明	中央大學電機工程系	8	6	36,000
60	王維新	台灣大學電子工程所	5	6	36,000
61	詹益仁	中央大學電機工程系	18	5	35,000
62	林諭男	清華大學材料科學中心	11	5	35,000
63	鄧一中	光武技術學院電子工程系	12	5	30,000
64	余合興	台北科技大學電機工程系	15	6	28,500
65	周懷樸	清華大學工程與系統科學系	15	4	28,000
66	施錫富	清雲技術學院電子工程系	10	4	28,000
67	王志明	正修技術學院電機工程系	10	4	28,000
68	余志成	台灣科技大學機械工程系	10	4	28,000
69	賴再興	中原大學物理系	10	4	24,000
70	劉文超	成功大學微電子工程所	8	4	24,000
71	王立民	大葉大學電機工程系	8	4	24,000
72	賴永齡	彰化師範大學機電所	4	4	24,000
73	許鉦宗	行政院同步輻射中心籌建處光源組	4	4	24,000
74	李嗣澐	台灣大學電機工程系	4	4	24,000
75	王子建	台北科技大學光電技術所	11	4	23,500
76	江國寧	清華大學動力機械系	6	3	21,000
77	張守進	成功大學微電子工程所	7	3	20,000
78	游憲一	中興大學機械工程系	7	3	19,000

79	洪昭南	成功大學化學工程系	4	3	18,000
80	馬劍清	台灣大學機械工程系	11	2	14,000
81	管傑雄	台灣大學電子工程所	8	3	14,000
82	林強	清華大學工程與系統科學系	7	2	14,000
83	趙煦	清華大學電機工程系	6	2	14,000
84	林瑞明	長庚大學電子工程系	5	2	14,000
85	陳炳輝	台灣大學機械工程系	5	2	14,000
86	鄭湘原	中原大學電子工程系	4	2	14,000
87	蘇水祥	義守大學電子工程系	3	2	14,000
88	陳克紹	大同大學材料工程系	3	2	14,000
89	王欽戊	義守大學電子工程系	2	2	14,000
90	林浩雄	台灣大學電子工程所	6	2	12,000
91	劉致為	台灣大學電子工程所	5	2	12,000
92	劉致為	台灣大學電子工程所	4	2	12,000
93	李佩雯	中央大學電機工程系	5	1	7,000
94	蔡春鴻	清華大學工程與系統科學系	3	1	7,000
95	周賢鎧	台灣科技大學工程技術系	3	1	7,000
96	蔡定平	台灣大學物理系	3	1	7,000
97	陳英忠	中山大學電機工程系	2	1	7,000
98	吳世全	國科會國家奈米元件實驗室	4	2	6,000
99	黃金花	清華大學材料科學中心	3	1	6,000
100	黃倉秀	清華大學材料工程系	3	1	6,000
101	徐力弘	虎尾技術學院光電工程系	3	1	6,000
102	林義成	彰化師範大學機電所	2	1	6,000
103	傅永貴	成功大學物理系	2	1	6,000
104	敖仲寧	中正大學機械工程系	2	1	6,000
105	李清庭	中央大學光電工程所	2	1	6,000
106	李明達	中山大學電機工程系	2	1	6,000
107	林昆明	逢甲大學材料科學系	1	1	6,000
108	林敏聰	台灣大學物理系	1	1	6,000
109	吳明勳	中州技術學院機械工程系	1	1	6,000

## 雷射圖型產生系統—校內使用者名單

排名	指導教授	服務單位	時數	件數	費用
1	徐文祥	交通大學機械工程系	90	46	275,000
2	潘犀靈	交通大學光電工程所	57	30	197,000
3	曾俊元	交通大學電子工程系	49	30	168,000
4	黃宇中	交通大學電子工程系	67	27	167,000
5	李威儀	交通大學電子物理系	59	36	164,500
6	張國明	交通大學電子工程系	48	25	157,000
7	荊鳳德	交通大學電子工程系	56	28	153,500
8	邱俊誠	交通大學電機控制系	48	20	140,000
9	林振德	交通大學機械工程系	44	21	120,000
10	周復芳	交通大學電信工程系	35	15	105,000
11	許世英	交通大學電子物理系	16	15	78,000
12	李建平	交通大學電子工程系	35	13	78,000
13	張翼	交通大學材料工程系	24	13	67,000
14	葉清發	交通大學電子工程系	19	14	60,000
15	鄭晃忠	交通大學電子工程系	18	9	54,000
16	謝有容	交通大學應用化學所	12	8	52,000
17	雷添福	交通大學電子工程系	18	8	52,000
18	謝宗雍	交通大學材料工程系	21	7	45,500
19	宋開泰	交通大學電機控制系	12	7	43,000
20	林鵬	交通大學材料工程系	10	7	42,000
21	成維華	交通大學機械工程系	16	7	41,500
22	陸懋宏	交通大學光電工程所	5	6	38,000
23	秦繼華	交通大學機械工程系	7	5	30,000
24	郭義雄	交通大學電子物理系	9	5	30,000
25	郭正次	交通大學材料工程系	8	4	24,000
26	陳三元	交通大學材料工程系	11	4	24,000
27	吳耀銓	交通大學材料工程系	7	3	18,000
28	王興宗	交通大學光電工程所	6	5	15,000
29	張俊彥	交通大學電子工程系	3	2	14,000
30	黃遠東	交通大學電子工程系	3	2	12,000
31	謝漢萍	交通大學光電工程所	1	1	6,000
32	崔秉鉞	交通大學電子工程系	1	1	6,000
33	馮明憲	交通大學材料工程系	2	1	6,000
34	溫增明	交通大學電子物理系	2	1	6,000



## (七) 儀器名稱：光罩對準曝光機與光阻處理系統

系統安置於一具備完整微影處理之黃光室內，包括三套接觸式光罩對準曝光機、數套正光阻及負光阻用個別塗佈機(Spin Coaters)、數套 Prebaking 及 Postbaking 用不同溫度烤箱(Ovens,包括具真空及 prime 處理者)、光阻處理化學槽，提供各大專院校教授、研究生四吋及更小尺寸基片作各種元件形成所需各類微小圖案使用。基片材料包括矽、化合物半導體(如 III-V 族之 GaAs、GaAlAs、GaP、InP 及 II-VI 族等)、光學元件材料、陶瓷材料、介電材料(如光波專用玻璃等)、光電材料(如 LiNbO<sub>3</sub> 等)、液晶材料等。製作元件包括電子元件、積體電路、光電元件、平面顯示器元件、光電積體電路、微波元件與積體電路(MMIC)、感測器(sensor)、微機電(micromachining)、薄膜元件(thin film devices)、功率元件、積體電路構裝(packaging)，以至生物晶片(biochip)等各式各樣元件製作，舉凡需要微小圖案之元件，皆賴本實驗室設備之服務。

本黃光室之微影設備使用率及使用需求極高，全國各大專院校及研究機構，皆經常至本實驗室使用(使用單位及人員，請參考附件)。本實驗室除上班時間從早上八點至晚上十一點(含日班與夜班)提供代工服務外，並開放每日二十四小時給合格訓練的人員(含學生、老師及個各研究機構之技術、研究人員)自行操作使用(參考所附之申請及訓練辦法)。本實驗室在國科會歷年的大力支援及實驗室同仁有效的管理及維護下，設備之服務績效極佳，對國內學術單位之研發工作貢獻匪淺，成為國內學術單位在此領域不可或缺的使用場所。

服務成果如後所列。

91 年度貴儀服務成果統計表

儀器名稱	項目	時數	件數	費用
罩幕對準系統	校外	346	503	452,700
罩幕對準系統	校內	1,155	3,811	3,429,900
合計		1,501	4,314	3,882,600

## 光罩對準曝光機與光阻處理系統—校外使用者名單

排名	指導教授	服務單位	時數	件數	費用
1	黃金花	清華大學材料科學中心	68	114	102,600
2	陳榮順	清華大學動力機械系	58	88	79,200
3	張忠誠	海洋大學材料工程系	60	82	73,800
4	林智汶	雲林科技大學化學工程暨工業化學與災害防治所	20	30	27,000
5	張鼎張	中山大學物理系	17	25	22,500
6	林諭男	清華大學材料科學中心	20	24	21,600
7	方維倫	清華大學動力機械系	13	18	16,200
8	周榮泉	雲林科技大學電子工程系	13	17	15,300
9	王水進	成功大學微電子工程所	12	16	14,400
10	劉德騏	中央大學機械工程系	10	12	10,800
11	林景崎	中央大學機械工程系	8	12	10,800
12	林奇宏	陽明大學微生物及免疫所	9	10	9,000
13	許鈺宗	行政院同步輻射中心籌建處光源組	4	10	9,000
14	吳世全	國科會國家奈米元件實驗室	3	10	9,000
15	賀陳弘	清華大學動力機械系	6	6	5,400
16	林啟瑞	台北科技大學機電整合所	6	6	5,400
17	朱瑾	海洋大學材料工程系	5	6	5,400
18	王天戈	清華大學工程與系統科學系	3	5	4,500
19	金惟國	清華大學化學工程系	4	4	3,600
20	黃惠良	清華大學奈米與微系統中心	3	3	2,700
21	敖仲寧	中央大學機械工程系	2	2	1,800
22	劉承賢	清華大學動力機械系	1	2	1,800
23	吳明勳	中州技術學院機械工程系	1	1	900

## 光罩對準曝光機與光阻處理系統—校內使用者名單

排名	指導教授	服務單位	時數	件數	費用
1	鄭晃忠	交通大學電子工程系	139	534	480,600
2	雷添福	交通大學電子工程系	136	509	458,100
3	徐文祥	交通大學機械工程系	91	309	278,100
4	張國明	交通大學電子工程系	87	269	242,100
5	吳耀銓	交通大學材料工程系	76	254	228,600
6	李建平	交通大學電子工程系	70	216	194,400
7	荊鳳德	交通大學電子工程系	56	202	181,800
8	張翼	交通大學材料工程系	57	198	178,200
9	王興宗	交通大學光電工程所	44	170	153,000
10	曾俊元	交通大學電子工程系	58	162	145,800
11	馮明憲	交通大學材料工程系	44	122	109,800
12	葉清發	交通大學電子工程系	32	116	104,400
13	林振德	交通大學機械工程系	41	88	79,200
14	成維華	交通大學機械工程系	38	88	79,200
15	崔秉鈺	交通大學電子工程系	23	82	73,800
16	邱俊誠	交通大學電機控制系	22	70	63,000
17	李威儀	交通大學電子物理系	22	64	57,600
18	黃宇中	交通大學電子工程系	18	61	54,900
19	陳智	交通大學材料工程系	16	51	45,900
20	陸懋宏	交通大學光電工程所	15	46	41,400
21	陳仁浩	交通大學機械工程系	13	41	36,900
22	張俊彥	交通大學電子工程系	11	31	27,900
23	林鵬	交通大學材料工程系	9	29	26,100
24	宋開泰	交通大學電機控制系	6	18	16,200
25	趙書琦	交通大學電子物理系	5	18	16,200
26	張立	交通大學材料工程系	4	12	10,800
27	邱碧秀	交通大學電子工程系	5	10	9,000
28	陳衛國	交通大學電子物理系	4	10	9,000
29	金甘平	交通大學機械工程系	3	9	8,100
30	陳茂傑	交通大學電子工程系	3	9	8,100
31	周復芳	交通大學電信工程系	2	5	4,500
32	黃遠東	交通大學電子工程系	2	3	2,700
33	潘犀靈	交通大學光電工程所	1	3	2,700
34	秦繼華	交通大學機械工程系	2	2	1,800

(八) 儀器名稱：氧化/擴散系統

(一)儀器名稱

氧化擴散系統(Oxidation and Diffusion Systems) --9 隻爐管

- 1.Sintering
- 2.Reflow
- 3.Wet-oxide
- 4.N<sup>+</sup>-diffusion
- 5.Dry-oxide
- 6.P<sup>+</sup>-diffusion
- 7.N<sup>+</sup>-annealing
- 8.Silicidation
- 9.Ultra-thin oxide

(二)本年度工作重點

氧化擴散系統

- 1.完成國科會貴重儀器設備 WWW 預約管理系統中，將原視為一個大系統修正為九個獨立 subsystems 來單獨預約，使預約工作更為簡便。
- 2.維護系統正常運轉。
- 3.提供校內、校外相關國科會計畫之執行服務，研究生超過百餘位使用。

(三)服務成果，績效良好，請參照 91 年度服務績效。

91 年度 (91.01.1-91.12.31) 貴儀服務成果統計表

儀器名稱	項目	時數	件數	費用
氧化擴散系統	校外	1,925	2,907	1,071,160
氧化擴散系統	校內	2,348	1,879	875,980
合計		4,273	4,786	1,929,140

## 氧化擴散系統—校外使用者名單

排名	指導教授	服務單位	時數	件數	費用
1	張忠誠	海洋大學電機工程系	239	154	154,100
2	蔣小偉	清華大學動力機械系	48	29	80,000
3	方維倫	清華大學動力機械系	317	262	74,400
4	潘吉祥	勤益技術學院機械系	29	16	51,000
5	李世光	台灣大學應用力學所	191	613	47,260
6	黃惠良	清華大學奈米與微系統中心	42	19	45,000
7	綦振瀛	中央大學電機工程系	19	6	42,000
8	楊龍杰	淡江大學機械工程系	40	100	40,000
9	龐大成	高雄應用科技大學機械工程系	22	5	35,000
10	楊啟榮	台灣師範大學機電科技研究所	37	77	34,300
11	朱聖緣	成功大學電機工程系	14	5	30,000
12	彭隆瀚	台灣大學光電工程學所	8	5	30,000
13	張家歐	台灣大學應用力學所	54	65	28,000
14	吳泰伯	清華大學材料工程系	78	216	24,600
15	吳振名	清華大學材料工程系	64	200	21,900
16	劉博文	吳鳳技術學院電子工程系	45	22	21,000
17	周懷樸	清華大學工程與系統科學系	12	3	21,000
18	周榮泉	雲林科技大學電子工程系	58	17	20,400
19	黃榮堂	台北科技大學機電整合所	27	126	19,500
20	蘇炎坤	成功大學電機工程系	22	3	18,000
21	洪敏雄	成功大學材料科學及工程學系	47	129	17,000
22	林諭男	清華大學材料科學中心	48	115	16,000
23	蘇水祥	義守大學電子工程系	3	2	14,000
24	楊耀州	台灣大學機械工程系	25	57	13,000
25	許志雄	義守大學材料科學與工程系	8	18	12,000
26	林浩雄	台灣大學電子工程學所	6	2	12,000
27	施文欽	大同大學光電工程所	6	2	12,000
28	吳世全	國科會國家奈米元件實驗室	12	11	10,800
29	黃惠良	清華大學電子工程所	68	11	9,000
30	簡瑞與	中興大學精密工程所	10	25	8,500

31	蔡春鴻	清華大學工程與系統科學系	10	12	7,000
32	林強	清華大學工程與系統科學系	5	1	7,000
33	管傑雄	台灣大學電子工程學所	4	2	7,000
34	許文震	清華大學動力機械系	24	48	6,000
35	劉偉均	淡江大學機械工程系	10	8	6,000
36	呂宗昕	台灣大學化學工程所	18	32	4,700
37	張培仁	台灣大學應用力學所	32	76	4,600
38	王水進	成功大學微電子工程所	32	25	4,200
39	許鈺宗	暨南大學電機工程系	8	25	4,000
40	劉承賢	清華大學動力機械系	8	7	4,000
41	葉哲良	清華大學動力機械系	6	3	4,000
42	李雅明	清華大學電子工程所	8	18	3,500
43	林樹均	清華大學材料工程系	8	18	3,500
44	甘炯耀	清華大學材料工程系	8	25	3,500
45	余志成	台灣科技大學機械工程系	8	6	3,500
46	何主亮	逢甲大學材料科學系	8	18	3,000
47	陳炳輝	台灣大學機械工程系	8	25	2,500
48	陶雨臺	中央研究院化學所	8	12	2,500
49	林景崎	中央大學機械工程系	8	16	2,500
50	劉顯光	逢甲大學機械工程系	7	6	2,500
51	林樹均	清華大學材料工程系	7	18	2,500
52	楊順聰	陽明大學醫學工程所	6	10	2,500
53	陳力俊	清華大學材料工程系	6	12	2,500
54	張家歐	台灣大學應用力學所	6	12	2,500
55	賴朝松	長庚大學電子工程系	5	5	2,500
56	鄭俊麟	中原大學化學工程所	16	36	2,400
57	黃榮山	台灣大學應用力學所	12	50	2,400
58	游憲一	中興大學機械工程系	16	4	2,200
59	蔡大翔	台灣科技大學機械工程系	8	12	2,000
60	黃倉秀	清華大學材料工程系	8	25	1,200
61	張文固	東華大學材料科學與工程系	8	25	1,200

## 氧化擴散系統—校內使用者名單

排名	指導教授	服務單位	時數	件數	費用
1	張國明	交通大學電子工程系	396	315	145,900
2	葉清發	交通大學電子工程系	282	132	105,400
3	雷添福	交通大學電子工程系	240	240	94,800
4	鄭晃忠	交通大學電子工程系	197	203	65,300
5	荊鳳德	交通大學電子工程系	218	144	60,100
6	曾俊元	交通大學電子工程系	269	134	56,600
7	馮明憲	交通大學材料工程系	188	140	55,580
8	徐文祥	交通大學機械工程系	107	166	36,600
9	陳仁浩	交通大學機械工程系	97	61	36,500
10	黃宇中	交通大學電子工程系	21	16	30,500
11	秦繼華	交通大學機械工程系	20	15	25,000
12	成維華	交通大學機械工程系	39	12	23,000
13	宋開泰	交通大學電機控制系	90	51	20,200
14	林振德	交通大學機械工程系	24	23	17,500
15	邱碧秀	交通大學電子工程系	30	37	15,500
16	謝文峰	交通大學光電工程所	36	8	15,000
17	周復芳	交通大學電信工程系	5	2	14,000
18	吳耀銓	交通大學材料工程系	25	23	9,500
19	陳三元	交通大學材料工程系	17	30	9,000
20	邱俊誠	交通大學電機控制系	14	6	6,500
21	陳智	交通大學材料工程系	11	50	5,500
22	周長彬	交通大學機械工程系	8	21	5,000
23	崔秉鉞	交通大學電子工程系	6	25	3,000
24	林鵬	交通大學材料工程系	8	25	2,000

(九) 儀器名稱：低壓化學氣相沉積系統

(一) 儀器名稱

低壓化學氣相沉積系統

Low Pressure Chemical Vapor Deposition System

1.Poly-Si 2.Si<sub>3</sub>N<sub>4</sub> 等二隻爐管薄膜沉積。

(二) 本年度工作重點

低壓化學氣相沉積

1. 完成國科會貴重儀器設備 WWW 預約管理系統中，將原視為一個大系統修正為二個獨立 subsystems 來單獨預約，使預約工作更為簡單容易。
2. 維護系統正常運轉。
3. 提供校內、校外相關國科會計畫之執行服務，研究生超過百餘位使用。

(三) 服務成果，績效良好，請參照 91 年度服務績效。

91 年度 (91.01.1-91.12.31) 貴重儀器服務成果統計表

儀器名稱	項目	時數	件數	費用
低壓化學氣相沉積系統	校外	1,421	2,291	1,717,840
低壓化學氣相沉積系統	校內	878	987	676,550
合計		2,299	3,278	2,394,390



## 低壓化學氣相沉積系統-校外使用者名單

排名	指導教授	服務單位	時數	件數	費用
1	方維倫	清華大學動力機械系	285	308	441,360
2	李世光	台灣大學應用力學所	239	626	352,880
3	潘吉祥	勤益技術學院機械系	120	36	175,880
4	陳榮順	清華大學動力機械系	95	84	108,070
5	蔣小偉	清華大學動力機械系	52	82	94,800
6	張培仁	台灣大學應用力學所	136	341	90,000
7	劉承賢	清華大學動力機械系	64	62	63,990
8	張家歐	台灣大學應用力學所	46	96	62,140
9	黃惠良	清華大學電子工程所	52	85	42,500
10	許鈺宗	暨南大學電機工程系	27	35	33,000
11	楊啟榮	台灣師範大學工業教育系	10	12	23,400
12	胡文聰	台灣大學應用力學所	8	1	23,000
13	黃惠良	清華大學奈米與微系統中心	28	27	22,440
14	黃榮山	台灣大學應用力學所	18	55	20,000
15	黃榮堂	台北科技大學機電整合所	40	153	18,640
16	吳明勳	中州技術學院機械工程系	10	1	18,000
17	林義成	彰化師範大學機電所	14	27	17,550
18	游憲一	中興大學機械工程系	17	5	13,300
19	朱瑾	海洋大學材料工程系	17	10	12,540
20	吳振名	清華大學材料工程系	8	18	10,800
21	張忠誠	海洋大學電機工程系	17	36	8,500
22	鄭江河	大葉大學機械工程學系	10	25	8,100
23	劉顯光	逢甲大學機械工程系	14	9	7,650
24	楊耀州	台灣大學機械工程系	10	22	7,560
25	陳貴賢	中央研究院原子與分子科學所	10	2	7,500
26	杜文謙	淡江大學機械工程系	10	48	5,760
27	賴朝松	長庚大學電子工程系	16	26	5,350
28	周振嘉	台灣科技大學機械工程系	4	10	4,500
29	陶雨臺	中央研究院化學所	15	14	4,460
30	金惟國	清華大學化學工程系	6	4	4,230
31	余志成	台灣科技大學機械工程系	6	12	3,870
32	朱聖緣	成功大學電機工程系	4	2	2,970
33	林景崎	中央大學機械工程系	5	16	2,100
34	許鈺宗	行政院同步輻射中心籌建處光源組	8	1	1,000

## 低壓化學氣相沉積系統—校內使用者名單

排名	指導教授	服務單位	時數	件數	費用
1	謝文峰	交通大學光電工程所	91	57	89,500
2	宋開泰	交通大學電機控制系	60	30	85,000
3	馮明憲	交通大學材料工程系	78	114	74,520
4	張國明	交通大學電子工程系	111	64	65,110
5	雷添福	交通大學電子工程系	95	154	48,760
6	鄭晃忠	交通大學電子工程系	95	83	46,580
7	周長彬	交通大學機械工程系	12	21	46,040
8	吳耀銓	交通大學材料工程系	47	46	39,520
9	徐文祥	交通大學機械工程系	30	118	35,080
10	林振德	交通大學機械工程系	29	48	34,220
11	葉清發	交通大學電子工程系	65	102	30,380
12	潘犀靈	交通大學光電工程所	65	4	22,500
13	邱俊誠	交通大學電機控制系	13	8	17,700
14	秦繼華	交通大學機械工程系	13	11	11,070
15	黃宇中	交通大學電子工程系	32	49	10,110
16	趙書琦	交通大學電子物理系	5	25	6,030
17	陳仁浩	交通大學機械工程系	14	17	4,620
18	荊鳳德	交通大學電子工程系	5	5	3,600
19	陳智	交通大學材料工程系	10	20	3,510
20	周復芳	交通大學電信工程系	8	11	2,700

低壓化學氣相沉積系統—校內使用者名單

排名	指導教授	服務單位	時數	件數	費用
1	張國明	交通大學電子工程系	199	239	148,250
2	徐文祥	交通大學機械工程系	128	242	133,740
3	雷添福	交通大學電子工程系	115	261	75,050
4	邱俊誠	交通大學電機控制工程系	106	207	95,430
5	鄭晃忠	交通大學電子工程系	92	110	69,960
6	馮明憲	交通大學材料工程系	75	98	72,920
7	李崇仁	交通大學電子工程系	44	98	27,740
8	陳茂傑	交通大學電子工程系	42	67	31,040
9	葉清發	交通大學電子工程系	36	51	27,470
10	黃宇中	交通大學電子工程系	28	98	8,550
11	陳智	交通大學材料工程系	12	31	4,500
12	尹慶中	交通大學機械工程學系	12	17	18,900
13	吳耀銓	交通大學材料科學工程系	10	20	15,300
14	陳仁浩	交通大學機械工程學系	10	2	23,400
15	邱碧秀	交通大學電子工程學系	8	48	2,000
16	周復芳	交通大學電信工程系	8	25	4,100
17	張俊彥	交通大學電子工程系	8	7	5,400
18	荊鳳德	交通大學電子工程系	8	6	3,960
19	張翼	交通大學材料工程系	8	5	12,150
20	潘犀靈	交通大學光電工程系	4	3	7,650
	合計		953	1635	787,510

## (十) 儀器名稱：快速退火化學氣相沉積系統

### (一) 儀器名稱：快速退火化學氣相沉積系統

本年度完成工作重點：

1. 氧化層薄膜製程條件建立。
2. 氮化層薄膜製程條件建立。
3. 氧化退火製程條件建立。
4. 氮化退火製程條件建立。

### (二) 服務成果說明

國立交通大學半導體中心歷年來提供半導體製程、材料薄膜、物理/化學分析及電性量測等服務。近年來，半導體製程技術發展迅速，本中心原有之高溫爐管，目前仍提供半導體製程所需，如濕氧化、乾氧化、磷置入、薄膜退火處理、LPCVD 複晶矽沉積、LPCVD  $\text{Si}_3\text{N}_4$  沉積等用途，除供 IC 及元件製程外，其它如微機電製程、光電元件、微波元件、先進次微米元件等製程皆需求此設備。求。但本中心高溫爐管之 Thermal Budget 甚長，對需 Thermal Budget 甚短之製程，如淺接面(Shallow Junction)金屬矽化物之退火、金屬之 silicidation、成長超薄介電層、非晶矽之再結晶.....等，便無法符合其相關特性；快速退火系統(Rapid Thermal Annealing Syatem)，與本中心之現有設備結合使用，擴大服務需求、滿足全國各研究單位之需求。

半導體製程上有許多相關研究將使用到快速退火化學氣相沉積系統，例如電子、光電、電物系所研究 IC 元件之超薄介電層、非晶矽之再結晶，材料、化學、機械系所研究之淺接面(Shallow Junction)金屬矽化物之退火、金屬之 silicidation。對於需要以低熱預算進行之研究者，均可以利用此快速退火化學氣相沉積系統作先進技術之研究。

2.國內、區域內現有類似儀器所在機構、儀器性能及使用狀況目前國科會奈米實驗室已有 RTP 之設備，因國內各大學學術研究單位對此方面之研究甚多，已有不敷使用之現象。為舒緩此現象，與爭取研究之時效，實有新增該儀器之必要。再者，本中心與國科會奈米實驗室相連，具有相互支援，對各界會提供更好的服務。

### 3.本校之需求

本校在半導體製程上有許多相關研究將使用到快速退火化學氣相沉積系統，例如電子、光電、電物系所研究 IC 元件之超薄介電層、非晶矽之再結晶，材料、化學、機械系所研究之淺接面(Shallow Junction)金屬矽化物之退火、金屬之 silicidation。對於需要以低熱預算進行之研究者，均可以利用此快速退火化學氣相沉積系統作先進技術之研究。

### 4.鄰近學校之需求

快速退火化學氣相沉積系統將提供鄰近學校研究之用，包含北部台灣大學、師範大學、台北科技大學、中央大學、中原大學、元智大學、長庚大學、淡江大學；新竹地區清華大學、中華大學；中區的中興大學、逢甲大學；還包括南區的成功大學、中山大學均會使用到該快速退火化學氣相沉積系統。

### 5.其他

除各區大學對該設備之需求外，其他研究單位對快速退火化學氣相沉積系統也也相同需求，例如工研院、中科院等。為因應未來半導體製程熱預算不斷降低，產率要求增加，產業界的研發單位對此系統也有相當程度之需求。

### 6.服務說明

九十年儀器完成建置與上網預約使用，開放初期因為製程條件不穩定，且校內外使用者對新儀器設備不了解其功能，又因近半年來進行軟體及硬體維護，故造成缺人使用的情況，對於此一問題，本中心將加強服務說明與推廣，祈使使用者能迅速接受國內少數的快速退火氣相沉積系統，來研發更創新的技術與製程。

新進完成之製程條件及操作程序如附件所列。

## 快速退火化學氣相沉積系統

說明：因近半年來進行軟體及硬體更新，故尚缺合格使用者。

目前由 2 位博士班學生負責製程條件建立。

1. 國立交通大學電子工程系鄭晃忠教授博士班學生王志良同學
2. 國立交通大學電子工程系崔秉鉞教授博士班學生林家彬同學

## 準分子雷射快速退火系統系統

91 年度 (91.1.1-91.12.31) 貴儀服務成果統計表

儀器名稱	項目	時數	件數	費用
準分子雷射快速退火系統系統	校外	37.5	46	29,600
準分子雷射快速退火系統系統	校內	13	20	10,300
	合計	50.5	66	39,900

## 準分子雷射快速退火系統—校外使用者名單

排名	指導教授	服務單位	時數	件數	費用
1	黃惠良	國立清華大學電子工程所	27	32	23,500
2	施漢章	國立清華大學材料工程系	3	5	2,400
3	黃惠良	國立清華大學奈米與微系統中心	2.5	5	1,900
4	葉文昌	國立臺灣科技大學電子工程系	5	4	1800

## 準分子雷射快速退火系統—校內使用者名單

排名	指導教授	服務單位	時數	件數	費用
1	鄭晃忠	國立交通大學電子工程系	7	10	5,900
2	荊鳳德	國立交通大學電子工程系	3	5	2,500
3	雷添福	國立交通大學電子工程系	3	5	1,900

新進完成之製程條件及操作程序如附件：

## 快速退火化學氣相沉積系統(RTP-CVD)Menu

儀器專家：鄭晃忠 教授                   TEL：03-5712121ext.31577  
儀器維修技術員：張昭檳 先生           TEL：03-5712121ext.55668 or 55610  
儀器操作技術員：張昭檳 先生           TEL：03-5712121ext.55668 or 55610

### 操作步驟：

1. 開機前請確定機台後方有無漏水 (Fig16)。
2. 開進水閥門 (Fig2)→ 機台後方 main power (Fig3)→ 氣體閥門→ 機台前方 power (Fig4)。
3. 主控電腦與後方 main power 已經並聯，所以電腦會自動開啟。
4. 進入 Win NT 後，請至 start→ programs→ Jipelec → 執行 Jetstar。進入 Jipelec—P.I.M.S. 的工作畫面 (Fig5)，請先選擇螢幕左上方之 Parameters 選項，並確認主控電腦與機台完成連線，T.C.1 (Thermal couple 1) 是否已有溫度顯示？(正常為 25°C 左右) (Fig6)。
5. 進入 Initialization 選項→ 執行 Start Initialization (Fig7)→ ok。
6. 進入 Maintenance mode (可手動執行各項功能)→Manual Control→可由 Platen control→Cooling control → Valves control 可一項項手動確認機台功能是否正常。(若為綠色則為正常)→Exit (除了 Manual control 外，其他選項請勿使用)。
7. Parameters 可校正溫度 (目前不開放) (Fig8)。
8. Create/Edit Recipes (Fig9)可編寫執行之程式(目前可參考 lintest.rec 的檔案，再自行更改所需時間及溫度，氣體等參數；合格使用者可自行儲存一組 Recipe)。
9. 進入 Maintenance mode (Fig10)→Manual Control (Fig11)→Platen control→Platen down →取下控片置入控片盒，將晶片輕放於試片支架上 (若為 4 吋晶片，請以酒精擦拭 4 吋試片支架後更換) →Platen up。
10. 編寫完參數及 process 後，可進入 Run process 選項，選擇 recipe name (Fig12)→download→Start process →會出現 running (Fig13)的畫面。
11. running 結束，會出現儲存 process 參數之畫面，請將 recipe name 及日期寫入 (Fig14)，以便留存作為參考。
12. process 結束，機台本身會再執行排氣→抽氣 兩個循環，約 3 分鐘。
13. 可由主控電腦螢幕左上角之 parameters 視窗(Fig15)知道剩餘的時間；等到機台停止動作，才可以將 chamber 拉出，取出晶片。
14. 欲進行下一個 run，可由 step 8 開始。
15. 完成實驗後將原本之控片放回 (若使用 4 吋晶片，請先以酒精擦拭 6 吋試片支架後更換) → 推回 chamber →Platen up→電腦關機→ 關機台前方 power →關氣體閥門→ 關機台後方 power → 關水閥門→ 填寫紀錄表→ 離開。

### 注意事項：

1. RTP-CVD 僅開放二氧化矽與氮化矽薄膜沈積及退火製程，特殊製程需經儀器專家

(鄭晃忠 教授) 同意，方可使用。

2. 使用本機台需經考核通過後方可使用，未經考核通過者嚴禁使用。
3. 本機台只限經過 Class 10000 RCA 或 Class 10 STD/RCA 清洗之晶片進入，適用晶片大小：4、6 吋（本機台不提供破片進入）；溫度範圍：400°C~1000°C。
4. 本機台嚴禁各種破片、金屬、三五族材料、金屬矽化物、已進過 PECVD 機台及 NDL 三樓所有機台製程之晶片，以及未經過 STD/RCA 清洗過之晶片進入，違者嚴懲。
5. 本機台提供 N<sub>2</sub>、O<sub>2</sub>、N<sub>2</sub>O、NH<sub>3</sub> 氣體 (Fig1)，使用 N<sub>2</sub>O 與 NH<sub>3</sub> 氣體前請先告知機台技術員；目前禁止 SiH<sub>4</sub> 氣體之使用。
6. 開機前請確定各氣體閥門是否為關閉狀態，若非（請在登記表上註記），請先將氣體閥門關閉，並先不要開啟各氣體，僅用 N<sub>2</sub> 執行清腔動作。
7. 各種氣體若不確定是否可以混用，請勿混合使用以免發生危險。
8. 開機前請確定有無漏水? (Fig16) 若有，請立即通知技術員；水閥門開啟後請注意水壓是否到達約 5 (Fig2)；開機後，務必確認冷卻水正常運作。
9. 執行 Jetstar 軟體 (Fig5)後，請先確認電腦與機台連線情形，注意 parameters 是否有反應（TC1 之溫度？）(Fig6)，若無，請勿使用。
10. 編寫 Recipes 時之溫度偵測一律使用 Thermal couple 1，其他不用更改參數與設定。
11. 編寫 Recipes 時請注意，機台容許最高溫度為 1000°C 3 分鐘或 900°C 5 分鐘(<900°C，持溫時間以 10 分鐘為限)，請勿超過此一極限以免 TC 燒毀。(>1000°C 或持溫時間>10 分鐘，請使用爐管)
12. 若機台發生不正常動作，或軟體執行錯誤，請停止使用並在機台自動清腔完畢後關機，並通報技術員。
13. 放入試片前請注意 TC1 的頂端必須接觸到晶片 (Fig17、18)，且 TC1 的兩根導線間不能有 Touch 的現象。
14. 關機前，請將空片放回腔體內 (Fig18)，再進行關機動作，以免發生試片支架斷裂的情況。
15. 使用本機台完畢後，務必關閉水閥門及各氣體閥門，並確實登記；有任何問題請在登記表上註記並立即通報機台技術員。
16. 常見之 ERROR：
  - Oil Failure
  - Zone 4 Lamp Error此兩項 error 可能為機台久未使用，使得散熱用油並未均勻分布所致。  
解決方法：將 process 溫度降至 500°C，並逐次(每次增加約 200 度)增加至所需溫度為止，若無效，請通知機台技術員。

Edited by 林家彬&王志良



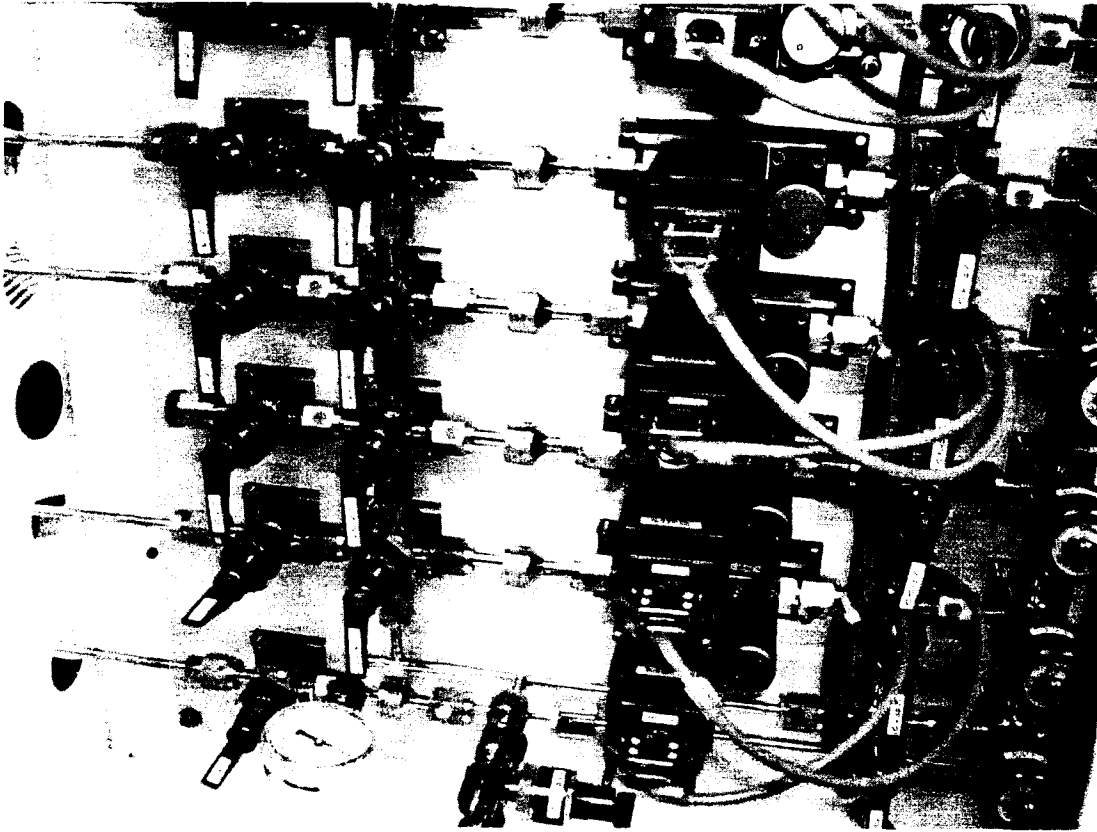


Fig1 氣體閥門

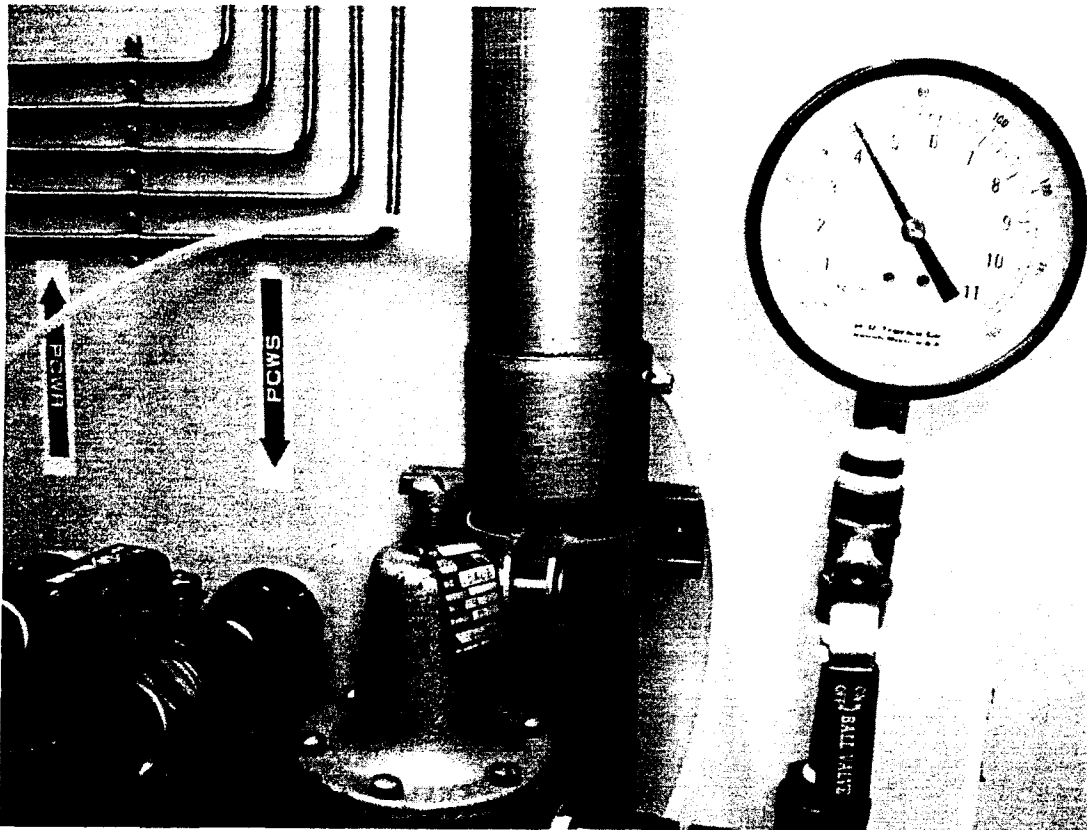


Fig2 冷卻水閥門

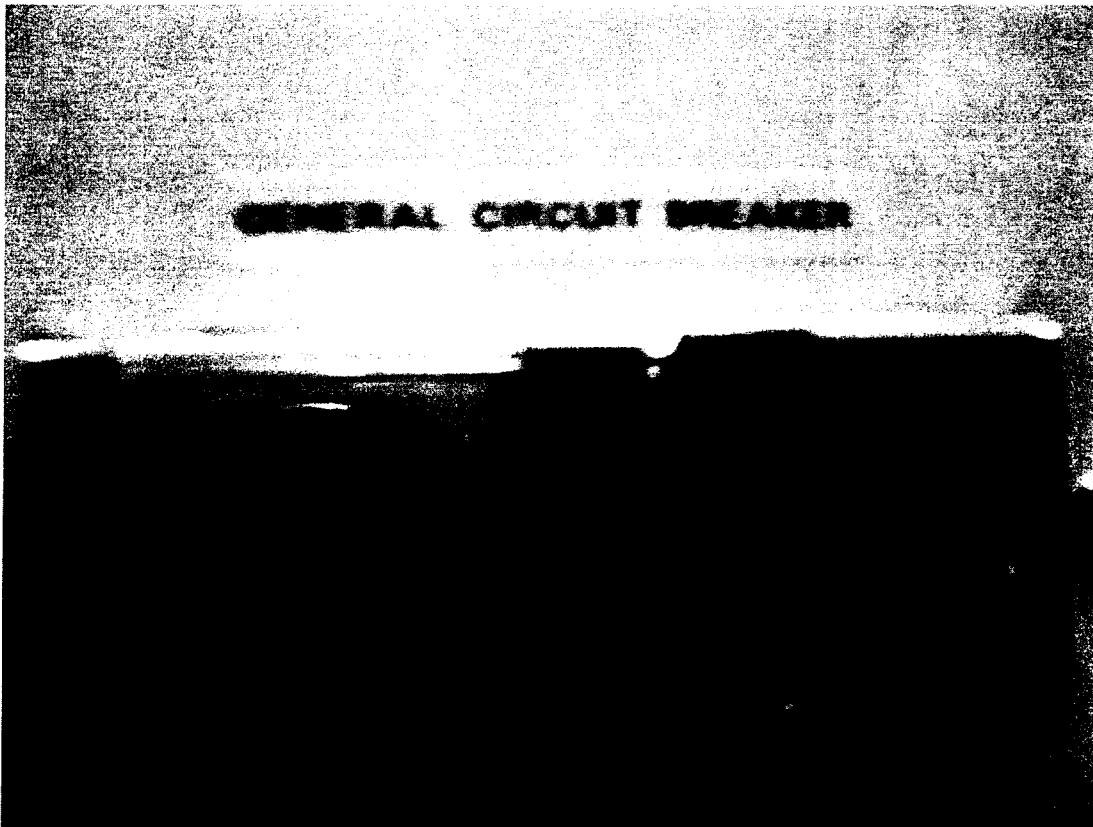


Fig3 機台後方 main power

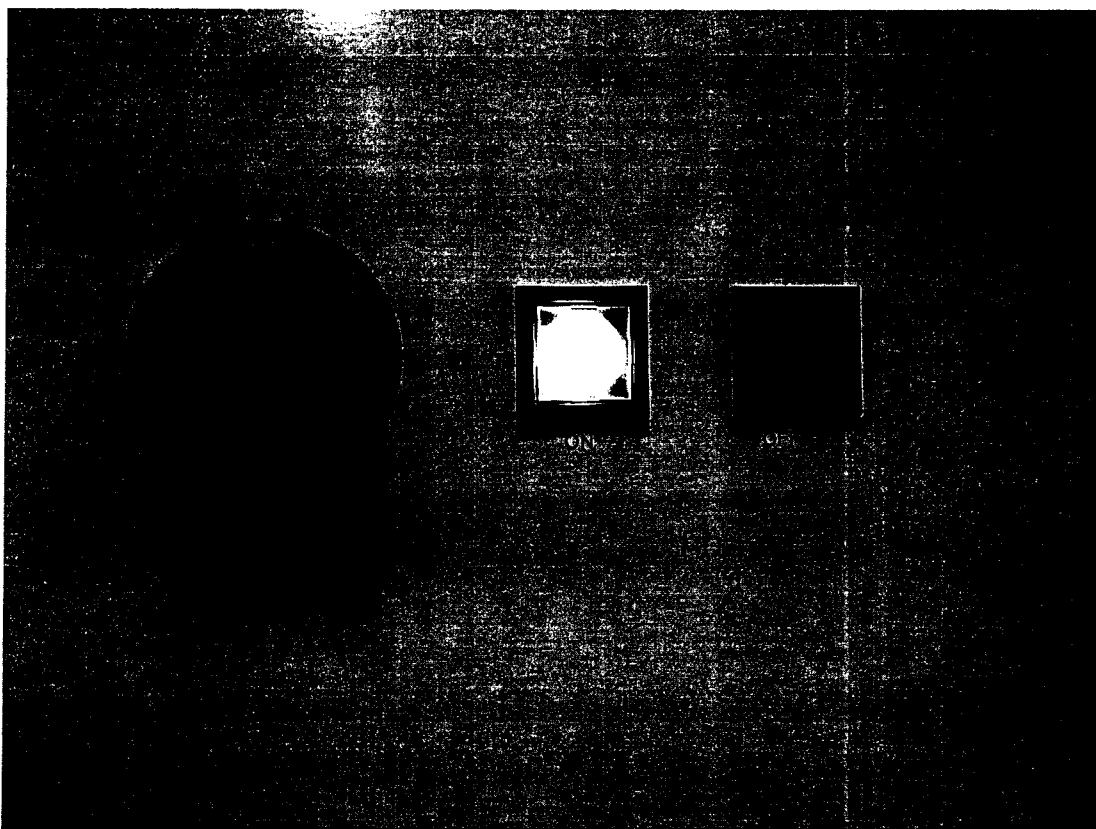


Fig4 機台前方 power

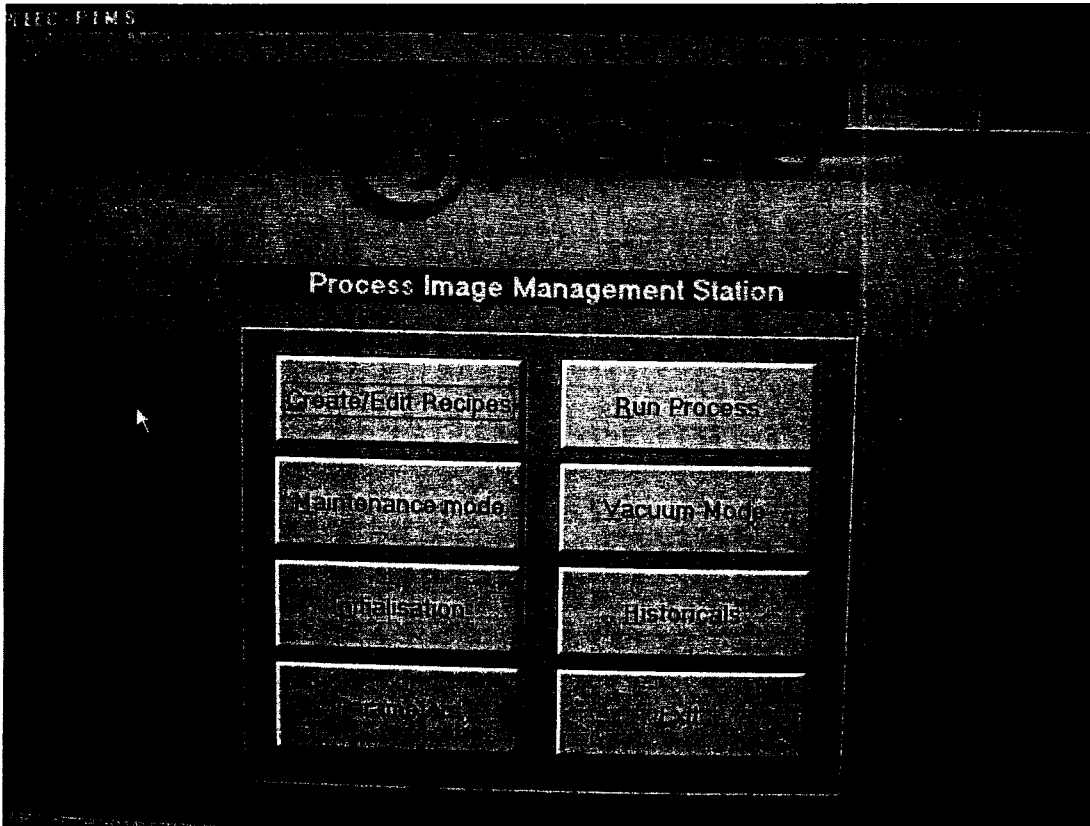


Fig5 Jipelec—P.I.M.S. 的工作畫面

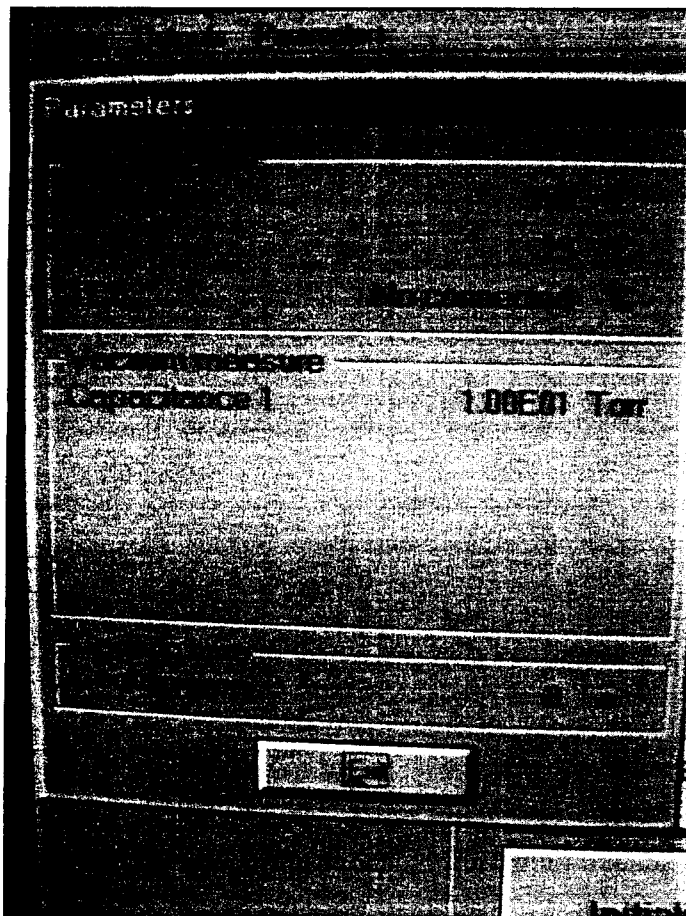


Fig6 確認主控電腦與機台完成連線，T.C.1 (Thermal couple 1) 是否已有溫度顯示？

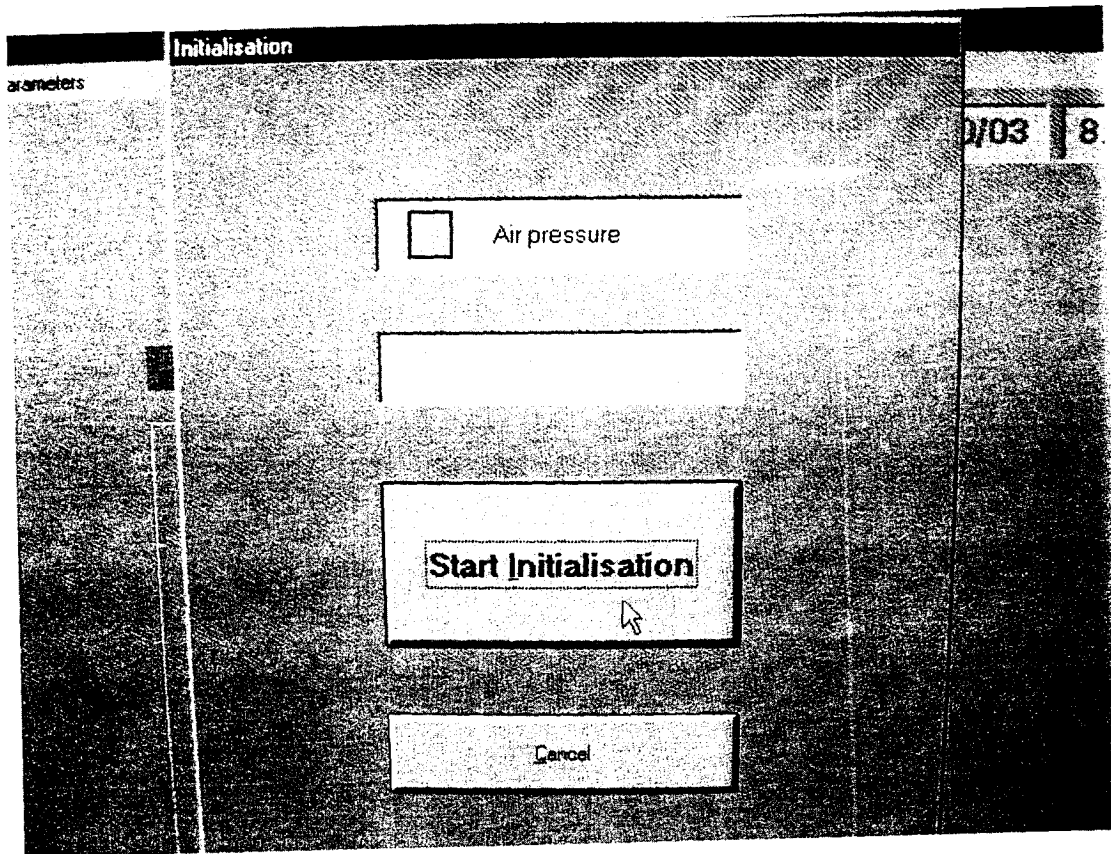


Fig7 Initialization

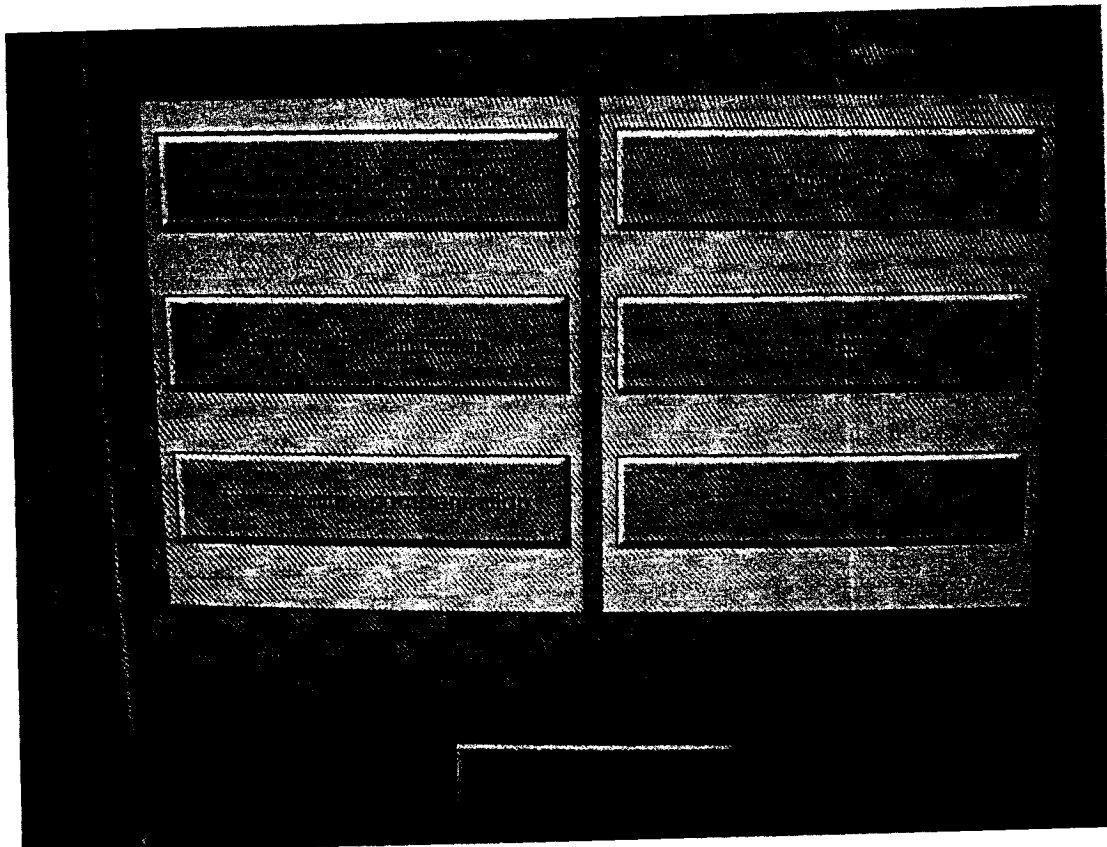


Fig8 Parameters

4		Step	
1025		Thermocouple control	
10		No temperature control	No
30		Close primary vacuum	No
		Open turbic pump valve	No
1000		Open purge valve	No
0		Open gas vacuum valve	No
0		Close process gas valve	No
0		Time base 1/10 s	
0		Select butterfly angle	
		Temperature alarm limit	
		Gas alarm limit	

Fig9 Create/Edit Recipes

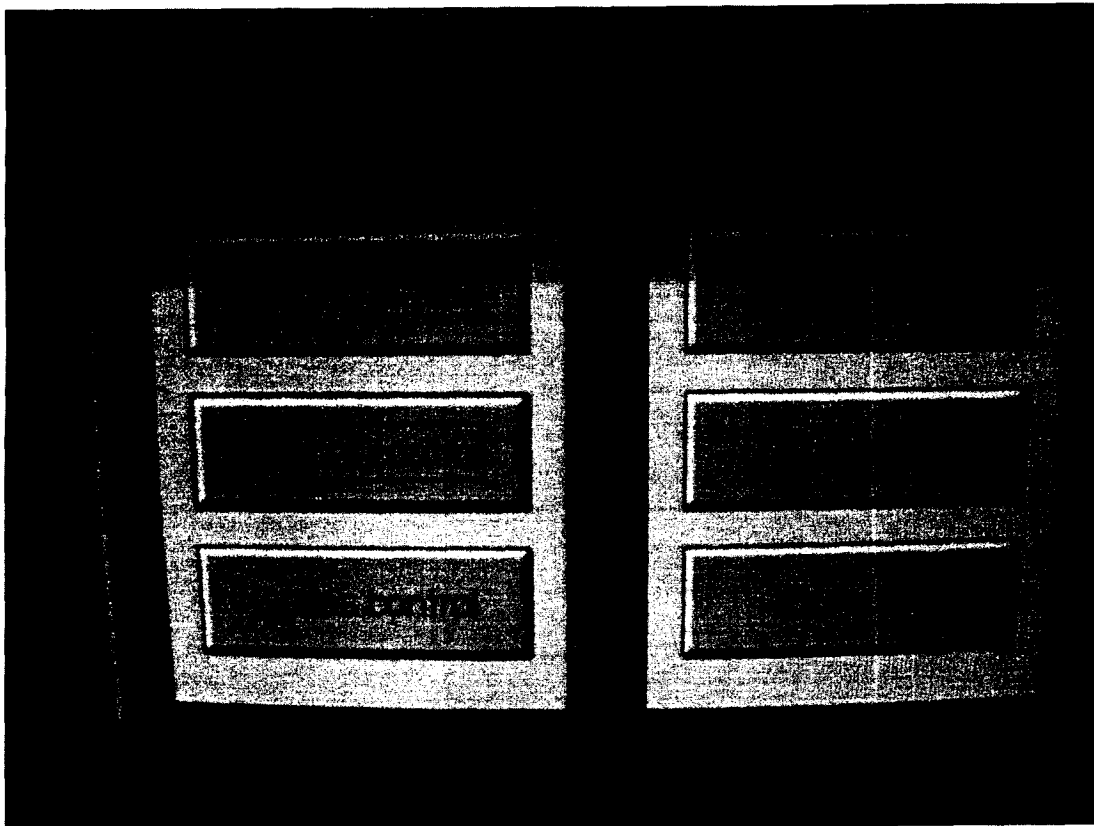


Fig10 Maintenance

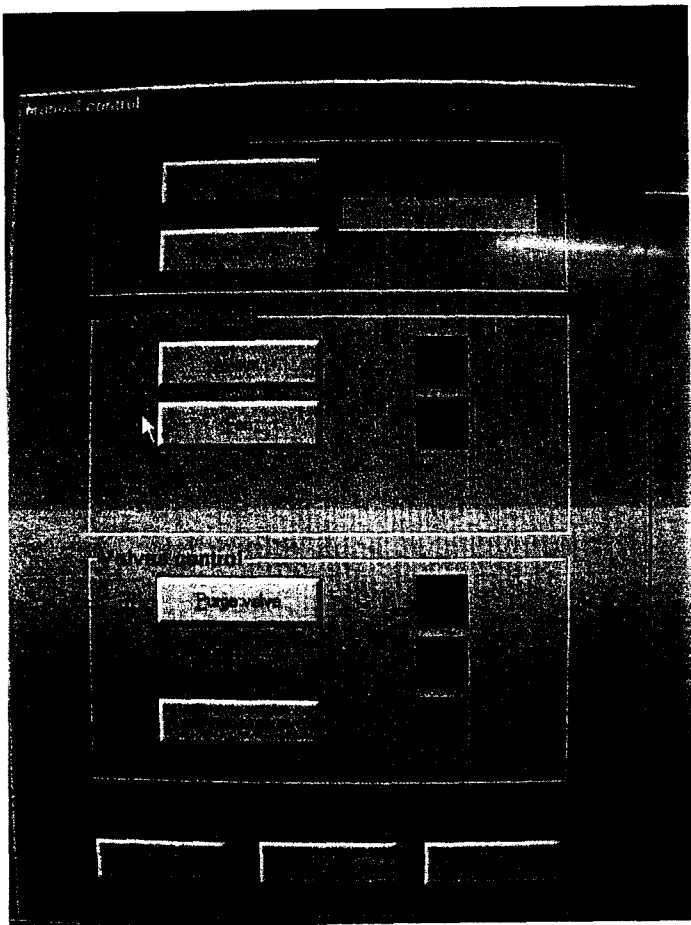
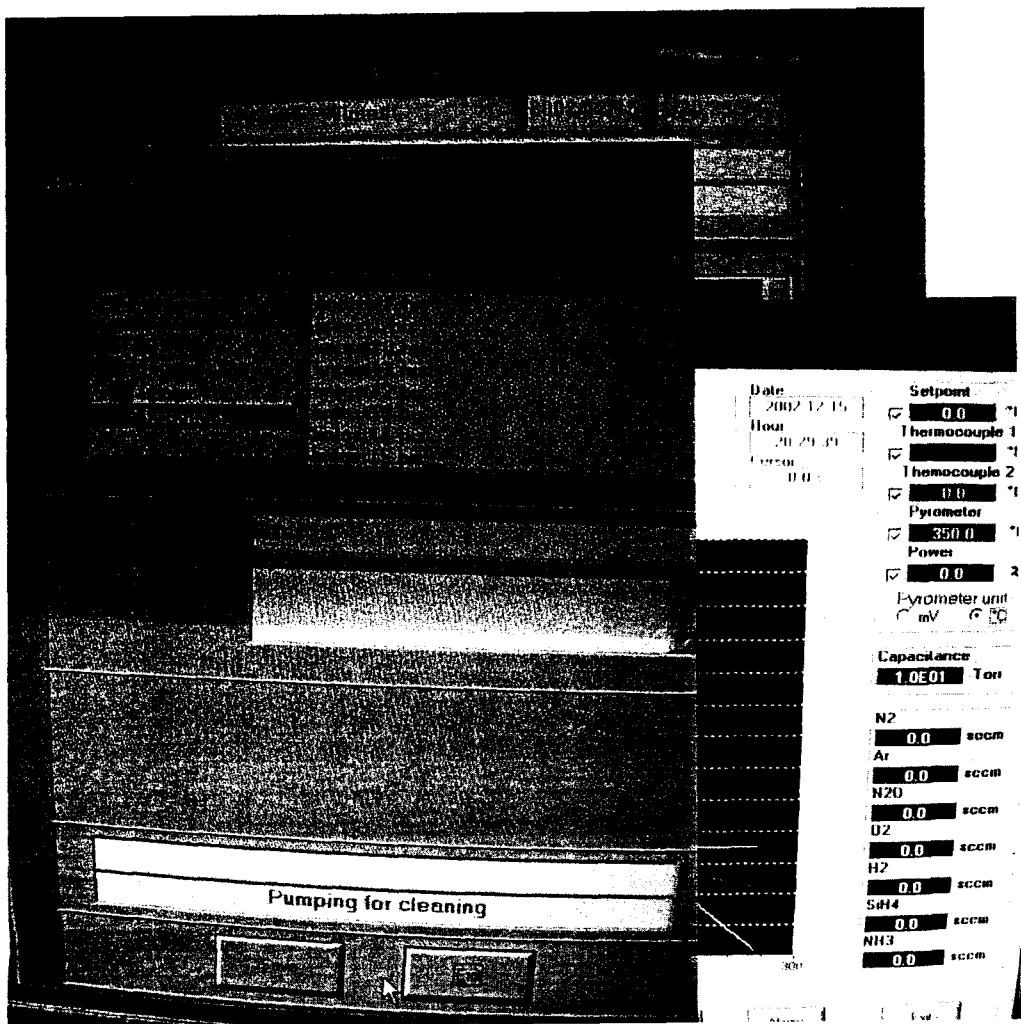


Fig11 Manual Control



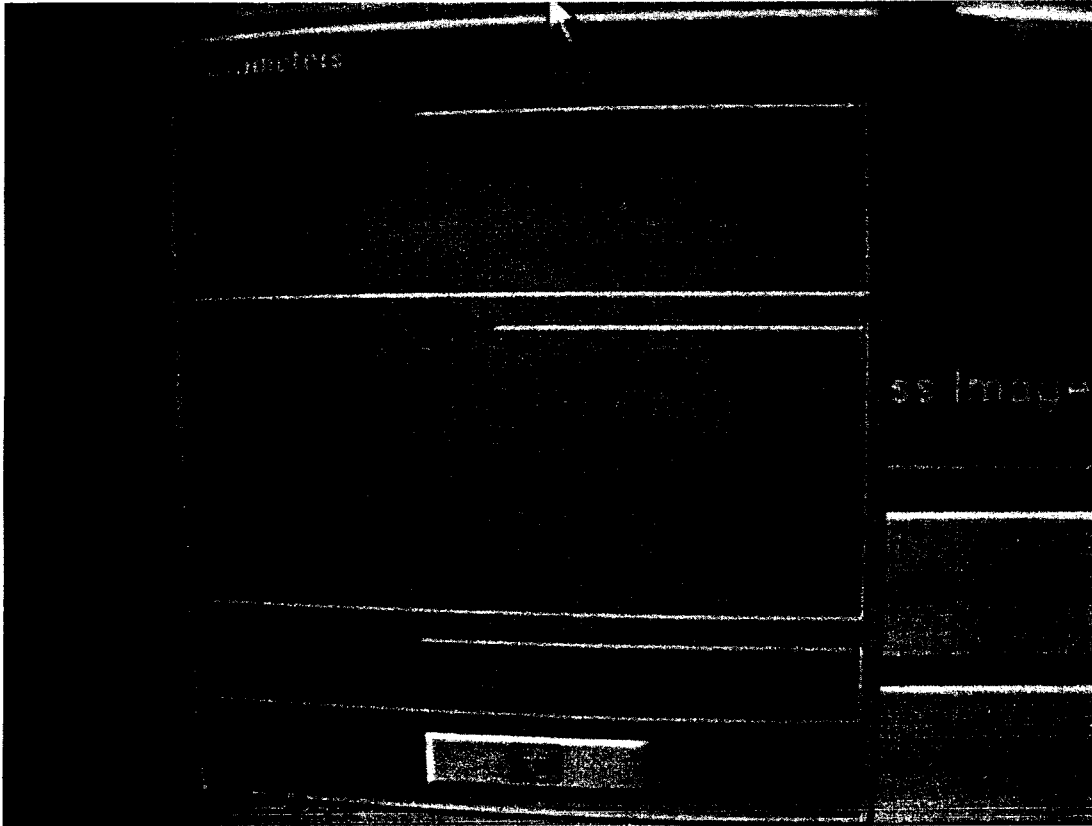


Fig15 由主控電腦螢幕左上角之 parameters 視窗知道 cooling 剩餘的時間

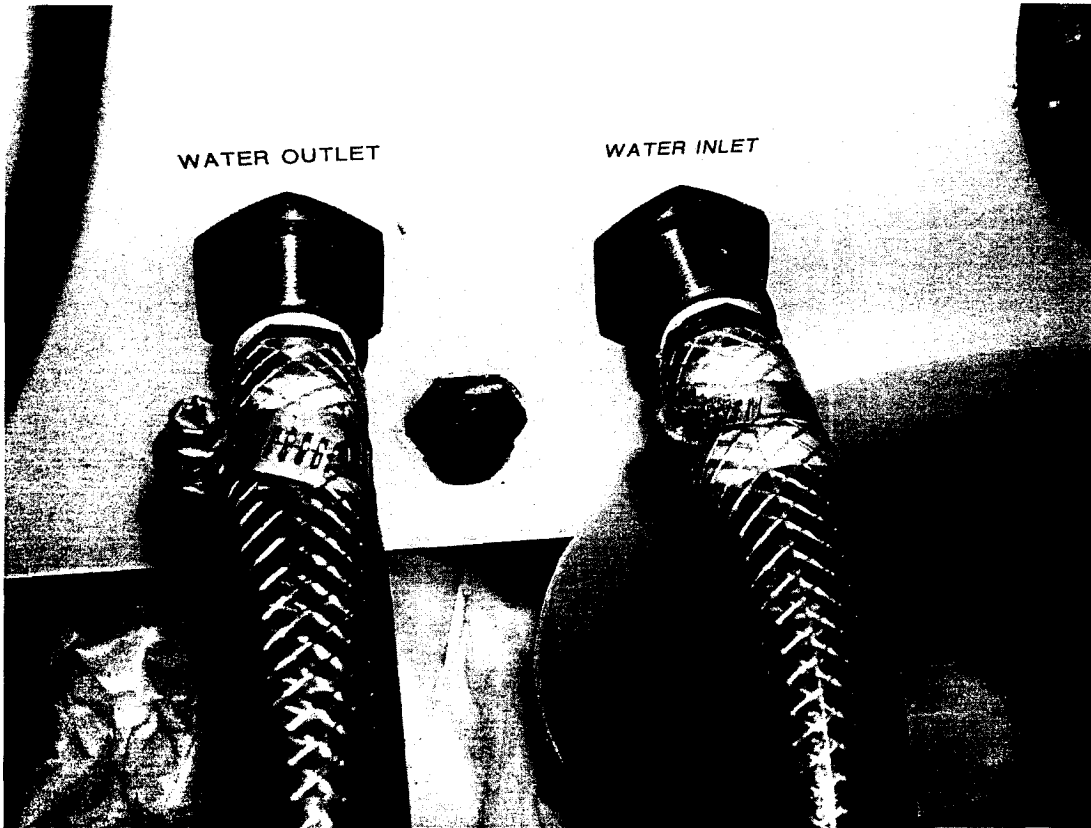


Fig16 注意是否漏水？



Fig17 注意 TC1 的頂端必須接觸到晶片，且 TC1 的兩根導線間不能 Touch



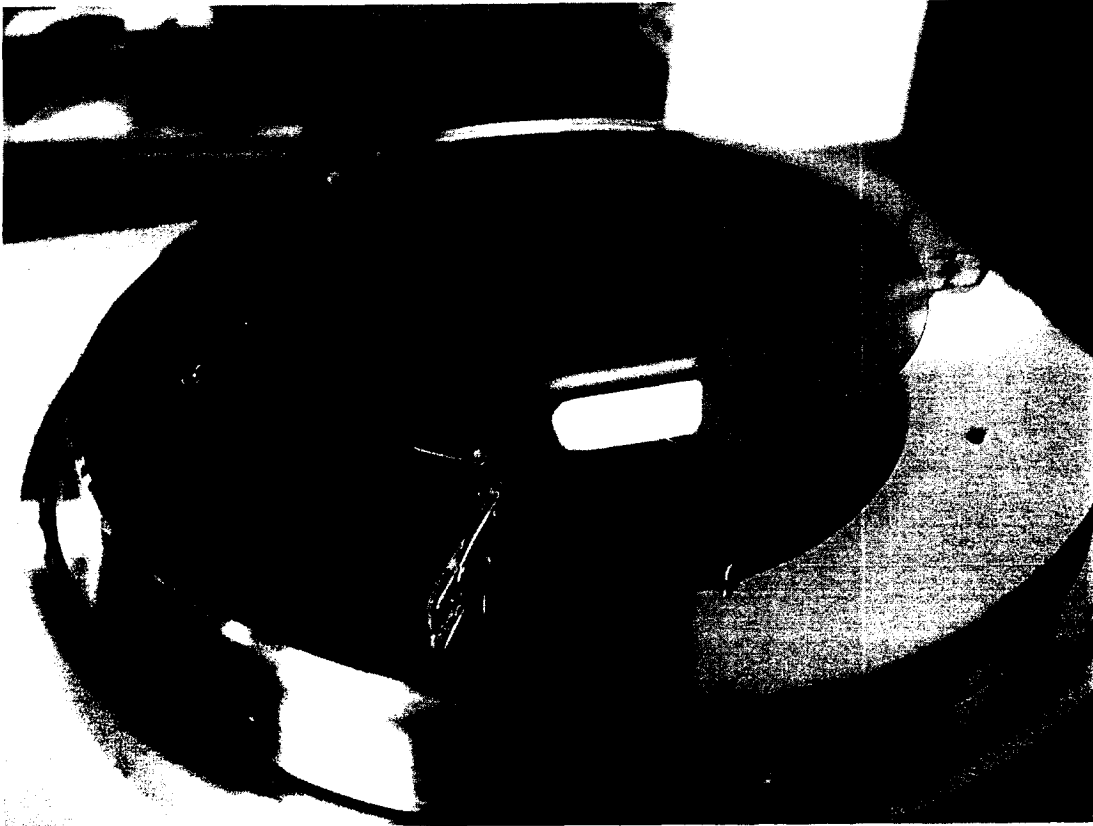


Fig18 TC1 的頂端必須接觸到晶片

## (十一) 儀器名稱：熱阻絲蒸鍍系統

九十一年度 ( 91.01.01 ~ 91.12.31)本項儀器設備( 熱阻絲蒸鍍系統 ) 主要用於各種電子元件、材料及製程研究所必須的鋁(Al)電極蒸鍍，每件電極的鍍膜厚度以 500 至 1000nm 者居多，服務對象包括交通大學、台灣大學、清華大學、中山大學、中正大學、海洋大學、雲林科技大學，等校的 13 個系所。

由於本項儀器設備並無專任技術服務人員之配置，而服務需求量非常龐大，因此本儀器中心提供訓練及考核研究生使用本儀器設備之服務，凡合於資格規定的校內外研究生，可向本中心提出申請，由中心給予必要的儀器操作使用訓練，經考核合格後可在規定時段內自行操作使用儀器，以補技術服務人員之不足，提高儀器使用效率。

## 91 年度 ( 91.01.1-91.12.31 ) 貴儀服務成果統計表

儀器名稱	項目	時數	件數	費用
熱阻絲蒸鍍系統	校外	1,033	724	259,800
熱阻絲蒸鍍系統	校內	827	492	219,000
合計		1,860	1216	478,800

## 熱阻絲蒸鍍系統—校外使用者名單

排名	使用者	服務單位	時數	件數	費用
1	張鼎張	中山大學物理系	854	491	191,400
2	王天戈	清華大學工程系統系	27	65	22,500
3	張廖貴術	清華大學工程系統系	14	40	9,500
4	周榮泉	雲林科技大學電子工程系	32	16	9,000
5	陳文章	台灣大學化學工程所	40	24	7,000
6	吳振名	清華大學材料工程系	18	16	5,400
7	周更生	清華大學化學工程系	16	16	3,500
8	劉承賢	清華大學動力機械系	14	24	3,500
9	張忠誠	海洋大學電機工程系	8	8	2,000
10	劉德騏	中正大學機械工程系	6	8	2,000
11	黃惠良	清華大學電子工程所	2	8	2,000
12	金惟國	清華大學化學工程系	2	8	2,000

## 熱阻絲蒸鍍系統—校內使用者名單

排名	指導教授	服務單位	時數	件數	費用
1	張國明	交通大學電子工程系	176	94	43,500
2	雷添福	交通大學電子工程系	137	94	36,000
3	林振德	交通大學機械工程系	120	58	30,500
4	鄭晃忠	交通大學電子工程系	104	65	27,500
5	崔秉鉞	交通大學電子工程系	87	40	22,500
6	葉清發	交通大學電子工程系	64	41	18,500
7	陳茂傑	交通大學電子工程系	40	24	12,000
8	黃宇中	交通大學電子工程系	35	38	10,000
9	邱碧秀	交通大學電子工程系	16	12	4,500
10	荊鳳德	交通大學電子工程系	16	10	4,500
11	邱俊誠	交通大學電機控制系	8	7	4,000
12	徐文祥	交通大學機械工程系	16	7	3,500
13	秦繼華	交通大學機械工程系	8	2	2,000

## (十二) 儀器名稱：雙電子槍蒸鍍系統

九十一年度 (91.01.01~91.12.31) 本項儀器設備 ( 雙電子槍蒸鍍系統 ) 主要用於各種電子元件、材料及製程研究所必須的電極蒸鍍和金屬及非金屬絕緣薄膜的蒸鍍。蒸鍍薄膜材料種類繁多，包括鎢 (W)、鉬 (Mo)、鈷 (Co)、鈦 (Ti)、鉭 (Ta)、鉑 (Pt)、鉻 (Cr)、鋁 (Al)、複晶矽 (poly-Si)、氧化矽 (SiO<sub>2</sub>) 等。服務對象包括交通大學、清華大學、海洋大學、成功大學、中山大學、中原大學、台灣科技大學、台灣大學、台灣師範大學、暨南國際大學、雲林科技大學、逢甲大學、輔仁大學、長庚大學、華梵大學等校的 23 個系所，以及中央研究院原子與分子科學所等單位的研究人員。

由於本項儀器設備並無專任技術服務人員之配置，而服務需求量非常龐大，因此本儀器中心提供訓練及考核研究生使用本儀器設備之服務，凡合於資格規定的校內外研究生，可向本中心提出申請，由中心給予必要的儀器操作使用訓練，經考核合格後可在規定時段內自行操作使用儀器，以補技術服務人員之不足，提高儀器使用效率。

91 年度 (91.01.1-91.12.31) 貴儀服務成果統計表

儀器名稱	項目	時數	件數	費用
雙電子槍蒸鍍系統	校外	682	878	218,300
雙電子槍蒸鍍系統	校內	1,026	418	310,200
合計		1,775	1,263	531,600

## 雙電子鎗蒸鍍系統—校外使用者名單

排名	使用者	服務單位	時數	件數	費用
1	陳榮順	清華大學動力機械工程系	118	28	39,200
2	吳振名	清華大學材料科學工程系	82	164	27,000
3	洪敏雄	成功大學材料科學及工程系	64	110	20,000
4	吳泰伯	清華大學材料科學工程系	59	108	16,200
5	林諭男	清華大學材料科學中心	34	72	10,400
6	蔡哲正	清華大學材料科學工程系	24	3	8,700
7	方冠榮	成功大學材料科學及工程系	20	22	8,200
8	盧信沖	長庚大學化工與材料工程所	24	24	8,100
9	陳貴賢	中央研究院原子與分子科學研究所	24	7	8,100
10	黃惠良	清華大學電子工程所	24	32	7,900
11	楊長謀	清華大學材料科學工程系	25	14	7,500
12	羅勝益	華梵大學機電工程研究所	16	36	6,200
13	呂宗昕	台灣大學化學工程所	17	20	5,400
14	林智汶	雲林科技大學化學工程系暨工業化學與災害防治所	16	30	5,200
15	張鼎張	中山大學物理系	17	13	5,000
16	鄭俊麟	中原大學化學工程所	8	18	3,000
17	朱瑾	海洋大學材料工程所	16	18	2,700
18	蔡大翔	台灣科技大學化學工程系	10	12	2,700
19	余志成	台灣科技大學機械工程系	10	18	2,700
20	周振嘉	台灣科技大學機械工程系	9	18	2,700
21	甘炯耀	清華大學材料科學工程系	9	18	2,700
22	楊啟榮	台灣師範大學工業教育系	8	7	2,700
23	陳壽椿	輔仁大學化學系	8	11	2,700
24	林樹均	清華大學材料科學工程系	8	18	2,700
25	林新智	逢甲大學材料科學系	8	18	2,700
26	何主亮	逢甲大學材料科學系	8	18	2,700
27	王宏文	中原大學化學工程所	8	18	2,700
28	許鈺宗	暨南國際大學電機工程系	8	3	2,500

## 雙電子鎗蒸鍍系統—校內使用者名單

排名	使用者	服務單位	時數	件數	費用
1	荊鳳德	交通大學電子工程系	386	109	111,500
2	雷添福	交通大學電子工程系	176	123	55,300
3	鄭晃忠	交通大學電子工程系	153	52	46,900
4	曾俊元	交通大學電子工程系	78	26	22,500
5	葉清發	交通大學電子工程系	56	31	18,300
6	陳家富	交通大學材料科學工程系	48	18	15,600
7	邱俊誠	交通大學電機與控制工程系	24	8	8,100
8	張立	交通大學材料科學工程系	24	4	7,700
9	林振德	交通大學機械工程系	24	5	6,400
10	崔秉鉞	交通大學電子工程系	17	3	5,200
11	趙書琦	交通大學電子工程系	8	18	2,700
12	成維華	交通大學機械工程系	8	10	2,500
13	邱碧秀	交通大學電子工程系	8	1	2,500
14	陳茂傑	交通大學電子工程系	8	5	2,500
15	黃調元	交通大學電子工程系	8	5	2,500

(十三) 儀器名稱：**真空濺鍍系統**

九十一年度(91.01.01~91.12.31 ) 本項儀器設備 ( 真空濺鍍系統 ) 主要用於各種電子元件、材料及製程研究所必須的金屬及非金屬絕緣薄膜的蒸鍍。有些元件的製作，因為圖樣 ( pattern ) 的設計使基板表面凹凸不平，電極或薄膜的沉積必須使用保角沉積 ( conformal film deposition ) 特性較佳的真空濺鍍系統，才能滿足電極或薄膜之沉積。濺鍍薄膜材料種類繁多，包括金屬薄膜之鎢 (W)、鉬 (Mo)、銅 (Cu)、鎳 (Ni)、鈷 (Co)、鈦 (Ti)、鉭 (Ta)、鉻 (Cr)、鋁 (Al)，反應性濺鍍 ( reactive sputtering ) 之薄膜氮化鎢 (WN)、氮化鈦 (TiN)、氮化鉭 (TaN)，以及絕緣性薄膜之氧化矽 (SiO<sub>2</sub>)、氮化矽 (SiN) 等，服務對象包括交通大學、清華大學、成功大學、中正大學、中山大學、逢甲大學、中興大學、中原大學、台灣師範大學、台灣科技大學、義守大學等校的 16 個系所，以及中央研究院原子與分子科學研究所的研究人員。

由於本項儀器設備並無專任技術服務人員之配置，而服務需求量非常龐大，因此本儀器中心提供訓練及考核研究生使用本儀器設備之服務，凡合於資格規定之校內外研究生，可向本中心提出申請，由中心給予必要的儀器操作使用訓練，經考核合格後可在規定時段內自行操作使用儀器，以補技術服務人員之不足，提高儀器使用效率。

91 度(91.01.01~91.12.31) 貴儀服務成果統計表				
儀器名稱	項目	時數	件數	費用
真空濺鍍系統	校外	894	266	275,700
真空濺鍍系統	校內	1,235	304	382,300
合計		2,129	570	658,000

真空濺鍍系統—校外使用者名單

排名	指導教授	服務單位	時數	件數	費用
1	張鼎張	中山大學物理系	288	82	89,900
2	王水進	成功大學微電子工程所	120	21	37,300
3	王天戈	清華大學工程系統學系	72	29	23,400
4	陳榮順	清華大學動力機械系	48	5	18,700
5	蔡哲正	清華大學材料工程系	60	8	17,700
6	楊啟榮	台灣師範大學工業教育系	30	18	12,000
7	鄭俊麟	中原大學化學工程所	34	16	11,700
8	楊長謀	清華大學材料工程系	72	13	10,800
9	敖仲寧	中正大學機械工程系	48	3	8,000
10	莊敏宏	台灣科技大學電子工程系	24	6	8,000
11	劉德騏	中正大學機械工程系	24	12	7,700
12	張廖貴術	清華大學材料工程系	2	24	7,400
13	呂福興	中興大學材料工程系	12	5	4,500
14	鄭湘原	中原大學化學工程所	12	8	4,000
15	陳貴賢	中央研究院原子與分子科學研究所	12	3	3,700
16	方維倫	清華大學動力機械系	12	4	3,700
17	楊聰仁	逢甲大學材料工程系	12	4	3,700
18	許志雄	義守大學材料工程系	12	5	3,500



## 真空濺鍍系統—校內使用者名單

排名	指導教授	服務單位	時數	件數	費用
1	吳耀銓	交通大學材料工程系	540	105	166,000
2	崔秉鉞	交通大學電子工程系	132	25	40,300
3	邱碧秀	交通大學電子工程系	116	56	35,800
4	張立	交通大學材料工程系	98	23	28,000
5	張翼	交通大學材料工程系	76	18	25,900
6	陳家富	交通大學材料工程系	45	12	18,400
7	陳茂傑	交通大學電子工程系	48	17	14,400
8	黃調元	交通大學電子工程系	48	8	14,200
9	馮明憲	交通大學材料工程系	48	4	14,200
10	鄭晃忠	交通大學電子工程系	36	13	10,900
11	徐文祥	交通大學機械工程系	24	12	7,000
12	宋開泰	交通大學機械工程系	12	6	3,700
13	雷添福	交通大學電子工程系	12	5	3,500

## (十四) 儀器名稱：活性離子蝕刻機

交通大學半導體中心現有瑞典 Vacutec RIE、日本 Samco RIE-10N、及台製慶康公司高密度電漿 RIE 共計三台活性離子蝕刻設備。瑞典 Vacutec RIE 以蝕刻  $\text{SiO}_2$  及  $\text{SiN}_x\text{O}_y$  為主，可使用氣體  $\text{CF}_4$ 、 $\text{O}_2$ ，能應用的領域相當多，像是微機電、顯示器、ULSI 製程研究等，使用的需求也相當大。而為了要避免不同材料間的相互污染，以及次微米閘極線寬的需求，Samco RIE-10N 就限制以蝕刻複晶矽與矽基材為主，可使用的氣體包括有  $\text{SF}_6$ 、 $\text{CF}_4$ 、 $\text{CHF}_3$ 、 $\text{O}_2$  等，其蝕刻最小線寬可達  $1\mu\text{m}$ ，而蝕刻深度可達  $3\mu\text{m}$ ，側壁垂直度也相當高。目前三種機台都能維持正常運作白天開放供國內各研究單位使用。

91 年度 (91.01.1-91.12.31) 貴儀服務成果統計表

儀器名稱	項目	時數	件數	費用
活性離子蝕刻機	校外	731	1,247	729,100
活性離子蝕刻機	校內	990	1,846	1,108,000
合計		1,721	3,093	1,837,100

## (二) 活性離子蝕刻機—校外使用者名單

排名	指導教授	服務單位	時數	件數	費用
1	方維倫	清華大學動力機械系	244	372	261,500
2	劉承賢	清華大學動力機械系	142	272	143,500
3	許鈺宗	行政院同步輻射中心籌建處光源組	55	94	59,000
4	陳榮順	清華大學動力機械系	68	96	44,600
5	張忠誠	海洋大學材料工程系	41	111	43,000
6	蔣小偉	清華大學動力機械系	64	71	38,000
7	許文震	清華大學動力機械系	29	31	29,000
8	貢中元	中興大學電機工程	12	30	18,000
9	黃瑞星	清華大學電子工程所	10	10	15,000
10	林景崎	中央大學機械工程系	14	51	14,000
11	楊順聰	陽明大學醫學工程系	8	14	11,000
12	吳世全	國科會國家奈米元件實驗室	6	12	9,000
13	楊長謀	清華大學材料工程系	5	13	7,500
14	林義成	彰化師範大學機械工程所	6	12	6,000
15	李世光	台灣大學應用力學所	6	11	6,000
16	杜文謙	淡江大學機械工程系	4	12	4,000
17	林啟瑞	台北科技大學機電整合所	3	6	3,500
18	朱瑾	海洋大學材料工程系	3	4	3,000
19	張培仁	台灣大學應用力學所	3	7	3,000
20	江國寧	清華大學動力機械系	2	7	3,000
21	張家歐	台灣大學應用力學所	2	5	3,000
22	金惟國	清華大學化學工程系	2	4	2,000
23	吳明勳	中州技術學院機械工程系	1	1	1,500
24	游憲一	中興大學電機工程系	1	1	1,000

## 活性離子蝕刻機—校內使用者名單

排名	指導教授	服務單位	時數	件數	費用
1	鄭晃忠	交通大學電子工程系	319	618	358,000
2	雷添福	交通大學電子工程系	114	296	151,000
3	陸懋宏	交通大學光電工程所	82	173	82,000
4	徐文祥	交通大學機械工程系	67	112	78,500
5	林振德	交通大學機械工程系	55	84	71,000
6	荊鳳德	交通大學電子工程系	47	62	47,000
7	黃宇中	交通大學電子工程系	45	80	45,000
8	馮明憲	交通大學材料工程系	45	75	45,000
9	邱俊誠	交通大學電機控制系	44	67	44,000
10	葉清發	交通大學電子工程系	36	55	43,000
11	吳耀銓	交通大學材料工程系	39	68	39,000
12	宋開泰	交通大學電機控制系	23	40	25,500
13	秦繼華	交通大學機械工程系	18	24	23,000
14	陳仁浩	交通大學機械工程系	18	14	18,000
15	周復芳	交通大學電子工程系	16	41	16,000
16	張俊彥	交通大學電子工程系	11	24	11,000
17	成維華	交通大學機械工程系	5	2	5,000
18	崔秉鉞	交通大學電子工程系	3	7	3,000
19	黃遠東	交通大學電子工程系	2	3	2,000
20	潘犀靈	交通大學光電工程所	1	1	1,000

## (十五) 儀器名稱：高解析度場射掃描電子顯微鏡

半導體中心之高解析度場射掃描電子顯微鏡暨能量散佈分析(S-4700)除了具有超高倍數顯微鏡功能，可高倍率放大觀察元件、薄膜等微細結構或剖面結構外，尚裝有能量散佈分析儀 Vantage A4000，能提供表面成份或表面污染物的能譜分析(Energy Dispersive Spectrum，簡稱 EDS)。該儀器可說是貴儀中心所有掃描式電子顯微鏡中最精良設備之一，自四年多前開放服務以來，深受校內外研究單位之倚重。由每年上網預約使用之外校學生激增，使用人遍佈北中南各公私立大學之情形可窺一斑(參看附表)。

本儀器因性能優越，管理良善，服務績效逐年提升。累計 91 年度專人服務時數 1,442 小時，總件數計 7,153 件。其中校內服務時數 753 小時，計 3,453 件，校外服務時數 688 小時，計 3,785 (詳見附表)。

本儀器使用率雖高，唯補助經費年僅 37.8 萬元台幣，要維護儀器正常功能、滿足使用人耗材需求，非常困難。目前經費拮据情況下，影像儲存用之耗材，例如拍立得底片、軟片、磁片、感熱紙等，必須請使用者部份負擔。

整體而言，本儀器性能優異，維護完善，使用需求滿載。如補助經費可再提高，可以提供更便利的服務。

91 年度 (91.1.1-91.12.31) 貴儀服務成果統計表

項 目	時 數	件 數	金 額
校 外	688	3,785	849,440
校 內	753	3,453	897,620
合 計	1,441	7,238	1,747,060

高解析度場射掃描電子顯微鏡暨能量散佈分析儀—校外使用者名單

排名	指導教授	服務單位	時數	件數	費用
1	賴君義	中原大學化學工程學系	92	810	112,160
2	魏大欽	中原大學化學工程學系	86	518	100,160
3	黃國柱	清華大學化學系	75	390	97,620
4	凌永健	清華大學化學系	72	182	88,700
5	呂世源	清華大學化學工程學系	58	205	71,120
6	童國倫	中原大學化學工程所	30	403	37,880
7	施漢章	清華大學材料科學工程系	31	158	36,860
8	黃惠良	清華大學電子工程所	30	115	36,600
9	鄭俊麟	中原大學化學工程所	28	229	33,960
10	周更生	清華大學化學工程系	23	87	29,580
11	鍾次文	雲林科技大學化工與災害防治所	21	116	26,160
12	王詠雲	清華大學化學工程系	12	66	15,000
13	吳世全	國科會國家奈米元件實驗室	12	68	13,820
14	劉進興	台灣科技大學化學工程系	9	44	12,540
15	王水深	台灣大學醫學院外科	9	75	12,000
16	張幼珍	元智大學化學工程所	10	26	11,760
17	汪上曉	清華大學化學工程系	9	32	11,280
18	林景崎	中央大學機械工程系	10	17	10,840
19	于大光	南亞技術學院紡織工程系	7	49	8,040
20	葛明德	中正理工學院應用化學系	6	11	7,440
21	鄭秀鳳	台灣師範大學物理學系	6	14	7,200
22	姚永德	中正大學物理系	6	16	6,720
23	施登士	中央大學機械工程系	5	4	6,000
24	余子隆	元智大學化學工程學系	3	10	3,720
25	郭甦隆	勤益技術學院化學工程系	3	8	3,720
26	葉翳民	中正理工學院車輛工程學系	3	6	3,720
27	彭立祥	大華技術學院化學工程系	3	18	3,600
28	陳建人	行政院國家科學委員會精密儀器發展中心	3	12	3,600
29	華沐怡	長庚大學化工與材料工程所	3	9	3,600
30	周立人	清華大學材料科學中心	3	6	3,600
31	張燕	台中榮民總醫院心臟血管外科	3	3	3,600
32	蔡大翔	台灣科技大學化學工程系	3	1	3,600
33	劉進興	台灣科技大學化學工程系	3	15	3,360
34	周振嘉	台灣科技大學機械工程系	3	13	3,120
35	陳景祥	文化大學化學工程系	3	8	3,120
36	姚永德	中央研究院物理研究所	3	4	3,120
37	林諭男	清華大學材料科學中心	3	10	3,000
38	施錫富	清雲技術學院電子工程系	3	5	3,000

39	邱秀榮	大華技術學院化學工程系	2	20	2,520
40	宋信文	清華大學化學工程系	3	2	2,000

高解析度場射掃描電子顯微鏡暨能量散佈分析儀—校內使用者名單

排名	指導教授	服務單位	時數	件數	費用
1	曾俊元	交通大學電子工程系	164	1399	200,960
2	彭耀南	交通大學土木工程系	88	115	103,200
3	鄭晃忠	交通大學電子工程系	71	264	87,940
4	陳茂傑	交通大學電子工程系	56	371	68,440
5	涂肇嘉	交通大學材料工程系	58	97	60,580
6	邱碧秀	交通大學電子工程系	31	144	38,760
7	林健正	交通大學材料工程系	31	121	37,320
8	陳仁浩	交通大學機械工程系	36	76	36,860
9	葉清發	交通大學電子工程系	29	106	35,520
10	謝有容	交通大學應用化學系	25	112	29,900
11	白曠綾	交通大學環境工程系	23	84	29,220
12	黃華宗	交通大學材料工程系	26	118	28,960
13	陳三元	交通大學材料工程系	14	111	17,640
14	崔秉鉞	交通大學電子工程系	15	37	17,440
15	徐文祥	交通大學機械工程系	15	27	14,500
16	陳重男	交通大學環境工程系	11	38	13,680
17	謝文峰	交通大學光電工程所	11	71	13,080
18	張豐志	交通大學應用化學系	9	38	11,580
19	吳光雄	交通大學電子物理系	6	16	7,440
20	秦繼華	交通大學機械工程系	6	12	6,000
21	張俊彥	交通大學電子工程系	4	12	5,000
22	陳家富	交通大學材料工程系	4	8	4,200
23	黃調元	交通大學電子工程系	3	25	3,840
24	林振德	交通大學機械工程系	4	7	3,740
25	林鵬	交通大學材料工程系	3	7	3,720
26	荊鳳德	交通大學電子工程系	3	2	3,720
27	郭正次	交通大學材料工程系	3	4	3,600
28	李威儀	交通大學電子物理系	2	3	3,600
29	張振雄	交通大學光電工程所	3	25	3,360
30	謝宗雍	交通大學材料工程系	3	1	2,500
31	黃遠東	交通大學電子工程系	1	2	1,320

#### (十六) 儀器名稱：展阻量測分析儀

本儀器自 90 年度納入貴重儀器中心開始服務，陸續建立管理規則、使用紀錄簿、維修紀錄簿等管制文件。並完成機台設定、試片製作、量測及結果分析等訓練文件。並於 90 年 6 月份開始開放網路預約。本儀器有兩位技術人員協助維護、操作及管理，情況良好，迄今無故障維修情形發生。

本儀器主要在協助學術界進行半導體材料中的載子濃度分佈分析，亦接受工業界之委託服務。目前已有研究生藉此完成碩士論文。從展阻值換算為載子濃度需要標準校正試片建立資料庫，目前僅有 Si(100)的校正片，因此其它材料僅能測的展阻值及接面深度。

展阻技術發展至今已趨成熟，其基本理論並不困難，但欲獲得正確的濃度分佈，關鍵在試片的低角度研磨及角度校正以及探針尖端的研磨及校正。這一部份雖有技術人員及協助之研究生接受原廠工程師訓練，但仍需足夠之試片及時間以熟練之。經過前半年的嘗試，目前已能掌握操作中的技巧。

本儀器因自 90 年度才加入貴重儀器中心，且自 90 年 6 月份始開放上網預約，知道有此儀器開放服務之單位不多，且上半年處於服務兼訓練階段，試片製作時間及次數較多，因此服務件數較少。目前情況已有改善，本中心亦將發函從事半導體相關研究之單位，告知此項儀器開放服務之訊息，預期自下半年度起服務件數即可有明顯增加。

本儀器雖是 1997 年開發出來之第四代機型(SSM-150)，但因試片製作仍需人工，為符合工業界全面自動化之需求，原廠於 2000 年底宣佈停產此機台，此為評估及採購此機台前所無法逆料之事。因此，零件及耗材價格均以提高，為維持正常操作及服務，請惠於通過本計畫所列之材料費。

展阻量測分析儀(Spreading Sheet Resistance Probe)由貴會補助，於 89 會計年度購置，89 年 12 月份完成安裝及驗收。儀器本身是一模組，需要空間不大，現安置於交通大學電子資訊中心七樓，與掃描式電子顯微鏡在同一實驗室。該室為一獨立空間，有獨立的門禁管制，開放使用期間，技



術人員都會在此實驗室，不易受外界環境或人員干擾。

本儀器目前運作正常、性能良好。以支援學術單位進行雜質濃度分佈分析為主，已有研究生藉此完成碩士論文。本儀器亦接受工業界委託分析。

91 年度 (91.1.1-91.12.31) 貴儀服務成果統計表

儀器名稱	項 目	時 數	件 數	金 額
展阻量測分析儀	校 外	57	69	72,000
展阻量測分析儀	校 內	228	205	176,500
合 計		285	274	248,500

### 展阻量測分析儀—校外使用者名單

排名	指導教授	服務單位	時數	件數	費用
1	黃惠良	清華大學電子工程所	30	52	44,000
2	吳威德	中興大學材料工程系	6	6	12,000
3	梁正宏	清華大學工程與系統科學系	15	8	10,000
4	汪大永	明道管理學院應用科技研究中心	6	3	6,000

### 展阻量測分析儀—校內使用者名單

排名	指導教授	服務單位	時數	件數	費用
1	崔秉鉞	交通大學電子工程系	93	83	60,000
2	張俊彥	交通大學電子工程系	43	42	57,000
3	陳茂傑	交通大學電子工程系	81	68	31,500
4	徐文祥	交通大學機械工程系	3	2	18,000
5	雷添福	交通大學電子工程系	8	10	10,000

## 三、各儀器支援之研究成果——發表論文紀錄表

## (一)氣相層析質譜儀 (GC-MS)

使用者姓名	使用者所在機構	使用儀器名稱	發表論文名稱	發表刊物名稱	期別	出版日期
吳獻仁	交大應用化學系	氣相層析質譜儀	Facial Stereoselective Reaction of Dioxo-Cages and Synthesis of Chiral Tetraoxa-Cages	碩博士論文		2002
吳獻仁	交大應用化學系	氣相層析質譜儀	Nucleophilic Substitution Reactions of Oxa-Cages with Allyltrimethylsilane and Triethylsilane	碩博士論文		2002
吳獻仁	交大應用化學系	氣相層析質譜儀	Synthesis of <i>r</i> -butyrolactone derivatives from 2-methylthiofuran	碩博士論文		2002
鍾文聖	交大應用化學系	氣相層析質譜儀	The synthesis of naphthosultine and benzodisultines and their pyrolysis with dienophiles: Studies on <i>o</i> -naphthoquinodimethane and bis- <i>o</i> -quinodimethane	JOURNAL OF THE CHINESE CHEMICAL SOCIETY	49 (1): 77-82	FEB 2002
鍾文聖	交大應用化學系	氣相層析質譜儀	The Synthesis of Precursors for Thieno- <i>o</i> -Quinodimethanes and non-Kekulé Tetraradicals and Their Thermal and Photochemical	碩博士論文		2002
鍾文聖	交大應用化學系	氣相層析質譜儀	The Synthesis and Photochemistry of Radical Pair Precursors: N-Benzenesulfonyl Substituted Pyrroles, Imidazole and Indole	碩博士論文		2002
許千樹	交大應用化學系	氣相層析質譜儀	Synthesis and electroluminescence of side-chain liquid crystalline polyacrylates and polyoxiranes containing bistolane side groups	JOURNAL OF POLYMER RESEARCH-TAIWAN	9 (1): 1-9	MAR 2002
許千樹	交大應用化學系	氣相層析質譜儀	Synthesis of alkyl-branched main chain copolyimides and their effect on the pretilt angles of liquid crystal alignment	LIQUID CRYSTALS	29 (7): 907-913	JUL 2002
許千樹	交大應用化學系	氣相層析質譜儀	Synthesis and liquid crystalline behavior of photoreactive side-chain liquid-crystalline polyoxetanes containing cinnamoyl biphenyl mesogen.	ABSTRACTS OF PAPERS OF THE AMERICAN CHEMICAL SOCIETY	223: 205-POLY Part 2	APR 7 2002
許千樹	交大應用化學系	氣相層析質譜儀	Polarized blue emission based on a side chain liquid crystalline polyacrylate containing bis-tolane side groups	JAPANESE JOURNAL OF APPLIED PHYSICS PART 1-REGULAR PAPERS SHORT NOTES & REVIEW PAPERS	41 (3A): 1374-1378	MAR 2002
許千樹	交大應用化學系	氣相層析質譜儀	Synthesis and thermal and photoluminescence properties of liquid crystalline polyacetylenes containing 4-alkanyloxyphenyl trans-4-alkylcyclohexanoate side groups	MACROMOLECULES	35 (4): 1180-1189	FEB 12 2002
許千樹	交大應用化學系	氣相層析質譜儀	Synthesis of Discotic Compounds Containing Acrylate and Cinnamoyl Side Groups for Application of Liquid Crystal Photo Alignment Layers	碩博士論文		2002
許千樹	交大應用化學系	氣相層析質譜儀	Synthesis of Discotic Compounds Containing Coumarin Side Groups for the Applications of Liquid Crystal Photo-Alignment Layers	碩博士論文		2002

許千樹	交大應用化學系	氣相層析質譜儀	Synthesis of UV-Curable Bistolane Liquid Crystals and Their Applications in Broad-band Cholesteric Polarizer and Polarized Electroluminescence	碩博士論文		2002
許千樹	交大應用化學系	氣相層析質譜儀	含4'-(4-烷基反式環己烷)- $\alpha$ -甲基苄基之高雙折射率 液晶化合物之合成	碩博士論文		2002
許千樹	交大應用化學系	氣相層析質譜儀	Synthesis and Mesomorphic Properties of 4-(4-Alkylphenyl)-4-cyano- $\alpha$ -methylstilbene and	碩博士論文		2002
許千樹	交大應用化學系	氣相層析質譜儀	Synthesis and Mesomorphic Properties of 4-[1-(4-Alkylphenyl)ethynyl]-4'-Floro- $\alpha$ -methylstilbene Liquid Crystals	碩博士論文		2002
許千樹	交大應用化學系	氣相層析質譜儀	Synthesis and Electro-Optical Properties of Fluorene Based Light Emitting Materials	碩博士論文		2002
林木獅	交大應用化學系	氣相層析質譜儀	含矽氧烷及亞醯胺改質之環氧樹脂的特性研究	碩博士論文		2002
林木獅	交大應用化學系	氣相層析質譜儀	Synthesis and Optical properties of $\alpha$ - and $\beta$ -cyano Poly(p-phenylenevinylene) Derivatives	碩博士論文		2002
林木獅	交大應用化學系	氣相層析質譜儀	含 fluorene 與 carbazole 之可溶性 高分子光學性質比較	碩博士論文		2002
許慶豐	交大應用化學系	氣相層析質譜儀	Synthesis and Characterization of Novel Oxadiazole Containing Materials	碩博士論文		2002
許慶豐	交大應用化學系	氣相層析質譜儀	Synthesis and Characterization of Light-Emitting polymers: Poly-2,7-fluorenes with Dendrimer Side Chains	碩博士論文		2002
許慶豐	交大應用化學系	氣相層析質譜儀	Synthesis and Characterization of Hyperbranched Poly(ether imide)s and Poly(ether imide amide)s	碩博士論文		2002
許慶豐	交大應用化學系	氣相層析質譜儀	Synthesis and Characterization of Soluble Polyamides Derived from 2,2'-Bis(p-carboxyphenoxy)-9,9'-spirobifluorene	碩博士論文		2002
裘性天	交大應用化學系	氣相層析質譜儀	Nano-sizing titanium into titanium carbide by 1-chlorobutane	JOURNAL OF MATERIALS RESEARCH	17 (11): 2779-2782	NOV 2002
裘性天	交大應用化學系	氣相層析質譜儀	Low-temperature synthesis of transition metal nanoparticles from metal complexes and organopolysilane oligomers	CHEMISTRY OF MATERIALS	14 (10): 4334-4338	OCT 2002
裘性天	交大應用化學系	氣相層析質譜儀	Syntheses of nano-sized cubic phase early transition metal carbides from metal chlorides and n-butyllithium	JOURNAL OF MATERIALS CHEMISTRY	12 (8): 2189-2191	AUG 2002
裘性天	交大應用化學系	氣相層析質譜儀	Preparation and Characterization of Carbon and Metal Carbide Materials	碩博士論文		2002
裘性天	交大應用化學系	氣相層析質譜儀	Amorphous Low Dielectric Fluorinated Carbon Thin Film Grown from C6F6 by PECVD	碩博士論文		2002
何子樂	交大應用化學系	氣相層析質譜儀	Synthesis of cryptolepine and cryptoteckieine from a common intermediate	HELVETICA CHIMICA ACTA	85 (11): 3823-3827	2002
何子樂	交大應用化學系	氣相層析質譜儀	Synthesis of tacamonine	TETRAHEDRON	58 (24): 4969-4973	JUN 10 2002
張豐志	交大應用化學系	氣相層析質譜儀	Polymer blends of poly(ethylene-2,6-naphthalate) with polystyrene compatibilized by styrene-glycidyl methacrylate copolymers. I. Rheology, morphology, and mechanical	JOURNAL OF APPLIED POLYMER SCIENCE	87 (6): 967-975	FEB 7 2003

			properties			
張豐志	交大應用化學系	氣相層析質譜儀	Preparations, thermal properties, and T-g increase mechanism of inorganic/organic hybrid polymers based on polyhedral oligomeric silsesquioxanes	MACROMOLECULES	(23): 8788-8793	NOV 5 2002
張豐志	交大應用化學系	氣相層析質譜儀	Crystallization behavior of syndiotactic polystyrene nanocomposites for melt- and cold-crystallizations	JOURNAL OF APPLIED POLYMER SCIENCE	86 (10): 2492-2501	DEC 5 2002
張豐志	交大應用化學系	氣相層析質譜儀	Ionic conductivity enhancement of the plasticized PMMA/LiClO <sub>4</sub> polymer nanocomposite electrolyte containing clay	POLYMER	43 (19): 5281-5288	SEP 2002
張豐志	交大應用化學系	氣相層析質譜儀	Significant glass-transition-temperature increase through hydrogen-bonded copolymers	JOURNAL OF POLYMER SCIENCE PART B-POLYMER PHYSICS	40 (19): 2313-2323	OCT 1 2002
張豐志	交大應用化學系	氣相層析質譜儀	Significant glass transition temperature increase based on polyhedral oligomeric silsesquioxane (POSS) copolymer through hydrogen bonding	POLYMER BULLETIN	48 (6): 469-474	JUL 2002
張豐志	交大應用化學系	氣相層析質譜儀	Solid-state electrolyte nanocomposites based on poly(ethylene oxide), poly(oxypropylene) diamine, mineral clay and lithium perchlorate	POLYMER	43 (18): 5011-5016	AUG 2002
張豐志	交大應用化學系	氣相層析質譜儀	Effect of inert diluent segment on the miscibility behavior of poly(vinylphenol) with poly(acetoxystyrene) blends	JOURNAL OF POLYMER SCIENCE PART B-POLYMER PHYSICS	40 (15): 1661-1672	AUG 1 2002
張豐志	交大應用化學系	氣相層析質譜儀	Conductivity enhancement mechanism of the poly(ethylene oxide)/modified-clay-LiClO <sub>4</sub> systems	JOURNAL OF POLYMER SCIENCE PART B-POLYMER PHYSICS	40 (13): 1342-1353	JUL 1 2002
張豐志	交大應用化學系	氣相層析質譜儀	Preparation and characterization of polystyrene-clay nanocomposites by free-radical polymerization	JOURNAL OF APPLIED POLYMER SCIENCE	85 (7): 1370-1377	AUG 15 2002
張豐志	交大應用化學系	氣相層析質譜儀	The study of hydrogen bonding and miscibility in poly(vinylpyridines) with phenolic resin	POLYMER	43 (14): 3943-3949	JUN 2002
張豐志	交大應用化學系	氣相層析質譜儀	Miscibility enhancement on the immiscible binary blend of poly(vinyl acetate) and poly(vinyl pyrrolidone) with bisphenol A	POLYMER	43 (13): 3653-3660	JUN 2002
張豐志	交大應用化學系	氣相層析質譜儀	Miscibility behavior and specific interaction of phenolic resin with poly(acetoxystyrene) blends	MACROMOLECULAR CHEMISTRY AND PHYSICS	203 (5-6): 868-878	MAR 28 2002
張豐志	交大應用化學系	氣相層析質譜儀	Miscibility and hydrogen bonding in blends of poly(vinyl acetate) with phenolic resin	POLYMER	43 (8): 2479-2487	APR 2002
張豐志	交大應用化學系	氣相層析質譜儀	Crystal polymorphism of poly(butylene-2,6-naphthalate) prepared by thermal treatments	POLYMER	43 (7): 2065-2074	MAR 2002
張豐志	交大應用化學系	氣相層析質譜儀	Phase behavior and hydrogen bonding in ternary polymer blends of phenolic resin/poly(ethylene oxide)/poly(epsilon-caprolactone)	MACROMOLECULES	35 (1): 278-285	JAN 1 2002
張豐志	交大應用化學系	氣相層析質譜儀	Fundamental research and application in hydrogen bonded polymer interaction	碩博士論文		2002
張豐志	交大應用化學系	氣相層析質譜儀	The study of hydrogen bonding and crosslinking kinetic in polymer blend	碩博士論文		2002
陳金鑫	交大應用化學系	氣相層析質譜儀	Recent progress of molecular organic electroluminescent	MATERIALS SCIENCE &	39 (5-6): 143-222	DEC 1 2002

			materials and devices	ENGINEERING R-REPORTS		
陳金鑫	交大應用化學系	氣相層析質譜儀	Synthetic study of tetramethyljulolidine - a key intermediate toward the synthesis of the red dopant DCJTb for OLED applications	TETRAHEDRON LETTERS	44 (1): 145-147	JAN 1 2003
陳金鑫	交大應用化學系	氣相層析質譜儀	Reduce the memory bandwidth of 3D graphics hardware with a novel rasterizer	JOURNAL OF CIRCUITS SYSTEMS AND COMPUTERS	11 (4): 377-391	AUG 2002
陳金鑫	交大應用化學系	氣相層析質譜儀	Synthesis and Applications of Novel Green Dopants for Organic Light Emitting Devices	碩博士論文		2002
陳金鑫	交大應用化學系	氣相層析質譜儀	Doped Blue and Red Emitters of 9,10-di(2-naphthyl) anthracene in Organic Electroluminescent Device	碩博士論文		2002
陳登銘	交大應用化學系	氣相層析質譜儀	A study on the luminescent properties of new green-emitting terbium-activated $\text{CaIn}_2\text{O}_4 : x\text{Tb}$ phosphors	JOURNAL OF LUMINESCENCE	96 (2-4): 261-267	MAR 2002
陳登銘	交大應用化學系	氣相層析質譜儀	長餘輝矽酸鹽螢光材料溶膠-凝膠合成與發光特性之研究	碩博士論文		2002
吳東昆	交大生科系	氣相層析質譜儀	Conversion of a plant oxidosqualene-cycloartenol synthase to an oxidosqualene-lanosterol cyclase by random mutagenesis	BIOCHEMISTRY	41 (26): 8238-8244	JUL 2 2002
林宏洲	交大材料系	氣相層析質譜儀	Simultaneous etching of polysilicon materials with different doping types by low-damage transformer-coupled plasma technique	MICROELECTRONIC ENGINEERING	63 (4): 405-416	SEP 2002
林宏洲	交大材料系	氣相層析質譜儀	Response surface methodology applied to silicon trench etching in $\text{Cl}_2/\text{HBr}/\text{O}_2$ using transformer coupled plasma technique	SOLID-STATE ELECTRONICS	46 (6): 791-795	JUN 2002
林宏洲	交大材料系	氣相層析質譜儀	NMR spectroscopic studies of dimethyldiethoxy silane hydrolysis and polysiloxane conversion	JOURNAL OF APPLIED POLYMER SCIENCE	86 (2): 468-477	OCT 10 2002
林宏洲	交大材料系	氣相層析質譜儀	Block copolyesters of poly(pentamethylene p,p'-bibenzoate) and poly(tetramethylene adipate)	JOURNAL OF POLYMER SCIENCE PART A-POLYMER CHEMISTRY	40 (15): 2626-2636	AUG 1 2002
林宏洲	交大材料系	氣相層析質譜儀	Synthesis and Characterization of Novel Light Emitting Materials Containing Thiophene Units and Methoxy Side Groups	碩博士論文		2002
林宏洲	交大材料系	氣相層析質譜儀	Synthesis and Characterization of Poly(aryleneethynylene)s composed of Fluorene and Vertical Conjugated rings units	碩博士論文		2002
林宏洲	交大材料系	氣相層析質譜儀	Synthesis and Characterization of Novel Photoluminet Materials Containing Three Conjugated-rings with Pyridine and Alkoxy-substituted Side Groups	碩博士論文		2002
郭正次	交大材料系	氣相層析質譜儀	Iron and cobalt silicide catalysts-assisted carbon nanostructures on the patterned Si substrates	THIN SOLID FILMS	420: 219-224	DEC 2 2002
郭正次	交大材料系	氣相層析質譜儀	Growth of the large area horizontally-aligned carbon nanotubes by ECR-CVD	THIN SOLID FILMS	420: 225-229	DEC 2 2002
郭正次	交大材料系	氣相層析質譜儀	Formation of carbon cluster on the	PHYSICA	323 (1-4):	OCT 2002

			surface of diamond films for improving electron field emission properties	B-CONDENSED MATTER	161-164	
郭正次	交大材料系	氣相層析質譜儀	Effect of silane flowing time on W volcano and plug formation	JAPANESE JOURNAL OF APPLIED PHYSICS PART 1-REGULAR PAPERS SHORT NOTES & REVIEW PAPERS	41 (5A): 2906-2907	MAY 2002
郭正次	交大材料系	氣相層析質譜儀	Forming silicon carbon nitride crystals and silicon carbon nitride nanotubes by microwave plasma-enhanced chemical vapor deposition	APPLIED PHYSICS LETTERS	80 (24): 4638-4640	JUN 17 2002
郭正次	交大材料系	氣相層析質譜儀	Field emission, structure, cathodoluminescence and formation studies of carbon and Si-C-N nanotubes	DIAMOND AND RELATED MATERIALS	11 (3-6): 793-798 Sp. Iss. SI	MAR-JUN 2002
郭正次	交大材料系	氣相層析質譜儀	Growth mechanism and properties of the large area well-aligned carbon nano-structures deposited by microwave plasma electron cyclotron resonance chemical vapor deposition	DIAMOND AND RELATED MATERIALS	11 (3-6): 922-926 Sp. Iss. SI	MAR-JUN 2002
郭正次	交大材料系	氣相層析質譜儀	Diels-Alder reactions of 6,6-dimethoxycyclohexa-2,4-dienone generated by pyrolysis of its dimer	SYNLETT	(4): 565-568	APR 2002
郭正次	交大材料系	氣相層析質譜儀	A highly diastereoselective synthesis of (1R)-(+)-camphor-based chiral allenes and their asymmetric hydroboration-oxidation reactions	JOURNAL OF ORGANIC CHEMISTRY	67 (4): 1308-1313	FEB 22 2002
韋光華	交大材料系	氣相層析質譜儀	Bulk and surface properties of layered silicates/fluorinated polyimide nanocomposites	JOURNAL OF APPLIED PHYSICS	92 (10): 6219-6223	NOV 15 2002
韋光華	交大材料系	氣相層析質譜儀	The effect of nano-sized silicate layers from montmorillonite on glass transition, dynamic mechanical, and thermal degradation properties of segmented polyurethane	JOURNAL OF APPLIED POLYMER SCIENCE	86 (7): 1741-1748	NOV 14 2002
韋光華	交大材料系	氣相層析質譜儀	Synthesis and properties of covalently bonded layered silicates/polyimide (BTDA-ODA) nanocomposites	CHEMISTRY OF MATERIALS	14 (7): 3016-3021	JUL 2002
韋光華	交大材料系	氣相層析質譜儀	Layered silicates/fluorinated polyimide nanocomposites for advanced dielectric materials applications	ADVANCED MATERIALS	14 (6): 426+	MAR 18 2002
韋光華	交大材料系	氣相層析質譜儀	Synthesis and Characterization of Polystyrene/Nanosilica particle nanocomposite by Atom Transfer Radical Polymerization	碩博士論文		2002
陳三元	交大材料系	氣相層析質譜儀	Effect of titanium substitution on film structure and ferroelectric properties of Sr-deficient Sr <sub>0.75</sub> Bi <sub>2.35</sub> Ta <sub>2</sub> O <sub>9</sub> thin films	THIN SOLID FILMS	422 (1-2): 186-192	DEC 20 2002
陳三元	交大材料系	氣相層析質譜儀	Electrical and structural characteristics of PbTiO <sub>3</sub> thin films with ultra-thin Al <sub>2</sub> O <sub>3</sub> buffer layers	MATERIALS CHEMISTRY AND PHYSICS	78 (2): 412-415	FEB 17 2002
陳三元	交大材料系	氣相層析質譜儀	Characterization of BaPbO <sub>3</sub> and Ba(Pb <sub>1-x</sub> Bi <sub>x</sub> )O-3 thin films	MATERIALS CHEMISTRY AND PHYSICS	78 (2): 507-511	FEB 17 2002

陳三元	交大材料系	氣相層析質譜儀	Role of an intermediate phase (Ba,Sr)(2)Ti <sub>2</sub> O <sub>5</sub> CO <sub>3</sub> in doped (Ba <sub>0.7</sub> Sr <sub>0.3</sub> )TiO <sub>3</sub> thin films	MATERIALS CHEMISTRY AND PHYSICS	77 (3): 632-638	JAN 30 2003
陳三元	交大材料系	氣相層析質譜儀	Transformation mechanism of different chemically precipitated apatitic precursors into beta-tricalcium phosphate upon calcination	BIOMATERIALS	23 (23): 4541-4547	DEC 2002
陳三元	交大材料系	氣相層析質譜儀	Film structure and ferroelectric properties of vanadium-doped Sr <sub>0.8</sub> Bi <sub>2.3</sub> Ta <sub>2</sub> O <sub>9</sub> thin films	JOURNAL OF APPLIED PHYSICS	91 (12): 10032-10037	JUN 15 2002
陳三元	交大材料系	氣相層析質譜儀	Bi <sub>3.25</sub> La <sub>0.75</sub> Ti <sub>3</sub> O <sub>12</sub> thin films on ultrathin Al <sub>2</sub> O <sub>3</sub> buffered Si for ferroelectric memory application	APPLIED PHYSICS LETTERS	80 (17): 3168-3170	APR 29 2002
陳三元	交大材料系	氣相層析質譜儀	Fluorescence enhancement and structural development of sol-gel derived Er <sup>3+</sup> -doped SiO <sub>2</sub> by yttrium codoping	JOURNAL OF MATERIALS CHEMISTRY	12 (4): 1118-1123	2002
陳三元	交大材料系	氣相層析質譜儀	Effect of annealing temperature on physical and electrical properties of Bi <sub>3.25</sub> La <sub>0.75</sub> Ti <sub>3</sub> O <sub>12</sub> thin films on Al <sub>2</sub> O <sub>3</sub> -buffered Si	APPLIED PHYSICS LETTERS	80 (11): 1984-1986	MAR 18 2002
陳三元	交大材料系	氣相層析質譜儀	Preferential growth of thin rutile TiO <sub>2</sub> films upon thermal oxidation of sputtered Ti films	THIN SOLID FILMS	402 (1-2): 290-295	JAN 1 2002
陳三元	交大材料系	氣相層析質譜儀	Synthesis nano-apatite powders by chemical and physical methods	碩博士論文		2002
陳重男	交大環工系	氣相層析質譜儀	Dynamic model of ozone contacting process with oxygen mass transfer in bubble columns	JOURNAL OF ENVIRONMENTAL ENGINEERING-ASCE	128 (11): 1036-1045	NOV 2002
陳重男	交大環工系	氣相層析質譜儀	Decomposition of 2-naphthalenesulfonate in aqueous solution by ozonation with UV radiation	WATER RESEARCH	36 (16): 4144-4154	SEP 2002
陳重男	交大環工系	氣相層析質譜儀	Ozonation of domestic secondary effluent for recycling and reuse - a pilot plant study	WATER SCIENCE AND TECHNOLOGY	46 (4-5): 361-366	2002
陳重男	交大環工系	氣相層析質譜儀	A dynamic model of ozone disinfection in a bubble column with oxygen mass transfer	JOURNAL OF THE CHINESE INSTITUTE OF CHEMICAL ENGINEERS	33 (3): 253-265	MAY 2002
陳重男	交大環工系	氣相層析質譜儀	Role of goethite dissolution in the oxidation of 2-chlorophenol with hydrogen peroxide	CHEMOSPHERE	46 (1): 131-136	JAN 2002
李昀	清大化學系	氣相層析質譜儀	Fluorinated aminoalkoxide Cu-II complexes: new CVD precursors for deposition of copper metal	JOURNAL OF MATERIALS CHEMISTRY	12 (12): 3541-3550	2002
李昀	清大化學系	氣相層析質譜儀	A study of unsaturated pyrazolate-bridged diruthenium carbonyl complexes	ORGANOMETALLICS	21 (22): 4735-4742	OCT 28 2002
李昀	清大化學系	氣相層析質譜儀	Preparation and characterization of RuO <sub>2</sub> thin films from Ru(CO) <sub>2</sub> (tmhd) <sub>2</sub> by metalorganic chemical vapor deposition	THIN SOLID FILMS	413 (1-2): 85-91	JUN 24 2002
李昀	清大化學系	氣相層析質譜儀	Alkaline-earth metal fluoroalkoxide complexes with multi-coordinated polyether appendage: synthesis and characterization	INORGANICA CHIMICA ACTA	334: 172-182	MAY 30 2002
李昀	清大化學系	氣相層析質譜儀	Deposition of osmium thin films using pyrazolate complexes as CVD source reagents	JOURNAL OF MATERIALS CHEMISTRY	12 (5): 1363-1369	2002
李昀	清大化學系	氣相層析質譜儀	Deposition of iridium thin films using new (IrCVD)-C-I precursors	CHEMICAL VAPOR DEPOSITION	8 (1): 17+	JAN 2002

季昀	清大化學系	氣相層析質譜儀	Synthesis and characterization of fluorinated beta-ketoiminate and imino-alcoholate Pd complexes: precursors for palladium chemical vapor deposition	JOURNAL OF MATERIALS CHEMISTRY	13 (1): 135-142	2003
季昀	清大化學系	氣相層析質譜儀	鈦金屬化學氣相沉積前驅物之合成與薄膜鍍製	碩博士論文		2002
季昀	清大化學系	氣相層析質譜儀	新型鎢與錳錯化合物的合成及其化學氣相沉積	碩博士論文		2002
廖俊臣	清大化學系	氣相層析質譜儀	Intramolecular Diels-Alder reactions of brominated masked o-benzoquinones. A detour method to synthesize highly functionalized oxatricyclic [m.3.1.0] ring systems from 2-methoxyphenols	JOURNAL OF ORGANIC CHEMISTRY	67 (23): 8157-8165	NOV 15 2002
廖俊臣	清大化學系	氣相層析質譜儀	Concise and efficient total synthesis of Lycopodium alkaloid magellanine	ANGEWANDTE CHEMIE-INTERNATIONAL EDITION	41 (21): 4090-4093	2002
廖俊臣	清大化學系	氣相層析質譜儀	Complete pi-facial diastereoselectivity in Diels-Alder reactions of dissymmetric 2,4-cyclohexadienones	ORGANIC LETTERS	4 (15): 2477-2480	JUL 25 2002
廖俊臣	清大化學系	氣相層析質譜儀	Diels-Alder reactions of 6,6-dimethoxycyclohexa-2,4-dienone generated by pyrolysis of its dimer	SYNLETT	(4): 565-568	APR 2002
廖俊臣	清大化學系	氣相層析質譜儀	A highly diastereoselective synthesis of (1R)-(+)-camphor-based chiral allenes and their asymmetric hydroboration-oxidation reactions	JOURNAL OF ORGANIC CHEMISTRY	67 (4): 1308-1313	FEB 22 2002
廖俊臣	清大化學系	氣相層析質譜儀	Intramolecular Diels-Alder Reactions of Masked o-Benzoquinones with Asymmetric Furans	碩博士論文		2002
沙晉康	清大化學系	氣相層析質譜儀	Total syntheses of (+/-)-lentiginosine and (+/-)-1-epi-lentiginosine from hexahydro-1H-indol-3-one	TETRAHEDRON LETTERS	44 (3): 499-501	JAN 13 2003
沙晉康	清大化學系	氣相層析質譜儀	Anionic cyclization approach toward perhydrobenzofuranone: Stereocontrolled synthesis of the hexahydrobenzofuran subunit of avermectin	JOURNAL OF ORGANIC CHEMISTRY	67 (3): 831-836	FEB 8 2002
汪炳鈞	清大化學系	氣相層析質譜儀	Asymmetric epoxidation of allylic alcohols catalyzed by new chiral vanadium(V) complexes	TETRAHEDRON-ASYMMETRY	13 (24): 2625-2628	DEC 9 2002
汪炳鈞	清大化學系	氣相層析質譜儀	A highly diastereoselective synthesis of (1R)-(+)-camphor-based chiral allenes and their asymmetric hydroboration-oxidation reactions	JOURNAL OF ORGANIC CHEMISTRY	67 (4): 1308-1313	FEB 22 2002
汪炳鈞	清大化學系	氣相層析質譜儀	Inducing the cell cycle arrest and apoptosis of oral KB carcinoma cells by hydroxychavicol: roles of glutathione and reactive oxygen species	BRITISH JOURNAL OF PHARMACOLOGY	135 (3): 619-630	FEB 2002
汪炳鈞	清大化學系	氣相層析質譜儀	A modified Mannich-type reaction catalyzed by VO(acac) <sub>2</sub>	ORGANIC LETTERS	4 (3): 463-466 FEB	7 2002
汪炳鈞	清大化學系	氣相層析質譜儀	Expedient, stereocontrolled synthesis of (+)-compactin lactone via intramolecular reformatsky reaction	JOURNAL OF ORGANIC CHEMISTRY	67 (3): 1034-1035	FEB 8 2002
汪炳鈞	清大化學系	氣相層析質譜儀	1,2-diphenylethylenediamine linked chiral Ti(IV) complex - a new entry to the highly enantioselective silylcyanation of aliphatic and aromatic aldehydes	CHEMICAL COMMUNICATIONS	(1): 54-55	2002



汪炳鈞	清大化學系	氣相層析質譜儀	Asymmetric Ring Opening of meso-Epoxyde with TMSSPh Catalyzed by (salen)VIVO Complexes	碩博士論文		2002
王素蘭	清大化學系	氣相層析質譜儀	Coordination cadmium compounds with 1,10-phenanthroline	COLLECTION OF CZECHOSLOVAK CHEMICAL COMMUNICATIONS	67 (11): 1623-1628	2002
王素蘭	清大化學系	氣相層析質譜儀	Synthesis and structural characterization of polymeric silver(I) butyl xanthate	COLLECTION OF CZECHOSLOVAK CHEMICAL COMMUNICATIONS	67 (11): 1629-1634	2002
王素蘭	清大化學系	氣相層析質譜儀	Nonresonant two-photon mass analyzed threshold ionization and zero kinetic energy photoelectron investigation of the $(X)\tilde{}$ B-2(1) ground state of $CH_2CO^+$ and $CD_2CO^+$	JOURNAL OF CHEMICAL PHYSICS	117 (14): 6546-6555	OCT 8 2002
王素蘭	清大化學系	氣相層析質譜儀	Synthesis and structure of the cadmium (II) complex: $[Cd(C_5H_5N)_2(S_2CO-n-C_4H_9)_2]$	MOLECULES	7 (7): 549-553	JUL 2002
王素蘭	清大化學系	氣相層析質譜儀	Chloro(N-p-nitrobenzoylimido-meso-tetraphenylporphyrinato)iron(III): a high-spin complex	JOURNAL OF THE CHEMICAL SOCIETY-DALTON TRANSACTIONS	(15): 3001-3006	2002
王素蘭	清大化學系	氣相層析質譜儀	Synthesis, crystal structure, and solid state NMR spectroscopy of $NH_4[(VO_3)_2(4,4'-bpy)_2(H_2PO_4)(PO_4)_2]$ center dot $0.5H_2O$ , a mixed-valence vanadium(IV,V) phosphate with a pillared layer structure	INORGANIC CHEMISTRY	41 (15): 3929-3934	JUL 29 2002
王素蘭	清大化學系	氣相層析質譜儀	Synthesis and crystal structures of cadmium (II) n-butylxathate complexes	CHINESE JOURNAL OF INORGANIC CHEMISTRY	18 (6): 615-618	JUN 2002
王素蘭	清大化學系	氣相層析質譜儀	The stereochemistry of the stable conformational diastereomers in substituted dihydrodibenzo[ef,kl]heptalenes, the doubly bridged biphenyls. Synthesis, structural elucidation and barrier to conformational diastereomerism	JOURNAL OF THE CHEMICAL SOCIETY-PERKIN TRANSACTIONS	2 (3): 545-551	2002
王素蘭	清大化學系	氣相層析質譜儀	Preparation and structural characterization of mercury 21-thiaporphyrin complex: $Hg-II(Stpp)Cl$ (Stpp = tetraphenyl-21-thiaporphyrin anion)	INORGANIC CHEMISTRY COMMUNICATIONS	5 (2): 150-155	FEB 2002
王素蘭	清大化學系	氣相層析質譜儀	Chiral metal gallophosphates templated by achiral triamine: Syntheses and characterizations of $A[Mn(H_2O)_2Ga(PO_4)_2](3)$ and $A[Zn_3Ga(PO_4)_4]$ center dot $H_2O$ (A = H(3)DETA)	CHEMISTRY OF MATERIALS	14 (1): 96-102	JAN 2002
王素蘭	清大化學系	氣相層析質譜儀	Hydrothermal Syntheses, Crystal Structures and Properties of Transition Metal-Substituted Gallophosphates	碩博士論文		2002
王素蘭	清大化學系	氣相層析質譜儀	Syntheses, Structural Characterizations and Thermal Analyses of Molybdenum(VI) Arsenates (Phosphates)	碩博士論文		2002
王素蘭	清大化學系	氣相層析質譜儀	Syntheses, Crystal Structures and Properties of Organically Templated Vanadium Arsenates and Vanadium Oxolato-Arsenates	碩博士論文		2002
王素蘭	清大化學系	氣相層析質譜儀	Syntheses, Crystal Structures and Properties of Vanadium-Substituted Gallium and	碩博士論文		2002

			Vanadium Phosphates			
黃國柱	清大化學系	氣相層析質譜儀	Effects of malonate C-60 derivatives on activated microglia	BRAIN RESEARCH	940 (1-2): 61-68 J	UN 14 2002
黃國柱	清大化學系	氣相層析質譜儀	Oxygen and ozone oxidation-enhanced field emission of carbon nanotube	APPLIED PHYSICS LETTERS	80 (25): 4819-4821	JUN 24 2002
黃國柱	清大化學系	氣相層析質譜儀	二苯基亞磷酸酯之熱反應及其在有機發光二極體上之應用	碩博士論文		2002
黃國柱	清大化學系	氣相層析質譜儀	new design of meat ion sensor	碩博士論文		2002
鄭建鴻	清大化學系	氣相層析質譜儀	Highly regio- and chemoselective [2+2] cycloaddition of electron-deficient diynes with allenes catalyzed by nickel complexes: A novel entry to polysubstituted benzene derivatives	JOURNAL OF ORGANIC CHEMISTRY	67 (22): 7724-7729	NOV 1 2002
鄭建鴻	清大化學系	氣相層析質譜儀	Highly regio- and stereoselective silylstannation of allenes catalyzed by phosphine-free palladium complexes Jeganmohan M.	CHEMICAL COMMUNICATIONS	(21): 2552-2553	2002
鄭建鴻	清大化學系	氣相層析質譜儀	High-performance blue electroluminescent devices based on a biaryl	ADVANCED MATERIALS	14 (19): 1409-1412	OCT 2 2002
鄭建鴻	清大化學系	氣相層析質譜儀	Diaminoanthracene derivatives as high-performance green host electroluminescent materials	CHEMISTRY OF MATERIALS	14 (9): 3958-3963	SEP 2002
鄭建鴻	清大化學系	氣相層析質譜儀	Novel [60]fullerene derivatives bearing hexamethylphosphorus triamidous ylide: Synthesis and characterization.	ABSTRACTS OF PAPERS OF THE AMERICAN CHEMICAL SOCIETY	224: 728-ORGN Part	2 AUG 18 2002
鄭建鴻	清大化學系	氣相層析質譜儀	Europium complex as a highly efficient red emitter in electroluminescent devices	APPLIED PHYSICS LETTERS	81 (5): 792-794	JUL 29 2002
鄭建鴻	清大化學系	氣相層析質譜儀	Highly stereoselective ring-opening addition of terminal acetylenes to bicyclic olefins catalyzed by nickel complexes	ORGANIC LETTERS	4 (10): 1679-1682	MAY 16 2002
鄭建鴻	清大化學系	氣相層析質譜儀	Synthesis of seven-membered lactones via nickel- and zinc-catalyzed highly regio- and stereoselective cyclization of 2-iodobenzyl alcohols with propiolates	JOURNAL OF THE AMERICAN CHEMICAL SOCIETY	124 (20): 5630-5631	MAY 22 2002
鄭建鴻	清大化學系	氣相層析質譜儀	Nickel-catalyzed regioselective carbocyclization of ortho-halophenyl ketones with propiolates: an efficient route to disubstituted indenols	CHEMICAL COMMUNICATIONS	(9): 942-943	2002
鄭建鴻	清大化學系	氣相層析質譜儀	Novel cyclization and reductive coupling of bicyclic olefins with alkyl propiolates catalyzed by nickel complexes	PURE AND APPLIED CHEMISTRY	74 (1): 69-75	JAN 2002
鄭建鴻	清大化學系	氣相層析質譜儀	Nickel-catalyzed coupling of aryl iodides with aromatic aldehydes: Chemoselective synthesis of ketones	JOURNAL OF ORGANIC CHEMISTRY	67 (5): 1682-1684	MAR 8 2002
鄭建鴻	清大化學系	氣相層析質譜儀	Ni-catalyzed highly regio- and chemoselective cycloaddition of nonconjugated diynes with 1,3-diynes: A novel method for polysubstituted arylalkynes	ORGANIC LETTERS	4 (5): 807-810	MAR 7 2002
鄭建鴻	清大化學系	氣相層析質譜儀	Palladium-catalyzed three-component assembling of allenes, organic halides, and arylboronic acids	JOURNAL OF ORGANIC CHEMISTRY	67 (1): 99-105	JAN 11 2002

鄭建鴻	清大化學系	氣相層析質譜儀	Application of Imidazole and Aminobenzanthrone Derivatives in Organic Electroluminescent Devices	碩博士論文		2002
陳秋炳	清大化學系	氣相層析質譜儀	EPR studies of high dose gamma-irradiated poly(methyl methacrylate)	MATERIALS CHEMISTRY AND PHYSIC	78 (3): 847-851	FEB 28 2003
陳秋炳	清大化學系	氣相層析質譜儀	Preparation and structures of complexes of titanium(IV) and 8-hydroxyquinoline: TiQ(2)(Opr(i))(2) and [TiQ(2)(mu-O)](4)center dot 6H(2)O	POLYHEDRON	21 (11): 1081-1087	MAY 15 2002
陳秋炳	清大化學系	氣相層析質譜儀	Organic amorphous material N,N,N,N'-tetraaryl((Ar2Ar22)-Ar-1 2)-1,1'-biphenyl-4,4' diamine	JOURNAL OF THE CHINESE CHEMICAL SOCIETY	48 (6A): 1059-1064 Sp. Iss. SI	DEC 2001
陳秋炳	清大化學系	氣相層析質譜儀	探討六配位的鎂與鋅錯化物的合成與應用	碩博士論文		2002
陳秋炳	清大化學系	氣相層析質譜儀	8-羥基奎寧之分子軌域研究	碩博士論文		2002
陳秋炳	清大化學系	氣相層析質譜儀	Imidazo[1,2- $\alpha$ ]pyridine 的衍生物的合成和探討	碩博士論文		2002
劉行讓	清大化學系	氣相層析質譜儀	Thermal reaction of trimethylphosphine and triethylphosphine on Cu(110)	JOURNAL OF PHYSICAL CHEMISTRY B	106 (7): 1722-1727	FEB 21 2002
劉行讓	清大化學系	氣相層析質譜儀	An efficacious synthetic strategy for cis-clerodane diterpenoids. Application to the total synthesis of (+/-)-6 beta-acetoxy-2-oxokolavenool	ABSTRACTS OF PAPERS OF THE AMERICAN CHEMICAL SOCIETY	223: 437-ORGN Part 2	APR 7 2002
劉行讓	清大化學系	氣相層析質譜儀	Diels-Alder chemistry of 2-diethoxyphosphinylcyclohex-2-en ones. A new approach to complex phosphonates and synthetic applications of the beta-keto phosphonate system	CHEMICAL COMMUNICATIONS		2002
劉行讓	清大化學系	氣相層析質譜儀	Synthetic studies of natural products: (+/-)-6b-acetoxy-2-oxokolavenool, dysidiolide and pallescensin C	碩博士論文		2002
韓建中	清大化學系	氣相層析質譜儀	Personal authentication using palm-print features	PATTERN RECOGNITION	36 (2): 371-381	FEB 2003
韓建中	清大化學系	氣相層析質譜儀	Highly conductive new aniline copolymers containing alkylthio substituents	碩博士論文		2002
胡德	清大化工系	氣相層析質譜儀	青於固/液態介質之光功率限制效應研究	碩博士論文		2002
李育德	清大化工系	氣相層析質譜儀	Monomer effects on emulsion polymerization with ASR as the surfactant	JOURNAL OF POLYMER RESEARCH-TAIWAN	9 (3): 183-188	SEP 2002
李育德	清大化工系	氣相層析質譜儀	Block copolyesters of poly(pentamethylene 2,6-naphthalenedicarboxylate) and poly(tetramethylene adipate)	JOURNAL OF APPLIED POLYMER SCIENCE	86 (14): 3652-3659	DEC 27 2002
李育德	清大化工系	氣相層析質譜儀	Novel positive-tone thick photoresist for high aspect ratio microsystem technology	MICROSYSTEM TECHNOLOGIES	8 (4-5): 326-329	AUG 2002
李育德	清大化工系	氣相層析質譜儀	NMR spectroscopic studies of dimethyldiethoxy silane hydrolysis and polysiloxane conversion	JOURNAL OF APPLIED POLYMER SCIENCE	86 (2): 468-477	OCT 10 2002
李育德	清大化工系	氣相層析質譜儀	Block copolyesters of poly(pentamethylene p,p'-bibenzoate) and poly(tetramethylene adipate)	JOURNAL OF POLYMER SCIENCE PART A-POLYMER CHEMISTRY	40 (15): 2626-2636	AUG 1 2002
李育德	清大化工系	氣相層析質譜儀	溫度敏感性高分子材料之合成與性質分析	碩博士論文		2002
李育德	清大化工系	氣相層析質譜儀	以溶膠-凝膠法製備低介電	碩博士論文		2002

			PTFE-SiO <sub>2</sub> 基板材料性質之研究			
薛敬和	清大化工系	氣相層析質譜儀	Phase equilibria and solidification properties of Sn-Cu-Ni alloys	JOURNAL OF ELECTRONIC MATERIALS	31 (9): 907-915	SEP 2002
薛敬和	清大化工系	氣相層析質譜儀	Phase equilibria of the ternary Ni-Cr-Zr system and interfacial reactions in the Ni-Cr/Zr couples	METALLURGICAL AND MATERIALS TRANSACTIONS A-PHYSICAL METALLURGY AND MATERIALS SCIENCE	33 (4): 995-1002	APR 2002
薛敬和	清大化工系	氣相層析質譜儀	Electromigration effect upon the Sn/Ag and Sn/Ni interfacial reactions at various temperatures	ACTA MATERIALIA	50 (9): 2461-2469	MAY 24 2002
薛敬和	清大化工系	氣相層析質譜儀	Quantities of grains of aluminum and those of TiB <sub>2</sub> and Al <sub>3</sub> Ti particles added in the grain-refining processes	MATERIALS SCIENCE AND ENGINEERING A-STRUCTURAL MATERIALS PROPERTIES MICROSTRUCTURE AND PROCESSING	325 (1-2): 242-248	FEB 28 2002
薛敬和	清大化工系	氣相層析質譜儀	Interfacial reactions in In-Sn/Ni couples and phase equilibria of the In-Sn-Ni system	JOURNAL OF ELECTRONIC MATERIALS	31 (2): 152-160	FEB 2002
薛敬和	清大化工系	氣相層析質譜儀	Block copolyesters of poly(pentamethylene 2,6-naphthalenedicarboxylate) and poly(tetramethylene adipate)	JOURNAL OF APPLIED POLYMER SCIENCE	86 (14): 3652-3659	DEC 27 2002
薛敬和	清大化工系	氣相層析質譜儀	Novel positive-tone thick photoresist for high aspect ratio microsystem technology	MICROSYSTEM TECHNOLOGIES	8 (4-5): 326-329	AUG 2002
陳壽安	清大化工系	氣相層析質譜儀	Phase equilibria and solidification properties of Sn-Cu-Ni alloys	JOURNAL OF ELECTRONIC MATERIALS	31 (9): 907-915	SEP 2002
陳壽安	清大化工系	氣相層析質譜儀	Phase equilibria of the ternary Ni-Cr-Zr system and interfacial reactions in the Ni-Cr/Zr couples	METALLURGICAL AND MATERIALS TRANSACTIONS A-PHYSICAL METALLURGY AND MATERIALS SCIENCE	33 (4): 995-1002	APR 2002
陳壽安	清大化工系	氣相層析質譜儀	Electromigration effect upon the Sn/Ag and Sn/Ni interfacial reactions at various temperatures	ACTA MATERIALIA	50 (9): 2461-2469	MAY 24 2002
陳壽安	清大化工系	氣相層析質譜儀	Quantities of grains of aluminum and those of TiB <sub>2</sub> and Al <sub>3</sub> Ti particles added in the grain-refining processes	MATERIALS SCIENCE AND ENGINEERING A-STRUCTURAL MATERIALS PROPERTIES MICROSTRUCTURE AND PROCESSING	325 (1-2): 242-248	FEB 28 2002
陳壽安	清大化工系	氣相層析質譜儀	Interfacial reactions in In-Sn/Ni couples and phase equilibria of the In-Sn-Ni system	JOURNAL OF ELECTRONIC MATERIALS	31 (2): 152-160	FEB 2002
陳壽安	清大化工系	氣相層析質譜儀	聚苯胺共聚合體之結構、性能與電化學行為及其在鋰二次電池的應用研究	碩博士論文		2002
王詠雲	清大化工系	氣相層析質譜儀	Modeling of acid copper anisotropic deposition based on	JOURNAL OF THE	150 (1): C7-C15	JAN 2003

			detailed calculation of the electrolyte composition	ELECTROCHEMICAL SOCIETY		
王詠雲	清大化工系	氣相層析質譜儀	Study of the mechanism of additives on copper dissolution in monoethanolamine-complexed cupric ion solution	JOURNAL OF APPLIED ELECTROCHEMISTRY	32 (9): 987-992	SEP 2002
王詠雲	清大化工系	氣相層析質譜儀	Two- and three-electrode impedance spectroscopy of lithium-ion batteries	JOURNAL OF POWER SOURCES	111 (2): 255-267	SEP 23 2002
王詠雲	清大化工系	氣相層析質譜儀	Microstructure of poly(vinylidene fluoride)-based polymer electrolyte and its effect on transport properties	JOURNAL OF THE ELECTROCHEMICAL SOCIETY	149 (9): A1230-A1236	SEP 2002
王詠雲	清大化工系	氣相層析質譜儀	Heat dissipation design for lithium-ion batteries	JOURNAL OF POWER SOURCES	109 (1): 160-166	JUN 15 2002
王詠雲	清大化工系	氣相層析質譜儀	Pulsed current and potential response of acid copper system with additives and the double layer effect	JOURNAL OF THE ELECTROCHEMICAL SOCIETY	149 (5): C229-C236	MAY 2002
王詠雲	清大化工系	氣相層析質譜儀	Displacement reactions between metal ions and nitride barrier layer/silicon substrate	JOURNAL OF THE ELECTROCHEMICAL SOCIETY	149 (5): G309-G317	MAY 2002
李紫原	清大材料中心	氣相層析質譜儀	The effect of calcination temperature on the crystallinity of TiO <sub>2</sub> nanopowders	JOURNAL OF CRYSTAL GROWTH	247 (3-4): 363-370	JAN 2003
李紫原	清大材料中心	氣相層析質譜儀	SiCl <sub>3</sub> CCl <sub>3</sub> as a novel precursor for chemical vapor deposition of amorphous carbon films.	ABSTRACTS OF PAPERS OF THE AMERICAN CHEMICAL SOCIETY	223: 284-INOR Part 2	APR 7 2002
雷永耀	台北榮總外科	氣相層析質譜儀	Tumor necrosis factor-producing activity of wogonin in RAW 264.7 murine macrophage cell line	PLANTA MEDICA	68 (11): 1036-1039	NOV 2002
雷永耀	台北榮總外科	氣相層析質譜儀	Protective effect of magnolol on the small intestinal ischemia-reperfusion injury	TRANSPLANTATION PROCEEDINGS	34 (7): 2679-2680	NOV 2002
雷永耀	台北榮總外科	氣相層析質譜儀	Estrogen therapy for hepatectomy patients with poor liver function?	MEDICAL HYPOTHESES	58 (6): 516-518	JUN 2002
雷永耀	台北榮總外科	氣相層析質譜儀	Clinical characteristics and prognosis of hepatocellular carcinoma patients with paraneoplastic syndromes	HEPATO-GASTROENTEROLOGY	49 (47): 1315-1319	SEP-OCT 2002
雷永耀	台北榮總外科	氣相層析質譜儀	Clinical significance of AXL kinase family in gastric cancer	ANTICANCER RESEARCH	22 (2B): 1071-1078	MAR-APR 2002
雷永耀	台北榮總外科	氣相層析質譜儀	In vivo and in vitro growth stimulation of murine hepatoma cells by glucocorticoid	ANTICANCER RESEARCH	22 (3): 1413-1422	MAY-JUN 2002
雷永耀	台北榮總外科	氣相層析質譜儀	Applied anatomy of the genital branch of the genitofemoral nerve in open inguinal herniorrhaphy	EUROPEAN JOURNAL OF SURGERY	168 (3):	145-149 2002
雷永耀	台北榮總外科	氣相層析質譜儀	Superior survival with capecitabine plus docetaxel combination therapy in anthracycline-pretreated patients with advanced breast cancer: Phase III trial results	JOURNAL OF CLINICAL ONCOLOGY	20 (12): 2812-2823	JUN 15 2002
雷永耀	台北榮總外科	氣相層析質譜儀	Higher morbidity and mortality after combined total gastrectomy and pancreaticosplenectomy for gastric cancer	WORLD JOURNAL OF SURGERY	26 (6): 678-682	JUN 2002
雷永耀	台北榮總外科	氣相層析質譜儀	Peritoneal carcinomatosis and lymph node metastasis are prognostic indicators in patients with Borrmann type IV gastric carcinoma	HEPATO-GASTROENTEROLOGY	49 (45): 874-877	MAY-JUN 2002
李嘉平	台灣科技大學化工系	氣相層析質譜儀	Effects of CH <sub>4</sub> /SiH <sub>4</sub> flow ratio and microwave power on the growth of beta-SiC on Si by ECR-CVD using	THIN SOLID FILMS	405 (1-2): 17-22	FEB 22 2002

			CH4/SiH4/Ar at 200 degrees C			
鄭淑芬	台大化學系	氣相層析質譜儀	Drying induced phase transformation of mesoporous silica	CHEMICAL COMMUNICATIONS	(23): 2854-2855	2002
鄭淑芬	台大化學系	氣相層析質譜儀	Well-dispersed gallium-promoted sulfated zirconia on mesoporous MCM-41 silica	CATALYSIS LETTERS	83 (3-4): 281-285	NOV 2002
鄭淑芬	台大化學系	氣相層析質譜儀	Catalytic behavior of alumina-promoted sulfated zirconia supported on mesoporous silica in butane isomerization	CATALYSIS LETTERS	78 (1-4): 223-229	2002
鄭淑芬	台大化學系	氣相層析質譜儀	Fe-substituted molecular sieves as catalysts in liquid phase pinacol rearrangement	JOURNAL OF MOLECULAR CATALYSIS A-CHEMICAL	181 (1-2): 189-200	MAR 25 2002
費定國	中央化工系	氣相層析質譜儀	Tartaric acid-assisted sol-gel synthesis of LiNi <sub>0.8</sub> Co <sub>0.2</sub> O <sub>2</sub> and its electrochemical properties as a cathode material for lithium batteries	SOLID STATE IONICS	152: 83-90 Part A Sp. Iss. S1	DEC 2002
費定國	中央化工系	氣相層析質譜儀	Preparation and electrochemical properties of Zn-doped LiNi <sub>0.8</sub> Co <sub>0.2</sub> O <sub>2</sub>	JOURNAL OF POWER SOURCES	112 (2): 384-394	NOV 14 2002
費定國	中央化工系	氣相層析質譜儀	The effect of varying the acid to metal ion ratio R on the structural, thermal, and electrochemical properties of sol-gel derived lithium nickel cobalt oxides	SOLID STATE IONICS	148 (3-4): 291-298	JUN 2002
費定國	中央化工系	氣相層析質譜儀	Preparation and characterization of LiNi <sub>0.7</sub> Co <sub>0.2</sub> Ti <sub>0.05</sub> M <sub>0.05</sub> O <sub>2</sub> (M=Mg, Al and Zn) systems as cathode materials for lithium batteries	SOLID STATE IONICS	148 (3-4): 351-358	JUN 2002
費定國	中央化工系	氣相層析質譜儀	Effects of surface modification on the electrochemical performance of pyrolyzed sugar carbons as anode materials for lithium-ion batteries	MATERIALS CHEMISTRY AND PHYSICS	76 (1): 1-6	JUL 28 2002
費定國	中央化工系	氣相層析質譜儀	Electrochemical characterization of Li <sub>x</sub> Ni <sub>y</sub> CO <sub>1-y</sub> O <sub>2</sub> electrodes in a 1 M LiPF <sub>6</sub> solution of the ethylene carbonate-diethyl carbonate	JOURNAL OF POWER SOURCES	105 (1): 82-86	MAR 5 2002
費定國	中央化工系	氣相層析質譜儀	Synthesis and characterization of pyrolyzed sugar carbons under nitrogen or argon atmospheres as anode materials for lithium-ion batteries	MATERIALS CHEMISTRY AND PHYSICS	73 (1): 37-46	JAN 2 2002
費定國	中央化工系	氣相層析質譜儀	Electrochemical performance of Sr <sup>2+</sup> -doped LiNi <sub>0.8</sub> Co <sub>0.2</sub> O <sub>2</sub> as a cathode material for lithium batteries synthesized via a wet chemistry route using oxalic acid	MATERIALS LETTERS	52 (3): 197-202	JAN 2002
費定國	中央化工系	氣相層析質譜儀	LiNi <sub>0.8</sub> Co <sub>0.2</sub> O <sub>2</sub> cathode materials synthesized by the maleic acid assisted sol-gel method for lithium batteries	JOURNAL OF POWER SOURCES	103 (2): 265-272	JAN 1 2002
吳慧芬	淡大化學系	氣相層析質譜儀	Conformational analysis and binding affinity determination for host-guest complexation of alkali metal ions with bis-crown ethers by electrospray mass spectrometry and molecular modeling	EUROPEAN JOURNAL OF MASS SPECTROMETRY	8 (5): 375-380	2002
吳慧芬	淡江化學系	氣相層析質譜儀	Letter: Hydroxide and oxygen atom attachment to dichlorophthalic anhydride in negative-ion chemical ionization with collisionally-activated	EUROPEAN JOURNAL OF MASS SPECTROMETRY	8 (4): 329-332	2002

			dissociation in an external-source ion trap mass spectrometer			
郭曜豪	中國醫藥研究所藥物化學組	氣相層析質譜儀	Studies on the Chemical Constituents and Bioactivities of <i>Cephalotaxus wilsoniana</i> Hayata. and Their Derivatives	碩博士論文		2002
徐秀福	淡江化學系	氣相層析質譜儀	Synthesis and Mesomorphic Behavior of Discotic Liquid Crystals with a 1,2,4,5-Tetraarylbenzene Core and Various Highly Conjugated Bending Rods with 2-Phenylethynyl-5-ethynyl-thiophene Units	碩博士論文		2002
周善行	輔大化學系	氣相層析質譜儀	Synthesis of pipercolic acid derivatives via Aza-Diels-Alder reactions of thio-substituted 1,3-butadienes with iminium salts	SYNTHETIC COMMUNICATIONS	32 (20): 3119-3126	2002
周善行	輔大化學系	氣相層析質譜儀	Cycloaddition and Synthetic Applications of 2-Substituted 4-Phenylthio-3-sulfolenes with p-Toluenesulfonyl Isocyanate	碩博士論文		2002
周善行	輔大化學系	氣相層析質譜儀	Substituent Effects of Anthraquinone Oxime Esters as Photo-Induced DNA-Cleaving Agents	碩博士論文		2002
周善行	輔大化學系	氣相層析質譜儀	Synthesis of Heterocyclic Compounds as Hole Transport Materials in Electroluminescence	碩博士論文		2002
周善行	輔大化學系	氣相層析質譜儀	Synthesis and Applications of 3-Phenylsulfonyl-3-sulfolenes	碩博士論文		2002
柯安南	東海化學系	氣相層析質譜儀	Low-pressure one-step synthesis of methyl isobutyl ketone from acetone and hydrogen over metal modified solid base catalysts	JOURNAL OF THE CHINESE CHEMICAL SOCIETY	49 (5): 935-942	OCT 2002
柯安南	東海化學系	氣相層析質譜儀	Preparation and characterization of Al <sub>2</sub> O <sub>3</sub> -MgO mixed oxides	REACTION KINETICS AND CATALYSIS LETTERS	77 (1): 189-195	2002
葉玉堂	東海化學系	氣相層析質譜儀	Reductions of Co(III)Complexes by Ascorbic Acid	碩博士論文		2002
葉玉堂	東海化學系	氣相層析質譜儀	The Chemistry of Nitrosylpentacyanoferrate(II) Complex	碩博士論文		2002
葉玉堂	東海化學系	氣相層析質譜儀	Reductions of Pentacyanoferrate(III) Complexes by Ascorbic Acid	碩博士論文		2002
洪政雄	彰師化學系	氣相層析質譜儀	Four- and five-coordinate aluminum ketimine complexes: Synthesis, characterization, and ring-opening polymerization	INORGANIC CHEMISTRY	41 (24): 6450-6455	DEC 2 2002
洪政雄	彰師化學系	氣相層析質譜儀	Synthesis and crystal structure of 2,3,12,13-tetraalkoxy-21, 23-dithiaporphyrins Agarwal N, Mishra SP, Kumar A.	CHEMICAL COMMUNICATIONS	(22): 2642-2643	NOV 21 2002
洪政雄	彰師化學系	氣相層析質譜儀	Cu-mediated syntheses of N-fused and ring-modified trihiahexaphyrins	CHEMISTRY-A EUROPEAN JOURNAL	8 (19): 4542-4548	OCT 4 2002
洪政雄	彰師化學系	氣相層析質譜儀	Ruthenium complexes of quinone related N-aryl-1,2-diimines. Metal mediated synthesis, X-ray structure and chemical reaction	NEW JOURNAL OF CHEMISTRY	26 (10): 1409-1414	2002
洪政雄	彰師化學系	氣相層析質譜儀	Chromium complexes of an isomeric N-donor ligand, 2-[(N-arylamino)phenylazo]pyridine : Amination reactions, X-ray structure, and redox properties	INORGANIC CHEMISTRY	41 (17): 4531-4538	AUG 26 2002
洪政雄	彰師化學系	氣相層析質譜儀	Dimeric iron n-confused porphyrin complexes	CHEMICAL COMMUNICATIONS	(14): 1516-1517	2002

## 國立交通大學貴重儀器使用中心九十一年度工作報告書

洪政雄	彰師化學系	氣相層析質譜儀	Metal oxidation promoted C-H activation in manganese complexes of N-confused porphyrin	INORGANIC CHEMISTRY	41 (13): 3334-3336	JUL 1 2002
洪政雄	彰師化學系	氣相層析質譜儀	Synthesis and study of azo-dye compounds: Various molecular stackings from different polarities of the molecules	HELVETICA CHIMICA ACTA	85 (5): 1517-1522	2002
洪政雄	彰師化學系	氣相層析質譜儀	Synthesis, Characterization, and Coordination of N-Confused Porphyrin Metal Complexes	碩博士論文		2002
洪政雄	彰師化學系	氣相層析質譜儀	Synthesis, Structure, and Characterization of Ruthenium Mono- and Dithia-Porphyrin Metal Complexes	碩博士論文		2002
洪伯誠	中正化學系	氣相層析質譜儀	Novel [6+2] cycloaddition of fulvenes with alkenes: A facile synthesis of the anisactone and hirsutane framework	ORGANIC LETTERS	4 (13): 2249-2252	JUN 27 2002
洪伯誠	中正化學系	氣相層析質譜儀	Unprecedented microwave effects on the cycloaddition of fulvenes. A new approach to the construction of polycyclic ring systems	ORGANIC LETTERS	4 (4): 663-666	FEB 21 2002
洪伯誠	中正化學系	氣相層析質譜儀	1. Microwave Effect on the Cycloaddition of Fulvene 2. Novel [6+2] Cycloaddition of Fulvene with Alkenes	碩博士論文		2002
洪伯誠	中正化學系	氣相層析質譜儀	1. 利用分子內[2+2]光環化-斷裂反應合成 Fusoxysporone 2. Erybraedins C 全合成的研究	碩博士論文		2002
洪伯誠	中正化學系	氣相層析質譜儀	Oxidative additions of 1, 3-diketone to fulvene	碩博士論文		2002
洪永三	中正化學系	氣相層析質譜儀	Polymer-supported tertiary amine in organic synthesis: a useful reagent in the conversion of alkenes to carbonyl compounds via the corresponding ozonides	TETRAHEDRON	59 (4): 493-498	JAN 20 2003
洪永三	中正化學系	氣相層析質譜儀	新的催化系統用於醛的 Tishchenko 及醛醇-Tishchenko 反應研究與合成應用	碩博士論文		2002
洪永三	中正化學系	氣相層析質譜儀	Application of Microwave Technique in Organic Synthesis: Microwave Accelerated ortho-Quinonemethides Formation and their [4+2] Cycloaddition Reactions	碩博士論文		2002
周德璋	中正化學系	氣相層析質譜儀	Benzoannulation of Quinones by A Cycloaddition - Fragmentation Approach	碩博士論文		2002
周德璋	中正化學系	氣相層析質譜儀	synthesis of norbornadienobenzene fused crown ethers	碩博士論文		2002
周德璋	中正化學系	氣相層析質譜儀	Synthesis of Bis-(1,4-dimethoxy-5,6-norbornadienobenzene)-Fused Crown Ether	碩博士論文		2002
孫仲銘	東華大學化學系	氣相層析質譜儀	Parallel synthesis of 1,2,3,4-tetrahydro-beta-carbolines using microwave irradiation	SYNLETT	(10): 1709-1711	OCT 2002
孫仲銘	東華大學化學系	氣相層析質譜儀	Rapid microwave-assisted liquid-phase combinatorial synthesis of 2-(arylamino)benzimidazoles	JOURNAL OF COMBINATORIAL CHEMISTRY	4 (4): 359-361	JUL-AUG 2002
孫仲銘	東華大學化學系	氣相層析質譜儀	Soluble polymer-supported synthesis of benzodiazepinones	BIOORGANIC & MEDICINAL CHEMISTRY LETTERS	12 (6): 959-962	MAR 25 2002
孫仲銘	東華大學化學系	氣相層析質譜儀	Liquid-phase combinatorial synthesis of aminobenzimidazoles	BIOORGANIC & MEDICINAL	12 (7): 1001-1003	APR 8 2002



				CHEMISTRY LETTERS		
孫仲銘	東華大學化學系	氣相層析質譜儀	Liquid-phase combinatorial reaction monitoring by conventional H-1 NMR spectroscopy	TETRAHEDRON LETTERS	43 (9): 1725-1729	FEB 25 2002
孫仲銘	東華大學化學系	氣相層析質譜儀	Soilable polymer-supported synthesis of 2-(arylamino) benzimidazoles	TETRAHEDRON LETTERS	43 (8): 1529-1533	FEB 18 2002
孫仲銘	東華大學化學系	氣相層析質譜儀	Liquid-Phase Combinatorial Synthesis of Guanidine; Benzimidazole; $\beta$ - Carbolines and Diketopiperazine Heterocyclic Library	碩博士論文		2002
孫仲銘	東華大學化學系	氣相層析質譜儀	Liquid-Phase Combinatorial Synthesis of Benzimidazoles Derivative	碩博士論文		2002
王怡仁	雲林科大化工系	氣相層析質譜儀	Synthesis and structure properties of polyurethane based conducting copolymer I. C-13 NMR analysis	SYNTHETIC METALS	132 (2): 151-160	JAN 12 2003
陳澄河	南台科技大學化工系	氣相層析質譜儀	Study of glycolysis of poly(ethylene terephthalate) recycled from postconsumer soft-drink bottles. III. Further investigation	JOURNAL OF APPLIED POLYMER SCIENCE	87 (12): 2004-2010	MAR 21 2003
陳澄河	南台科技大學化工系	氣相層析質譜儀	Application of factorial experimental design to study the influence of polymerization conditions on the yield of polyaniline powder	JOURNAL OF APPLIED POLYMER SCIENCE	85 (7): 1571-1580	AUG 15 2002
陳益昇	高醫藥學系	氣相層析質譜儀	Cytotoxic amides from Piper sintense	PLANTA MEDICA	68 (11): 980-985	NOV 2002
陳益昇	高醫藥學系	氣相層析質譜儀	Chemical and anti-platelet constituents from Formosan Zanthoxylum simulans	PHYTOCHEMISTRY	61 (5): 567-572	NOV 2002
陳益昇	高醫藥學系	氣相層析質譜儀	Isolation and gas chromatographic method for determination of osthole from Cnidii Fructus	JOURNAL OF FOOD AND DRUG ANALYSIS	10 (3): 154-158	SEP 2002
陳益昇	高醫藥學系	氣相層析質譜儀	Quinoline alkaloids and anti-platelet aggregation constituents from the leaves of Melicope semecarpifolio	PLANTA MEDICA	68 (9): 790-793	SEP 2002
陳益昇	高醫藥學系	氣相層析質譜儀	Chemical and cytotoxic constituents from the stem of Machilus zuihoensis	HELVETICA CHIMICA ACTA	85 (7): 1909-1914	2002
陳益昇	高醫藥學系	氣相層析質譜儀	Synthesis and cytotoxic evaluation of some 4-anilino-furo[2,3-b]quinoline derivatives	HELVETICA CHIMICA ACTA	85 (7): 2214-2221	2002
陳益昇	高醫藥學系	氣相層析質譜儀	Effect of lignans isolated from Hernandia nymphaeifolia on estrogenic compounds-induced calcium mobilization in human neutrophils	LIFE SCIENCES	70 (26): 3109-3121	MAY 17 2002
陳益昇	高醫藥學系	氣相層析質譜儀	Novel action of lignans isolated from Hernandia nymphaeifolia on Ca <sup>2+</sup> signaling in renal tubular cells	EUROPEAN JOURNAL OF PHARMACOLOGY	443 (1-3): 31-38	MAY 17 2002
陳益昇	高醫藥學系	氣相層析質譜儀	Effect of lignans isolated from Hernandia nymphaeifolia on reactive oxygen species generation and calcium mobilization in human neutrophils	DRUG DEVELOPMENT RESEARCH	55 (2): 118-126	FEB 2002
陳益昇	高醫藥學系	氣相層析質譜儀	Chemical constituents from the leaves of Zanthoxylum schinifolium	JOURNAL OF THE CHINESE CHEMICAL SOCIETY	49 (1): 125-128	FEB 2002
陳益昇	高醫藥學系	氣相層析質譜儀	Novel action of lignans isolated from Hernandia nymphaeifolia on Ca <sup>2+</sup> signaling in human neutrophils	ARCHIVES OF TOXICOLOGY	75 (11-12): 695-702	JAN 2002
陳益昇	高醫藥學系	氣相層析質譜儀	Cytotoxic butanolides and secobutanolides from the stem wood of Formosan Lindera	PLANTA MEDICA	68 (2): 142-145	FEB 2002

			communis			
--	--	--	----------	--	--	--

## 三、各儀器支援之研究成果——發表論文紀錄表

## (二)液相層析串聯質譜儀

使用者姓名	使用者所在機構	使用儀器名稱	發表論文名稱	發表刊物名稱	期別	出版日期
李耀坤	交大應用化學系	液相層析串聯質譜儀	Aqueous two-phase extraction as an effective tool for isolation of geniposide from gardenia fruit	JOURNAL OF CHROMATOGRAPHY A	977 (2): 239-246	NOV 22 2002
李耀坤	交大應用化學系	液相層析串聯質譜儀	Design and synthesis of activity probes for glycosidases	ORGANIC LETTERS	4 (21): 3607-3610	OCT 17 2002
李耀坤	交大應用化學系	液相層析串聯質譜儀	Purification, characterization and cloning of a chitinase from <i>Bacillus</i> sp NCTU2	BIOTECHNOLOGY AND APPLIED BIOCHEMISTRY	35: 213-219 Part 3	JUN 2002
李耀坤	交大應用化學系	液相層析串聯質譜儀	Identification of the general acid/base catalyst of a family 3 beta-glucosidase from <i>Flavobacterium meningosepticum</i>	BIOCHEMISTRY	41 (8): 2751-2759	FEB 26 2002
李耀坤	交大應用化學系	液相層析串聯質譜儀	Exploring biochip as a tool for blood glucose determination	碩博士論文		2002
李耀坤	交大應用化學系	液相層析串聯質譜儀	Characterization of Mutated Chitinase from <i>Serratia Marcescens</i>	碩博士論文		2002
李耀坤	交大應用化學系	液相層析串聯質譜儀	Mechanistic study and direct evidence on identification of the nucleophile and acid/base catalyst of a family 3 beta-glucosidase from <i>Flavobacterium meningosepticum</i>	碩博士論文		2002
李耀坤	交大應用化學系	液相層析串聯質譜儀	Study of Chemical Modification of $\Delta^5$ -3-Ketosteroid Isomerase Mutants	碩博士論文		2002
李耀坤	交大應用化學系	液相層析串聯質譜儀	Cloning and Expression of the Chitinase from <i>Bacillus cereus</i> NCTU2	碩博士論文		2002
許千樹	交大應用化學系	液相層析串聯質譜儀	Synthesis and electroluminescence of side-chain liquid crystalline polyacrylates and polyoxiranes containing bistolane side groups	JOURNAL OF POLYMER RESEARCH-TAIWAN	9 (1): 1-9	MAR 2002
許千樹	交大應用化學系	液相層析串聯質譜儀	Synthesis of alkyl-branched main chain copolyimides and their effect on the pretilt angles of liquid crystal alignment	LIQUID CRYSTALS	29 (7): 907-913	JUL 2002
許千樹	交大應用化學系	液相層析串聯質譜儀	Synthesis and liquid crystalline behavior of photoreactive side-chain liquid-crystalline polyoxetanes containing cinnamoyl biphenyl mesogen.	ABSTRACTS OF PAPERS OF THE AMERICAN CHEMICAL SOCIETY	223: 205-POLY Part 2	APR 7 2002
許千樹	交大應用化學系	液相層析串聯質譜儀	Polarized blue emission based on a side chain liquid crystalline polyacrylate containing bis-tolane side groups	JAPANESE JOURNAL OF APPLIED PHYSICS PART 1-REGULAR PAPERS SHORT NOTES & REVIEW PAPERS	41 (3A): 1374-1378	MAR 2002
許千樹	交大應用化學系	液相層析串聯質譜儀	Synthesis and thermal and photoluminescence properties of liquid crystalline polyacetylenes containing 4-alkanyloxyphenyl trans-4-alkylcyclohexanoate side groups	MACROMOLECULES	35 (4): 1180-1189	FEB 12 2002
許千樹	交大應用化學系	液相層析串聯質譜儀	Synthesis of Discotic Compounds Containing Acrylate and Cinnamoyl Side Groups for Application of Liquid Crystal Photo Alignment Layers	碩博士論文		2002
陳金鑫	交大應用化學系	液相層析串聯質譜儀	Recent progress of molecular organic electroluminescent materials and devices	MATERIALS SCIENCE & ENGINEERING R-REPORTS	39 (5-6): 143-222	DEC 1 2002

陳金鑫	交大應化系	液相層析串聯質譜儀	Recent progress of molecular organic electroluminescent materials and devices	MATERIALS SCIENCE & ENGINEERING R-REPORTS	39 (5-6): 143-222	DEC 1 2002
陳金鑫	交大應化系	液相層析串聯質譜儀	Synthetic study of tetramethyljulolidine - a key intermediate toward the synthesis of the red dopant DCJTb for OLED applications	TETRAHEDRON LETTERS	44 (1): 145-147	JAN 1 2003
陳金鑫	交大應化系	液相層析串聯質譜儀	Reduce the memory bandwidth of 3D graphics hardware with a novel rasterizer	JOURNAL OF CIRCUITS SYSTEMS AND COMPUTERS	11 (4): 377-391	AUG 2002
謝有容	交大應用化學系	液相層析串聯質譜儀	Analysis of chitin oligosaccharides by capillary electrophoresis with laser-induced fluorescence	JOURNAL OF CHROMATOGRAPHY A	979 (1-2): 431-438	DEC 6 2002
謝有容	交大應用化學系	液相層析串聯質譜儀	Optimization of the headspace solid-phase microextraction for determination of glycol ethers by orthogonal array designs	J CHROMATOGR A	977 (1): 9-16	NOV 15 2002
謝有容	交大應用化學系	液相層析串聯質譜儀	Analysis of petroleum distillates from fire debris using supercritical fluid extraction with a two-level orthogonal array experimental design	JOURNAL OF THE CHINESE CHEMICAL SOCIETY	49 (4): 517-525	AUG 2002
張豐志	交大應用化學系	液相層析串聯質譜儀	Polymer blends of poly(ethylene-2,6-naphthalate) with polystyrene compatibilized by styrene-glycidyl methacrylate copolymers. I. Rheology, morphology, and mechanical properties	JOURNAL OF APPLIED POLYMER SCIENCE	87 (6): 967-975	FEB 7 2003
張豐志	交大應用化學系	液相層析串聯質譜儀	Preparations, thermal properties, and T-g increase mechanism of inorganic/organic hybrid polymers based on polyhedral oligomeric silsesquioxanes	MACROMOLECULES	(23): 8788-8793	NOV 5 2002
張豐志	交大應用化學系	液相層析串聯質譜儀	Crystallization behavior of syndiotactic polystyrene nanocomposites for melt- and cold-crystallizations	JOURNAL OF APPLIED POLYMER SCIENCE	86 (10): 2492-2501	DEC 5 2002
張豐志	交大應用化學系	液相層析串聯質譜儀	Ionic conductivity enhancement of the plasticized PMMA/LiClO <sub>4</sub> polymer nanocomposite electrolyte containing clay	POLYMER	43 (19): 5281-5288	SEP 2002
張豐志	交大應用化學系	液相層析串聯質譜儀	Significant glass-transition-temperature increase through hydrogen-bonded copolymers	JOURNAL OF POLYMER SCIENCE PART B-POLYMER PHYSICS	40 (19): 2313-2323	OCT 1 2002
張豐志	交大應用化學系	液相層析串聯質譜儀	Significant glass transition temperature increase based on polyhedral oligomeric silsesquioxane (POSS) copolymer through hydrogen bonding	POLYMER BULLETIN	48 (6): 469-474	JUL 2002
張豐志	交大應用化學系	液相層析串聯質譜儀	Solid-state electrolyte nanocomposites based on poly(ethylene oxide), poly(oxypropylene) diamine, mineral clay and lithium perchlorate	POLYMER	43 (18): 5011-5016	AUG 2002
張豐志	交大應用化學系	液相層析串聯質譜儀	Effect of inert diluent segment on the miscibility behavior of poly(vinylphenol) with poly(acetoxystyrene) blends	JOURNAL OF POLYMER SCIENCE PART B-POLYMER PHYSICS	40 (15): 1661-1672	AUG 1 2002
張豐志	交大應用化學系	液相層析串聯質譜儀	Conductivity enhancement mechanism of the poly(ethylene oxide)/modified-clay-LiClO <sub>4</sub> systems	JOURNAL OF POLYMER SCIENCE PART B-POLYMER PHYSICS	40 (13): 1342-1353	JUL 1 2002
張豐志	交大應用化學系	液相層析串聯質譜儀	Preparation and characterization of polystyrene-clay nanocomposites by free-radical	JOURNAL OF APPLIED POLYMER	85 (7): 1370-1377	AUG 15 2002

			polymerization	SCIENCE		
張豐志	交大應用化學系	液相層析串聯質譜儀	The study of hydrogen bonding and miscibility in poly(vinylpyridines) with phenolic resin	POLYMER	43 (14): 3943-3949	JUN 2002
張豐志	交大應用化學系	液相層析串聯質譜儀	Miscibility enhancement on the immiscible binary blend of poly(vinyl acetate) and poly(vinyl pyrrolidone) with bisphenol A	POLYMER	43 (13): 3653-3660	JUN 2002
張豐志	交大應用化學系	液相層析串聯質譜儀	Miscibility behavior and specific interaction of phenolic resin with poly(acetoxystyrene) blends	MACROMOLECULAR CHEMISTRY AND PHYSICS	203 (5-6): 868-878	MAR 28 2002
張豐志	交大應用化學系	液相層析串聯質譜儀	Miscibility and hydrogen bonding in blends of poly(vinyl acetate) with phenolic resin	POLYMER	43 (8): 2479-2487	APR 2002
張豐志	交大應用化學系	液相層析串聯質譜儀	Crystal polymorphism of poly(butylene-2,6-naphthalate) prepared by thermal treatments	POLYMER	43 (7): 2065-2074	MAR 2002
張豐志	交大應用化學系	液相層析串聯質譜儀	Phase behavior and hydrogen bonding in ternary polymer blends of phenolic resin/poly(ethylene oxide)/poly(epsilon-caprolactone)	MACROMOLECULES	35 (1): 278-285	JAN 1 2002
陳登銘	交大應用化學系	液相層析串聯質譜儀	A study on the luminescent properties of new green-emitting terbium-activated CaIn <sub>2</sub> O <sub>4</sub> : xTb phosphors	JOURNAL OF LUMINESCENCE	96 (2-4): 261-267	MAR 2002
許慶豐	交大應用化學系	液相層析串聯質譜儀	Synthesis and Characterization of Hyperbranched Poly(ether imide)s and Poly(ether imide amide)s	碩博士論文		2002
吳獻仁	交大應用化學系	液相層析串聯質譜儀	Nucleophilic Substitution Reactions of Oxa-Cages with Allyltrimethylsilane and Triethylsilane	碩博士論文		2002
吳獻仁	交大應用化學系	液相層析串聯質譜儀	Synthesis of r-butyrolactone derivatives from 2-methylthiofuran	碩博士論文		2002
吳東昆	交大生科系	液相層析串聯質譜儀	Conversion of a plant oxidosqualene-cycloartenol synthase to an oxidosqualene-lanosterol cyclase by random mutagenesis	BIOCHEMISTRY	41 (26): 8238-8244	JUL 2 2002
楊裕雄	交大生科系	液相層析串聯質譜儀	A single mutation converts the nucleotide specificity of phenol sulfotransferase from PAP to AMP	BIOCHEMISTRY	BIOCHEMISTRY 41 (43): 12959-12966 OCT 29 2002	OCT 29 2002
楊裕雄	交大生科系	液相層析串聯質譜儀	The role of metal on imide hydrolysis: metal content and pH profiles of metal ion-replaced mammalian imidase	BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS	297 (4): 1027-1032	OCT 4 2002
林蒼吟	交大生科系	液相層析串聯質譜儀	Direct transfer of Ku between DNA molecules with nonhomologous ends (vol 486, pg 185, 2001)	DNA REPAIR	1 (3): 259-259	MAR 28 2002
林蒼吟	交大生科系	液相層析串聯質譜儀	Effects of active site Mutations of Escherichia coli Thioredoxin on Bacteriophage Infection	碩博士論文		2002
林蒼吟	交大生科系	液相層析串聯質譜儀	大腸桿菌 Thioredoxin 與噬菌體 T3/T7 DNA 聚合酶素之交互作用	碩博士論文		2002
林蒼吟	交大生科系	液相層析串聯質譜儀	大腸桿菌 Thioredoxin reductase 的活性與連接兩個功能次單元的 beta-sheet 結構之關係	碩博士論文		2002
季昀	清大化學系	液相層析串聯質譜儀	Fluorinated aminoalkoxide Cu-II complexes: new CVD precursors for deposition of copper metal	JOURNAL OF MATERIALS CHEMISTRY	12 (12): 3541-3550	2002

季昉	清大化學系	液相層析串聯質譜儀	A study of unsaturated pyrazolate-bridged diruthenium carbonyl complexes	ORGANOMETAL LICS	21 (22): 4735-4742	OCT 28 2002
季昉	清大化學系	液相層析串聯質譜儀	Preparation and characterization of RuO <sub>2</sub> thin films from Ru(CO) <sub>2</sub> (tmhd) <sub>2</sub> by metalorganic chemical vapor deposition	THIN SOLID FILMS	413 (1-2): 85-91	JUN 24 2002
季昉	清大化學系	液相層析串聯質譜儀	Alkaline-earth metal fluoroalkoxide complexes with multi-coordinated polyether appendage: synthesis and characterization	INORGANICA CHIMICA ACTA	334: 172-182	MAY 30 2002
季昉	清大化學系	液相層析串聯質譜儀	Deposition of osmium thin films using pyrazolate complexes as CVD source reagents	JOURNAL OF MATERIALS CHEMISTRY	12 (5): 1363-1369	2002
季昉	清大化學系	液相層析串聯質譜儀	Deposition of iridium thin films using new (IrCVD)-C-I precursors	CHEMICAL VAPOR DEPOSITION	8 (1): 17-+	JAN 2002
季昉	清大化學系	液相層析串聯質譜儀	Synthesis and characterization of fluorinated beta-ketoiminate and imino-alcoholate Pd complexes: precursors for palladium chemical vapor deposition	JOURNAL OF MATERIALS CHEMISTRY	13 (1): 135-142	2003
余靖	清大化學系	液相層析串聯質譜儀	Three-dimensional Structure of an Acidic Fibroblast Growth Factor from <i>Notophthalmus viridescens</i>	J. Biol. Chem.,		2002
余靖	清大化學系	液相層析串聯質譜儀	Characterization of Structure and Dynamics of a Near-Native Intermediate in the Unfolding Pathway of an All Beta-Sheet Protein	J. Biol. Chem.,	277 (49): 47507-47516	DEC 6 2002
余靖	清大化學系	液相層析串聯質譜儀	Hydrogen-deuterium Exchange studies of all beta-sheet Protein	J. Biol. Chem		2002
余靖	清大化學系	液相層析串聯質譜儀	Influence of Backbone Conformation on Protein Aggregation	JOURNAL OF THE AMERICAN CHEMICAL SOCIETY	124 (9): 1884-1888	MAR 6 2002
余靖	清大化學系	液相層析串聯質譜儀	Investigation of the structural stability of the human acidic fibroblast growth factor by hydrogen-deuterium exchange	BIOCHEMISTRY	41 (51): 15350-15359	DEC 24 2002
余靖	清大化學系	液相層析串聯質譜儀	Structure and stability of an acidic fibroblast growth factor from <i>Notophthalmus viridescens</i>	JOURNAL OF BIOLOGICAL CHEMISTRY	277 (48): 46424-46432	NOV 29 2002
余靖	清大化學系	液相層析串聯質譜儀	Identification of rare partially unfolded states in equilibrium with the native conformation in an all beta-barrel protein	JOURNAL OF BIOLOGICAL CHEMISTRY	277 (38): 34941-34948	SEP 20 2002
余靖	清大化學系	液相層析串聯質譜儀	kappa-hefutoxin1, a novel toxin from the scorpion <i>Heterometrus fulvipes</i> with unique structure and function - Importance of the functional diad in potassium channel selectivity	JOURNAL OF BIOLOGICAL CHEMISTRY	277 (33): 30040-30047	AUG 16 2002
余靖	清大化學系	液相層析串聯質譜儀	Amyloid-like fibril formation in an all beta-barrel protein involves the formation of partially structured intermediate(s)	JOURNAL OF BIOLOGICAL CHEMISTRY	277 (21): 19027-19036	MAY 24 2002
余靖	清大化學系	液相層析串聯質譜儀	Oligomerization of acidic fibroblast growth factor is not a prerequisite for its cell proliferation activity	PROTEIN SCIENCE	11 (5): 1050-1061	MAY 2002
余靖	清大化學系	液相層析串聯質譜儀	Evidence for cold denaturation in neocarzinostatin-a thermodynamic study	BIOPHYSICAL JOURNAL	82 (1): 1427 Part 2	JAN 2002
周善行	輔大化學系	液相層析串聯質譜儀	Synthesis of pipercolic acid derivatives via Aza-Diels-Alder reactions of thio-substituted 1,3-butadienes with iminium salts	SYNTHETIC COMMUNICATIONS	32 (20): 3119-3126	2002
周善行	輔大化學系	氣相層析質譜儀	Synthesis and Applications of 3-Phenylsulfonyl-3-sulfolenes	碩博士論文		2002

陳耀騰	台科大化工系	液相層析串聯質譜儀	Dimethyladamantylmaleimide-induced in vitro and in vivo growth inhibition of human colon cancer Colo205 cells	ANTI-CANCER DRUGS	13 (5): 533-543	JUN 2002
楊玲玲	嘉義大學生技所	液相層析串聯質譜儀	Pharmacokinetics of paeoniflorin after oral administration of Shao-yao Gan-chao Tang in Mice.		88, 250-255	2002
楊玲玲	嘉義大學生技所	液相層析串聯質譜儀	Cytotoxic effects of cuphiin D-1 on the growth of human cervical carcinoma and normal cells	ANTICANCER RESEARCH	22 (5): 2677-2684	SEP-OCT 2002
楊玲玲	嘉義大學生技所	液相層析串聯質譜儀	Effects of sphondin, isolated from Heracleum laciniatum, on IL-1 beta-induced cyclooxygenase-2 expression in human pulmonary epithelial cells	LIFE SCIENCES	72 (2): 199-213	NOV 29 2002
楊玲玲	嘉義大學生技所	液相層析串聯質譜儀	Inducible nitric oxide synthase inhibitors of Chinese herbs III. Rheum palmatum	PLANTA MEDICA	68 (10): 869-874	OCT 2002
楊玲玲	嘉義大學生技所	液相層析串聯質譜儀	Byakangelicol, isolated from Angelica dahurica, inhibits both the activity and induction of cyclooxygenase-2 in human pulmonary epithelial cells	JOURNAL OF PHARMACY AND PHARMACOLOGY	54 (9): 1271-1278	SEP 2002
楊玲玲	嘉義大學生技所	液相層析串聯質譜儀	Cytotoxic activity of sesquiterpenoids from Atractylodes ovata on leukemia cell lines	PLANTA MEDICA	68 (3): 204-208	MAR 2002
楊玲玲	嘉義大學生技所	液相層析串聯質譜儀	Pharmacokinetics of paeoniflorin after oral administration of Shao-yao Gan-chao Tang in mice	JAPANESE JOURNAL OF PHARMACOLOGY	88 (3): 250-255	MAR 2002
楊玲玲	嘉義大學生技所	液相層析串聯質譜儀	Pharmacokinetic interactions between carbamazepine and the traditional Chinese medicine Paeoniae Radix	BIOLOGICAL & PHARMACEUTICAL BULLETIN	25 (4): 532-535	APR 2002
陳澄河	南台科技大學化工系	液相層析串聯質譜儀	Study of glycolysis of poly(ethylene terephthalate) recycled from postconsumer soft-drink bottles. III. Further investigation	JOURNAL OF APPLIED POLYMER SCIENCE	87 (12): 2004-2010	MAR 21 2003
陳澄河	南台科技大學化工系	液相層析串聯質譜儀	Application of factorial experimental design to study the influence of polymerization conditions on the yield of polyaniline powder	JOURNAL OF APPLIED POLYMER SCIENCE	85 (7): 1571-1580	AUG 15 2002
陳益昇	高醫藥學系	液相層析串聯質譜儀	Cytotoxic amides from Piper sintense	PLANTA MEDICA	68 (11): 980-985	NOV 2002
陳益昇	高醫藥學系	液相層析串聯質譜儀	Chemical and anti-platelet constituents from Formosan Zanthoxylum simulans	PHYTOCHEMISTRY	61 (5): 567-572	NOV 2002
陳益昇	高醫藥學系	液相層析串聯質譜儀	Isolation and gas chromatographic method for determination of osthole from Cnidii Fructus	JOURNAL OF FOOD AND DRUG ANALYSIS	10 (3): 154-158	SEP 2002
陳益昇	高醫藥學系	液相層析串聯質譜儀	Quinoline alkaloids and anti-platelet aggregation constituents from the leaves of Melicope semecarpifolio	PLANTA MEDICA	68 (9): 790-793	SEP 2002
陳益昇	高醫藥學系	液相層析串聯質譜儀	Chemical and cytotoxic constituents from the stem of Machilus zuihoensis	HELVETICA CHIMICA ACTA	85 (7): 1909-1914	2002
陳益昇	高醫藥學系	液相層析串聯質譜儀	Synthesis and cytotoxic evaluation of some 4-anilino-furo[2,3-b]quinoline derivatives	HELVETICA CHIMICA ACTA	85 (7): 2214-2221	2002
陳益昇	高醫藥學系	液相層析串聯質譜儀	Effect of lignans isolated from Hernandia nymphaeifolia on estrogenic compounds-induced calcium mobilization in human neutrophils	LIFE SCIENCES	70 (26): 3109-3121	MAY 17 2002
陳益昇	高醫藥學系	液相層析串聯質譜儀	Novel action of lignans isolated from Hernandia nymphaeifolia on Ca <sup>2+</sup> signaling in renal tubular cells	EUROPEAN JOURNAL OF PHARMACOLOGY	443 (1-3): 31-38	MAY 17 2002

陳益昇	高醫藥學系	液相層析串聯質譜儀	Effect of lignans isolated from <i>Hernandia nymphaeifolia</i> on reactive oxygen species generation and calcium mobilization in human neutrophils	DRUG DEVELOPMENT RESEARCH	55 (2): 118-126	FEB 2002
陳益昇	高醫藥學系	液相層析串聯質譜儀	Chemical constituents from the leaves of <i>Zanthoxylum schinifolium</i>	JOURNAL OF THE CHINESE CHEMICAL SOCIETY	49 (1): 125-128	FEB 2002
陳益昇	高醫藥學系	液相層析串聯質譜儀	Novel action of lignans isolated from <i>Hernandia nymphaeifolia</i> on Ca <sup>2+</sup> signaling in human neutrophils	ARCHIVES OF TOXICOLOGY	75 (11-12): 695-702	JAN 2002
陳益昇	高醫藥學系	液相層析串聯質譜儀	Cytotoxic butanolides and secobutanolides from the stem wood of Formosan <i>Lindera communis</i>	PLANTA MEDICA	68 (2): 142-145	FEB 2002



## 三、各儀器支援之研究成果——發表論文紀錄表

## (三)掃描穿透式電子顯微鏡

使用者姓名	使用者所在機構	使用儀器名稱	發表論文名稱	發表刊物名稱	期別	出版日期
謝宗雍	交大材料所	TEM/EDS Evaporator	1. Optical Disk Mastering Using Optical Superresolution Technique	Jpn. J. Appl. Phys.	40	(2001) p1671
			2. Application of Al/PI Composite Bumps to COG Bonding Process	IEEE Trans. On Comp. Packaging Manu. And Technol.	24	(2001) p271
			3. The Effect of Composition on Ba-Na-Sm-Ti-O microwave dielectric materials for LTCC application	Materials Chemistry and Physics		9531 (2002) p1-2
			4. Enhancement of Cycleability of Phase-change Optical Disks by Doping in Dielectric Layers	ISOM'01, Taipei, Taiwan		(2001) Pd-23
劉增豐	交大材料所	TEM/EDS Ion-miller	1. Phase transformation in an Fe-8Al-10Ni-2C alloy	Scripta Mater.	44	(2001) p257
			2. Phase transformation in an Fe-8Al-30Mn-1.5Si-1.5C alloy	Materials Chem.. Phys.	69	(2001) p192
			3. As-quenched microstructure of Cu-14.6Al-4.3Ni alloy	Materials Chem.. Phys.	70	(2001) p49
張立	交大材料所	TEM/EDS/ EELS Ion miller	1. Highly oriented diamond growth on positively biased Si substrates	Journal of Material Research	16	(2001) p3351
			2. Diamond deposition on Si(111) and carbon face 6H-SiC(0001) substrates by positively biased pretreatment	Diamond and Related Materials		(2002)
			3. Growth of diamond films with bias during microwave plasma chemical vapor deposition	Diamond and Related Materials		(2002)
陳三元	交大材料所	TEM/EDS/ EELS Ion-miller	1. Fluorescence enhancement and structural development of sol-gel derived Er <sup>3+</sup> -doped SiO <sub>2</sub> by yttrium codoping	Journal of Material Chemistry	12	(2002) p1118
			2. Bi <sub>3.25</sub> La <sub>0.75</sub> Ti <sub>3</sub> O <sub>12</sub> thin films on ultrathin Al <sub>2</sub> O <sub>3</sub> buffered Si for ferroelectric memory application	Applied Physics Letters	80	(2002) p3168
			3. Role of an intermediate phase (Ba,Sr) <sub>2</sub> Ti <sub>2</sub> O <sub>5</sub> CO <sub>3</sub> in doped (Ba <sub>0.7</sub> Sr <sub>0.3</sub> )TiO <sub>3</sub> thin films	Materials Chemistry and Physics	77	(2002) p632
			4. Transformation mechanism of different chemically precipitated apatitic precursors into β-tricalcium phosphate upon calcinations	Biomaterials	23	(2002) p4541

林健正	交大材料所	TEM/EDS Ion-miller Evaporator	1.氮化鋁與鈦金屬介面反應之 微觀結構分析 2.溶膠凝膠法製備鈦酸鋇銀多 層薄膜的微觀結構與介電性質	邱家祥碩士論文 董恒毅碩士論文		(2002)
韋光華	交大材料所	TEM/EDS Ultracut Evaporator	Effect of reactivity of organis-modified montmorillonite on the thermal and mechanical properties of montmorillonite/polyimide nanocomposites	Chem. Mater.	13	(2001) p222
朝春光	交大材料所	TEM/EDS Ion miller	Al(l)/NiO(s)/Ni(s)液固介面應機 制之研究			
曾俊元	交大電子所	TEM/EDS	Dielectric relaxation and defect analysis of Ta2O5 thin films	J. Phys. D Appl. Phys.	33	(2000) p1137
王詠雲	清大化工所	TEM/EDS	Synthesis of metal nano- particles via self-regulsted reduction by an alcohol surfactant	Advance Functional Materials	11	(2001) N05
涂肇嘉	交大材料所	TEM/EDS	Effect of colloidal zirconium hydrogel slurry on chemical mechanical polishing for shallow trench isolation technology			
郭正次	交大材料所	TEM/EDS/ EELS	1.The role of nitrogen in carbon nanotube formation 2.合成包覆磁性合金之碳奈米 結構及其性質			
凌永健	清大化學所	TEM/EDS	Opening and thinning of multiwall carbon nanotubes in supercritical water	Chemical Phys. Lett. V363		(2002) p583
高振宏	中央化工	TEM/EDS	1.Selective interfacial reaction between Ni and eutectic BiSn lead-free solder  2.Interactions between solder and metallization during long-term aging of advanced microelectronic packages  3.The effect of Cu concentration on the interfacial reactions between Ni and Sn-Cu solders	Chemistry of Materials  Journal of Electronic Materials  Journal of Materials Research	13  30	(2001) p1051  (2001) p379
李嘉平	台科大	TEM/EDS	Growth and analysis of diffusion barrier TaN <sub>x</sub> thin films sputtered from a TaN <sub>x</sub> target	黃瑞仁碩士論文		2002
裘性天	交大應化所	TEM/EDS/ EELS	1.Polygon building block route to sp <sup>2</sup> carbon based materials  2.Syntheses of nano-sized cubic phase early transition metal carbides from metal chlorides and n-butyl lithium	Adv. Mater.  J. Mater. Chem.	13  12	(2001) p1105  (2002) p2189
黃國柱	清大化學所	TEM	1.Breakage, fusion, and healing of carbon nanotubes  2.O <sub>2</sub> and O <sub>3</sub> oxidation enhanced field emission of carbon nanotubes	Nano Lett.  Appl. Phys. Lett.	1  80	(2001) p435  (2002) p4819
吳季珍	成大化工所	TEM/EDS/ EELS	1.Low temperature growth of polycrystalline silicon films by	Jpn. J. Appl. Phys.	40	(2001) pL1207

			hot-wire chemical vapor deposition using SiCl <sub>4</sub> /H <sub>2</sub> gases  2.Low temperature growth of well-aligned ZnO nanorods by chemical vapor deposition	Adv. Mater.	14	(2002) p.215
何榮銘	中興化工所	Ultracut	1. Glass transition and excluded mode crystallization of polyether-polyester block copolymers	Polymer	43	(2002) p1365
			2. Block copolymer self-assembly induced compatibilization of PCL/PS-PEP blends	Macromolecules	35	(2002) p1299

## 三、各儀器支援之研究成果——發表論文紀錄表

## (四) 掃描式電子顯微鏡

使用者姓名	使用者所在機構	使用儀器名稱	發表論文名稱	發表刊物名稱	期別	出版日期
賴璟亮, 陳智	交大材料系	SEM	Occurrence of Electromigration at High-Pb/Eutectic Solder Interface	中華民國材料科學年會	2002	2002
周重光, 黃子瑜, 陳智	交大材料系	SEM	共晶錫鉛錫錫之氣密式封裝之技術研究	中華民國材料科學年會	2002	2002
S. H. Liu, C. Chen	交大材料系	SEM	Tin Whisker Growth Driven by Electrical Currents	TMS Fall Meeting	2002	2002
邵棟樑, 陳智	交大材料系	SEM	Electromigration Studies of Sn95/Sb5 Flip Chip Solder Bumps	中華民國材料科學年會	2002	2002
蔡國強 謝嘉民 戴寶通 歐耿良	交大機械系	SEM	以高密度電漿化學氣相沉積系統製程非晶氮化碳化矽膜之研究	奈米通訊	9卷1期	2002
K.L. Ou, W.F. Wu, C.P. Chou, C.S. Chiou and C.C. Wu	交大機械系	SEM	Improved TaN Barrier Layer Against Cu Diffusion by Formation of an Amorphous Layer Using Plasma Treatment	J. Vac. Sci. Technol.	B 20(5)	2002
W.F. Wu, K.L. Ou, C.P. Chou and C.C. Wu	交大機械系	SEM	Effect of Nitrogen Plasma Treatments on Tantalum Diffusion Barriers in Copper Metallization	Journal of Electrochemical Society		2002
S. H. Liu and Chih Chen	交大材料系	SEM	Tin Whisker Growth Driven by Electrical Currents	Journal of Applied Physics		2002
D.W. Zheng, X.H. Wang, K. Shyu, C. Chen, C-T. Chang, K.N. Tu, A.K. Mal, and Y.F. Guo	交大材料系	SEM	Stress relaxation of a patterned microstructure on a diaphragm	J. Mater. Res	17	2002
K.L. Ou, W.F. Wu, C.P. Chou and C.C. Wu	交大機械系	SEM	Nanostructured TaN(O)/TaN Barrier Layer by Plasma Treatment for Cu Metallization	Electronic Chemical Letter		2002
H.C. You, W.L. Yang, W.F. Wu, K.L. Ou, T.F. Lei and C.P. Chou	交大機械系	SEM	Improving the Electrical Integrity of Cu/CoSi <sub>2</sub> Contacted n <sup>+</sup> -p Junction Diodes Using Nitrogen-Incorporated Ta Films as a Diffusion Barrier	IEEE. Transactions Electron Devices		2002
Y. C. Hsu, T. L. Shao, C. Chen	交大材料系	SEM	Electromigration Induced Failure in SnAg3.8Cu0.7 Solder Joints for Flip Chip Technology	EMPA		2002
C. H. Chen, S. W. Chen, and J. L. Wang	清大化工系	SEM	Properties of As-Te alloys and their reactions with Zn substrate	Mater. Chem. Phys.	70(3)	2002
C. M. Chen and S. W. Chen	清大化工系	SEM	Electromigration Effect upon the Sn-0.7wt%Cu/Ni and Sn-3.5wt%Ag/Ni Interfacial Reactions	Journal of Applied Physics	90(3)	2002
S. W. Chen and Y. W. Yen	清大化工系	SEM	Interfacial Reactions in the Ag-Sn/Au Couples	Journal of Electronic Materials	30 (9)	2002
C. M. Chen and S. W. Chen,	清大化工系	SEM	Electromigration Effect upon the Sn-0.7wt%Cu/Ni and Sn-3.5wt%Ag/Ni Interfacial Reactions	he 130th TMS ANNUAL MEETING & EXHIBITION		2002
S. W. Chen and Y. W. Yen	清大化工系	SEM	Interfacial Reactions in the Ag-Sn/Au Couples	The 130th TMS ANNUAL MEETING & EXHIBITION		2002
黎玄順、葉明勳	中華機械系	SEM	模具鍍層材料對熱浸鍍鋅鋼板在衝壓成型中黏膜之影響評估	MS paper		2002

葉日翔、葉明勳	中華機械系	SEM	熱處理對AZ91D鎂合金應力腐蝕 破裂影響之研究	MS paper	2002	2002
---------	-------	-----	-----------------------------	----------	------	------

## 三、各儀器支援之研究成果——發表論文紀錄表

## (五)掃描探針顯微鏡/奈米壓痕儀

使用者姓名	使用者所在機構	使用儀器名稱	發表論文名稱	發表刊物名稱	期別	出版日期
-------	---------	--------	--------	--------	----	------

## (一) 期刊論文

	單位	作者	期刊	篇名
1	交大材料	C.M. Leu, Z.W. Wu and Kung-Hwa Wei	Chemistry of Materials, submitted, 2001	Synthesis and Properties of Covalently-bonded Layered Silicates/Polyimide(BTDA-ODA) Nanocomposites
2	交大材料	C.M. Leu, L.Y. Jiang, C.M. Huang and Kung-Hwa Wei	Chemistry of Materials, submitted, 2001	Intercalation Chemistry and Properties of Mica //Polyimide(BTDA-ODA) Nanocomposites
3	交大材料	L.Y. Jiang, C.M. Leu and Kung-Hwa Wei	Advanced Materials, accepted, 2001	Layered Silicates/Fluorinated Polyimide Nanocomposites for Advanced Dielectric Applications
4	交大材料	Y. I. Tien and Kung-Hwa Wei	Journal of Applied Polymer Science, accepted, 2001	The Effect of Nano-sized Silicate Layers on Glass Transition, Dynamic Mechanical and Thermal Degradation Properties of Segmented Polyurethane
5	交大材料	Y. I. Tien and Kung-Hwa Wei	Macromolecules, 34, 9045, 2001	High-tensile-property Layered Silicates/Polyurethane Nanocomposites by Using Reactive Silicates as Pseude Chain Extenders
6	交大材料	H. L. Tyan, C.M. Leu and Kung-Hwa Wei	Chemistry of Materials, 13, 222, 222, 2001	The Effect of Reactivity of Organics-modified-montmorillonite on the Thermal and Mechanical Properties of Montmorillonite/polyimide(BTDA-ODA) Nanocomposites
7	交大材料	Y. I. Tien and Kung-Hwa Wei	Polymer, 42, 3213, 2001	Hydrogen-bonding and Mechanical Properties in Segmented Montmorillonite/Polyurethane Nanocomposites at Different Hard Segment Ratios
8	交大材料	H. L. Tyan, C.M. Leu and Kung-Hwa Wei	Journal of Applied Polymer Science, 81, 1742, 2001 SCI	The Effect of Montmorillonite on Thermal and Moisture Absorption Properties of Polyimide of Different Dhenical Structures
9	交大材料	C.L. Lee and Kung-Hwa Wei	Journal of Applied Polymer Science, 77, 2139, 2000, SCI	The Curing and the Viscosity Change of a Two-part Epoxy Resin during Mold-filling in Resin Transfer Molding Process
10	交大材料	C.L. Lee and Kung-Hwa Wei	Polymer Eng. Sci., 40, 935, 2000, SCI	Resin Transfer Molding(RTM) of a High Performance Epoxy Resin II . Effects of Process Variables on the Physical, Static and Dynamic Mechanical Behavior
11	交大材料	C.L. Lee, J. C. Ho and Kung-Hwa Wei	Polymer Eng. Sci., 40, 929, 2000, SCI	Resin Transfer Molding(RTM) of a High Performance Epoxy Resin I . Correlation of Cure Characteristics and Rheological Behavior
12	交大材料	J.C. Ho, Y.S. Lin and Kung-Hwa Wei	Polymer, 40, 3843, 1999, SCI	Synthesis and Characterization of Liquid Crystalline Multiblock Copolyesters of Oxybenzoate and Ethylene Terephthalate
13	交大材料	J.C. Ho and Kung-Hwa Wei	Polymer, 40, 717, 1999 SCI	The kinetics of transesterification in blends of liquid crystalline copolyester and polycarbonate
14	交大材料	H.L. Tyan and Kung-Hwa Wei	Polymer Physics, 36, 1959, 1998, SCI	Miscibility and Transesterification in Blends of Liquid Crystalline Copolyester and Polyarylate
15	交大材料	Kung-Hwa Wei and H.L. Tyan	Polymer, 39, 2103, 1998, SCI	The Role of Partial Miscibility on the Mechanical Properties of Ternary Blends of Liquid Crystalline Copolyesters and Polyetherimide
16	交大材料	Kung-Hwa Wei	J. Appl. Polym.	Miscibility in Blends of Liquid Crystalline Poly

		and H.L. Tyan	Sci., 68, 1581, 1998, SCI	(p-oxybenzoate-co-p-phenyleneisophthalate) and Polyarylate
17	交大材料	Kung-Hwa Wei and J.C. Ho	Macromolecules, 30, 1587, 1997, SCI	The Role of Transesterification on the Miscibility of Blends of Liquid Crystalline Polyester and Polycarbonate
18	交大材料	Kung-Hwa Wei, H.C. Jang and J.C. Ho	Polymer, 38, 3521, 1997, SCI	Miscibility in Blends of Liquid Crystalline Poly (p-oxybenzoate-co-p-phenyleneisophthalate) and Polycarbonate
19	交大材料	Kung-Hwa Wei and J.C. Ho	J. Appl. Polym. Sci., 63, 1527, 1997, SCI	A study on blends of Liquid Crystalline Copolyester with Polycarbonate. III. Mechanical Properties of Compatibilized Blends
20	交大材料	W. Lin, G.C. Tu, C.F. Lin and Y.M. Peng	Corrosion Science, Vol.38, No.6, 1996, pp. 889-909	The Effect of Lead Impurity on the DC-etching Behavior of Aluminum Foil for Electrolytic Capacitor Usage
21	交大材料	H. S. Koo, T.T. Tseng, W.R. Chang and G.C. Tu	Materials in Electronics, Vol.7, No.1, 1996, pp.67-76	Fabrication and Microstructure of the DC-Magnetron-Sputtered $YBa_2Cu_3O_{7-x}$ Superconducting Thin Films
22	交大材料	W. Lin, G.C. Tu, C.F. Lin and Y.M. Peng	Chinese J. of Materials Science, Vol.9, 1996, pp.23-29	The Effect of Annealing Treatment on the DC-etching Behavior of Aluminum Foil for Electrolytic Capacitor Usage
23	交大材料	W. Lin, G.C. Tu, C.F. Lin and Y.M. Peng	Corrosion Science, Vol.39, No.9, 1997, pp. 1531-1543	The Effect of Indium Impurity on the DC-etching Behaviour of Aluminum Foil for Electrolytic Capacitor Usage
24	交大材料	Kuen Ming Shu and G.C. Tu	Journal of Powder Metallurgy, Taiwan, Vol.24, Issue 1, 1999, pp.7-9	Gabrication and Characterization of Cu/SiCp Composites by Composite Electroless plating
25	交大材料	C.A. Huang, G.C. Tu, R. Liao and Y.L. Kao	J. Materials Sci. Letters, Vol.19, 2000, pp1357-1359	Hard Chromium Plating on Cold Swaged Cr-Mo Steel Using Rotating Cylinder Electrode
26	交大材料	C.A. Hung, S.J. Chen, G.C. Tu and Y.L. Kao	Chinese J. of Materials Science, Vol.32, 2000, No.1, pp.1-7	AC Impedance Measurement in Transpassive Potential Region of Austenitic Stainless steel with Different Degree of Sensitizaion
27	交大材料	K.M. Shu and G.C. Tu	Materials and Manufacturing Processes, Vol.16, No.4, 2001, pp483-502	Fabrication and Characterization of Cu/SiCp Composite for Electrical Discharge Machining Application
28	交大材料	王文昇, 涂肇嘉, 黃清安	防蝕工程, Vol.16, No.4, 2002, pp 235-243	ITO 膜在不同 pH 溶液之循環電位掃描研究
29	交大材料	李公正, 涂肇嘉, 黃清安, 高玉玲	防蝕工程, Vol.16, No.4, 2002,	氧化鈦薄膜之電化學特性與結構分析研究
30	交大材料	D.F. Chang and L. Chang	Journal of Materials Research, 16(2001) 3351-3354	Highly oriented diamond growth on positively biased Si Substrates
31	交大材料	F.R. Chen, H. Ichinose, J.J. Kai, L. Chang	Journal of Electron Microscopy, 50(2201) 529-540	Extension of HRTEM resolution by semi-blind deconvolution method and Gerchberg-saxtion algorithm
32	交大材料	Te-Fu Chang and Li Chang	Diamond and Related Materials, 11(2002) 523-526	Diamond deposition on Si(111) and carbon face 6H-SiC(0001) substrates by positively biased pretreatment
33	交大材料	J. Y. Wu, C. T. Kuo and T. L. Liu	Thin Solid Films 398-399 (2001) 413-418	Structures and properties of the SiNC films on Si wafer at different deposition stages
34	交大材料	H. L. Chang and	Jpn. J. Appl. Phys.	Effects of substrate pretreatments and catalyst

		C. T. Kuo	40(12) (2001) 7018-7022	applications on Si-C-N films and nanotubes formation
35	交大材料	Chun-An Lu, Li Chang, Bohr-Ran Huang	Diamond and Related Materials, 11(2002) 523-526	Growth of diamond films with bias during microwave plasma chemical vapor deposition
36	交大材料	Szu-Hung Chen, Li-Chang, Edward Yi Chang, Chun-Yen Chang	Jpn. J. appl. Phys., 41(2002)L20-L23	Low-voltage-operation high-power-density AlGaAs/InGaAs enhancement-mode pseudomorphic high-electron-mobility transistor for personal handy-phone handset application
37	交大材料	Chang-you Chen, Li Chang, Edward Yi Chang, Szu-Houng Chen, Yueh-Chin Lin	Solid-State Electronics, 46(2002) 2085-2088	The performance of GaAs power MOSFET's using backside copper metallization
38	交大材料	S.H. Chen, Li Chang, E. Y. Chang, J. W. Wu, C.Y. Chang	Electronics Letter, 38(2002) 1063-1064	High power Al <sub>0.3</sub> Ga <sub>0.7</sub> As/In <sub>0.2</sub> Ga <sub>0.8</sub> As enhancement-mode PHEMT for Low-voltage wireless communication systems
39	交大材料	Hou Guang Chen and Li Chang	Journal of crystal Growth, (2002) submitted	The Effect of crystallographic orientations of Ni <sub>3</sub> Al substrate on diamond nucleation
40	清大化學	W. K. Chin, J. J. Hwu, and M. D. Shau	Polymer, 39 (1998) 4923-4928	Curing behavior and thermal properties of Epon828 resin cured with diimide-diacid and halthalic anhydride
41	清大化學	S. W. Yang and W. K. Chin	Polym. Comp., 20 (1999) 200-206	Mechanical properties of aligned long glass fiber reinforced polypropylene-i. tensile strength
42	清大化學	S. W. Yang and W. K. Chin	Polym. Comp., 20 (1999) 207-215	Mechanical properties of aligned long glass fiber reinforced polypropylene-ii. tensile strength
43	清大化學	W. K. Chin, L. P. Hsin, H. L. Lu, and M. D. Shau	J. Polym. Sci., 38 (2000) 2033-2042	Morphology of epoxy/acrylic polymers dispersed liquid crystal film in DICY thermal cured
44	清大化學	L. P. Hsin and W. K. Chin	J. Polym. Sci., 39 (2001) 507-514	TSC study and electro-optical properties of epoxy/acrylic polymer dispersed liquid crystal film in DICY thermal cured
45	清大化學	C. T. Lo, K. S. Chou, and W. K. Chin	J. Adhesion Sci. Technol., 15 (2001) 785-792	Effects of mixing procedures on the volume fraction of silver particles in conductive adhesives
46	清大化學	W. J. Shu, L. H. Perng, and W. K. Chin	Polym. J., 33 (2001) 676-684	Synthesis and characteristics of phosphonate-containing maleimide polymers
47	清大化學	W. J. Shu, B. Y. Yang, W. K. Chin, and L. H. Perng	J. A. Polym.Sci., 84 (2002) 2080-2089	Synthesis and properties of novel phosphorus-containing bismaleimide/epoxy resins
48	清大化學	W. J. Wang, W. K. Chin, W. J. Wang	J. Polym. Sci., 40 (2002) 1690-1703	Synthesis and structural characterizations of [chromophore] <sup>+</sup> -saponite/polyurethane nanocomposites
49	清大化學	S. L. Huang, W. K. Chin, W. P. Yang	J. Polym. Sci., (2003) submitted	The sol-gel process to synthesis 2-hydroxyethyl methacrylate (HEMA)/tetramethoxysilane (TMOS) hybrid nanocomposite with in-situ polymerization of HEMA
50	清大化學	S. W. Wu, D. S. Wang	J. Am. Ceram. Soc., 85 (2002) 2590-2592	Size effects on silica polymorphism
51	清大化學	S. Y. Lu	J. Chin. Inst. Chem. Engrs., (2003) invited paper	Heat conduction in composites with superconducting matrix-inclusion interfaces
52	清大化學	S. Y. Lu, and C. T. Lee	Aerosol Sci. and Technol., 37 (2003) 455-459	Thermophoretic motion of a spherical aerosol particle in a cylindrical pore
53	清大化學	S. Y. Lu, and C. Y.	Submitted for	Computation of effective conductivities of



		Lin	publication	composites containing inclusions possessive of interfacial contact resistances with a first-passage simulation
54	清大化學	C. C. Fu, S. Y. Lu, Y. J. Hsu, G. C. Chen, Y. R. Lin, and W. T. Wu	Submitted for publication	Superior mixing performance for airlift reactor with a net draft tube
55	清大化學	S. Y. Lu, M. L. Wu, and H. L. Chen	Submitted to J. Appl. Phys.	Polymer nanocomposite containing CdS-ZnS core shell particles: optical property and morphology
56	清大化學	S. Y. Lu and I. H. Lin	Submitted for publication	Characterization of polypyrrole-CdSe/CdTe nanocomposite films prepared with an all electrochemical deposition process
57	清大化學	Y. J. Hsu and S. Y. Lu	Submitted for publication	A novel approach to prepare thin films of nano-sized core shell CdS-ZnS particles via an MOCVD process with Co-fed single source precursors of CdS-ZnS
58	清大化學	C. C. Fu, W. T. Wu, S. Y. Lu	Submitted for publication	Performance of airlift bioreactors with net draft tube
59	清大化學	S. Y. Lu	J. Chem. Phys., 110 (1999) 12263-12264	Rate constants of spherical dispersions: from diffusion-limited data to non-diffusion-limited results
60	清大化學	S. Y. Lu, and C. H. Lin	J. Electrochem. Soc., 146 (1999) 4105-4110	Effects of wall temperature profile and seed particle addition on particle growth and deposition in a hot-wall CVD reactor
61	清大化學	S. Y. Lu, and S. W. Chen	J. Am. Ceram. Soc., 83 (2000) 709-712	Deposition of nano-size titania-silica particles in a hot-wall CVD process
62	清大化學	S. Y. Lu	J. Appl. Phys., 88 (2000) 2331-2335	Covering of substrate holes through particle deposition
63	清大化學	S. Y. Lu, and I. C. Chen	Jpn. J. Appl. Phys., 39 (2000) 5202-5208	Coating shape effect on effective conductivities of aligned long elliptical cylinder reinforced composites
64	清大化學	S. Y. Lu, C. P. Chiu, and H. Y. Huang	J. Memb. Sci., 176 (2000) 159-167	Pervaporation of acetic acid/water mixtures through silicalite filled PMDS membranes
65	清大化學	S. Y. Lu and C. M. Tsai	J. Memb. Sci., 177 (2000) 55-71	Membrane microstructure resulting from deposition of polydisperse particles
66	清大化學	S. Y. Lu and Y. Z. Lin	Thin solid films, 376 (2000) 67-72	Pd-Ag alloy films prepared in a metalorganic chemical vapor deposition process
67	清大化學	S. Y. Lu	J. Chem. Phys., 113 (2000) 6906-6915	Diffusion and reaction in rectangular arrays of spheroids
68	清大化學	S. H. Lu, H. S. Tong, W. C. Chen, and T. J. Liu	Chin. Inst. Chem. Engrs., 32 (2001) 117-124	Reduction of ultra-pure water usage in wafer rinsing process via sequential compensatory strategies
69	成大材料	Y. L. Su and W. H. Kao	Tribology international, 36 (2003), 11-23	Tribological behavior and wear mechanism of MoS <sub>2</sub> -Cr coatings sliding against various counterbody
70	成大材料	Y. L. Su and W. H. Kao	Surface and coatings technology, 137 (2001), 293-303	Tribological and application of Ti-C:H and Cr-C:H coated tungsten carbide substrate
71	成大材料	Y. L. Su and W. H. Kao	Journal of materials science, 36 (2001), 189-199	Tribological behavior and wear mechanisms of TiC:H/TiC/TiCN/TiN/Ti coatings when sliding against steel, bronze and aluminum alloy rods
72	成大材料	Y. L. Su and W. H. Kao	Journal of materials processing technology, 108 (2000) 30-39	Optimum Ti-C:H coatings on tungsten carbide inserts for milling application
73	成大材料	蘇演良	工程科技通訊, 55 (2000)	幾何雷射刻紋對碟片磨潤性質之影響

74	成大材料	Y. L. Su and W. H. Kao	Journal of materials engineering and performance, 9 (2000) 38-50	Optimum Me-DLC coatings and hard coatings for tribological performance
75	成大材料	D. F. Lii, B. S. Yau, J. L. Huang, C. Y. Chen W. T. Lo	Journal of the ceramic society of Japan, 109 (2001) 9-11	Internal stress and adhesive strength of reactive magnetron sputtered indium tin oxide films on acrylic
76	成大材料	H. H. Lu, J. L. Hung	Ceramics international journal, 27 (2001) 621-628	Effects of Y2O3 and Yb2O3 on the microstructure and mechanical properties of silicon nitride
77	成大材料	H. H. Lu, and J. L. Huang	Journal of materials processing technology, 117 (2001)	Microstructure and mechanical behaviors in silicon nitride containing B-phase seeding
78	成大材料	H. H. Lu, J. L. Hung	J. Am. Ceram. Soc., 84 (2001) 1891-1895	Microstructure in silicon nitride containing B-phase seeding: iii grain growth and coalescence
79	成大材料	D. F. Lii, J. L. Huang, W. K. Tsai, W. Z. Luo, B. S. Yau	Surface engineering, 17 (2001) 295-299	Investigation of TiAlN films as a diffusion barrier between Cu and Si
80	成大材料	D. F. Lii, zJ. L. Huang, S. T. Chang	Journal of the European ceramic society, 22 (2002) 253-261	The mechanical properties of AlN/Al composite manufactured by squeeze casting
81	成大材料	W. T. Lo, J. L. Huang, Z. H. Shih, D. F. Lii, C. T. Li	Accepted by the journal of materials chemistry and physics	The effects of ytterbium oxide on the microstructure and R-curve behaviors of silicon nitride
82	成大材料	D. F. Lii, J. L. Huang, L. J. Tsui, and S. M. Lee	Accepted by surface and coating technology	Formation of BN films on carbon fibers by dip-coating
83	成大材料	J. S. Chen, W. T. Lo, J. L. Huang	Journal of the ceramic society of Japan, 110 (2002)	The gas sensitivity of reactively sputtered SnO2 films
84	成大材料	C. A. Jeng, J. L. Huang, S. M. Wang, C. Y. Chen	Accepted by the journal of materials science	Fatigue and R-curve behaviors in Al2O3/Cr3C2 composites
85	成大材料	Y. W. Bao, S. B. Su, J. L. Huang	Accepted by the journal of composite materials	An uneven strain model for analysis of residual stress and interface stress in laminated composites
86	成大材料	H. H. Lu, J. L. Huang	Submitted to the journal of American ceramic society	Microstructure in silicon nitride containing B-phase seeding
87	成大材料	C. A. Jeng, J. L. Huang	Submitted to the journal of materials research	Effects of oxidation on crack resistance of injection moulded Cr3C2/Al2O3 composites
88	成大材料	S. S. Lin, J. L. Huang	Submitted to thin solid films	Optical properties of ITO/alumina thin films prepared by reactive d.c. magnetron sputtering
89	成大材料	Y. Pan, J. L. Huang, C. Y. Shao	Submitted to journal of materials science	Preparation of B-TCP with high thermal stability by solid state reaction route
90	成大材料	C. A. Jeng, J. L. Huang, J. F. Lin	Submitted to the journal of materials research	Sliding wear resistance of injection moulded Cr3C2/Al2O3 composites
91	成大材料	M. C. Kan, J. L. Huang, J. Sung, D. F. Lii, K. H.	Submitted to the journal of the American ceramic	Field emission characteristics of amorphous diamond

		Chen	society	
92	成大材料	K. L. Lin and K. T. Hsu	IEEE Trans. Component and Packaging Technology, 23 (2000) 657-660	Manufacturing and materials properties of Ti/Cu/electroless Ni/solder bump on Si
93	成大材料	K. L. Lin and K. T. Hsu	Plating and surface finishing, 87 (2000) 86-89	Electrodeposition behaviors of solder bumps from fluoroborate bath and sulfonate bath
94	成大材料	K. L. Lin and C. L. Chen	International journal of microcircuits and electronic packaging, 23 (2000) 236-243	The adhesion between electroless nickel deposit and Si/Al/Cu bump pad
95	成大材料	K. L. Lin and H. M. Hsu	J. Electronic materials, 30 (2001)	Sn-Zn-Al Pb-free solder-an inherent barrier solder for cu contact
96	成大材料	K. L. Lin and C. C. Huang	International journal of microcircuits and electronic packaging, accepted (2001)	The comparison on properties of electroless Ni and electroplated Ni-Solder bumps
97	成大材料	K. L. Lin, Y. L. Chang, C. C. Huang, F. I. Li, and J. C. Hsu	Applied surface science, accepted (2001)	Microstructure evolution of electroless Ni-P and Ni-Cu-P deposits on Cu in the presence of additives
98	成大材料	C. J. Chen and K. L. Lin	IEEE Trans. On Component and Packaging Technology, accepted	Electroless Ni-Cu-P barrier between Sk/Ti/Al pad and Sn-Pb filp-chip solder bumps
99	成大材料	K. L. Lin and J. W. Hwang	Materials chemistry and physics, accepted	Effect of thiourea and lead acetate on the deposition of electroless nickel
100	中山電機	D. S. Wu, F. C. Liao, N. H. Kuo, R. H. Horng, and M. K. Lee	Jpn. J. Appl. Phys., 39 (2000) 2068-2072	Etching characteristics and mechanism of Ba <sub>0.7</sub> Sr <sub>0.3</sub> TiO <sub>3</sub> thin films in an inductively coupled plasma
101	中山電機	R. H. Horng, D. S. Wu, L. H. Wu, and M. K. Lee	Thin solid films, 373 (2000) 231-234	Formation process and material properties of reactive sputtered IrO <sub>2</sub> thin films
102	中山電機	D. S. Wu, F. C. Liao, N. H. Kuo, R. H. Horng and M. K. Lee	Jpn. J. Appl. Phys., 39 (2000) 2068-2072	Etching characteristics and mechanism of Ba <sub>0.7</sub> Sr <sub>0.3</sub> TiO <sub>3</sub> thin films in an inductively coupled plasma
103	中山電機	M. K. Lee, S. S. Pan, and B. T. Tsay	Jpn. J. Appl. Phys., 39 (2000) 374-376	Flow-rate modulation epitaxial growth of Zn <sub>1-y</sub> Mg <sub>y</sub> S <sub>x</sub> Se <sub>1-x</sub> on GaAs
104	中山電機	M. K. Lee, C. H. Chu, Y. C. Tseng, J. M. Shyr, and C. H. Kao	Electro. Devices Lett., 21 (2000) 587-589	Negative differential resistance of porous silicon
105	中山電機	D. S. Wu, N. H. Kuo, F. C. Liao, R. H. horng, and M. K. Lee	Appl. Surf. Sci., 170 (2001) 638-643	Etching of platinum thin films in an inductively coupled plasma
106	中山電機	M. K. Lee, S. Y. Lin, and J. M. Shyr	J. Electrochem. Soc., (2001)	Characteristics of oxynitride prepared by liquid phase deposition

107	中山電機	M. K. Lee, C. H. Chu, and Y. H. Wang	Optical Lett., (2001)	1.55 um and infrared band photoresponsivity of schottky barrier porous silicon photodetector
108	中山電機	李明達	工程科技通信, (1996) 88	寬頻高檢測力的多孔矽光檢測器之研究
109	中山電機	李明達	真空科技, (1996) 15-21	多孔矽之發展
110	中山電機	李明達	物理雙月刊, 21, 240	硒化鋅藍色發光二極體
111	陸軍官校	H. L. Huang and N. J. Ho	Mater. Sci. Eng., (2001) in press	The observation of dislocation morphology in front of fatigue crack tips of as-rolled 2205 duplex stainless steel at various propagation rates
112	陸軍官校	H. L. Huang, J. I. Chen and D. Gan	Mater. Sci. Eng. A., (2001) in press	Microstructure of first-stage aluminized coating on a Ni-Cr alloy
113	陸軍官校	A. K. Chu, C. H. Chao, F. Z. Lee, and H. L. Huang	J. of Electronic material, 1 (2001) 1	Deposition of polycrystalline AlN thin films by coherent magnetron sputtering at temperature < 80 degree C
114	陸軍官校	H. L. Huang and N. J. Ho	Mater. Sci. Eng., A, 293 (2000) 235	The microstructure of the fatigue crack tip in Fe-Al-Mn-0.4%C alloy near the stress intensity threshold
115	陸軍官校	H. L. Huang and N. J. Ho	Mater. Sci. Eng., A, 293 (2000) 7	The study of the fatigue on polycrystalline copper under various strain amplitude at stage I: crack initiation and propagation
116	陸軍官校	H. L. Huang and N. J. Ho	Mater. Sci. Eng., A, 298 (2000) 241	The observation and analysis of the dislocation morphology of fatigue crack tips at steady state propagation rates subject to a single peak load
117	陸軍官校	C. C. Chen, C. Y. Lin, K. Y. Hsieh, H. L. Huang and Y. J. Yang	Japan journal of apply phys, in press (2001)	A vertical -cavity surface-emitty laser with stable polarization
118	陸軍官校	H. L. Huang and N. J. Ho	Mater. Sci. Eng., 279 (2000) 262	The model of crack propagation in polycrystalline copper at various propagating rates
119	陸軍官校	H. L. Huang, N. J. Ho and W. B. Lin	Mater. Sci. Eng., A, 279 (2000) 255	The study of dislocation structures at fatigue in polycrystalline copper under various crack propagating rates at stage ii: crack propagation
120	陸軍官校	A. K. Chu, M. J. Chuang, K. Y. Hsieh, H. L. Huang, Y. C. Yu, C. W. Wang and E. K. Lin	Journal electrons material, 28 (1999) 1457	Microstructure and corrosion resistance of room-temperature RF sputter Ta <sub>2</sub> O <sub>5</sub> thin films

## (二)研討會論文

	單位	作者	期刊	篇名
1	交大材料	陳厚光, 張立	材料年會 2002 年, no PK20	探討 Ni <sub>3</sub> Al 基材表面晶面對鑽石成核的影響
2	交大材料	H.G. Chen, Li Chang	Proceedings of the 23th R.O.C. Symposium on Microscopy, Taipei, Taiwan, pp.M-O-7	Electron microscopy studies of diamond nanosheets
3	交大材料	C.Y. Chen, Li Chang	Proceedings of the 23th R.O.C. Symposium on Microscopy, Taipei, Taiwan, pp.M-P-7	TEM characterization of Cu/Ta/GaAs multiplayer microstructures
4	交大材料	E.Y. Chang, C.Y. Chen, L. Chang, S.H. Chen	Electrochemical Society Proceedings Vol. 200-1, pp.282-291	Backside copper metallization of GaAs MESFET's using Ta or TaN as the diffusion barrier

5	交大材料	L. Chang, F.R. Chen, J.J. Kai, K.M. Yin, L.C. Chen, R.T. Huang	Proceedings of the 21th R.O.C. Symposium on Microscopy, Hsinchu, June 10, 2000, pp Mo13-14	Energy-filter TEM applications for materials science
6	交大材料	K.M. Yin, L. Chang, F.R. Chen, J.J. Kai, C.C. Chiang, G Chuang, P. Ding, B. Chin, H Zhang, and F. Chen(1999)		HRTEM and EFTEM Studies of the Evolution of Cu/Ta/SiO <sub>2</sub> /Si Interfaces in ULSI Devices
7	交大材料	廖孟傑, 姚信宇, 王文昇, 黃清安, 涂肇嘉	第 15 屆中國機械工程學會學術研討會論文集	麻田散鐵不鏽鋼多道次放電線切割表面電化學分析
8	交大材料	王文昇, 涂肇嘉, 姚信宇, 黃清安	第 16(1999)屆中國機械工程學會學術研討會論文集	電極正負放電線精割麻田散鐵系不鏽鋼
9	交大材料	洪國翔, 黃清安, 許鴻生, 涂肇嘉, 徐富勇	第 16(1999)屆中國機械工程學會學術研討會論文集	鍍基納米碳化系複合電鍍之顯微結構及電化學分析
10	交大材料	陳世忠, 高玉玲, 黃清安, 涂肇嘉	1999 中國材料學會年會論文集	不同程度敏化沃期田鐵系不鏽鋼過鈍態交流阻抗分析
11	交大材料	侯全評, 涂肇嘉	1999 中國材料學會年會論文集	超微細 Al <sub>2</sub> O <sub>3</sub> 粉末之合成
12	交大材料	李公正, 高玉玲, 黃清安, 涂肇嘉	1999 中國材料學會年會論文集	納米級銅基底電化學分析
13	交大材料	鄭瑞庭, 余英松, 涂肇嘉	1999 中國材料學會年會論文集	紫外光深刻電鑄微構件之製造及後續電化學加工
14	交大材料	陳世忠, 吳偉庭, 黃清安, 涂肇嘉	2000 海峽兩岸材料腐蝕與防護研討會論文集	沃斯田鐵系不鏽鋼敏化程度交流阻抗分析
15	交大材料	黃清安, 陳世忠, 廖孟傑, 涂肇嘉	2000 海峽兩岸材料腐蝕與防護研討會論文集	光澤鉻鍍層在 1M H <sub>2</sub> SO <sub>4</sub> 中之電化學行為
16	交大材料	G.C. Tu, M.S. Tsai, M.H. Huang and W.S. Su	Symposium on Nano Device Technology 2001, National Science Council, Hsinchu, Taiwan, pp. 337-340	Synthesis of Y <sub>x</sub> Zr <sub>1-x</sub> O <sub>2-x/2</sub> Nanopowders by Sol-gel Method for CMP Application
17	交大材料	W.S. Su, G.C. Tu, M.S. Tsai, M.H. Huang	The 2001 annual conference of the Chinese Society for Materials Science, Taichung, Taiwan, pp. 12-17	Sol-gel Synthesis and Characterization of Y <sub>x</sub> Zr <sub>1-x</sub> O <sub>2-x/2</sub> Nanopowders for CMP Application
18	清大化學	S. C. Huang, T. F. Lin, S. Y. Lu, and K. S. Chou	J. Aerosol Sci., 29 (1998) 242	Chemical vapor deposition of titanium dioxide thin films on quartz silicon and porous ceramic substrate

### 三、各儀器支援之研究成果——發表論文紀錄表

#### (六)雷射圖型產生系統

校內使用者期刊論文

**徐文祥教授 交通大學機械工程所**

期刊論文

1. Hsu, C.P. and Hsu, W., 2000, A Two-way Membrane-type Micro Actuator with Continuous Deflection, Journal of Micromechanics and Microengineering, Vol.10, pp.387-394.
2. Pan, C.S. and Hsu, W., 2001, Electro-thermally Driven Microgrippers with Bilateral Motion, Journal of Chinese Society of Mechanical Engineers, Vol. 22, No. 1.
3. Wu, C.T. and Hsu, W., 2001, An Electro-thermally Driven Microactuator with Two Dimensional Motion, Journal of Microsystem Technologies, accepted.
4. Hu, M.H. and Hsu, W., 1999, Investigation of Torsion Springs by Considering The Friction and the End Effect, ASME, J. of Mechanical Design, Vol. 121, pp.628-633
5. Wu, M.F. and Hsu, W., 1999, Thermally Driven Polysilicon Actuators for Lateral Displacement, J. of Intelligent Material Systems and Structures, Vol. 10, No.5, pp.402-409.

研討會論文

1. Wu, C.T. and Hsu, W., 2001, An Electro-thermally Driven Microactuator with Two Dimensional Motion, Micro System Technologies, March 27-29, Dusseldorf, Germany.
2. Lee, C.C. and Hsu, W., 2001, Optimization of an Electro-thermally and Laterally Driven Microactuator, Micro System Technologies, March 27-29, Dusseldorf, Germany.
3. Lane, T. and Hsu, W., 2001, Fabrication of Sub-micron Optical Apertures by an Over-electroplating Method, International Symposium on Optical Memory, Oct. 16-19, Taipei, Taiwan.
4. Hsu, C.P. and Hsu, W., 2001, Influence of initial curvature and heating ratio on micromachined thermal biomorph actuation, SPIE's International Symposium on Microelectronics and MEMS, Dec. 17-19, Adelaide, Australia.
5. Lin, C.H., Lo, Y.C., and Hsu, W., 2001, Micro-fabrication of hemispherical poly-silicon shells standing on hemispherical cavities, SPIE's International Symposium on Microelectronics and MEMS, Dec. 17-19, Adelaide, Australia.
6. Wu, C.T. and Hsu, W., 2001, Design and fabrication of a movable O-shape microclammer, SPIE's International Symposium on Microelectronics and MEMS, Dec. 17-19, Adelaide, Australia.
7. Liu, H.C., Lin, Y.H., Chou, C.S., Hsu, Y.Y., and Hsu, W., 2001, Sidewall roughness control in advanced silicon etch process, SPIE's International Symposium on Microelectronics and MEMS, Dec. 17-19, Adelaide, Australia.

### 潘犀靈教授 交通大學光電所

#### 期刊論文

1. Y. S. Hsing, J. M. Hsieh, and Ci-Ling Pan, "Time-gated FROG: A new technique for studying the buildup of optical pulse field in mode-locked ultrafast lasers," presented at the 12th International Conference on Ultrafast Phenomena, July 9 -13, 2000, Charleston, South Carolina, published in *Ultrafast Phenomena XII*, T. Elsaesser, S. Mukamel, M. M. Murnane, N. F. Sherer, Editors, Springer-Verlag, Berlin, 2000, pp. 126-128.
2. Gong-Ru Lin and Ci-Ling Pan, "Characterization of Optically-Excited Terahertz Radiation from Arsenic-ion-implanted GaAs," *Appl. Phys. B*, Vol. 72, No. 2, pp. 151 - 155, February 2001.
3. Jia-Min Shieh, T. C. Huang, K. F. Huang, Chi-Luen Wang, and Ci-Ling Pan, "Broadly tunable self-starting passively mode-locked Ti:sapphire laser with triple strained-quantum-Well saturable Bragg Reflector," *Optics Communications*, Vol. 156, No. (1-3), pp. 53 -57, Oct. 1998.
4. Ci-Ling Pan, Nen-Wen Pu and Jia-Min Shieh, "Dynamic pulse buildup in continuous-wave passively mode-locked picosecond Ti: sapphire/DDI and Ti: sapphire/IR140 lasers," **invited paper**, *Chin. J. Phys.*, Vol. 37, No. 4, pp. 361-379, August 1999.
5. Ci-Ling Pan, Shang-Huang Tsai, Ru-Pin Pan, Chia-Reng Sheu, and S. C. Wang, "Tunable Semiconductor Laser with A Liquid Crystal Pixel Mirror In a Grating-Loaded External Cavity," *Electron. Lett.*, Vol. 35, No. 17, pp. 1472-1473, 19 August, 1999.

### 荊鳳德教授 交通大學電子工程所

#### 期刊論文

1. K. T. Chan, A. Chin, J. T. Kuo, C. Y. Chang, D. S. Duh, W. J. Lin, C. X. Zhu, M. F. Li, and D. L. Kwong, "Microwave Coplanar Filters on Si Substrates," *IEEE MTT-S International Microwave Symp.*, June 2003.
2. K. T. Chan, A. Chin, S. P. McAlister, C. Y. Chang, C. Tseng, V. Liang, J. K. Chen, D. S. Duh, and W. J. Lin, "Low RF loss and noise of transmission lines on Si substrates using an improved ion implantation process," *IEEE MTT-S International Microwave Symp.*, June 2003.
3. C. H. Huang, M.Y. Yang, A. Chin, C. X. Zhu, M. F. Li, and D. L. Kwong, "High Density RF MIM Capacitors Using High-k AlTaO<sub>x</sub> Dielectrics," *IEEE MTT-S International Microwave Symp.*, June 2003.
4. C. H. Huang, K. T. Chan, C. Y. Chen, A. Chin, G. W. Huang, C. Tseng, V. Liang, and J. K. Chen, "The minimum noise figure and mechanism as scaling RF MOSFETs from 0.18 to 0.13 um technology nodes," *IEEE RF-IC International Microwave Symp. (RFIC)*, June 2003.
5. S. B. Chen, J. H. Chou, A. Chin, J. C. Hsieh, and J. Liu, "RF MIM Capacitors Using High-K Al<sub>2</sub>O<sub>3</sub> and AlTiO<sub>x</sub> Dielectrics," *IEEE MTT-S International Microwave Symp.*, June 2002.
6. K. T. Chan, A. Chin, Y. B. Chen, Y.-D. Lin, D. T. S. Duh, and W. J. Lin, "Integrated Antennas on Si and Si-on-Quartz up to 20GHz," *International Electron Devices Meeting*

- (*IEDM*), Washington DC, USA, Dec., 2001.
7. M. Y. Yang, S. B. Chen, A. Chin, C. L. Sun, B. C. Lan, and S. Y. Chen, "One-Transistor Stacked Gate Memory," *International Electron Devices Meeting (IEDM)*, Washington DC, USA, Dec., 2001.
  8. A. Chin, C. S. Liang, C. Y. Lin, C. C. Wu, and J. Liu, "Strong and Efficient Light Emission in Si-based Superlattice Tunnel Diode," *International Electron Devices Meeting (IEDM)*, Washington DC, USA, Dec., 2001.
  9. K. T. Chan, A. Chin, C. M. Kwei, D. T. Shien, and W. J. Lin "Transmission Line Noise from Standard and Proton-Implanted Si," *IEEE MTT-S International Microwave Symp.*, June 2001.
  10. K. T. Chan, A. Chin, S. P. McAlister, C. Y. Chang, J. Liu, S. C. Chien, D. S. Duh, and W. J. Lin, "Low RF noise and power loss for ion implanted Si having an improved implantation process," *IEEE Electron Device Lett.* 24, Jan. (2003).
  11. H. Hu, C. Zhu, X. Yu, A. Chin, M. F. Li, B. J. Cho, and D. L. Kwong, "MIM Capacitors Using Atomic-Layer-Deposited High- $\kappa$  (HfO<sub>2</sub>)<sub>1-x</sub>(Al<sub>2</sub>O<sub>3</sub>)<sub>x</sub> dielectrics," *IEEE Electron Device Lett.* 24, (2003).
  12. X. Yu, C. Zhu, H. Hu, A. Chin, M. F. Li, B. J. Cho, and D. L. Kwong, "A High Density MIM Capacitor (13 fF/ $\mu\text{m}^2$ ) Using ALD HfO<sub>2</sub> Dielectrics," *IEEE Electron Device Lett.* 24, (2003).
  13. K. T. Chan, C. Y. Chen, A. Chin, J. C. Hsieh, J. Liu, T. S. Duh, and W. J. Lin, "40-GHz Coplanar Waveguide Bandpass Filters on Silicon Substrate," *IEEE Wireless & Microwave Components Lett.* 23, Nov. (2002).
  14. C. H. Huang, C. H. Lai, J. C. Hsieh and J. Liu and A. Chin, "RF noise in 0.18 $\mu\text{m}$  and 0.13 $\mu\text{m}$  MOSFETs," *IEEE Wireless & Microwave Components Lett.* 23, Dec. (2002).
  15. C. H. Huang, S. B. Chen, and A. Chin "La<sub>2</sub>O<sub>3</sub>/Si<sub>0.3</sub>Ge<sub>0.7</sub> p-MOSFETs with high hole mobility and good device characteristics," *IEEE Electron Device Lett.* 23, Dec (2002).
  16. C. Y. Lin, W. J. Chen, C. H. Lai, A. Chin, and J. Liu, "Formation of Ni Germano-Silicide on Single Crystalline Si<sub>0.3</sub>Ge<sub>0.7</sub>/Si," *IEEE Electron Device Lett.* 23, 464 (2002).
  17. C. H. Tseng, T. K. Chang, F. T. Chu, J. M. Shieh, B. T. Dai, H. C. Cheng, and A. Chin, "Investigation of Inductively Coupled Plasma Gate Oxide on Low Temperature Polycrystalline-Silicon Thin Film Transistors," *IEEE Electron Device Lett.* 23, 333 (2002).
  18. S. B. Chen, J. H. Chou, K. T. Chan, A. Chin, J. C. Hsieh, and J. Liu, "Frequency-dependent capacitance reduction in high-k AlTiO<sub>x</sub> and Al<sub>2</sub>O<sub>3</sub> gate dielectrics from IF to RF frequency range," *IEEE Electron Device Lett.* 23, 203 (2002).
  19. S. B. Chen, J. H. Chou, A. Chin, J. C. Hsieh, and J. Liu, "High Density MIM Capacitors Using Al<sub>2</sub>O<sub>3</sub> and AlTiO<sub>x</sub> Dielectrics," *IEEE Electron Device Lett.* 23, 185 (2002).
  20. C. L. Sun, S. Y. Chen, S. B. Chen and A. Chin, "Bi<sub>3.25</sub>La<sub>0.75</sub>Ti<sub>3</sub>O<sub>12</sub> Thin Films on Ultra-thin Al<sub>2</sub>O<sub>3</sub> Buffered Si for Ferroelectric Memory Application," *Appl. Phys. Lett.* 80, 3168 (2002).



21. C. L. Sun and S. Y. Chen, S. B. Chen, A. Chin, "Effect of annealing temperature on physical and electrical properties of  $\text{Bi}_{3.25}\text{La}_{0.75}\text{Ti}_3\text{O}_{12}$  thin films on  $\text{Al}_2\text{O}_3$ -buffered Si," *Appl. Phys. Lett.* 80, 1984 (2002).
22. S. B. Chen, C. H. Huang, A. Chin, J. Lin, J. P. Jou, K. C. Su, and J. Liu, "RF noise characteristics of high-k  $\text{AlTiO}_x$  and  $\text{Al}_2\text{O}_3$  gate dielectrics," *J. Electrochem. Soc.* 149, F69 (2002).
23. C. Y. Lin, K. H. Shih, C. C. Wu, and A. Chin, "Poly-Si Thin-Film Transistors Crystallized by Electron-beam Annealing," *J. Electrochem. Soc.* 149, G391 (2002).
24. C. H. Huang, A. Chin, and W. J. Chen, "Characterization of Si/SiGe Heterostructures on Si Formed by Solid Phase Reaction," *J. Electrochem. Soc.*, 149, G209 (2002).
25. A. Chin, M. Y. Yang, C. L. Sun, and S. Y. Chen, "Stack gate one transistor ferroelectric memory," *IEEE Electron Device Lett.* 22, 336 (2001).
26. Y. H. Lin, F. M. Pan, Y. C. Liao, Y. C. Chen, I. J. Hsieh, and A. Chin, "The Cu contamination effect in oxynitride gate dielectrics," *J. Electrochem. Soc.*, G627 (2001).
27. C. L. Sun, S. Y. Chen, M. Y. Yang, and A. Chin, "Characteristics of  $\text{Pb}(\text{Zr}_{0.53}\text{Ti}_{0.47})\text{O}_3$  on Metal and  $\text{Al}_2\text{O}_3/\text{Si}$  Substrates," *J. Electrochem. Soc.* 148, F203 (2001).
28. C. H. Tseng, C. W. Lin, T. K. Chang, H. C. Cheng, and A. Chin, "Effects of Excimer Laser Dopant Activation on the Low Temperature Polysilicon Thin-Film Transistors with Lightly Doped Drains," *Electrochem. Solid-State Lett.* 4, G94 (2001).
29. Y. H. Lin, Y. C. Chen, K. T. Chan, F. M. Pan, I. J. Hsieh, and A. Chin, "The strong degradation on 30 Å oxide integrity contaminated by copper," *J. Electrochem. Soc.* 148, F73 (2001).
30. Y. H. Wu, A. Chin, K. H. Shih, C. C. Wu, C. P. Liao, S. C. Pai, C. C. Chi, "The fabrication of very high resistivity Si with low loss and cross talk," *IEEE Electron Device Lett.* 21, 394 (2000).
31. Y. H. Lin, Y. H. Wu, A. Chin, and F. M. Pan, "The effect of copper on gate oxide integrity," *J. Electrochem. Soc.* 147, 4305 (2000).
32. Y. H. Wu, A. Chin, and W. J. Chen, "Thickness dependent gate oxide quality of thin thermal oxide grown on high temperature formed SiGe," *IEEE Electron Device Lett.* 21, 289 (2000).
33. Y. H. Wu and A. Chin, "High temperature formed SiGe p-MOSFETs with good device characteristics," *IEEE Electron Device Lett.* 21, 350 (2000).
34. Y. H. Wu, M. Y. Yang, A. Chin, and W. J. Chen, "Electrical characteristics of high quality  $\text{La}_2\text{O}_3$  dielectric with equivalent oxide thickness of 5Å," *IEEE Electron Device Lett.* 21, 341 (2000).
35. Y. H. Wu and A. Chin, "Gate oxide integrity of thermal oxide grown on high temperature formed  $\text{Si}_{0.3}\text{Ge}_{0.7}$ ," *IEEE Electron Device Lett.* 21, 113 (2000).
36. Y. H. Wu, C. H. Huang, W. J. Chen, C. N. Lin, and A. Chin, "The buried oxide property

in oxygen plasma enhanced low-temperature wafer bonding," *J. Electrochem. Soc.* 147, 2754 (2000).

37. Y. H. Wu, S. B. Chen, A. Chin, and W. J. Chen "High Quality Thermal Oxide Grown on High Temperature Formed SiGe," *J. Electrochem. Soc.* 147, 1962 (2000).

#### 研討會論文

1. K. T. Chan, A. Chin, J. T. Kuo, C. Y. Chang, D. S. Duh, W. J. Lin, C. X. Zhu, M. F. Li, and D. L. Kwong, "Microwave Coplanar Filters on Si Substrates," *IEEE MTT-S International Microwave Symp.*, June 2003.
2. K. T. Chan, A. Chin, S. P. McAlister, C. Y. Chang, C. Tseng, V. Liang, J. K. Chen, D. S. Duh, and W. J. Lin "Low RF loss and noise of transmission lines on Si substrates using an improved ion implantation process," *IEEE MTT-S International Microwave Symp.*, June 2003.
3. C. H. Huang, M.Y. Yang, A. Chin, C. X. Zhu, M. F. Li, and D. L. Kwong, "High Density RF MIM Capacitors Using High-k AlTaO<sub>x</sub> Dielectrics," *IEEE MTT-S International Microwave Symp.*, June 2003.
4. C. H. Huang, K. T. Chan, C. Y. Chen, A. Chin, G. W. Huang, C. Tseng, V. Liang, and J. K. Chen, "The minimum noise figure and mechanism as scaling RF MOSFETs from 0.18 to 0.13 mm technology nodes," *IEEE RF-IC International Microwave Symp.*, June 2003.
5. C. H. Huang, C. H. Lai, A. Chin, V. Liang, and S. C. Chien "Optimized Noise and Consistent RF Model for 0.18um MOSFETs," *International Symp. on VLSI Technology, System, and Applications*, June 2003.
6. C. H. Huang, C.Y. Lin, H. Y. Li, W. J. Chen, A. Chin, and P.MeI "La<sub>2</sub>O<sub>3</sub>/Si<sub>0.3</sub>Ge<sub>0.7</sub> p-MOSFETs and Ni Germano-Silicide," *International Symp. on VLSI Technology, System, and Applications*, June 2003.
7. S. B. Chen, J. H. Chou, A. Chin, J. C. Hsieh, and J. Liu, "RF MIM Capacitors Using High-K Al<sub>2</sub>O<sub>3</sub> and AlTiO<sub>x</sub> Dielectrics," *IEEE MTT-S International Microwave Symp.*, June 2002.
8. K. T. Chan, C. Y. Chen, A. Chin, J. C. Hsieh, and J. Liu, T. S. Duh, and W. J. Lin, "High Performance 40-GHz Bandpass Filters on Si Using Proton Implantation," *60<sup>th</sup> IEEE Device Research Conference (DRC)*, Santa Barbara, CA, pp., June 2002.
9. C. H. Huang, C. H. Lai, J. C. Hsieh, and J. Liu, and A. Chin, "RF noise in deep sub- m MOSFETs and proposed solution," *60<sup>th</sup> IEEE Device Research Conference (DRC)*, Santa Barbara, CA, pp., June 2002.
10. C. Y. Lin, C. H. Lai, W. J. Chen,\* and A. Chin, "Formation of high quality silicide on SiGe with high Ge contents," *44<sup>th</sup> Electronic Materials Conference (EMC)*, Santa Barbara, CA, June 2002.
11. K. T. Chan, A. Chin, Y. B. Chen, Y.-D. Lin, D. T. S. Duh, and W. J. Lin, "Integrated Antennas on Si and Si-on-Quartz up to 20GHz," *International Electron Devices Meeting*

- (*IEDM*), Washington DC, USA, Dec., 2001.
12. M. Y. Yang, S. B. Chen, A. Chin, C. L. Sun, B. C. Lan, and S. Y. Chen, "One-Transistor Stacked Gate Memory," *International Electron Devices Meeting (IEDM)*, Washington DC, USA, Dec., 2001.
  13. A. Chin, C. S. Liang, C. Y. Lin, C. C. Wu, and J. Liu, "Strong and Efficient Light Emission in Si-based Superlattice Tunnel Diode," *International Electron Devices Meeting (IEDM)*, Washington DC, USA, Dec., 2001.
  14. K. T. Chan, A. Chin, C. M. Kwei, D. T. Shien, and W. J. Lin, "Transmission Line Noise from Standard and Proton-Implanted Si," *IEEE MTT-S International Microwave Symp.*, June 2001.
  15. A. Chin, S. B. Chen, K. T. Chan, J. Lin, J. P. Jou, K. C. Su, and J. Liu, "RF challenges for high-k gate dielectrics," *High K dielectric workshop*, Japan, Nov. 2001. (Invited)
  16. A. Chin, M. Y. Yang, S. B. Chen, C. L. Sun, and S. Y. Chen, "Fast Write Time and Long Retention 1T Memory," *59th IEEE Device Research Conference (DRC)*, Notre Dame, IN, June 2001.
  17. A. Chin, "Gate oxide integrity of SiGe p-MOSFET with high current drive," *International Semiconductor Technology Conference*, 2001. (Invited)
  18. Y. H. Lin, Y. C. Chen, F. M. Pan, I. J. Hsieh, and A. Chin, "The thickness dependent gate oxide integrity degradation by Cu contamination," *43<sup>th</sup> Electronic Materials Conference (EMC)*, Notre Dame, IN, June 2000.
  19. A. Chin, "Super MOSFET using high K gate dielectric and SiGe," *59<sup>th</sup> Symp. on Semiconductors & IC Technology*, Japan 2000. (Invited)
  20. Y. H. Wu, A. Chin, K. H. Shih, C. C. Wu, S. C. Pai, C. C. Chi, and C. P. Liao, "RF loss and cross talk on extremely high resistivity (10K-1M  $\Omega$ -cm) Si fabricated by ion implantation," *IEEE MTT-S International Microwave Symp.*, June 2000.
  21. Y. H. Wu, A. Chin, C. S. Liang, and C. C. Wu, "The performance limiting factors as RF MOSFETs scaling down," *IEEE MTT-S International RF-IC Symp.*, June 2000.
  22. A. Chin, Y. H. Wu, S. B. Chen, C. C. Liao, and W. J. Chen, "High Quality  $\text{La}_2\text{O}_3$  and  $\text{Al}_2\text{O}_3$  Gate Dielectrics with Equivalent Oxide Thickness 5-10Å," *Symp. on VLSI Technology*, p. 19, US, June 2000. (Highlight Section Paper)
  23. A. Chin "The possible materials and requirement of high-K gate dielectrics for VLSI," *MRS High-K Gate Dielectrics workshop*, US, June 2000. (Invited)
  24. Y. H. Wu, K. T. Chan, S. B. Chen, W. J. Chen, and A. Chin, "Improved shallow junction integrity using single crystalline  $\text{CoSi}_2$ ," *42<sup>th</sup> Electronic Materials Conference (EMC)*, Boulder, CO, June 2000.
  25. S. B. Chen, C. H. Huang, Y. H. Wu, W. J. Chen, and A. Chin, "High quality thermal ultra-thin gate oxide directly grown on high temperature formed  $\text{Si}_{0.3}\text{Ge}_{0.7}$ ," *42<sup>th</sup> Electronic Materials Conference (EMC)*, Boulder, CO, June 2000.

26. Y. H. Wu, M. Y. Yang, S. B. Chen, W. J. Chen, A. Chin, and C. M. Kwei, "High frequency characterization of mega-ohm resistivity Si formed by high-energy ion implantation," 42<sup>th</sup> *Electronic Materials Conference (EMC)*, Boulder, CO, June 2000.

### 曾俊元教授 交通大學電子工程所

#### 期刊論文

1. M. S. Tsai and T. Y. Tseng, "Effect of Bottom Electrodes on Resistance Degradation of (Ba,Sr)TiO<sub>3</sub> Thin Films", *IEEE Trans on CPMTA*, Vol.23 pp.128-135, 2000.
2. M. S. Tsai and T. Y. Tseng, "The effect of oxygen-to-argon ratio on the electrical and reliability characteristics of sputtered Sr<sub>0.8</sub>Bi<sub>2.5</sub>Ta<sub>1.2</sub>Nb<sub>0.9</sub>O<sub>9+x</sub> thin films", *Thin Solid Films*, 382(2000) 190-199.
3. W. K. Chen, C.M. Chen, J.Y. Huang, W.F.Hsieh, T.Y.Tseng, "Study of linear and nonlinear optical properties of distorted Ti-O<sub>6</sub> perovskite structure in Ba<sub>x</sub>Sr<sub>x</sub>TiO<sub>3</sub>", *Journal of Phys. And Chem, Of Solids*, 61(2000) 969-977.
4. S. Ezbilvalavan, M. S. Tsai, T.Y. Tseng, "Dielectric relaxation and defect analysis of Ta<sub>2</sub>O<sub>5</sub> thin films", *J. Phys. D. Appl. Phys.*33, (2000) 1137-1142.
5. W. H. Lee, T. Y. Tseng, and D. F. K. Hennings, "Effects of calcinations temperature and A/B ratio on the dielectric properties of (Ba,Ca)(Ti, Zr, Mn)O<sub>3</sub> for multilayer ceramic capacitors with nickel electrodes", *J. Am Ceramic. Soc.*, 83(6) 1402-1406(2000).
6. W. H. Lee, T. Y. Tseng, and D. Hennings, "Effects of A/B cation ratio on the microstructure and lifetime of (Ba<sub>1-x</sub>Ca<sub>x</sub>)<sub>z</sub>(Ti<sub>1-y</sub>Zr<sub>y</sub>Mn<sub>0.01</sub>)O<sub>3</sub>(BCTZM) sintered in reducing atmosphere. *J. Mater Sci. Materials in Electronics*, 11(2000) 157-162.
7. C. M. Cheng, C. F. Yang and T. Y. Tseng "Sintering BaTi<sub>4</sub>O<sub>p</sub>/Ba<sub>2</sub>Ti<sub>p</sub>O<sub>20</sub>- based Ceramics by glass addition", *J. Europe Ceram. Soc.*, 20(2000) 157-162.

#### 研討會論文

1. S. Ezilvalavan and T.Y. Tseng, "Properties and reliability of Ta<sub>2</sub>O<sub>5</sub> thin films deposited on Ta", 1999 IEEE 49<sup>th</sup> Electronic Components & Technology Conference (San Diego, CA), Paper # S29P5 (ISBN 0-7803-5234-3), P1042-46.
2. T. Y. Tseng, "(Ba, Sr)TiO<sub>3</sub> thin films : preparation, properties and reliability", 2<sup>nd</sup> Asian Meeting on Ferroelectrics International, Singapore, 7-11 December, 1998.
3. M. S. Tsai and T. Y. Tseng, "Electrical properties of Sr<sub>0.8</sub>Bi<sub>2.5</sub>Ta<sub>1.2</sub>Nb<sub>0.9</sub>O<sub>9+x</sub> ferroelectric thin films", *Proceedings of the 1998 annual conference of the Chinese Society for Materials Science*, 1998.
4. W. H. Lee, T. Y. Tseng, K.H. Ou, T.H. Hsieh and T.L. Tsai, "Effects of calcination temperature and Ba/Ti ratio on dispersion of aqueous (Ba,Ca)(Ti,Zr,Mu)O<sub>3</sub> suspension for Ni-based multilayer ceramic capacitors", 100<sup>th</sup> Acers Annual Meeting, Cincinnati, U.S.A.,

May 3-6, 1998.

5. S. Ezhilalavan and T.Y. Tseng, "Rapid Thermal Processed Ta<sub>2</sub>O<sub>5</sub> Thin Films", 100<sup>th</sup> Acers Annual Meeting, Cincinnati, U.S.A. May 3-6, 1998.

### 張國明教授論文期刊 (1998~2000)

1. S.L. Jang, H.K. Chen and K.M. Chang, 1998, "Low-Frequency Noise Characteristics of Hot Carrier-Stressed Buried-Channel pMOSFETs," Solid State Electronics, Vol. 42, No. 3, pp.411-418.
2. K.M. Chang, C.H. Chen and M.J. Tsai, 1997, "熱挫屈制動微閥製程研究," 工研院機械工業研究所機械工業雜誌
3. K.M. Chang, G.J. Hwang, Y.L. Hsien and C.H. Chen, 1998, "An Accurate Determination of P<sup>+</sup> Silion Layer Thickness for Microstructures," Journal of the Chinese Institute of Electrical Engineering, Vol. 5, No. 2.
4. K.M. Chang, C.H. Li, S.W. Wang, T.H. Yeh and J.Y. Yang, 1998, "The Relaxation Phenomena of Positive Charges in Thin Gate Oxide during Fowler-Nordheim Tunneling Stress," Vol. 45, No. 8, IEEE Transactions on Electron Devices Society.
5. K.M. Chang, C.H. Li, B.S. Sheih, J.Y. Yang, S.W. Wang, C.J. Wu and C.H. Li, 1998, "A New Simple and Reliable Method to Form a Textured Si Surface for the Fabrication of a Tunnel Oxide Film," Vol. 19, No. 5, pp. 145-147, IEEE Electron Devices Letters.
6. K.M. Chang, G.J. Hwang, Y.L. Hsieh and W.H. Ko, 1998, "A Touch Mode Capacitive Pressure Sensor with Special Ring Structure," Vol. 5, No. 4, Journal of the Chinese Institute of Electrical Engineering.
7. K.M. Chang, G.J. Hwang, and Y.L. Hsien, 1998, " Three Electrodes Touch Mode Capacitive Pressure Sensor," Vol. 47, Journal Micro System Technologies.
8. K.M. Chang, I-Chung Deng, Chieh-Wen Shih, K.D. Lain and C. M. Fu, 1998, "The Characteristics of Chemical Vapor Deposited Amorphous-like Tungsten Film as a Gate Electrode," Vol. 37, No. 9, Japanese Journal of Applied Physics.
9. K.M. Chang, I-Chung Deng, Ta-Hsun Yeh, K.D. Lain and C. M. Fu, 1999, "Thermal stability of amorphous-like WN<sub>x</sub>/W bilayered diffusion barrier for chemical vapor deposited-tungsten/p<sup>+</sup>-Si contact system," Vol. 38, pp. 1343-1351, Japanese Journal of Applied Physics.
10. K.M. Chang, C.H. Li, B. S. Sheih and J.Y. Yang, 1999, "The Characteristics of Tunnel Oxides Grown on Textured Silicon Surface with a Simple and Reliable Process," Vol. 46, No. 2, February, IEEE Transactions on Electron Devices Society.
11. K.M. Chang, T.C. Lee and Y.L. Sun, 1998, "The characteristics of N<sub>2</sub>O-grown polyoxide by the recrystallized-polysilicon method," December 1, Electrochemical and Solid State Letters.
12. K.M. Chang, J.Y. Yang and L.W. Chen, 1999, "A Novel Technology to Form Air Gap

- for ULSI Application," April Vol. 20, No. 4., pp. 185-7, IEEE Electron Devices Letters.
13. K.M. Chang, I-Chung Deng, and H.Y. Lin, 1999, "Chemical vapor deposited-tungsten Film to Suppress Fluorine Penetration and Dopant Redistribution," Journal of Chemical Vapor Deposition, Vol. 7, January, pp. 1-18
  14. K.M. Chang, T.C. Lee and Y.L. Sun, 1999, "Comparison of the characteristics of polyoxides grown by thermal, rapid thermal oxidation, and TEOS deposition methods," Vol. 38, part1, No.10, p.5731 Japanese Journal of Applied Physics.
  15. K.M. Chang, I.C. Deng, and H.Y. Lin, 1999, "Suppression of Fluorine Penetration by Use of In Situ Stacked Chemical Vapor Deposited Tungsten Film," Vol. 146(8), J. Electrochem. Soc.: SOLID-STATE SCIE AND TECH.,
  16. K.M. Chang, I.C. Deng, T.H. Yeh and C.W. Shih, 1999, "Barrier Characteristics of Chemical Vapor Deposited Amorphous-like Tungsten Silicide with in situ Nitrogen Plasma Treatment," Accepted to J. Electrochem. Soc.: SOLID-STATE SCIE AND TECH.
  17. K.M. Chang, I.C. Deng, S.J. Yeh and Y.P. Tsai, 1999, "Suppress Copper Diffusion through Barrier Metal-Free Hydrogen Silsequioxane Dielectrics by Using NH<sub>3</sub> Plasma Treatment," Accepted to J. Electrochem. Soc.: Electrochemical and Solid State Letters.
  18. K.M. Chang, T.C. Lee and J.Y. Wang, 2000, "Electrical Characteristics of Polyoxide Prepared by N<sub>2</sub>- Preannealing Method," Vol. 3, No.1, p.39, J. Electrochem. Soc.: Electrochemical and Solid State Letters.
  19. K.M. Chang, J.Y. Yang and L.W. Chen, 2000, "A Novel Process and Thermodynamic Mechanism of Air Gap Formation for ULSI Application," Accepted to Thin Solid Films.
  20. K.M. Chang, T.C. Lee and S.H. Liu, 2000, "Influence of Sheet Resistance on N<sub>2</sub>O-Grown Polyoxide," Vol. 39, part 1, No. 4A, p.1604, Japanese Journal of Applied Physics.
  21. K.M. Chang, J.Y. Yang and Y.H. Chang, 2000, "Reactive Ion Pretreatment Technique to Improve the Ashing Resistance of Low Dielectric Constant High Carbon Content Polymer," Accepted to Japanese Journal of Applied Physics.
  22. K.M. Chang, I.C. Deng, C.Y. Wen, S.J. Yeh and J.Y. Wang, 2000, "A novel Pretreatment Technology for Organic Low-Dielectric Material to Suppress Copper Diffusion and Improve Ashing Resistance," June 1, J. Electrochem. Soc.: SOLID-STATE SCIE AND TECH.
  23. K.M. Chang, I.C. Deng, S.J. Yeh and Y.P. Tsai, 2000, "Using NH<sub>3</sub> Plasma Treatment to Improve the Characteristics of Hydrogen Silsequioxane for Copper Interconnection Application," Accepted to J. Electrochem. Soc.: SOLID-STATE SCIE AND TECH.
  24. K.M. Chang, T.C. Lee and Y.L. Sun, 2001, "The Effect of the Growth Temperature on Polyoxide by Rapid Thermal Processing," Vol. 40, pp. 1157-1161, Japanese Journal of

Applied Physics.

25. K.M. Chang, T.C. Lee and Y.L. Sun, 2001, "The Effect of Rapid Thermal N<sub>2</sub>O-Annealing on TEOS Oxide," Accepted to Japanese Journal of Applied Physics.
26. K.M. Chang, Y.H. Chung, T.C. Lee and Y.L. Sun, 2001, "A New Method to Characterize N<sup>+</sup>-Polysilicon/Oxide Interface Traps in Ultra-thin Oxides (2.5 nm ~ 3.9 nm)," Accepted to J. Electrochem. Soc.: Electrochemical and Solid State Letters.
27. J.T. Sheu, J.W. Wu, K.S. Yu, and K.M. Chang, 2001, "Formation of Silicon Mold with Scanning Probe Lithography for High Density Storage Application," Accepted to JVST B.
28. K.M. Chang, Y.H. Zhong, H.Y. Chen, T.C. Lee and Y.L. Sun, 2001, "Thickness and Stress Polarity Effects on the reliability of the Low Thermal Budget Polyoxides," Accepted to Japanese Journal of Applied Physics.
29. K.M. Chang, Y.H. Zhong, and G.M. Lin, 2001, "Hot Carrier Induced Degradation in the Low Temperature Processed Polycrystalline Silicon Thin Film Transistors Using the Dynamic Stress," Accepted to Japanese Journal of Applied Physics.

B. Conference Papers

1. 張國明, 徐世杰, 蔡明杰, 1998, "熱制動微閥製程之研究," 第二屆奈米工程及微細統技術研討會, May 6-7, p. 3-139.
2. K.M. Chang, I.C. Deng, T.H. Yeh and C.W. Shih, 1998, "The Barrier Characteristics of Chemical Vapor Deposited Amorphous Tungsten with In Situ Nitrogen Plasma Treatment," 194<sup>th</sup> Meeting, The Electrochemical Society, Boston, November 1-6.
3. K.M. Chang, and J.Y. Yang, 1998, "Air Gap for ULSI Application by Bonding Ultra Thin HSQ Layer to Patterned Metal Lines," International Electron Devices and Materials Symposium (1998 IEDMS), Tainan.
4. K.M. Chang, and J.J. Luo, 1998, "Tungsten Oxide As The Temperature Sensitive Material for Microbolometer," International Electron Devices and Materials Symposium (1998 IEDMS), Tainan.
5. K.M. Chang, J.Y. Yang, Y.H. Chang and I.C. Deng, 1998, "The Air Gap and Pretreatment for The Future Development of Low Dielectric Material in ULSI," International Conference on Next Decades of High Technologies (ICHT'98), Nov. 14-15, Taipei, Taiwan.
6. K.M. Chang, J.Y. Yang, Y.H. Chang and I.C. Deng, 1998, "Pretreatment Technique to Improve the Ashing Resistance of Low k Spin-on-Polymer (SOP)," International Conference MRS 1999 Spring Meeting, USA.
7. K.M. Chang, T.C. Lee and Y.L. Sun, 1999, "Exploration of the Characteristics of Polyoxides Grown by Thermal, Rapid Thermal Oxidation, and TEOS Deposition," The Sixth Symposium on Nano Device Technology, May.

8. K.M. Chang, I.C. Deng, 1999, "Supress Copper Diffusion through Barrier Metal-Free Hydrogen Silsequioxane Dilectrics by Using NH<sub>3</sub> Plasma Treatment," 194<sup>th</sup> Joint International Meeting of The Electrochemical Society in Honolulu, October 17-22.
9. K.M. Chang, T.C. Lee and J.Y. Wang, 1999, "HIGH QUALITIES OF POLYOXIDE GROWN BY HIGH-TEMPERATURE ANNEALING METHOD," International Conference MRS 1999 FALL Meeting, November 29 – December 3, Boston Massachusetts, USA.
10. K.M. Chang, M.H. Tseng, Y.J. Haung, and I.C. Deng, 2000, "Using Nitrogen (N<sup>+</sup><sub>2</sub>) Implantation into Poly-Si/ $\alpha$ -Si Films to Improve the Thermal Stability of Cobalt Silicide," 197<sup>th</sup> Meeting of The Electrochemical Society in Toronto, May 14-18.
11. K.M. Chang, I.C. Deng, 2000, " Using NH<sub>3</sub> Plasma Treated Spin-on Low-k film as Barrier Metal-Free Dilectrics to Suppress Copper Diffusion and Improve Its Ashing Resistance," 197<sup>th</sup> Meeting of The Electrochemical Society in Toronto, May 14-18.
12. K.M. Chang, C.F. Jou, J.J. Luo, L.Y. Kuo, I.C. Deng, C. Liang and N.C. Luhmann, 2000, "Fabrication of Cantilever Type Microswitches Using Surface Micromachining Technology," International MicroProcesses and Nanotechnology Conference(MNC 2000), University of Tokyo, Komaba,, Japan, July 11-13.
13. J.T. Sheu, K.S. Yu, J.H. Wu, and K.M. Chang, 2000, "Nanometer-scale absorber patterning of X-ray mask by scanning tunneling microscopy," SPIE Microlithography Symposium Feb. 27- March 1, Santa Clara, USA.
14. J.T. Sheu, K.S. Yu, J.H. Wu, and K.M. Chang, 2000, "Nanometer-scale absorber patterning of X-ray mask by scanning tunneling microscopy," 2000 X-ray and EUV Lithography, Nov. 13-15, Yokohama.
15. J.T. Sheu, J.H. Wu, K.S. Yu, W.L. Cheng, and K.M. Chang, 2001, "Nanofabrication on silicon by local oxidation of SPM," 45<sup>th</sup> International Electron, Ion and Photon Beam Technology and Nanofabrication, May 29-June 1

#### 專利 (PATENT)

1. 反 T 字型井區元件及其製造方法 (MOS, CMOS, ULSI) (臺灣; 發明第 092733 號)
2. 反 T 字型井區元件及其製造方法(MOS, CMOS, ULSI) (美國; 發明第 6046475 號)
3. 氧化層之製造方法 (EPRON, EEPRON, FLASH EEPRON) (臺灣; 發明第 117394 號)
4. 具有紋路表面之矽基材與穿隧氧化層的製作方法 (flash EEPRON) (臺灣; 發明第 112722 號)
5. 具有紋路表面之矽基材與穿隧氧化層的製作方法 (flash EEPRON) (美國; 發明第 6165844 號)
6. 降低旋塗式玻璃層與金屬層間應力的結構及其製造方法 (ULSI) (臺灣; 發明第 096257 號)



7. 降低旋塗式玻璃層與金屬層間應力的結構及其製造方法 (ULSI) (美國; 發明第 5955200 號)
8. 積體化微型流量控制模組製程 (MEMS) (臺灣; 發明第 109238 號)
9. 積體化微型流量控制模組製程 (MEMS) (美國; 發明第 606364 號)
10. 一種三電極電容式壓力感測器之結構及其製法 (MEMS) (臺灣; 發明第 108576 號、美國)
11. 製造電容器的方法 (e.g. DRAM) (臺灣; 發明第 123693 號)
12. 介電層之製作方法及結構 (MEMS, ULSI) (AIR GAP) (臺灣; 發明第 119185 號)
13. 介電層之製作方法及結構 (MEMS, ULSI) (AIR GAP) (美國; 發明第 PECA058A17/1210 號)
14. 利用 ECR-CVD 系統成長具低介電常數之介電質製法 (ECR-CVD, ULSI) (臺灣)
15. 以堆疊鎢膜結構技術抑制氟元素在化學氣相沉積鎢時對閘極介電層的傷害 (W-CVD, ULSI) (臺灣)
16. 利用非晶矽薄膜之再結晶成長高品質氧化層之製造方法 (TFT) (臺灣、美國)
17. 氮氣電漿處理低介電常數材料 HSQ 及 MSQ 以作為無擴散障礙金屬之介電層 (ULSI) (臺灣、美國)
18. 新穎結構薄膜電晶體及其製作方法 (TFT) (臺灣、美國) 科林第三屆論文獎碩士組優等獎  
論文題目: 快速熱退火製程對複晶矽介電質特性之研究

雷射圖形產生系統---校外論文

張培仁 台灣大學應用力學所

期刊論文

1. Chienliu Chang and Peizen Chang (2000), "Innovative Micromachined Microwave Switch with Very Low Insertion Loss," Sensors and Actuators A, Vol. 79, pp. 71-75. (SCI, EI)
2. Chienliu Chang, Ching-Liang Dai, Jenn-Yi Chen, Honglin Chen, Kaihsiang Yen, Jing-Hung Chiou and Pei-Zen Chang (2000), "A Wideband Electrostatic Microwave Switch Fabricated by Surface Micromachining," Journal of the Chinese Institute of Engineers, Vol. 23, pp. 781-787. (EI)
3. Lungjeh Yang, Tsungwei Huang and Pei-Zen Chang (2001), "CMOS Microelectromechanical Bandpass Filters," Sensors and Actuators A, Vol. 90, pp. 148-152. (SCI, EI)
4. Ching-Liang Dai, Hung-Lin Chen and Pei-Zen Chang (2001), "Fabrication of a Micromachined Optical Modulator Using the CMOS Process," J. Micromechanics and Microengineering, Vol. 11, pp. 612-615. (SCI, EI)
5. Lung-Jieh Yang, Chih-Wei Liu, and Pei-Zen Chang (2001), "Phase Synchronization of Micro Mirror Arrays Using Elastic Linkages," Sensors and Actuators A, Vol. 95, pp. 55-60. (SCI, EI)
6. Ching-Liang Dai, Kaihsiang Yen and Pei-Zen Chang (2001), "Applied Electrostatic Parallelogram Actuators for Microwave Switches by Standard CMOS Process," J. Micromechanics and Microengineering, Vol. 11, pp. 697-702. (SCI, EI)
7. Ching-Liang Dai, Hong-Lin Chen, Liang-Bin Yu, Chun-Hui Lin, and Pei-Zen Chang (2001), "Design and Fabrication of CMOS Optical Modulator," Sensors and Actuators A, Vol. 95, pp. 69-74. (SCI, EI)
8. Ching-Liang Dai, Hung-Lin Chen, Chi-Yuan Lee, and Pei-Zen Chang (2002), "Fabrication of Diffractive Optical Elements Using the CMOS Process," J. Micromechanics and Microengineering, Vol. 12, pp. 21-25. (SCI, EI)
9. Jen-Yi Chen, Long-Sun Huang, Chia-Hua Chu, and Pei-Zen Chang (2002), "A New Transferred Ultra-thin Silicon Micropackaging," J. Micromechanics and Microengineering, Vol. 12, pp. 406-409. (SCI, EI)
10. T.-T. Wu, S.-M. Wang, Y.-Y. Chen, T.-Y. Wu, P.-Z. Chang, L.-S. Huang, C.-L. Wang, C.-W. Wu, and C.-K. Lee (2002), "Inverse Determination of Coupling of Modes Parameters of Surface Acoustic Wave Resonators," Jap. J. Appl. Phys., accepted. (SCI)

研討會論文

1. 戴慶良、張培仁、呂秀雄(2000)，"CMOS 微感測器和制動器之研製"，第一屆海峽兩岸製造技術研討會論文集，台北，台灣。
2. Hunglin Chen, Chienliu Chang, Kaihsiang Yen, Huiwen Huang, Jinhung Chio, Chingyi Wu, and Pei-Zen Chang (2000), 'Fabrication of the planar angular rotator using the

- CMOS process,” Proc. the 13th Annual International Workshop on Micro Electro Mechanical Systems (MEMS-2000), Miyazaki, Japan.
3. Tsungwei Huang, Pei-Zen Chang, Chiyuan Lee, and Fuyuan Xiao (2000), “Microelectromechanical Bandpass Filters for Signal Processing by Standard CMOS Process,” Proc. SPIE 7th Annual International Symposium on Smart Structures and Materials, pp. 61-68, Newport Beach, USA.
  4. Pei-Zen Chang, Chih-Wei Liu, Shyh-Yung Pao, and Jenn-Yi Chen (2000), “Phase Synchronization of Micro-mirror Arrays Using Elastic Linkages,” Proc. SPIE 7<sup>th</sup> Annual International Symposium on Smart Structures and Materials, pp. 326-334, Newport Beach, USA.
  5. Hunglin Chen, Kaihsiang Yen, Huiwen Huang, Jinhung Chio, Chingliang Dai, Chienliu Chang and Peizen Chang (2000), “Fabrication of Micromachined Optical Modulator Using the CMOS Process,” Proc. Photonics Taiwan 2000, pp. 620-626, Taipei, Taiwan.
  6. Hunglin Chen, Huiwen Huang, Kaihsiang Yen, Jinhung Chio, Chingliang Dai, Chienliu Chang and Peizen Chang (2000), “Fabrication of Diffractive Optical Elements Using the CMOS Process,” Proc. Photonics Taiwan 2000, pp. 627-636, Taipei, Taiwan.
  7. Hunglin Chen, Kaihsiang Yen, Jinhung Chio, Huiwen Huang, Chingliang Dai, Chienliu Chang and Peizen Chang (2000), “Integrated Eyeball-Tracking Device,” Proc. Photonics Taiwan 2000, pp. 637-645, Taipei, Taiwan.
  8. Shih-chen Chang , Ching-liang Dai, Jing-hung Chiou and Pei-zen Chang (2001), “Capacitive Micro Pressure Sensors with Underneath Readout Circuit Using a Standard CMOS Process,” Proc. SPIE’ s Smart Structures and Materials 2001 Symposium, pp. 336-344, Newport Beach, USA.
  9. Jenyi Chen, Long-Sun Huang, Chia-Hua Chu, Yao-Hui Kuo and Pei-Zen Chang (2001), “A Novel Micro Encapsulation Using Flip Chip Assembly,” Proc. IMAPS Taiwan Technical Symposium 2001, pp. 30-34, Hsinchu, Taiwan.
  10. Jenyi Chen, Long-Sun Huang, Chia-Hau Chu, and Pei-Zen Chang (2001), “A New Transferred Ultra-Thin Silicon Micropackaging,” Proc. 12th Micromechanics Europe Workshop, pp. 86-89, Cork, Ireland.
  11. Wing Wu, Long-Sun Huang, Bin-Ru Chen, and Pei-Zen Chang (2001), “A Novel Segmental, Dual Torsion Microstructure of A Magnetically Levitated and Electrostatic Actuator for Large Displacement and Low Driving Voltage,” Proc. 12th Micromechanics Europe Workshop, pp. 249-252, Cork, Ireland.
  12. 吳政忠、王聖銘、張培仁、黃榮山、陳永裕、陳永裕、吳志偉、吳宗穎、王誌麟(2001), “通訊用表面聲波濾波器之設計與量測”, 中國機械工程學會第十八屆全國學術研討會論文集, pp. 311-318, 台北, 台灣。
  13. S.C. Tsai, T.K. Tseng, Y.L. Song, Y.F. Chou, C.S. Tsai, and P.Z. Chang (2002), “High Frequency MEMS-Fabricated Ultrasonic Nozzles for Nanoparticles Synthesis,” Proc.

MRS Meeting, pp. xxx-xxx, San Francisco, USA.

曾繁根 清華大學工程系統所

期刊論文

2. \*Shih-Chang Lin, Fangang Tseng and Ching-Chang Chieng, "Numerical Simulation of Protein Stamping Process Driven by Capillary Force", submitted to IEEE Transactions On Biomedical Engineering, 2002. (Mr. Lin is my student)
3. Fan-Gang Tseng, and \*Kung-Hua Lin, and Ching-Chang Chieng, "A Micro Blood Sensing Network with Novel Enzyme Batch-fill-in Process", submitted to Journal of Microelectromechanical Systems, 2002. (Mr. Lin is my student)
4. F. G. Tseng, K. C. Leou, L. C. Pan, \*Y. Y. Lai, \*Y.C. Liang, and \*L.D. Chen "The characterization of An Acoustic Plate Mode Sensor And the application for Cell Proliferation Monitor", IEEE Sensors Journal, 2002, in revision. (Mr. Lai, Liang and Chen are my students)
5. Fan-Gang Tseng, and \*Chun-Jun Lin, "Polymer-MEMS Based Fabry-Perot Shear Stress Sensor", IEEE Sensors Journal, 2002, in revision. (Mr. Lin is my student)
6. \*Shih-Chang Lin, Fangang Tseng and Ching-Chang Chieng, "Numerical Simulation of Surface-Tension Driven Spotting Using Micro-Stamping Process through Microchannels", International Journal of colloid and Interface Science, 2002, in revision,. (Mr. Lin is my student)
7. \*Hwa Seng Khoo, Kuo-Kang Liu and Fang-Gang Tseng, "Mechanical Characterization Of Microfabricated Elastomeric Membrane", paper submitted to J. of Physics D: applied physics, 2002. (Mr. Khoo is Prof. Liu's student)

**Papers accepted or published:**

8. Fan-Gang Tseng and \*Kai-Chen Chang, "A Precision Alignment Method To <100> Direction On (110) Silicon Wafer", J. Micromech. Microeng. 13, pp. 47-52, January 2003, in print. (Mr. Chang is my student)
9. \*Yun-Ju Chuang, Fan-Gang Tseng, \*Jen-Hau Cheng and Wei-Keng Lin , "A Novel Fabrication Method of SU-8 Stacked Micro Channels By UV Dosage Control", Sensors and Actuators A, 3543, pp. 1-6, 2002. (Mr. Chuang, and Cheng are my students)
10. F. G. Tseng, \*S. C. Lin, H. M. Huang, \*C. Y. Huang, and C. C. Chieng, "Protein Micro Arrays Immobilized By m-Stamps And Protein Wells On PhastgelR Pad", Sensors and Actuators B, 83, 22-29, 2002. (Mr. Lin, and C. Y. Huang are my students)
11. Fan-Gang Tseng and \*Chih-Sheng Yu "High Aspect Ratio Ultrathick Microstensiles By JSR THB-430N Negative UV Photoresist", Sensors and Actuators A, 97-98, pp. 764-770, 2002. (Mr. Yu is my student)
12. F. G. Tseng, \*I. D. Yang, \*K. H. Lin, \*K. T. Ma, \*M. C. Lu, \*Y. T. Tseng and C. C. Chieng, "Fluid Filling Into Microfabricated Reservoirs", Sensors and Actuators A, 97-98, pp. 131-138, 2002. (Mr. Yang, Lin, Ma, Lu, and Y.T. Tseng are my students)
13. Yao Cheng, \*Chiu-Nen Chen, Ching-Chang Chieng, Fan Gang Tseng, and \*Jeng Tzong Sheu, "Surface Roughness Control By Energy Shift In Deep X-Ray Lithography", paper accepted and in press by Microsystem Technologies, 2002. (Mr. Chen is my student)
14. Fan-Gang Tseng, and \*Chih-Sheng Yu, "Angle Effect of Ultrasonic Agitation On The Development of Thick JSR THB-430n Negative UV Photoresist", Microsystem Technologies 8, pp. 363-367, 2002. (Mr. Yu is my student)
15. \*Yun-Ju Chuang, Fan-Gang Tseng and Wei-Keng Lin, "Reduction of Diffraction Effect of UV Exposure On Su-8 Negative Thick Photoresist By Air Gap Elimination", Microsystem Technologies 8, pp. 308-313, 2002. (Mr. Chuang is my student)

16. \*S. C. Lin , F. G. Tseng, H. M. Huang,\* C. Y. Huang, and C. C. Chieng, " Microsized 2-D Protein Arrays Immobilized by Micro-stamps and Micro-wells For Disease Diagnosis and Drug Screening", Fresenius' Journal of Analytical Chemistry, Vol. 371, No. 2, pp. 202-208, September, 2001. (Mr. Lin, and C. Y. Huang are my students)
17. Fan-Gang Tseng, Haimei Huang, \*Chang-Sheng Liu, \*Chan-Yuh Huang, and Ching-Chang Chieng, " Size effect on Surface Tension and Contact Angle between Protein Solution and Silicon compound, PC, and PMMA substrates", *Microscale Thermophysical Engineering* 6 (1): 31-53 JAN-MAR 2002. (Mr. Liu, and C. Y. Huang are my students)
18. Fan-Gang Tseng, Chang-Jin Kim, and Chih-Ming Ho, "A Monolithic, High Frequency Response, High-Resolution Microinjector array Ejecting Sub Pico-liter Droplets without Satellite Drops - Part I: Concepts, Designs and Molding", *Journal of Microelectromechanical Systems*, Vol. 11, No.5, pp. 427-436, Oct, 2002.
19. Fan-Gang Tseng, Chang-Jin Kim, and Chih-Ming Ho, "A Monolithic, High Frequency Response, High-Resolution Microinjector array Ejecting Sub Pico-liter Droplets without Satellite Drops - Part II: Fabrication, Characterization and Performance Comparison", *Journal of Microelectromechanical Systems*, Vol. 11, No.5, pp. 437-447, Oct, 2002, in press.
20. Tzong-Shyan Wung and Fan-Gang Tseng, "A Color-Coded Particle Tracking Velocimeter with Application to Nature Convection", *Experiments in Fluids*, pp. 217-223, Springer-verlag, 1992.

#### 研討會論文

1. Shih-Chang Lin, Fan-Gang Tseng, Yi-Chin. Tsai, Haimei Huang, and Ching-Chang Chieng "A Novel Protein Micro Stamper With Back-Filling Reservoir For Simultaneous Immobilization Of Large Protein Arrays", accepted by IEEE International Conference MEMS 2003, Kyoto, Japan, Jan. 19-23, 2003
2. Fan-Gang Tseng, Kuang- Hua Lin, Hui-Ting Hsu, Yu-Hsiang Chang, and Ching-Chang Chieng "A Power-Free Surface-Tension-Driven Fluidic Network System For Large-Array Enzyme Immobilization And Glucose Sensing", accepted by IEEE International Conference MEMS 2003, Kyoto, Japan, Jan. 19-23, 2003
3. Chien-Fu Chen, Chin-Chou Chu, Fan-Gang Tseng, Shih-Chi Kuo "A Power-Free Liquid Driven Method For Micro Mixing Application", accepted by IEEE International Conference MEMS 2003, Kyoto, Japan, Jan. 19-23, 2003
4. Chun-Jun Lin and Fan-Gang Tseng, "A High Sensitive Optic Fabry-Perot Sensor for shear Stress Measurement", 1A-1, 2002 Nanotechnology and MEMS conference, Cheng-Kung U., Tainan, Taiwan, ROC.
5. Fan-Gang Tseng, Ching-Chang Chieng, Kung-Hua Lin, Hui-Ting Hsu, Yu-Hsiang Chang "Surface-Tension-Driven Disposable Micro Fluidic Diagnosis Chip", 3A-2, 2002 Nanotechnology and MEMS conference, Cheng-Kung U., Tainan, Taiwan, ROC.
6. Shih-Chang Lin, Fan-Gang Tseng, Yen-Hua Cu, Yi-Chin. Tsai, Ching-Chang Chieng and Haimei Huang, "Protein Microarray Prepared by a Capillary-Force-Driven Stamping System with Bac-filling Dispensing Channels", 3A-4, 2002 Nanotechnology and MEMS conference, Cheng-Kung U., Tainan, Taiwan, ROC.
7. Yun-Ju Chung, Fan-Gang Tseng, and Wei-Keng Lin, "A Photopolymer Microinjector iwht Monolithic Nozzle Array Plate", 3C-2, 2002 Nanotechnology and MEMS conference, Cheng-Kung U., Tainan, Taiwan, ROC.
8. Shih-Chang Lin, Yi-Chin Tsai, F. G. Tseng, H. M. Huang, and C. C. Chieng, "Protein Microarray Patterned by a Surface-tension-driven Stamping System with Discrete Dispensing Channels", mTAS2002, Nara, Japan, Nov. 3-7, pp. 591-592, 2002

9. Mon-Juan Lee, Haimei Huang, Cheng-Kung Chou, Yi-Chin Tsai, F. G. Tseng, and C. C. Chieng, "Diagnostic Antigens and Antibodies Patterned by Micro Stamping System", mTAS2002, Nara, Japan, Nov. 3-7, pp. 461-463, 2002
10. Shih Chang Lin, Fan-Gang Tseng, and Ching-Chang, Chieng, "Numerical Simulation of Protein Stamping Process Driven by Capillary Force", ASME Imece2002-33070, New Orlean, LA, USA, Nov. 17-22, 2002
11. I-Da Yang, Fan-Gang Tseng, Ching-Chang Chieng, "Visulaization of Paired Micro Thermal Bubble formation and Induced Flow Field" ASME IMECE2002-33653, New Orlean, LA, USA, Nov. 17-22, 2002
12. F. G. Tseng, Y.H. Cu, and H. M. Huang, "Protein Immobilization Properties of Various SAM Binding Carriers for the Application of Stamping Protein Micro Array", Pacific Rim Workshop on Transducers and Micro/Nano Technologies, Xiamen University, China, pp. 753-756, July 22~24, 2002.
13. W.L. Chen, Fangang Tseng and Chin Pan, "Boiling Heat Transfer and Pressure Drop in Silicon-Based Micro-Channels", Pacific Rim Workshop on Transducers and Micro/Nano Technologies, Xiamen University, China, pp. July 22~24, pp. 307-310, 2002.
14. F. G. Tseng, H. Huang, T. J. Chen, S. Y. Chang, Y. J. Hu, C. Y. Huang, and C. C. Chieng, "In Vitro Rabbit Cornea Cells Sirc Growth On PDMS Thin Membrane Under Shear Stress Force", IEEE-EMBS MCTE 2002, Genoa, Italy, pp. 166-167, June 6-9, 2002. L. C. Pan, Y. C. Liang, F. G. Tseng, K. C. Leou, L. D. Chen, Y. Y. Lai, " A Novel Application of Acoustic Plate Mode Sensor in Tissue Regeneration", IEEE-EMBS MCTE 2002, Genoa, Italy, pp. 63-64 June 6-9, 2002.
15. F. G. Tseng, K. C. Leou, L. C. Pan, Y. Y. Lai, Y.C. Liang, and L.D. Chen "Acoustic Plate Mode Tissue Sensor", Proceedings of IEEE Sensors 2002 Conference, 32.4, Orlando, Florida, June 12-14, 2002.
16. F. G. Tseng, K. H. Lin, and C. C. Chieng, "A Novel Fluidic Network System for Enzyme Batch-immobilization and Blood Sensing", Proceedings of IEEE Sensors 2002 Conference, 56.3, Orlando, Florida, June 12-14, 2002.
17. L. C. Pan, P. W. Lin, F. G. Tseng, and C. Lin, "Surface Biopotential Monitoring by Needle Type Micro Electrode Array", Proceedings of IEEE Sensors 2002 Conference, 9.5, Orlando, Florida, June 12-14, 2002.
18. F. G. Tseng, and C. J. Lin, "A High Sensitive Fabry-Perot Shear Stress Sensor Employing Flexible Membrane And Double SU-8 Structures", Proceedings of IEEE Sensors 2002 Conference, 67.1, Orlando, Florida, June 12-14, 2002.
19. Fan-Gang Tseng, Yun-Ju Chuang, and Wei-keng Lin, "A Novel Fabrication Method Of Embedded Micro Channels Employing Simple UV Dosage Control And Antireflection Coating", Technical Digest IEEE International Conference MEMS 2002, pp.69-72, Las Vegas, USA, Jan. 20-24, 2002.
20. Fan-Gang Tseng, Shyh-Chyi Cuo, Chih-Ming Huang, and Chin-Chou Chu, "The Development of Top-Bottom Confined Micro Channels for Surface-Driven Micro Mixer", Proceedings of The 5th Nano Engineering and Micro System Technology Workshop, ITRI, Taiwan, pp. 2-139~144, Dec. 12-14, 2001.
21. Fan-Gang Tseng, and Chau-Yuh Huang, "The Development of Micro Protein Well for Protein-array Stamping System", Proceedings of The 5th Nano Engineering and Micro System Technology Workshop, ITRI, Taiwan, pp. 2-145~152, Dec. 12-14, 2001.
22. Yun-Ju Chuan, Fan-Gang Tseng, and Wei-keng Lin, "A Novel fabrication method of Embedded Micro Channels by Using SU-8 Thick-Film Photoresist", Proceedings of The 5th Nano Engineering and Micro System Technology Workshop, ITRI, Taiwan, pp. 3-103~108, Dec. 12-14, 2001.

23. Fan-Gang Tseng, and Chih-Sheng Yu, "The Study of Thick JSR THB-430N Negative Photoresist Applied to Micro Electroplating and Molding", Proceedings of The 5th Nano Engineering and Micro System Technology Workshop, ITRI, Taiwan, pp. 3-109~114, Dec. 12-14, 2001.
24. Fan-Gang Tseng, and Sheng-Pei Wu, "High Density Vertical Interconnection for MEMS Package", Proceedings of The 5th Nano Engineering and Micro System Technology Workshop, ITRI, Taiwan, pp. 3-115~118, Dec. 12-14, 2001.
25. Fan-Gang Tseng and Kai-Chen Chang, "A Precision Alignment Method To <100> Direction On (110) Silicon Wafer", ASME IMECE01/ MEMS23859, New York, USA, 2001.
26. Jih-Hsing Tu, Fangang Tseng, and Ching-Chang Chieng, "Roughness Effect On Laminar Gas Micro-Channel Flow", ASME IMECE01/ MEMS23866 , New York, USA, 2001.
27. F. G. Tseng, H. M. Huang, C. Y. Huang, S. C. Lin, and C. C. Chieng, "Dual-Protein Micro Arrays Deposited By m-Stamps And m-Wells", mTAS2001, Monterey, CA, Oct. 21-25, pp. 591-592, 2001.
28. F.G. Tseng, I.D. Yang, K.H. Lin, Y.T. Tseng, C.C. Chieng, "Shape Effect On Fluid Filling For Microfabricated Reservoir", mTAS2001, Monterey, CA, Oct. 21-25, pp. 619-620, 2001.
29. F. G. Tseng, H. M. Huang, C. Y. Huang, S. C. Lin, and C. C. Chieng, "Immobilized Two Dimensional Protein Arrays By m-Stamp And Protein Well", IEEE Tranducers'01, Munich, Germany, pp. 330-333, June, 2001.
30. F. G. Tseng, I. D. Yang, K. H. Lin, K. T. Ma, M. C. Lu and C. C. Chieng, "Fluid Filling Into Microfabricated Reservoirs", IEEE Tranducers'01, Munich, Germany, pp. 1518-1521, June, 2001.
31. Fan-Gang Tseng and Chih-Sheng Yu, "Fabrication Of Ultrathick Micromolds Using JSR THB-430n Negative UV Photoresist", IEEE Tranducers'01, Munich, Germany, pp. 1620-1623, June, 2001.
32. Fan-Gang Tseng, and Chih-Sheng Yu, "Improvement Of Developing Process On Ultrathick Micro Structures of JSR THB-430n Negative UV Photoresist By Adjusted Ultrasonic Agitation", HARMST'01, Munich, Germany, pp. 85-86, June, 2001.
33. Fan-Gang Tseng, Yun-Ju Chuang, and Wei-keng Lin, "Reduction Of Diffraction Effect Of UV Exposure On Su-8 Negative Thick Photoresist By Air Gap Elimination", HARMST'01, Munich, Germany, pp. 73-74, June, 2001.
34. K. Liu, Z. H. Du, F. G. Tseng, J. Y. Fang, M. Chou, C. C. Chieng, "Electroplated Micro-needle Array for Biomedical Applications", SPIE's 2000 Symposium on Smart Materials and MEMS, Melbourne, Australia, Dec. 13-15, 2000.
35. Liang-Yu Yao, Chin-Chou Chu, Shyh-Chyi Cuo, and Fan-Gang Tseng, "A study of the Microchannel of Micromixer", The 24th National Conference on Theoretical and Applied Mechanics, Taiwan, R. O. C., Dec., 2000.
36. C.-C. Chu, L.-Y. Yao, C.-C. Chang , S.-C. Cuo, and F.-G. Tseng, "Surface Tension Driven Flow inside Top-bottom Constrained Micro Channels", APS Meeting, Division of Fluid Dynamics (DFD00), Washington, DC, November 19-21, 2000.
37. Kuo-Tong Ma, Fan-Gang Tseng and Ching-Chang Chieng, "Numerical Simulation of Micro-Channel Flow over A Well of Hydrophilic And Hydrophobic Surface", AIAA 2001 Aerospace Sciences Meeting (ASM), Reno, Nevada, 2001.
38. F. G. Tseng, H. M. Huang, C. S. Liu, C. Y. Huang, S. C. Lin, and C. C. Chieng, "Micro Protein Arrays Prepared by Microfabricated Stamps", MEMS' 2000, MEMS-vol. 2, ASME IMECE 2000, pp. 659-665, Florida, Nov. 5-10, 2000.
39. Fan-Gang Tseng, Kuo-Tong Ma and Ching-Chang Chieng, "Numerical Simulation of Dynamic Contact Angle inside Microchannels", International Symposium on Smart Structures and

Microsystems 2000, Hong Kong, Oct. 19-21, 2000.

40. Fan-Gang Tseng, Haimei Huang, Shih-Chang Lin, Chang-Sheng Liu, Chau-Yuh Huang, and Ching-Chang Chieng, "Nano-liter Protein Arrays Prepared by Microfabricated Stamps", NIH BECON Symposium on Nanoscience and Nanotechnology, Bethesda, Maryland, USA, June 25-26, 2000.
41. Fan-Gang Tseng, Kuan-Hua Lin, and Chang Sheng Liu, "The development of DNA injection chip" , NSC MEMS Conference, National Chou-Tong University, April, 2000.
42. Fan-Gang Tseng, Haimei Huang, Chang-Sheng Liu, Chau-Yuh Huang, Shih-Chang Lin, and Ching Chang Chieng, "Protein Array Deposition on a Bio-Reactable Surface via Microfabricated Stamps", Proceedings of METMBS'2000, Las Vegas, Nevada, USA; pp. 301-308, June 26-29, 2000.
43. Fan-Gang Tseng, Haimei Huang, Chang-Sheng Liu, Chau-Yuh Huang, Ching-Chang Chieng, "Size Effect on Surface Tension and Contact Angle between Protein Solution and Silicon Compound Substrates", Engineering Foundation Conference Heat Transfer and Transport Phenomena in Microsystems, Banff, Canada, October 15 - 20, 2000.

劉承賢 清華大學動力機械所

論文著述：

1. Liu, C. H. and Kenny, T. W., "A High-precision ,Wide-Bandwidth Micromachined Tunneling Accelerometer ," *Journal of MicroElectroMechanical System*, Vol. 7, n. 3, September, pp. 425-433, September, 2001. **(SCI & EI)**
2. Liu, C. H., Gerdes, C. and Kenny, T. W., "Robust controller design via mu-synthesis for high-performance micromachined tunneling accelerometers, " *paper in review process for IEEE Transactions on Mechatronics*.
3. Yu-Sheng Yang, Zheng-San Zhou, and Cheng-Hsien Liu, "Tunable Optical-path-difference Grating using CMOS process," proceeding of ASME IMECE MEMS Symposium, MEMS-23811, 2001. **(one of five best student paper s)**
4. Ching-Chen Tu, Chen-Hsun Du, Jiunn-jye Tsaur, Chengkuo Lee, Cheng-Hsien Liu, "A Large-Angle and Large-Mirror Microscanner based on Thermal Actuators," proceeding of ASME IMECE MEMS Symposium, MEMS-23848, 2001.
5. Liu, C. H., "Research and applications for micro-electro-mechanical systems," *Proceeding of precision microfabrication workshop*, Taiwan, pp. 51-55, 2001.



李世光 台灣大學應用力學所

期刊論文

1. Chi-Tang Hsieh, and C. K. Lee, "Cylindrical-type Nanometer-resolution Laser Diffractive Optical Encoders," *Applied Optics*, Vol. 38, No. 22, pp. 4743-4750 (August 1999).
2. C. K. Lee, Jeremy W.J. Wu, S. L. Yeh, C. W. Tu, Y. A. Han, Eric H.Z. Liao, I. E. Tsai, S. H. Lin, Jeffrey C. T. Hsieh, Julie T. Lee, "Optical Configuration and Color Representation Range of a Variable Pitch Dot Matrix Holographic Printer," *Applied Optics*, Vol. 39, No. 1, pp. 40-53 (January 1, 2000).
3. C. K. Lee, and James G.Y. Wu, "Interferometric Metrology of Dynamic Properties of MEMS," *Transactions of The Institute of Electrical Engineers of Japan*, Vol.120-E, pp381-385 (August 2000).
4. Y. H. Liu, T. T. Wu, and C. K. Lee, "Application of Narrowband Laser Ultrasonics to the Nondestructive Evaluation of Thin Bonding Layers," Submitted to *Journal of Acoustical Society of America* (July 1999).
5. J. H. Tong, T. T. Wu, and C. K. Lee, "Fabrication of a Piezoelectric Impact Hammer and Its Application to the In-situ Nondestructive Evaluation of Concrete," Submitted to *Journal of Acoustical Society of America* (July 1999).
6. C. C. Kao, G. B. Yeh, C. S Yang, C. K. Lee, K. C. Wu, "New Phase-Shifting Algorithms for Electronic Speckle Pattern Interferometry," Submitted to *Applied Optics* (September 2000).

研討會論文

1. C. H. Tsai, P. Lai, K. Lee, and C. K. Lee, "Fabrication of a Large F-number Lenticular Plate and Its Use As a Small-angle Flat-top Diffuser in Autostereoscopic Display Screens," *Stereoscopic Displays and Applications XI*, SPIE Proceedings, Electronics Imaging 2000 (January 2000).
2. C. H. Tsai, K. Lee, and C. K. Lee, "Fabricating Polymeric Micro-retardation Arrays by CO<sub>2</sub> Laser Heat Processing Technology," *Stereoscopic Displays and Applications XI*, SPIE Proceedings, Electronics Imaging 2000 (January 2000).
3. Y.-H. Liu, T.-T. Wu, C. K. Lee, and G.-Y. Wu, "Calibration of Piezoelectric Transducers Using Laser Interferometer," *Proc. 6th International Conference on Automation Technology*, pp. 421-426 (May 9-11, 2000).

4. C. K. Lee, and Y. H. Hsu, "The Effect of Feedback Theory to APROPOS Devices," Proc. 6th International Conference on Automation Technology, pp. 427-434 (May 9-11, 2000).
5. Y. H. Hsu, and C. K. Lee, "Designing APROPOS Devices by Using the Method of Imaging," Proc. 6th International Conference on Automation Technology, pp. 435-442 (May 9-11, 2000).
6. 李世光，李兆祐，"超精準橢偏儀之設計與研製"，"第七屆陸軍官校機械基礎學術研討會論文光碟片"，Fong-Shan, Kao-Hsiung, Taiwan (March 7, 2000).
7. W. J. Chen, C. K. Lee, and S. S. Lu, "Design and Performance Evaluation of a Multi-Functional Microscope," The second Asia-Pacific Symposium on Confocal Microscopy and Related Technologies (Multi-dimensional Microscopy 2000), Kaohsiung, Taiwan, R.O.C (July 30-August 2, 2000).
8. C. K. Lee, and Y. H. Hsu, "Theory and Experiment of Autonomous Phase-Gain Piezoelectric Optimal Sensing Devices," The 20th International Congress of Theoretical and Applied Mechanics, Chicago, USA (August 27-September 2, 2000). Also, p.231, IUTAM Abstract book, Technical Report No. 950, Department of Theoretical and Applied Mechanics, University of Illinois at Urbana-Champaign, ISSN 0073-5264.
9. W. J. Chen, C.Y. Lee, H. Chang, C. K. Lee, and S. S. Lu, "An Optical Inhomogeneous Surface Profiler," Interferometry in Speckle Light Theory and Applications (INTSL2000), Proceedings of the International Conference (Published by Springer, New York, New Your, USAr), pp.511-518, ed. P. Jacquot and J. M. Fournier, Lausanne, Switzerland, (September 25-28, 2000).
10. C. C. Wu, C. K. Lee, C. T. Hsieh, and S. S. Lu, " A Position Detection Apparatus for Ultra Precision Machine Applications," Proceedings of the 2000 International Symposium on Mechatronics and Intelligent Mechanical System for 21 Century (ISIM2000), Chongwon, KyongSangNam-Do, Korea, pp. 188-193 (October 4-7, 2000).
11. W. J. Chen, C. K. Lee, and S. S. Lu, "A Multi-functional Microscope for Measuring Inhomogeneous Surface Profile," Proceedings of the 2000 International Symposium on Mechatronics and Intelligent Mechanical System for 21 Century (ISIM2000), Chongwon, KyongSangNam-Do, Korea, pp. 290-295 (October 4-7, 2000).

期刊論文

1. W. Fang, H.-C., Tsai, and C.-Y. Lo, 1999, "Determining Thermal Expansion Coefficients of Thin Films Using Micromachined Cantilevers," *Sensors and Actuators A*, Vol. 77, pp. 21-27.
2. W. Fang, 1999, "Determining of Elastic Constants of Thin Film Materials Using Self-deformed Micromachined Cantilevers," *Journal of Micromechanics and Microengineering*, Vol. 9, pp. 230-235.
3. W. Fang, C.-H. Lee, and H.-H. Hu, 1999, "On the Buckling Behavior of Micromachined Beams," *Journal of Micromechanics and Microengineering*, Vol. 9, pp. 236-244.
4. J. Hsieh and W. Fang, 2000, "A Novel Microelectrostatic Torsional Actuator," *Sensors and Actuators A*, Vol. 79, pp. 64-70.
5. C. Tsou and W. Fang, 2000, "The Effect of Residual Stresses on the Deformation of Semi-circular Micromachined Beams," *Journal of Micromechanics and Microengineering*, Vol. 10, pp. 34-41.
6. H.-Y. Lin and W. Fang, 2000, "The Rib-Reinforced Micromachined Beam and Its Application," *Journal of Micromechanics and Microengineering*, Vol. 10, pp. 93-99.
7. S.-T. Hung, S.-C. Wong, and W. Fang, 2000, "The Development and Application of Micro Thermal Sensors with a Supporting Mesh-Membrane Structure," *Sensors and Actuators A* Vol. 84, pp. 70-75.
8. W. Fang, and C.-Y. Lo, 2000, "On the Thermal Expansion Coefficients of Thin Films," *Sensors and Actuators A*, Vol. 84, pp. 310-314.
9. C. Tsou, H. Yin, and W. Fang, 2000, "On the Out-of-plane Deformation of V-shaped Micromachined Beams," *Journal of Micromechanics and Microengineering*, (accepted).
10. H.-H. Hu and W. Fang, 2000, "Characteristics of the Micromachined Beams on the (111) Substrate," *Sensors and Actuators A*, (submitted).
11. W.-P. Lai and W. Fang, 2000, "A Novel Anti-Stiction Method Using Harmonic Excitation on the Microstructure," *Journal of Vacuum Science and Technology* (submitted).

研討會論文

1. J. Hsieh and W. Fang, 1999, "Fabrication and Measurement of an Improved Micro Electrostatic Torsional Actuator," *Transducer '99 - International Conference on Solid-State Sensors and Actuators*, Sendai, Japan.

2. 謝哲偉、方維倫、陳世洲, 1999, 鋁結構微扭轉致動器之研製, 第三屆奈米工程暨微系統技術研討會, 工研院, 新竹市.
3. 鄒慶福、方維倫, 1999, 平坦微機械結構之設計與製造, 第三屆奈米工程暨微系統技術研討會, 工研院, 新竹市.
4. T.-S. Lin and W. Fang, 1999, "Development of a Novel Piezoresistive Sensor," SPIE Micromachining and Microfabrication Conference, Santa Clara, CA, USA.
5. C. Tsou and W. Fang, 1999, "The Effect of Residual Stresses on the Deformation of Semi-circular Micromachined beams," the *ASME Proceedings of the 1999 International Mechanical Engineering Congress and Exhibition (IMECE)*, Nashville, TENN, USA.
6. 羅俊彥、蔡欣昌、方維倫, 1999, 微懸臂樑於材料熱膨脹係數之量測, 中國機械工程學會第十六屆全國學術研討會, 國立清華大學, 新竹市.
7. 李俊賢、胡馨華、方維倫, 1999, On the Buckling Behavior of Micromachined Beams, 中國機械工程學會第十六屆全國學術研討會, 國立清華大學, 新竹市.
8. 洪仕達、王訓忠、方維倫, 1999, The develop and Application of Micro Thermal Sensors with a Mesh-membrane Supporting Structure, 中國機械工程學會第十六屆全國學術研討會, 國立清華大學, 新竹市.
9. T.-J. Yao, S. Lee, W. Fang, and Y.-C. Tai, 2000, "Micromachined Rubber O-ring Micro-Fluidic Couplers," the *IEEE Proceedings of the 13<sup>th</sup> Annual International Conference on MEMS*, Miyazaki, Japan.
10. H.-Y. Lin, M. Wu, and W. Fang, 2000, "The Improvement of Micro-torsional-mirror for High Frequency Scanning," SPIE Micromachining and Microfabrication Conference, Santa Clara, CA, USA.
11. Y.-M. Chou and W. Fang, 2000, "On the Nonlinear Dynamic Behavior of Electrostatically Actuated Devices," SPIE Micromachining and Microfabrication Conference, Santa Clara, CA, USA.
12. H.-Y. Lin and W. Fang, 2000, "Out-of-plane Comb-drive Lever Actuator," the *ASME Proceedings of the 2000 International Mechanical Engineering Congress and Exhibition (IMECE)*, Orlando, FL, USA.
13. H.-Y. Lin and W. Fang, 2000, "The Improvement of the Micro Torsional Mirror by a Reinforced Folded Frame," the *ASME Proceedings of the 2000 International Mechanical Engineering Congress and Exhibition (IMECE)*, Orlando, FL, USA.
14. W.-P. Lai and W. Fang, 2000, "A Novel Anti-Stiction Method Using the Harmonic

Excitation on the Microstructure,” the *American Vacuum Society 47<sup>th</sup> International Symposium*, Boston, MA, USA.

15. H.-C. Tsai and W. Fang, 2000, “Characterizing the Thermal Behavior of Thin Films Using Micromachined Cantilevers,” the *American Vacuum Society 47<sup>th</sup> International Symposium*, Boston, MA, USA.
16. H.-Y. Lin and W. Fang, 2000, “Torsional Mirror with an Electrostatically Driven Lever-Mechanism,” the *IEEE Optical MEMS 2000*, Kauai, Hawaii, USA.
17. 鄒慶福、殷宏林、方維倫, 2000, V 型微機械結構挫曲行為之研究, 中國機械工程學會第十七屆全國學術研討會, 國立高雄第一科技大學, 高雄市.
18. 蔡明霖、方維倫、周正三, 2000, VLSI 電容式感測電路設計及應用, 中國機械工程學會第十七屆全國學術研討會, 國立高雄第一科技大學, 高雄市.
19. 沈文銘、方維倫, 2000, 應用曲形拱結構設計簡易式離合器, 中華民國力學學會第二十四屆全國力學會議, 中原大學, 中壢市.
20. C. Lo, H.-Y. Lin and W Fang, 2001, “A Novel Out-of-plane Electrothermal Microactuator,” *2001 Microsystem Technologies Conference*, Dusseldorf, Germany. (accepted)

### 三、各儀器支援之研究成果——發表論文紀錄表

#### (七)光罩對準曝光機與光阻處理系統

##### 校內使用者期刊論文

##### 鄭晃忠教授 交通大學電子工程所

##### 期刊論文

1. H. C. Cheng, C. Y. Huang, F. S. Wang, K. H. Lin, and F. G. Tarntair, "Thin-film transistors with polycrystalline silicon films prepared by two-step rapid thermal annealing," *Jpn. J. Appl. Phys.*, vol. 39, Part 2, no. 1A/B, pp. L 19-21, 2000.
2. F. G. Tarntair, C. Y. Wen, L. C. Chen, J. J. Wu, K. H. Chen, P. F. Kuo, S. W. Chang, Y. F. Chen, W. K. Hong, and H. C. Cheng, "Field emission from quasi-aligned SiCN nanorods," *Appl. Phys. Lett.*, vol. 76, no. 18, pp. 2630-2632, 2000.
3. W. K. Hong, H. C. Shih, S. H. Tsai, C. T. Shu, F. G. Tarntair, and H. C. Cheng, "Field emission properties of aligned carbon nanotubes," *Jpn. J. Appl. Phys.*, vol. 39, Part 2, no. 9A/B, pp. L 925-928, 2000.
4. C. C. Hwang, M. J. Lai, C. C. Jaing, J. S. Chen, S. Huang, M. H. Juang, and H. C. Cheng, "Low-temperature process to improve the leakage current of (Ba, Sr)TiO<sub>3</sub> films on Pt/TiN/Ti/Si substrates," *Jpn. J. Appl. Phys.*, vol. 39, Part 2, no. 12B, pp. L 1314-1316, 2000.
5. C. C. Hwang, C. C. Jaing, M. J. Lai, J. S. Chen, S. Huang, M. H. Juang, and H. C. Cheng, "Effect of rapid thermal annealed TiN barrier layer on BST capacitors prepared by RF magnetron cosputter system at low substrate temperatures," *Electrochemical and Solid-State Lett.*, vol. 3, no. 12, pp. 563-565, 2000.
6. F. G. Tarntair, L. C. Chen, S. L. Wei, W. K. Hong, K. H. Chen, and H. C. Cheng, "High current density field emission from arrays of carbon nanotubes and diamond-clad Si tips," *J. Vac. Sci. & Technol. B.*, vol. 18, no. 3, pp. 1207-1211, 2000.
7. Fu-Gow Tarntair, Wei-Kai Hong, Tzu-Kun Ku, Nan-Jie She, Chia-Fu Chen and Huang-Chung Cheng, "Fabrication and characterization of various carbon-clad silicon microtips with ultra-small tips radii," *Jpn. J. Appl. Phys.*, vol. 39, Part 1, no. 2A, pp. 432-437, 2000.
8. Chun-Yao Huang, Teh-Hung Teng, Jun-Wei Tsai and Huang-Chung Cheng, "The instability mechanisms of hydrogenated amorphous silicon thin film transistors under AC bias stress," *Jpn. J. Appl. Phys.*, vol. 39, Part 1, no. 7A, pp. 3867-3871, 2000.
9. Chun-Yao Huang, Jun-Wei Tsai, Teh-Hung Teng, Cheng-Jer Yang and Huang-Chung Cheng, "Turnaround phenomenon of threshold voltage shifts in amorphous silicon thin film transistors under negative bias stress", *Jpn. J. Appl. Phys.*, vol. 39, Part 1, no. 10, pp. 5763-5766, 2000.
10. Huang-Chung Cheng, Li-Jing Cheng, Ching-Wei Lin, Yin-Lung Lu, and Chi-Yuan

Chen, "High performance low-temperature processed polysilicon TFTs fabricated by excimer laser crystallization with recessed-channel structure," *International workshop on AMLCDs 2000*, pp. 281-284. **(The Best Paper Award)**

11. C. W. Lin, M. Z. Yang, C. C. Yeh, L. J. Cheng, T. Y. Huang, H. C. Cheng, H. C. Lin, T. S. Chao, and C. Y. Chang, "Effects of plasma treatments, substrate types, and crystallization methods on performance and reliability of low temperature polysilicon TFTs," in *IEDM Tech. Dig.*, 1999, pp. 305-308.

12. Y. L. Lu, L. J. Chou, C. W. Lin, L. J. Cheng, and H. C. Cheng, "Dimensional effects on the performance of low temperature polycrystalline thin film transistor fabricated by nickel silicide mediated crystallization method," *2000 International Electron Devices and Materials Symposia (2000 IEDMS)*, pp. 100-103.

13. C. Y. Huang, T. K. Chang, C. W. Lin, L. J. Cheng, Y. L. Lu, and H. C. Cheng, "Degradation of passivated and non-passivated n-channel low-temperature polycrystalline silicon TFTs prepared by excimer laser processing," *2000 International Electron Devices and Materials Symposia (2000 IEDMS)*, pp. 257-260.

14. L. J. Cheng, Y. L. Lu, C. W. Lin, T. K. Chang, and H. C. Cheng, "Novel growth in channel region," *Photonics Taiwan, 2000, Proceeding of SPIE Vol. 4079-06*.

15. C. C. Hwang, M. H. Juang, M. J. Lai, C. C. Jaing, J. S. Chen, S. Huang, and H. C. Cheng, "Effect of rapid-thermal-annealed TiN barrier layer on the Pt/BST/Pt capacitor prepared by RF magnetron co-sputter technique at low substrate temperature," *Solid-State Electronics*, vol. 45, no. 1, pp. 121-125, 2001.

16. W. K. Hong, K. H. Chen, L. C. Chen, F. G. Tairair, K. J. Chen, J. B. Lin, and H. C. Cheng, "Fabrication and characterization of carbon nanotube triodes," *Jpn. J. Appl. Phys.*, vol. 40, Part 1, no. 5A, pp. 3468-3473, 2001.

17. H. C. Cheng, W. K. Hong, F. G. Tairair, K. J. Chen, J. B. Lin, K. H. Chen, and L. C. Chen, "Integration of thin-film-transistor-controlled carbon nanotubes for field emission devices," *Electrochemical and Solid-State Lett.*, vol. 4, no. 4, pp. H5-H7, 2001

18. Ching-Wei Lin, Li-Jing Cheng, Yin-Lung Lu, Yih-Shing Lee, and Huang-Chung Cheng, "High-performance low-temperature poly-Si TFTs crystallized by excimer laser irradiation with recessed-channel structure," *IEEE Electron Device Lett.*, vol. 22, pp. 269-271, 2001

19. Huang-Chung Cheng, Kuo-Ji Chen, Wei-Kai Hong, Fu-Gow Tairair, Chia-Pin Lin, Kuei-Hsien Chen, and Li-Chyong Chen, "Fabrication and characterization of low turn-on voltage carbon nanotube field emission triodes," *Electrochemical and Solid-State Lett.*, vol. 4, no.8, pp. H15-H17, 2001.

20. Chang-Ho Tseng, Ching-Wei Lin, Ting-Kuo Chang, Huang-Chung Cheng, and Albert Chin, "Effects of excimer laser dopant activation on low temperature polysilicon thin-film transistors with lightly doped drains," *Electrochemical and Solid-State Lett.*, vol. 4, no.11, pp. G94-G97, 2001.

21. K. J. Chen, W. K. Hong, J. B. Lin, K. H. Chen, L. C. Chen, and H. C. Cheng, "Low turn-on voltage field emission triodes with selective growth of carbon nanotubes," *IEEE Electron Device Letters*, Vol. 22, No. 11, pp.516-518,2001
22. K. J. Chen, W. K. Hong, C. P. Lin, K. H. Chen, L. C. Chen, and H. C. Cheng, "Low turn-on voltage field emission triodes with selective growth of carbon nanotubes," *IEEE Electron Device Lett.*, vol. 22, pp. 516-518, 2001.
23. Ching-Wei Lin, Li-Jing Cheng, Yin-Lung Lu, Yih-Shing Lee, and Huang-Chung Cheng, "High-performance low-temperature poly-Si TFTs crystallized by excimer laser irradiation with recessed-channel structure," *IEEE Electron Device Lett.*, vol. 22, pp. 269-271, 2001.
24. Ching-Wei Lin, Li-Jing Cheng, Yin-Lung Lu, and Huang-Chung Cheng, "Characterization of low temperature polysilicon TFTs with self-aligned graded LDD structure," *Mat. Res. Soc. Symp. Proc.*, vol. 685E, D12.7.1 - D12.7.6, 2001.
25. Chang-Ho Tseng, Ting-Kuo Chang, Fang-Tsun Chu, Jia-Min Shieh, Bau-Tong Dai, Huang-Chung Cheng, and Albert Chin, " Investigation of Inductively Coupled Plasma Gate Oxide on Low Temperature Polycrystalline-Silicon Thin Film Transistors", *IEEE Electron Device Letter*, Vol. 23, No. 6, p. 333-335, 2002.
26. Ching-Wei Lin, Chang-Ho Tseng, Ting-Kuo Chang, Yuan-Hsun Chang, Fang-Tsun Chu, Chiung-Wei Lin, Wen-Tung Wang, and Huang-Chung Cheng, "An Investigation of Bias Temperature Instability in Hydrogenated Low-Temperature Polycrystalline Silicon Thin Film Transistors," *Jpn. J. Appl. Phys., Part 1*, vol. 41, pp. 2002.
27. Ching-Wei Lin, Chang-Ho Tseng, Ting-Kuo Chang, Chiung-Wei Lin, Wen-Tung Wang, and Huang-Chung Cheng, "A Novel Laser-Processed Self-Aligned Gate-Overlapped LDD Poly-Si TFT," *IEEE Electron Device Lett.*, vol. 23, pp. 133-135, 2002.
28. Huang-Chung Cheng, Ching-Wei Lin, Li-Jing Cheng, Chang-Ho Tseng, Ting-Kuo Chang, Yuan-Ching Peng, and Wen-Tung Wang, "Fabrication of low-temperature poly-Si thin film transistors with self-aligned graded lightly doped drain structure," *IEEE/ECS Electrochemical and Solid-State Lett.*, vol. 5, no.1, pp. G1-G3, 2002.
29. Huang-Chung Cheng, Ching-Wei Lin, Li-Jing Cheng, Chang-Ho Tseng, Ting-Kuo Chang, Yuan-Ching Peng, and Wen-Tung Wang, "Fabrication of low-temperature poly-Si thin film transistors with self-aligned graded lightly doped drain structure," *Electrochemical and Solid-State Lett.*, vol. 5, no.1, pp. G1-G3, 2002.
30. Chang-Ho Tseng, Ching-Wei Lin, Teh-Hung Teng, Ting-Kuo Chang, Huang-Chung Cheng, and A. Chin, " Study on dopant activation of phosphorous implanted polycrystalline silicon thin films by KrF excimer laser annealing", *Solid-State Electronics*, Vol. 46, Issue 8, August 2002, Pages 1085-1090
31. T.H.Teng, C.Y.Huang, T.K.Chang, C.W.Lin, L.J.Cheng, Y.L.Lu, H.C.Cheng, "Degradation of passivated and non-passivated N-channel low-temperature polycrystalline silicon TFTs prepared by excimer laser processing," *Solid State Electronics*, vol. 46,



pp. 1079-1083, 2002

研討會論文

1. Huang-Chung Cheng, Li-Jing Cheng, Ching-Wei Lin, Yin-Lung Lu and Chi-Yuan Chen, "High Performance Low-Temperature Processed Polysilicon TFTs Fabricated by Excimer Laser Crystallization with Recessed-Channel Structure, 2000 AMLCD. Chang-Ho Tseng, Ting-Kuo Chang, Huang-Chung Cheng, and A. Chin, "Dopant activation of phosphorous implanted poly-silicon film capped with silicon oxide film by KrF excimer laser annealing," *2000 International Electron Devices and Materials Symposia (2000 IEDMS)*.
2. Cheng-Jer Yang, Gwo-Yann Lee, Jyh-Liang Wang, I-Feng Chang, Chih-Wei Tsai, Huang-Chung Cheng, Ting-Chang Chang, and Li-Jen Chou, "Low dielectric material formation by  $CF_4/SiH_4$  mixed gas in plasma enhanced chemical vapor deposition system," *2000 International Electron Devices and Materials Symposia (2000 IEDMS)*.
3. Cheng-Jer Yang, I-Feng Chang, Gwo-Yann Lee, Huang-Chung Cheng, Ting-Chang Chang, Chih-Wei Tsai, and Li-Jen Chou, "The mechanism of copper ions formation in the low k film during the post metallization annealing," *2000 International Electron Devices and Materials Symposia (2000 IEDMS)*.
4. Der-Chi Shye, Ming-Jiunn Lai, Chuan-Chou Hwang, Cheng-Chung Jaing, Jyh-Shin Chen, Bi-Shiou, and Huang-Chung Cheng, "The study of oxygen effect during RF sputtering BST films deposited on Pt/TiN/Ti/Si substrate at low temperature for DRAMs' capacitors," *2000 International Electron Devices and Materials Symposia (2000 IEDMS)*, pp. 339-342.
5. Y. L. Lu, L. J. Chou, C. W. Lin, L. J. Cheng, and H. C. Cheng, "Dimensional effects on the performance of low temperature polycrystalline thin film transistor fabricated by nickel silicide mediated crystallization method," *2000 International Electron Devices and Materials Symposia (2000 IEDMS)*.
6. C. Y. Huang, T. K. Chang, C. W. Lin, L. J. Cheng, Y. L. Lu, and H. C. Cheng, "Degradation of passivated and non-passivated n-channel low-temperature polycrystalline silicon TFTs prepared by excimer laser processing," *2000 International Electron Devices and Materials Symposia (2000 IEDMS)*. (The Best Paper Award)
7. L. J. Cheng, Y. L. Lu, C. W. Lin, T. K. Chang, and H. C. Cheng, "Novel device structure for low temperature polysilicon TFT with controlled grain growth in channel region," *Photonics Taiwan, 2000, Proceeding of SPIE Vol. 4079-06*.
8. Huang-Chung Cheng, Chuan-Chou Hwang, Cheng-Chung Jaing, Der-Chi Shye, Hsien-Wen Hsu, Jyh-Shin Chen, and Miin-Horng Juang, "A novel excimer laser annealing to achieve thin BST films at low substrate temperatures," *2000 International Electron Devices and Materials Symposia (2000 IEDMS)*, pp. 343-345.
9. C. B. Lin, K. J. Chen, F. G. Tantair, W. K. Hong, and H. C. Cheng, "The Integrated

- Process of TFT-Controlled CNTs for Stabilized Emission Current” *Proceedings of the 8<sup>th</sup> International Display Workshops*, 2000, Kobe, Japan.
10. Trent Gwo-Yann Lee, Tseung-Yuan Tseng, Shyh-Chyi Wong, Cheng-Jer Yang, Mong-Song Liang, and Huang-Chung Cheng, “Interconnect optimization design with guaranteed performance methods,” *International Symposium on Integrated Circuits, Devices and Systems (ISIC)*, 2001.
  11. Trent Gwo-Yann Lee, Tseung-Yuan Tseng, Shyh-Chyi Wong, Cheng-Jer Yang, Mong-Song Liang, and Huang-Chung Cheng, “The generalized interconnect delay time and cross-talk models,” *International Symposium on Integrated Circuits, Devices and Systems (ISIC)*, 2001.
  12. Ching-Wei Lin, Li-Jing Cheng, Yin-Lung Lu, and Huang-Chung Cheng, “Characterization of low temperature polysilicon TFTs with self-aligned graded LDD structure,” *Mat. Res. Soc. Symp. Proc.*, vol. 685E, D12.7.1 - D12.7.6, 2001.
  13. W. K. Hong, K. J. Chen, J. B. Lin, H. C. Cheng, P. H. Lin, K. H. Chen, and L. C. Chen, “Carbon nanotube based triodes and TFT-controlled field emission displays,” *International Conference on Material for Advanced Technologies*, Singapore, 2001.
  14. K. J. Chen, F. G. Tairair, W. K. Hong, J. B. Lin, K. H. Chen, L. C. Chen and H.C. Cheng, “Fabrication and characterization of low turn-on voltage carbon nanotube field emission triode” *Material Research Society (MRS) 2001 spring meeting*, San Francisco, USA.2001.
  15. K. J. Chen, W. K. Hong, C. P. Lin, K. H. Chen, L. C. Chen and H. C. Cheng, “Upgraded Field Emission Characteristics of Carbon Nanotubes by Excimer Laser Treatment” *Jpn. J. Appl. Phys* Vol.41, No.10, 2002.
  16. K. J. Chen, W. K. Hong, C. P. Juan, K. H. Chen, L. C. Chen and H. C. Cheng, “Fabrication and Characterization of Carbon Nanotubes Field Emission Triodes for Field Emission Display” submitted to *Jpn. J. Appl. Phys*
  17. W. K. Hong, K. H. Chen, L. C. Chen, F. G. Tairair, K. J. Chen, J. B. Lin, and H. C. Cheng, “Fabrication and characterization of carbon nanotube triodes,” *Jpn. J. Appl. Phys.*, Vol. 40, Part 1, No. 5A, pp. 3468-3473, 2001.
  18. W. K. Hong, K. J. Chen, J. B. Lin, P. H. Lin, K. H. Chen, L. C. Chen, and H. C. Cheng, “Fabrication of carbon nanotube triodes for field emission display,” submitted to *J. Appl. Phys.*
  19. K. J. Chen, W. K. Hong, L.C.Chen, K.H. Chen and H.C.Cheng, “Fabrication and characterization of lateral field emission device based on carbon nanotubes” *13<sup>th</sup> European Conference on Diamond, Diamond-like Materials, Nitrides and Silicon Carbide*, 2002, Granada, Spain.

期刊論文

1. Jiann Heng Chen, **Tan Fu Lei**, Tien Sheng Chao, Tien Pao Su, Jim Huang, Andy Tuan, and S. K. Chen, "Study on the Contact Resistance of Poly-plug Structure by In-Situ HF Vapor Clean," IEE Electronics Letters, Vol. 36, No. 8, pp. 756-757, 2000.
2. Tung Ming Pan, **Tan Fu Lei**, Chao Chyi Chen, Tien Sheng Chao, Ming Chi Liaw, Wen Lu Yang, Ming Shih Tsai, C. P. Lu, and W. H. Chang, "Novel cleaning solutions for polysilicon film post chemical mechanical polishing," IEEE Electron Devices lett., Vol. 21, No. 7, pp. 338-340, 2000. Tung Ming Pan, **Tan Fu Lei**, and Tien Sheng Chao, "Robust ultra-thin oxynitride dielectrics by NH<sub>3</sub> nitridation and N<sub>2</sub>O RTA treatment," IEEE Electron Devices lett., Vol. 21, No. 8, pp. 378-380, 2000.
3. **Tan Fu Lei**, Jiann Heng Chen, Ming Fang Wang, and Tien Sheng Chao, "Characteristics of Polysilicon Oxides Combining N<sub>2</sub>O Nitridation and CMP Processes," IEEE Trans. on Electron Device, Vol. 47, No. 8, pp. 1545-1552, 2000.  
Tung Ming Pan, **Tan Fu Lei**, Tien Sheng Chao, Kuo Lih Chang, and Kuang Chien Hsieh, "High quality ultra-thin CoTiO<sub>3</sub> high-k gate dielectrics," Electrochemical and Solid-State lett., vol. 3, No. 9, pp. 433-434, 2000.
4. Tung Ming Pan, **Tan Fu Lei**, Tien Sheng Chao, Ming Chi Liaw, and Chih Peng Lu, "The Optimum Condition of Novel One-Step Cleaning Solutions for Pre-Gate Oxide Cleaning using the Robust Design Methodology," J. J. Applied Phys. Vol. 39, No.10, p. 5805, 2000.
5. Chin-Yu Ku, Jia-Min Shieh, Tsann-Bim Chiou, Hwang-Kuen Lin, and **Tan Fu Lei**, "Postexposure delay effect on linewidth variation in base added chemically amplified resist", J. Electrochem. Soc., Vol.147, No.10, pp.3833-3839, 2000.
6. Jiann Heng Chen, **Tan Fu Lei**, Jian-Hong Chen, and Tien Sheng Chao, "Characteristics of TEOS Polysilicon Oxides: The Improvement by CMP Process and High Temperature RTA N<sub>2</sub>/N<sub>2</sub>O Annealing," J. Electrochem. Soc., Vol.147, No.11, p.4282, 2000.
7. Horng Chih Lin, C. M. Yu, C. Y. Lin, K. L. Yeh, Tiao Yuan Huang, and **Tan Fu Lei**, "A Novel Thin-Film Transistor with Self-Aligned Field Induced Drain," IEEE Electron Devices lett., Vol. 22, No. 1, pp. 26-28, 2001.
8. Tung Ming Pan, **Tan Fu Lei**, Wen Luh Yang, Chun Ming Cheng, Tien Sheng Chao, "High Quality Interpoly-Oxynitride Grown by NH<sub>3</sub> Nitridation and N<sub>2</sub>O RTA Treatment," IEEE Electron Devices lett., Vol. 22, No. 2, pp. 68-71, 2001.
9. Tung Ming Pan, **Tan Fu Lei** and Tien Sheng Chao, "High-k CoTiO<sub>3</sub> dielectrics formed by oxidation of sputtered Co/Ti or Ti/Co films," Applied Phys. Lett., vol. 78, pp.1439-1441, 2001.
10. W. L. Yang, T. S. Chao, C. M. Cheng, T. M. Pan, and **T. F. Lei**, "High Quality Interpoly Dielectrics Deposited on the Nitride-Polysilicon for Nonvolatile Memory Devices," IEEE Trans. On Electron Devices, 48, pp. 1304-1309, July, 2001.
11. Tung Ming Pan, **Tan Fu Lei** and Tien Sheng Chao, "Comparison of Ultrathin CoTiO<sub>3</sub>

- and NiTiO<sub>3</sub> High-k Gate Dielectrics," J. Applied Phys., Vol. 89, March 15, 2001.
12. Tung Ming Pan, **Tan Fu Lei**, Huang Chun Wen, and Tien Sheng Chao, "Characterization of Ultrathin Oxynitride (18-21 Å) Gate Dielectrics by NH<sub>3</sub> Nitridation and N<sub>2</sub>O RTA Treatment," IEEE Trans. on Electron Devices, Vol. 48, April., 2001.
  13. Tung Ming Pan; **Tan Fu Lei**; Fu Hsiang Ko; Tien Sheng Chao; Tzu Huan Chiu; Ying Hao Lee; Chih Peng Lu, "Comparison of novel cleaning solutions with various chelating agents for post-CMP cleaning on poly-Si film," Semiconductor Manufacturing, IEEE Transactions on , Volume: 14 Issue: 4 , Page(s): 365 –371, Nov. 2001.
  14. Jam Wem Lee; **Tan Fu Lei**; Chung-Len Lee, "Thin tunnel oxide grown on silicon substrate pretreated by CF<sub>4</sub> plasma," IEEE Electron Device Letters , Volume: 22 Issue: 11 , Page(s): 513 –515, Nov, 2001.
  15. Tung Ming Pan, Chao Hsin Chien, **Tan Fu Lei**, Tien Sheng Chao, and Tiao Yuan Huang, "Electrical Characteristics of Thin Cerium Oxide Film on Silicon Substrate by Reactive DC Sputtering," Electrochem. Solid-State Lett. , Volume 4, Issue 9 pp. F15-F17, Sep. 2001.
  16. Jam Wem Lee, Won-Der Chen, **Tan Fu Lei**, and Chung-Len Lee, "The Enhancement of Nitrogen Incorporation in RTN<sub>2</sub>O Annealed TEOS Oxide Fabricated on Disilane-Based Polysilicon Films," Journal of The Electrochemical Society, Volume 148, Issue 8 pp. F164-F169, Aug. 2001.
  17. Tung Ming Pan, **Tan Fu Lei**, Tien Sheng Chao, Ming Chi Liaw, Fu Hsiang Ko, and Chih Peng Lu, "One-Step Cleaning Solution to Replace the Conventional RCA Two-Step Cleaning Recipe for Pregate Oxide Cleaning," Journal of The Electrochemical Society, Volume 148, Issue 6 pp. G315-G320, June 2001.
  18. Chin Yu Ku, **Tan Fu Lei**, and Hwang Kuen Lin, "Focus measurement with a simple pattern design," APPLIED OPTICS, Volume 40, No.16 pp.2662-2669, June 2001.
  19. Chin Yu Ku, Jia Min Shieh, Tsann Bim Chiou, Hwang Kuen Lin and **Tan Fu Lei**," Expanding the Process Window and Reducing the Optical Proximity Effect by Post-Exposure Delay," Journal of The Electrochemical Society, Volume 148, Issue 8 pp. G434-G438, June 2001.
  20. Chin Yu Ku, Dong Shieh Cheng, and **Tan Fu Lei**, "Monitoring the Lithographic Focus and Tilting Performance by Off-line Overlay Measurement Tools", J. Vac. Sci. Technol.B Volume 19, Issue 5 pp. 1915-1924, September 2001.
  21. M. N. Chang, T. Y. Chang, F. M. Pan, B. W. Wu, and **T. F. Lei**, "An Investigation of Scanning Capacitance Microscopy on Iron-Contaminated p-Type Silicon", Electrochemical and Solid-State Letters, Volume 4, Issue 9 G69-G71, 2001.
  22. Yiming Li, Jam-Wem Lee, Ting-Wei Tang, T.-S. Chao, **Tan-Fu Lei**, and S. M. Sze, "Numerical Simulation of Quantum Effects in High-k Gate Dielectrics MOS Structures using Quantum Mechanical Models," Computer Physics Communications (accepted to appear in

2002).

23. J. H. Chen, **T. F. Lei**, C. L. Chen, T. S. Chao, W. Y. Wen, K. T. Chen, "Nitrogen implantation and in situ HF vapor clean for deep submicrometer n-MOSFETs," J. Electrochem. Soc., 149 (1): G63-G69, Jan., 2002.
24. T. Y. Chang, **T. F. Lei**, T. S. Chao, S. W. Chen, L. M. Kao, S. K. Chen, A. Tuan, and T. P. Su, "Impact of Nitrogen and/or Fluorine Implantation on Deep-submicron Co-salicide Process," accepted by Solid State Electronics.
25. C. M. Yu, H. C. Lin, C. Y. Lin, K. L. Yeh, T. Y. Huang, and **T. F. Lei**, "Self-Aligned Fabrication of Thin-Film Transistors with Field-Induced Drain (FID)," accepted by Solid State Electronics.
26. Michael Yu, H. C. Lin, G. H. Chen, T. Y. Huang, and **T. F. Lei**, "Characteristics of Poly-Si Thin-Film Transistors with Electrical Source/Drain Extensions Induced by a Bottom Sub-Gate" accepted by Jpn. J. Appl. Phys.

#### 研討會論文

1. Chin-Yu Ku, **Tan Fu Lei**, Jia-Min Shieh, Tsann-Bim Chiou, and Yung-Cheng Chen, "New overlay pattern design for real-time focus and tilt monitor", Microelectronic Manufacturing, Proc. of SPIE Vol. 4182, 2000.
2. Chin-Yu Ku, **Tan Fu Lei**, Jia-Min Shieh, Tsann-Bim Chiou, and Hwang-Kuen Lin, "Real-time process control to prevent CD variation induced by post exposure delay", Microelectronic Manufacturing, Proc. of SPIE Vol. 4182, 2000.
3. Jiann Heng Chen, **Tan Fu Lei**, Chia Lin Chen, Tien Sheng Chao, Wen Ying Wen, and Kuag Ting Chen, "High Performance Deep-Submicron n-MOSFETs by Nitrogen Implantation and In-situ HF Vapor Clean," IRPS, 2000.
4. M. N. Chang, T. Y. Chang, C. Y. Chen, F. M. Pan, B. W. Wu, **T. F. Lei**, "A Study of Iron-Contaminated p-type Silicon by Scanning Probe Microscopy", AVS 48th International Symposium, IUVSTA 15th International Vacuum Congress, 11th International Congress on Solid Surfaces, San Francisco, CA, U.S.A, 2001.
5. H. W. Chen, H. C. Tzeng, T. Y. Chang, J. W. Lee, **T. F. Lei**, and C. L. Lee, "The Electrical Properties of the Gate Oxide with CF<sub>4</sub> Plasma Pretreatment," EDMS, 2001.
6. T. L. Lee, J. W. Lee, **T. F. Lei**, and C. L. Lee, "Improved Thin Gate Oxide Characteristics with Chlorine Plasma Pretreatment," EDMS, 2001.
- J. H. Chen, Yen-An Chang, M. Z. Lee, **T. F. Lei**, and C. L. Lee, "Electrical Properties of Vertical Polysilicon Oxide," EDMS, 2001.
7. Y. P. Hong, J. C. Wang, J. W. Lee, **T. F. Lei**, and C. L. Lee, "The Electrical Properties of Thin Oxynitride Dielectrics Using N<sub>2</sub>O Plasma Annealing," EDMS, 2001.

徐文祥教授 交通大學機械工程所

期刊論文

1. Hsu, C.P. and Hsu, W., 2000, A Two-way Membrane-type Micro Actuator with Continuous Deflection, Journal of Micromechanics and Microengineering, Vol.10, pp.387-394.
2. Pan, C.S. and Hsu, W., 2001, Electro-thermally Driven Microgrippers with Bilateral Motion, Journal of Chinese Society of Mechanical Engineers, Vol. 22, No. 1.
5. Wu, C.T. and Hsu, W., 2001, An Electro-thermally Driven Microactuator with Two Dimensional Motion, Journal of Microsystem Technologies, accepted.
6. Hu, M.H. and Hsu, W., 1999, Investigation of Torsion Springs by Considering The Friction and the End Effect, ASME, J. of Mechanical Design, Vol. 121, pp.628-633
7. Wu, M.F. and Hsu, W., 1999, Thermally Driven Polysilicon Actuators for Lateral Displacement, J. of Intelligent Material Systems and Structures, Vol. 10, No.5, pp.402-409.

研討會論文

1. Wu, C.T. and Hsu, W., 2001, An Electro-thermally Driven Microactuator with Two Dimensional Motion, Micro System Technologies, March 27-29, Dusseldorf, Germany.
2. Lee, C.C. and Hsu, W., 2001, Optimization of an Electro-thermally and Laterally Driven Microactuator, Micro System Technologies, March 27-29, Dusseldorf, Germany.
3. Lane, T. and Hsu, W., 2001, Fabrication of Sub-micron Optical Apertures by an Over-electroplating Method, International Symposium on Optical Memory, Oct. 16-19, Taipei, Taiwan.
4. Hsu, C.P. and Hsu, W., 2001, Influence of initial curvature and heating ratio on micromachined thermal biomorph actuation, SPIE's International Symposium on Microelectronics and MEMS, Dec. 17-19, Adelaide, Australia.
5. Lin, C.H., Lo, Y.C., and Hsu, W., 2001, Micro-fabrication of hemispherical poly-silicon shells standing on hemispherical cavities, SPIE's International Symposium on Microelectronics and MEMS, Dec. 17-19, Adelaide, Australia.
- Wu, C.T. and Hsu, W., 2001, Design and fabrication of a movable O-shape microclasper, SPIE's International Symposium on Microelectronics and MEMS, Dec. 17-19, Adelaide, Australia.
6. Liu, H.C., Lin, Y.H., Chou, C.S., Hsu, Y.Y., and Hsu, W., 2001, Sidewall roughness control in advanced silicon etch process, SPIE's International Symposium on Microelectronics and MEMS, Dec. 17-19, Adelaide, Australia.

張國明教授論文期刊 (1998~2000)

30. S.L. Jang, H.K. Chen and K.M. Chang, 1998, "Low-Frequency Noise Characteristics of Hot Carrier-Stressed Buried-Channel pMOSFETs," Solid State Electronics, Vol. 42, No. 3, pp.411-418.

31. K.M. Chang, C.H. Chen and M.J. Tsai, 1997, "熱控屈制動微閥製程研究," 工研院機械工業研究所機械工業雜誌
32. K.M. Chang, G.J. Hwang, Y.L. Hsien and C.H. Chen, 1998, "An Accurate Determination of P<sup>+</sup> Sillion Layer Thickness for Microstructures," Journal of the Chinese Institute of Electrical Engineering, Vol. 5, No. 2.
33. K.M. Chang, C.H. Li, S.W. Wang, T.H. Yeh and J.Y. Yang, 1998, "The Relaxation Phenomena of Positive Charges in Thin Gate Oxide during Fowler-Nordheim Tunneling Stress," Vol. 45, No. 8, IEEE Transactions on Electron Devices Society.
34. K.M. Chang, C.H. Li, B.S. Sheih, J.Y. Yang, S.W. Wang, C.J. Wu and C.H. Li, 1998, "A New Simple and Reliable Method to Form a Textured Si Surface for the Fabrication of a Tunnel Oxide Film," Vol. 19, No. 5, pp. 145-147, IEEE Electron Devices Letters.
35. K.M. Chang, G.J. Hwang, Y.L. Hsieh and W.H. Ko, 1998, "A Touch Mode Capacitive Pressure Sensor with Special Ring Structure," Vol. 5, No. 4, Journal of the Chinese Institute of Electrical Engineering.
36. K.M. Chang, G.J. Hwang, and Y.L. Hsien, 1998, " Three Electrodes Touch Mode Capacitive Pressure Sensor," Vol. 47, Journal Micro System Technologies.
37. K.M. Chang, I-Chung Deng, Chieh-Wen Shih, K.D. Lain and C. M. Fu, 1998, "The Characteristics of Chemical Vapor Deposited Amorphous-like Tungsten Film as a Gate Electrode," Vol. 37, No. 9, Japanese Journal of Applied Physics.
38. K.M. Chang, I-Chung Deng, Ta-Hsun Yeh, K.D. Lain and C. M. Fu, 1999, "Thermal stability of amorphous-like WN<sub>x</sub>/W bilayered diffusion barrier for chemical vapor deposited-tungsten/p<sup>+</sup>-Si contact system," Vol. 38, pp. 1343-1351, Japanese Journal of Applied Physics.
39. K.M. Chang, C.H. Li, B. S. Sheih and J.Y. Yang, 1999, "The Characteristics of Tunnel Oxides Grown on Textured Silicon Surface with a Simple and Reliable Process," Vol. 46, No. 2, February, IEEE Transactions on Electron Devices Society.
40. K.M. Chang, T.C. Lee and Y.L. Sun, 1998, "The characteristics of N<sub>2</sub>O-grown polyoxide by the recrystallized-polysilicon method," December 1, Electrochemical and Solid State Letters.
41. K.M. Chang, J.Y. Yang and L.W. Chen, 1999, "A Novel Technology to Form Air Gap for ULSI Application," April Vol. 20, No. 4., pp. 185-7, IEEE Electron Devices Letters.
42. K.M. Chang, I-Chung Deng, and H.Y. Lin, 1999, "Chemical vapor deposited-tungsten Film to Suppress Fluorine Penetration and Dopant Redistribution," Journal of Chemical Vapor Deposition, Vol. 7, January, pp. 1-18
43. K.M. Chang, T.C. Lee and Y.L. Sun, 1999, "Comparison of the characteristics of polyoxides grown by thermal, rapid thermal oxidation, and TEOS deposition methods," Vol. 38, part1, No.10, p.5731 Japanese Journal of Applied Physics.

44. K.M. Chang, I.C. Deng, and H.Y. Lin, 1999, "Suppression of Fluorine Penetration by Use of In Situ Stacked Chemical Vapor Deposited Tungsten Film," Vol. 146(8), J. Electrochem. Soc.: SOLID-STATE SCIE AND TECH.,
45. K.M. Chang, I.C. Deng, T.H. Yeh and C.W. Shih, 1999, "Barrier Characteristics of Chemical Vapor Deposited Amorphous-like Tungsten Silicide with in situ Nitrogen Plasma Treatment," Accepted to J. Electrochem. Soc.: SOLID-STATE SCIE AND TECH.
46. K.M. Chang, I.C. Deng, S.J. Yeh and Y.P. Tsai, 1999, "Suppress Copper Diffusion through Barrier Metal-Free Hydrogen Silsequioxane Dielectrics by Using NH<sub>3</sub> Plasma Treatment," Accepted to J. Electrochem. Soc.: Electrochemical and Solid State Letters.
47. K.M. Chang, T.C. Lee and J.Y. Wang, 2000, "Electrical Characteristics of Polyoxide Prepared by N<sub>2</sub>- Preannealing Method," Vol. 3, No.1, p.39, J. Electrochem. Soc.: Electrochemical and Solid State Letters.
48. K.M. Chang, J.Y. Yang and L.W. Chen, 2000, "A Novel Process and Thermodynamic Mechanism of Air Gap Formation for ULSI Application," Accepted to Thin Solid Films.
49. K.M. Chang, T.C. Lee and S.H. Liu, 2000, "Influence of Sheet Resistance on N<sub>2</sub>O-Grown Polyoxide," Vol. 39, part 1, No. 4A, p.1604, Japanese Journal of Applied Physics.
50. K.M. Chang, J.Y. Yang and Y.H. Chang, 2000, "Reactive Ion Pretreatment Technique to Improve the Ashing Resistance of Low Dielectric Constant High Carbon Content Polymer," Accepted to Japanese Journal of Applied Physics.
51. K.M. Chang, I.C. Deng, C.Y. Wen, S.J. Yeh and J.Y. Wang, 2000, "A novel Pretreatment Technology for Organic Low-Dielectric Material to Suppress Copper Diffusion and Improve Ashing Resistance," June 1, J. Electrochem. Soc.: SOLID-STATE SCIE AND TECH.
52. K.M. Chang, I.C. Deng, S.J. Yeh and Y.P. Tsai, 2000, "Using NH<sub>3</sub> Plasma Treatment to Improve the Characteristics of Hydrogen Silsequioxane for Copper Interconnection Application," Accepted to J. Electrochem. Soc.: SOLID-STATE SCIE AND TECH.
53. K.M. Chang, T.C. Lee and Y.L. Sun, 2001, "The Effect of the Growth Temperature on Polyoxide by Rapid Thermal Processing," Vol. 40, pp. 1157-1161, Japanese Journal of Applied Physics.
54. K.M. Chang, T.C. Lee and Y.L. Sun, 2001, "The Effect of Rapid Thermal N<sub>2</sub>O-Annealing on TEOS Oxide," Accepted to Japanese Journal of Applied Physics.
55. K.M. Chang, Y.H. Chung, T.C. Lee and Y.L. Sun, 2001, "A New Method to Characterize N<sup>+</sup>-Polysilicon/Oxide Interface Traps in Ultra-thin Oxides (2.5 nm ~ 3.9 nm)," Accepted to J. Electrochem. Soc.: Electrochemical and Solid State Letters.
56. J.T. Sheu, J.W. Wu, K.S. Yu, and K.M. Chang, 2001, "Formation of Silicon Mold with Scanning Probe Lithography for High Density Storage Application," Accepted to JVST



B.

57. K.M. Chang, Y.H. Zhong, H.Y. Chen, T.C. Lee and Y.L. Sun, 2001, "Thickness and Stress Polarity Effects on the reliability of the Low Thermal Budget Polyoxides," Accepted to Japanese Journal of Applied Physics.
58. . K.M. Chang, Y.H. Zhong, and G.M. Lin, 2001, "Hot Carrier Induced Degradation in the Low Temperature Processed Polycrystalline Silicon Thin Film Transistors Using the Dynamic Stress," Accepted to Japanese Journal of Applied Physics.

B. Conference Papers

16. 張國明, 徐世杰, 蔡明杰, 1998, "熱制動微閥製程之研究," 第二屆奈米工程及微細統技術研討會, May 6-7, p. 3-139.
17. K.M. Chang, I.C. Deng, T.H. Yeh and C.W. Shih, 1998, "The Barrier Characteristics of Chemical Vapor Deposited Amorphous Tungsten with In Situ Nitrogen Plasma Treatment," 194<sup>th</sup> Meeting, The Electrochemical Society, Boston, November 1-6.
18. K.M. Chang, and J.Y. Yang, 1998, "Air Gap for ULSI Application by Bonding Ultra Thin HSQ Layer to Patterned Metal Lines," International Electron Devices and Materials Symposium (1998 IEDMS), Tainan.
19. K.M. Chang, and J.J. Luo, 1998, "Tungsten Oxide As The Temperature Sensitive Material for Microbolometer," International Electron Devices and Materials Symposium (1998 IEDMS), Tainan.
20. K.M. Chang, J.Y. Yang, Y.H. Chang and I.C. Deng, 1998, "The Air Gap and Pretreatment for The Future Development of Low Dielectric Material in ULSI," International Conference on Next Decades of High Technologies (ICHT'98), Nov. 14-15, Taipei, Taiwan.
21. K.M. Chang, J.Y. Yang, Y.H. Chang and I.C. Deng, 1998, "Pretreatment Technique to Improve the Ashing Resistance of Low k Spin-on-Polymer (SOP)," International Conference MRS 1999 Spring Meeting, USA.
22. K.M. Chang, T.C. Lee and Y.L. Sun, 1999, "Exploration of the Characteristics of Polyoxides Grown by Thermal, Rapid Thermal Oxidation, and TEOS Deposition," The Sixth Symposium on Nano Device Technology, May.
23. K.M. Chang, I.C. Deng, 1999, "Supress Copper Diffusion through Barrier Metal-Free Hydrogen Silsequioxane Dilectrics by Using NH<sub>3</sub> Plasma Treatment," 194<sup>th</sup> Joint International Meeting of The Electrochemical Society in Honolulu, October 17-22.
24. K.M. Chang, T.C. Lee and J.Y. Wang, 1999, "HIGH QUALITIES OF POLYOXIDE GROWN BY HIGH-TEMPERATURE ANNEALING METHOD," International Conference MRS 1999 FALL Meeting, November 29 – December 3, Boston Massachusetts, USA.
25. K.M. Chang, M.H. Tseng, Y.J. Haung, and I.C. Deng, 2000, "Using Nitrogen (N<sup>+</sup><sub>2</sub>)

- Implantation into Poly-Si/ $\alpha$ -Si Films to Improve the Thermal Stability of Cobalt Silicide," 197<sup>th</sup> Meeting of The Electrochemical Society in Toronto, May 14-18.
26. K.M. Chang, I.C. Deng, 2000, " Using NH<sub>3</sub> Plasma Treated Spin-on Low-k film as Barrier Metal-Free Dielectrics to Suppress Copper Diffusion and Improve Its Ashing Resistance," 197<sup>th</sup> Meeting of The Electrochemical Society in Toronto, May 14-18.
  27. K.M. Chang, C.F. Jou, J.J. Luo, L.Y. Kuo, I.C. Deng, C. Liang and N.C. Luhmann, 2000, "Fabrication of Cantilever Type Microswitches Using Surface Micromachining Technology," International MicroProcesses and Nanotechnology Conference(MNC 2000), University of Tokyo, Komaba,, Japan, July 11-13.
  28. J.T. Sheu, K.S. Yu, J.H. Wu, and K.M. Chang, 2000, "Nanometer-scale absorber patterning of X-ray mask by scanning tunneling microscopy," SPIE Microlithography Symposium Feb. 27- March 1, Santa Clara, USA.
  29. J.T. Sheu, K.S. Yu, J.H. Wu, and K.M. Chang, 2000, "Nanometer-scale absorber patterning of X-ray mask by scanning tunneling microscopy," 2000 X-ray and EUV Lithography, Nov. 13-15, Yokohama.
  30. J.T. Sheu, J.H. Wu, K.S. Yu, W.L. Cheng, and K.M. Chang, 2001, "Nanofabrication on silicon by local oxidation of SPM," 45<sup>th</sup> International Electron, Ion and Photon Beam Technology and Nanofabrication, May 29-June 1

吳耀銓教授 交通大學材料工程所

期刊論文

1. C. W. Chao, Yew-Chung Sermon Wu, Gau-Ren Hu and Ming-Shian Feng , Selective growth of carbon nanotubes on pre-patterned amorphous silicon thin films by electroless plating Ni," J. Electrochem. Soc. submitted (SCI, NSC).
2. Chi-Wei Chao, Yew-Chung Sermon Wu, Gau-Ren Hu and Ming-Shian Feng, "Device characteristics of poly-silicon thin-film transistors fabricated by electroless plating Ni-induced crystallization of amorphous Si," J. J. Appl. Phys. accepted, to be published (SCI, NSC).
3. Pei-Yen Lin, Yew-Chung Sermon Wu, " The growth mechanism of micron-size V defects on the hydride vapor phase epitaxy grown undoped GaN films," Mater. Chem. Phys. accepted, to be published (SCI, NSC).
4. You-Da Lin, Yew-Chung Sermon Wu, Chi-Wei Chao and Guo-Ren Hu, " Effects of oxygen on the growth of Ni induced lateral crystallization of amorphous silicon films," Mater. Chem. Phys. accepted, to be published (SCI, NSC).
5. Guo-Ren Hu, Yew-Chung Sermon Wu, Chi-Wei Chao, and Tian-Jiun Huang, " Electroless plating Pd induced crystallization of amorphous silicon thin films," J. J. Appl. Phys. 40(2001) PP.6356-7. (SCI, NSC)
6. Jia-Min Shieh, Kou-Chiang Tsai, Bau-Tong Dai, Yew-Chung Wu, Yu-Hen Wu, " Reduction of etching plasma damage on low dielectric constant fluorinated amorphous

- carbon films by multiple H<sub>2</sub> plasma treatment," J. Vac. Sci. & Technol. B 20(2002), 1476 (SCI, NSC)
7. Y. S. Wu, G. Z. Hu, "Healing kinetics of interfacial voids in GaAs wafer bonding," Appl. Phys. Lett. 81(2002) PP1429-31. (SCI, NSC)
  8. Y. S. Wu, P. C. Liu, R. S. Feigelson and R. K. Route, "High-temperature healing of interfacial voids in GaAs wafer bonding," J. Appl. Phys. 91(2002) PP1973-7. (SCI, NSC)
  9. C.W. Chao, G.R. Hu, Y. S. Wu, Y.C Chen and Ming-Shiann Feng, "Electrochemically Deposited Pd Induced Crystallization of Parallel Needlelike Polycrystalline Silicon from Pre-Patterned Amorphous Silicon Thin Films" Electrochem. Solid-State. Lett. 5 (2002) C31-2. (SCI, NSC)
  10. Y. C. Chen, Y. S. Wu, C. W. Chao and M. S. Feng, " Electroless Plating Ni Induced Crystallization of Amorphous Silicon Thin Films," J. J. Appl. Phys. 40(2001) PP.5244-46. (SCI, NSC)
  11. Jia-Min Shieh, Shich-Chang Suen, Kou-Chiang Tsai, Bau-Tong Dai, Yew-Chung Wu, Yu-Hen Wu. " Characteristics of fluorinated amorphous carbon films and implementation of 0.15 um Cu/a-C:F damascene interconnection," J. Vac. Sci. & Technol. B 19(2001), PP. 780-7. (SCI,NSC)
  12. Y. C. Chen, Y. S. Wu, I. C. Tung, C. W. Chao, M. S. Feng and H. C.Chen, " Characterization of excimer-laser-annealed polycrystalline silicon films grown by ultra-high-vacuum chemical vapor deposition," Appl. Phys. Lett. 77(2000) PP2521-3. (SCI, NSC)

#### 研討會論文

1. Chi-Wei Chao, Y. S. Wu, Ying-Chia Chen, Guo-Ren Hu, and Ming-Shiang Feng "Metal induced crystallization of a-Si film by electroless Ni plating" AM-LCD (THE INTERNATIONAL WORKSHOP ON ACTIVE - MATRIX LIQUID - CRYSTAL DISPLAYS), Tokyo, Japan, July, 2002, AMLCD 01 p145
2. Chi-Wei Chao, YewChung Sermon Wu, Ying-Chia Chen, Guo-Ren Hu, and Ming-Shiang Feng "Metal induced crystallization of a-Si film by electroless Ni plating" AM-LCD (THE INTERNATIONAL WORKSHOP ON ACTIVE - MATRIX LIQUID - CRYSTAL DISPLAYS), Tokyo, Japan, July, 2001, AMLCD 01 p107 (NSC)
3. Guo-Ren Hu, YewChung Sermon Wu, Chi-Wei Chao, Ying-Chia Chen, and Ming-Shiang Feng "Crystallization of a- Si Thin Films by Electroless Pd Plating" AM-LCD (THE INTERNATIONAL WORKSHOP ON ACTIVE - MATRIX LIQUID - CRYSTAL DISPLAYS), Tokyo, Japan, July, 2001, AMLCD 01 p103 (NSC)
4. C.W. Chao, Y. S. Wu, Y. C. Chen, G. R. Hu, M. S. Feng ,Y. L. Shiu and G. H. Lin, "Metal-Induced-Lateral-Crystallization of Amorphous Silicon Thin Films by Electroless Ni Plating Method," 2nd International AVS Conference on Microelectronics and

- Interfaces, Feb.,2001. (NSC)
5. G. R. Hu, Y. S. Wu, Y.C. Chen, C. W. Chao , M. S. Feng ,Y. L. Shiu and G. H. Lin, "Electroless Plating Pd Induced Crystallization of Amorphous Silicon Thin Films, " 2<sup>nd</sup> International AVS Conference on Microelectronics and Interfaces, Feb., 2001. (NSC)
  6. 劉柏均, 侯智元, 吳耀銓, 謝明勳, 劉文煌“利用氧化銦錫( Indium Tin Oxide )為媒介層執行光電元件之晶片接合”材料年會,11月, 2001年(NSC)
  7. 胡國仁,吳耀銓,趙志偉,陳盈佳“Electroless Pd Plating Induced Crystallization of Amorphous Si Thin Films” 材料年會,11月, 2001年(NSC)
  8. 林佑達,吳耀銓,趙志偉,胡國仁,黃添鈞“NiO induced lateral crystallization of amorphous Silicon thin film” 材料年會,11月, 2001年(NSC)
  9. 黃添鈞,吳耀銓,胡國仁,陳盈佳,趙志偉,馮明憲”Electrical Characteristics of Polycrystalline Silicon TFTs Fabricated by Electroless Plating Pd Induced Crystallization” 材料年會,11月, 2001年(NSC)
  10. 趙志偉,吳耀銓,陳盈佳,胡國仁,馮明憲”Low temperature poly-Si TFT fabricated by Electroless Plating Ni induced crystallization of amorphous Si” 材料年會,11月, 2001年(NSC)
  11. 施協志,趙志偉,吳耀銓,陳盈佳,胡國仁,馮明憲”Electroless Plating Ni Induced Crystallization of Amorphous Silicon Thin Films” 材料年會,11月, 2001年
  12. 劉柏均, 侯智元, 吳耀銓, 謝明勳, 劉文煌”利用氧化銦錫薄膜為媒介層執高亮度發光二極體晶片接合之可行性” 電子元件暨材料研討會, 12月, 2001年(NSC)
  13. 陳盈佳, 吳耀銓, 趙志偉, 馮明憲, 胡國仁, 許堯綸, “準分子雷射退火輔助超高真空化學氣相沉積矽薄膜電晶體特性研究” 九十年國家科學委員會微電子學門專題計畫研究成果研討會(NSC)
  14. 趙志偉, 胡國仁, 吳耀銓, 陳盈佳, 馮明憲, “Low temperature poly-Si TFT fabricated by Electroless Plating Ni Induced Crystallization of a-Si”, proc. Of the Electronics Devices and Materials Symposia Taiwan '01. p 317. (NSC)
  15. T. J. Huang , 趙志偉, 胡國仁, 吳耀銓, 陳盈佳, 馮明憲, “Polycrystalline silicon TFT fabricated by Pd chemical displacement Induced Crystallization of a-Si”, proc. Of the Electronics Devices and Materials Symposia Taiwan '01. p 320. (NSC)
  16. 趙志偉, 胡國仁, 吳耀銓, 陳盈佳, 馮明憲, “Low temperature poly-Si TFT fabricated by Electroless Plating Ni Induced Crystallization of a-Si”, Symposium on Nano Device Technology 2002, p181.(NSC)

(二) 單幕對準系統---校外論文

黃金花 清華大學材料科學

(A) SCI 期刊論文

1. L. Z. Hsieh, J. H. Huang, Z. A. Su, X. J. Guo, H. C. Shih, and M. C. Wu, 1997/11, "The microstructure of As precipitates in Si delta-doped GaAs grown by low-temperature molecular beam epitaxy," *Jpn. J. Appl. Phys.*, 36, 6614-6619.
2. S. L. Sung, T. G. Tsai, K. P. Huang, J. H. Huang, and H. C. Shih, 1998/2, "The effect of D. C. bias on the synthesis of crystalline carbon nitrides on silicon by microwave plasma enhanced chemical vapor deposition (CVD)," *Jpn. J. Appl. Phys.*, 37, (Letter) L 148-L 150.
3. L. Z. Hsieh, J. H. Huang, Z. A. Su, and M. C. Wu, 1998/3, "Arsenic precipitate accumulation in Si/Be alternately delta-doped GaAs grown by low-temperature molecular beam epitaxy," *Jpn. J. Appl. Phys.*, 37, (Letter) L 319-L 321.
4. Z. A. Su, J. H. Huang, L. Z. Hsieh, and W.-I Lee, 1998/4, "Two-dimensional arsenic precipitation in superlattice structures of alternately undoped and heavily Be doped GaAs grown by low-temperature molecular beam epitaxy," *Appl. Phys. Lett.*, 72, 1984-1986.
5. Z. A. Su, J. H. Huang, and W.-I Lee, 1998/5, "Formation of two-dimensional arsenic precipitation in superlattice structures of alternately undoped and heavily Be doped GaAs with varying periods grown by low-temperature molecular beam epitaxy," *J. Crystal Growth*, 187, 559-565.
6. C.-Y. Wen, X. J. Guo, J. H. Huang, and H. C. Shih, 2000/5 "Determination of the three-dimensional crystallographic misorientation in heterostructures by selected area diffraction (SAD) in cross-sectional TEM," *J. Crystal Growth*, 213, 150-156.
7. S. Han, J. H. Lin, X. J. Guo, S. H Tsai, Y. O. Su, J. H. Huang, F.-H. Lu, and H. C. Shih, 2000/ "The effect of Cr interlayer on the microstructure of CrN coatings on steel," *Thin Solid Films*, 377-378, 578-584.
8. Yu-Che Yu, Jin-Hua Huang, and I-Nan Lin, 2001/5 "Electron field emission properties of nano-diamonds synthesized by the chemical vapor deposition process," *J. Vac. Sci. Technol. B*, 19(3), 975-979.
9. J. H. Huang, Chia Chih Chuang, and Chuen-Horng Tsai, "Effect of nickel thickness and microwave power on the growth of carbon nanotubes by microwave-heated chemical vapor deposition," *Microelectron Eng.*, (accepted).
10. S. P. Chen, C. C. Chuang, J. H. Huang, I. N. Lin, and C. H. Tsai, "Electron emitters synthesized by selected area deposition of carbon nanotubes on silicon substrates," *Diam. Relat. Mater* (accepted).
11. J. H. Huang, Z. A. Su, X. J. Guo, and Y. O. Su, 2002 "Arsenic precipitation in low-temperature-grown InGaAs/GaAs and GaAs/AlGaAs quantum-well structures," submitted to *Appl. Phys. Lett.* (in revision).
12. J. H. Huang and L. Z. Hsieh, X. J. Guo, and Y. O. Su, "Dual accumulation and depletion behaviors of the arsenic precipitation in low-temperature-grown Be-doped GaAs," submitted to *Appl. Phys. Lett.*
13. J. H. Huang, C. C. Chuang, C.-H. Tsai, and W. J. Chen, "Excellent field emission from carbon nanotubes grown by microwave-heated chemical vapor deposition," submitted to *J. Vac. Sci. Technol. B*.
14. I-Nan Lin, Chun-Horng Tsai, Jin-Hua Huang, Tsai-Shin Lai, and Hsiu-Fung Cheng,

“Electron field emission properties of carbon nanotubes converted from nano-diamonds,” submitted to J. Vac. Sci. Technol. B.

(B) 非 SCI 期刊論文

1. F. D. Mai, Y. C. Ling, Z. A. Su, and J. H. Huang, 1998/12 “Structural investigation by SIMS for two-dimensional arsenic precipitation in superlattice structures of alternately undoped and heavily Be doped GaAs grown by low-temperature molecular beam epitaxy,” Vac. Sci. Technol., 18, 100-104. (EI)
2. 楊佩玲, 周正賢, 黃金花, 林樹均, 林諭男, 2001/12 “微波加熱 CVD 成長奈米碳管之催化劑影響,” 材料科學與工程, 33, 247-252。
3. 莊佳智, 黃金花, 莊鎮宇, 蔡春鴻, 陳世溥, 林諭男, 2002/6 “鎳膜厚度對奈米碳管的結構與場發射特性之影響,” 材料科學與工程, 34, 112-116.

張忠誠 海洋大學材料工程所

期刊論文

1. C.C.Chang and S.J.Lii, 1998, “Fabrication of ZnSe/Si PIN Photodiode by IR Furnace Chemical Vapor Deposition”, Solid State Electronics, vol.42, no.5, pp.817-822 . (SCI)
2. C.C.Chang and C.S.Tang, 1998, “An Integrated Pyroelectric Infrared Sensor with the PZT Thin Film”, Sensors and Actuators, vol.65, pp.171-174 . (SCI)
3. C.C.Chang, 1998, “Perovskite Phase PZT Thin Film Deposition on Pt/SiO<sub>2</sub>/Si Substrate at Low Temperature” Metallurgical and Material Transaction (A), vol.29A, pp.907-909 . (SCI)
4. C.C.Chang and P.C.Lu, 1999, “Annealing Effect on Improving the Quality of Lead Zirconate Titanate Thin Films on Pt/SiO<sub>2</sub>/Si Substrates” Journal of Materials processing technology, vol.95, pp.128-132 . (SCI)
5. C.C.Chang and C.H.Hwang, 1999, “XRD Analysis of PZT Thin Films on Si Substrates by Rapid Thermal Annealing Processes”, Chinese Journal of Materials Science, vol.31, no.4, pp.220-225 .
6. C.C.Chang and K.H.Chang, 1999, “Characterization of Lead Zirconate Titanate Thin Film Deposition onto Pt/Ti/SiO<sub>2</sub>/Si Substrate”, Journal of Material Science : Materials in Electronics, vol.10, pp.551-556 .(SCI)
7. C.C.Chang and K.T.Wu, 2000, “Fabrication of n-ZnSe / p-Si / n-Si Heterojunction Photo-transistors Using IR Furnace Chemical Vapor Deposition and its Optical Properties Analysis ” accepted by IEE proceedings, optoelectronics, vol 147, No.2, April 2000. (SCI)
8. C.C.Chang and W.J.Lin, 2000, “ Study and Fabrication of the PbTiO<sub>3</sub> Thin Film Acoustic Sensors “ultrasonics, vol 37, pp.585-588 (2000) (SCI).
9. C.C.Chang and S.K.Fang, 2000, “A Study on Designing ZnO Thin Film Pressure Sensors “ International Journal of Electronics, vol 87, No.8, pp 1013-1023 (2000). (SCI)
10. C.C.Chang and K.H.Chen, 2000, “Fabrication and Characterzation of PZT thin film

- Ultrasonic Device “ Journal of the Chinese Institute of Engineers, vol 23, No. 2, pp 179-184. (SCI)
11. C.C. Chang. and C.H.Lee, “ Study and Fabrication of PIN photodiode by using ZnSe/Ps/Si structure”,IEEE Trans. on Electron Devices, vol 47, No.1, pp.50 -54 (2000) (SCI)
  12. C.C.Chang and C.S.Tang, 2000, “Preparation and Properties of Lead Zirconate Titanate Ferroelectric Thin Film Using Ratio Frequency Planar Magnetron Sputtering”, Journal of Applied Physics , vol 87, No. 8, 15 April 2000 .
  13. C.C.Chang, 2000, ”The Fabrication and characterization of PZT Thin Film Acoustic Devices For Application in Underwater Robotic Systems”, Proceedings of the Natural Science Control of R.O.C. vol. 24, No.4, pp.287-292, July 2000
  14. C.C.Chang and C.H.Lee, “Characterization and Fabrication of ZnSe Epilayer on Porous Silicon Substrate” will be published in Thin Solid Film.(SCI)
  15. 張忠誠，鄭募德，王榮華，林鎮洲，曾世和，2001，智慧型水下機械系統技術研習與實作，工程科技通訊，vol.56，45-50
  16. C.C.Chang and C.H.Lee, “The Study of Highly Crystalline ZnSe Growth on Porous Silicon” accepted by Journal of Material Science.(SCI)

#### 研討會論文

- 1.C.C.Chang and M.H.Chien, “Chemical Vapor Deposition Grown n-ZnSe/p-GaAs Heterojunction Metal-Semiconductor-Metal (MSM) Photodetector”, Optics and Photonics Taiwan’99, pp.143-146, Chungli, Taiwan, 1999
2. C.C.Chang, J.C.Liou and H.C.Wang,”An Integrated Infrared Sensor Using PZT Thin Film on Depletion NMOSFETs”,第一屆海峽兩岸微系統科技研討會，台南市，2000,5
3. C. C. Chang and H. C. Wang ,“The Fabrication of PbTiO<sub>3</sub> Thin Film IR Sensors Using Microelectro-Mechanical System (MEMS) Technique”,奈米技術研討會,工研院, 2000,11
- 4.Lin,C.C., C.C.Chang, M.D.Jeng, J.H.Wang, and S.H.Tseng, “Technology Development and Implementation of an Intelligent Underwater Robotic Manipulator System ”Proceedings of the Third conference on Under Sea Technology, Keelung, ppE-1~E-5,March, 2001. ◦
5. C. C. Chang and S.H.Tseng, “The Development and Implementation of Measurement Distance Sensor for an Intelligent Underwater Robotic Manipulator System ” Proceedings of the Third conference on Under Sea Technology, Keelung, ppE-6~E-9,March, 2001. ◦
- 6.張忠誠，曾世和”超音波測距元件研究” 中華民國震動與噪音工程學會第九屆學術研討會，新竹，pp.46-48，April，2001。◦
7. C. C. Chang, M.H.Chier and W.C.Wang “Characterization of ZnSe Short-Wavelength Heterojunction Bipolar Phototransistor and Schottky Barrier Metal Semiconductor metal photodiode” International Photonic Conference 2000, Hsinchu,pp887-891, Dec.2000。◦
8. C. C. Chang,R.C.Wu and M.S.Lo “Fabrication and Characterization of Integratedn

- pressure sensor” Electron Devices and Materials Symposia Tainan’01,p65-68 kaohsiung, Taiwan, 2001 .
9. C. C. Chang, W.C.Wang and M.Y.Chen “The Study of ZnSe/GaAs Heterojunction bipolar transistor” Optics and Photonics Taiwan’01, pp.422-424, kaohsiung, Taiwan, 2001 .
- 10.H.C.Chang,C.C.Lin , J.H.Wang ,M.D.Jeng and S.H.Tseng “The Study of Ultrasonic Distance Measurement Device for an Teleoperated Robotic Manipulator System” OCEANS 2001 MTS/IEEE conference, Hawaii, Nov. 5-8, 2001 .

### 陳榮順 清華大學動力機械

#### 期刊論文

1. M. T. K. Hou and R. Chen, "Effect of Width on the Stress-induced Bending of Micromachined Bilayer Cantilevers," Journal of Micromechanics and Microengineering (Accepted on Nov. 21, 2002)
2. C. A. Hsuan, and R. Chen, "Intelligent Control of Exit Temperature in a Gas Fuel Can-Type Combustor," Engineering Applications of Artificial Intelligence. (Accepted on Oct. 27, 2002)
3. M. J. Lin and R. Chen, "Adhesion Criterion for Center-anchored Circular Plates in Microstructures," Sensors and Actuators, A: Physical, Vol. 101, No. 1-2, pp. 14 -23, Oct., 2002.
4. T. L. Yang and R. Chen, "The Semi-Empirical and Empirical Models for Predicting Sound Absorption Coefficients for a Novel Porous Laminated Composite Material," Journal of Vibration and Control (accepted).
5. M. J. Lin and R. Chen, "Sticking Effect on Center-anchored Circular Plates in Microstructures," IEEE Trans. On Components and Packaging Technologies, Vol. 24, No. 4, December 2001.
6. C. Y. Huang and R. Chen, "Fuzzy Control of Exit Temperature and Oxygen Concentration For a Combustion Chamber," International Journal of Fuzzy Systems, Vol. 3, No. 3, Sep. 2001. (EI only)
7. T. L. Yang, D. M. Chiang, and R. Chen, "Development of a Novel Porous Laminated Composite Material for High Sound Absorption," Journal of Vibration and Control, Vol. 7, No. 5, July 2001, pp. 675 - 698.
8. C. L. Chen, H. C. Chen, M. K. Wong, F. T. Tang, and R. Chen, "Temporal Stride and Physical Medicine & Rehabilitation, Vol. 82, Jan., 2001, pp. 43 - 48.



9. Y. J. Tsao and R. Chen, "Force Control for Active Suspension Design of a Half Car Model by Using Genetic Algorithms with Maximum Stroke Constraints," P. of Imech., Part D, Journal of Automobile Engineering, Vol. 215, Issue: D3, 2001, pp. 317 - 327).

#### 研討會論文

1. M. T. K. Hou, K. M. Liao, H. Z. Yeh, P.Y. Hong, and R. Chen, 2003, "Fabrication of micromachined Focusing Mirrors with Seamless Reflective Surface," SPIE's Micromachining and Microfabrication, 27 -31, Jan., 2003, San Jose, California, USA. (EI)
2. 葉志賢、陳榮順，2002，「扭轉式微掃瞄鏡回授控制」，中國機械工程學會第十八屆學術研討會，雲林縣，2002年11月29-30日。
3. M. J. Lin and R. Chen, 2002, "Deformation of Center-anchored Circular Plate Caused by Residual Stress," 2002 奈米工程暨微系統技術研討會，台南市，2002年11月21-22日。
4. K. M. Liao, C. C. Chueh, and R. Chen, "A Novel Electro-Thermally Driven Bi-directional Microactuator," 2002 International Symposium on Micromechatronics and Human Science, October 20-23, 2002, Nagoya, Aichi, Japan. (EI)
5. M. T. K. Hou, K. M. Liao, H. Z. Yeh, P.Y. Hong, and R. Chen, "Design and Fabrication of Surface-micromachined Spherical Mirrors," IEEE/LEOS Optical MEMS 2002, International Conference on Optical MEMS and Their Applications, August 20 -23, 2002, Lugano, Switzerland.
6. T. K. Hou and R. Chen, 2001, "Shape Analysis of Cylindrical Micromirrors for Angular Focusing," SPIE 2001 International Symposium on Microelectronics and Micro-electro-mechanical Systems, Dec. 17-19, 2001, Adelaide, Australia. (EI)
7. H. Yen, C. Lee, R. Chen, and M. J. Lin, 2001, "Analysis and Fabrication of Deformable Focusing Micromirrors," Proceedings of 2001 ASME International Mechanical Engineering Congress Exposition, Nov. 11-16, 2001, New York, NY, U. S. A. (EI)
8. T. K. Hou and R. Chen, 2001, "On the Initial Stress-induced Bending in Bilayer Microcantilevers," 第25屆全國理論及應用力學學術研討會，台中市，2001年12月15、16日。
9. P. Y. Hong and R. Chen, 2001, 「Design and Fabrication of Micro Cylindrical Mirrors」，中國機械工程學會第十八屆學術研討會，台北市，2001年12月7、8日。
10. M. J. Lin and R. Chen, 2000, "Sticking Effect on Circular Plates in Microstructures," Mechatronics 2000, Sep. 6 -9, Atlanta, U. S. A. (EI)

## 林智汶 雲林科技大學化學工程所

### 期刊論文

1. C. W. Lin, 1999, Effect of Chromate Coating with and without Poly (acrylic acid) on the press formality, shearing properties and Durability of the Galvanized Steel Laminates Using Poly( vinyl butyral) as Core Material, J. Material Science, in press.
2. B. J. Hwang, J. Y. Yang, C. W. Lin, 1999, A microscopic Gas-sensing model for ethanol sensors based on the conductive polymer composites from polypyrrole and poly(ethylene oxide), J. Electrochem. Soc., in press.
3. C. W. Lin, Y. C. Du, 1999, Effect of Surface Topographies of PTFE and Polyimide as Determined by Atomic Force Microscopy on the Heterogeneous Nucleation of Isotactic Polypropylene, Mater. Chem. Phys., in press.
4. C. W. Lin, J. Y. Yang, B. J. Hwang, 1998, Methanol sensors based on the conductive polymer composites from polypyrrole and poly (ethylene oxide), J. Chinese Inst. of Chem. Eng. , Accepted.
5. C. W. Lin, Y. C. Lai, S. T. Liu, Interfacial Crystallization Behaviors of Polypropylene Molded against the Sulfuric Acid Anidized-Aluminum Alloy with Various Surface Roughness, in preparation.

### 研討會論文

1. Lin, C.W., 1990, Adhesion enhancement of polymer-steel interface for vibration-damping steel sheet, Modern Eng. and Tech. Seminar, Vol. 4, Mater. Tech. Session, pp. 197-212.
2. 林智汶, 1990, Structural adhesive bonding of composites, 高分子複合材料之破壞行為專題研討會, 高雄市國立中山大學.
3. B.J. Huang; Lin, C.W., 1991, A study on the adhesion of electroless nickel deposition to ceramic alumina, Proc. of The 1991 Annual Conference of the Chinese Soc. for Mater. Sic., pp. 524-525.
4. Lin, C.W., 1991, Enhancement of interfacial strenght of a vibration-damping steel sheet, Proc. of The 1991 Annual Conference of the Chinese Soc. For Mater. Sci., pp. 82-83.
5. Lin, C.W., 1992, Modification of PP by peroxide-catalysed grafting of maleic anhydride for adhesive bonding, Proc. of the 15th Polymer Symposium.
6. Lin, C.W., 1992, Effect of moisture absorption on the impact behavior of unidirectionally reinforced nylon 6 composite, Proc. of the 15th ROC Polymer Symposium.
7. Lin, C.W., 1993, Effect of moisture absorption on the mechanical properties of poly (  $\epsilon$

- caprolactam) and its composite, Proc. of the Advanced Composite 1993 Conference, Wollongong, Australia.
8. 林智汶, 1995, 橡膠在高彈性接合與金屬接合之撕裂破壞比較, 第 18 屆高分子研討會, 新竹市國立清華大學.
  9. C.W. Lin, B.J. Hwang, W.J. Shu, 1997, A wet chemical treatment of PTFE, for improving adhesion to electroless copper coatings, 第 20 屆高分子研討會, 新竹市國立清華大學.
  10. C.W. Lin, J.Y. Yang, B.J. Hwang, 1997, A study on the gas sensors based on the conductive polymer composites from polypyrrole and poly (ethylene oxide), 第 20 屆高分子研討會, 新竹市國立清華大學.
  11. 林智汶, 杜倫彰, 1998, 底材之表明形態對高分子異質成核之影響, pp. 183, Proceedings of the 21th ROC Polymer Symposium 1998.
  12. 林智汶, 黃炳照, 李慶榮 1998, Polypyrrole/PVA 複合膜對甲醇氣體之回應, pp. 315, Proceedings of the 21th ROC Polymer Symposium, pp. 315.
  13. 黃炳照, 林智汶, 劉豫川, 李慶榮, 1998, Polypyrrole/PVA 複合膜對乙醇氣體之回應, Proceedings of the 21th ROC Polymer Symposium, pp. 25.
  14. 林智汶, 劉淑薰, 賴奕程, 聚丙烯於氧化鋁之界面結晶之研究, Proceedings of the 21th ROC Polymer Symposium, submitted.

### 張鼎張 中山大學物理所

#### 期刊論文

1. T. C. Chang, P. T. Liu, Y. L. Yang, J. C. Hu, S. M. Sze, "Enhancement of barrier properties in chemical vapor deposited TiN employing multi-stacked structure", Jpn. J. Appl. Phys., Part 2 39 (2A), p.L82 (2000).
2. P. T. Liu, T. C. Chang, Y. F. Cheng, L. Y. Yang, S. M. Sze, "Improvement on intrinsic electric properties of Low-k Hydrogen Silsesquioxane/ copper interconnections employing deuterium plasma treatment", Journal of Electrochemical Society, 147(3), p.1186 (2000).
3. W. C. Gau, T. C. Chang, Y. S. Lin, J. C. Hu, L. J. Chen, C. L. Cheng, "Copper electroplating for future ULSI interconnection", has been accepted by Journal of Vacuum Science & Technology A 18(2), p.656 (2000).
4. P. S. Shih, T. C. Chang, C. Y. Liang, T. Y. Huang, C. Y. Chang "Improvements of amorphous silicon inverted-staggered thin film transistors using high temperature deposited Al gate with chemical mechanical polishing", has been accepted by Electrochemical and Solid-State Letter, 3(5), p.235 (2000).
5. P. T. Liu, T. C. Chang, S. M. Sze, "Effects of NH<sub>3</sub>-plasma nitration on the electrical

- characterization of low-k Hydrogen Silsequioxane with copper interconnections”, IEEE Trans. on Electron Device, 47(9), p.1733 (2000).
6. J. S. Luo, W. T. Lin, C. Y. Chang, P. S. Shih, T. C. Chang, “Pulsed KrF laser annealing of Mo/SiGe”, Nuclear Instruments and Methods in Physics Research B, 169, p.129 (2000).
  7. P. S. Shih, H. W. Zan, T. C. Chang, T. Y. Huang, C. Y. Chang, “Dimensional Effects on the Drain Current of N- and P-Channel Polycrystalline Silicon Thin Film Transistors”, Jpn. J. Appl. Phys, Part 1, 39(7A), p.3879 (2000).
  8. J. C. Hu, T. C. Chang, C. W. Wu, C. J. Chen, “Effects of a new combination of additives in electroplating solution on the properties of Cu films in ULSI applications”, Journal of Vacuum Science & Technology A, 18(4), p.1207 (2000).
  9. P. T. Liu, T. C. Chang, J. C. Wu, Y.L. Yang, S. M. Sze, “Reliability of multi-stacked chemical vapor deposition Ti/TiN structure as a diffusion barrier in ULSI metallization”, Journal of the Electrochemical Society, 147(1), p.368 (2000).
  10. P. S. Shih, T. C. Chang, T. Y. Huang, C. F. Yeh, C. Y. Chang, “Characterization and reliability of lightly-doped-drain polysilicon thin-film transistors with oxide sidewall spacer formed by one-step selective liquid phase deposition, Jpn. J. Appl. Phys, 39(10) p.5758 (2000).
  11. T. C. Chang, P. T. Liu, M. C. Huang, Y. L. Yang, M. S. Tsai, H. Chung, J. Hou, S. M. Sze, ”Improvement of post-CMP characteristics on organic low-k methylsilsequioxane as intermetal dielectric”, Journal of Electrochemical Society 147(11) p.4313 (2000).
  12. Y.W. Hsieh, J. S. Luo, W. T. Lin, T. C. Chang, “Improvement of the (111) texture and microstructures of Cu films by pulsed laser annealing”, has been accepted by J. Mat. Sci.: material in Electronics (2000).
  13. T. F. Yang, C. P. Chen, Y. L. Yang, T. C. Chang, “Study on the Si-Si vibrational-states of the near-surface region of porous silicon”, Journal of Porous Materials, 17 (1-3), p. 339 (2000).
  14. H. J. Huang, K. M. Chen, C. Y. Chang, T. Y. Huang, T. C. Chang, “Study on boron effects on the reaction of Co and SiGe at various temperatures”, Journal of Vacuum Science & Technology A, 18(4), p.1448 (2000).
  15. D. Z. Peng, P. S. Shih, T. C. Chang, C. Y. Chang, “Reliability of passivated P-type polycrystalline silicon thin film transistor”, Microelectronics Reliability 40 (2000), p.1491 (2000).
  16. H. W. Zan, P. S. Shih, T. C. Chang, C. Y. Chang, “Reliability of passivated P-type polycrystalline silicon thin film transistor”, Microelectronics Reliability 40 (2000), p.1491 (2000).

1. T. C. Chang, P. T. Liu, H. Su, C. F. Chang, Y. L. Yang, J. Hou, "Enhancement of organic low-k hybrid-organic-siloxane-polymer (HOSP) in resisting oxygen plasma process", has been accepted by 197<sup>th</sup> meeting of The Electrochemical Society, Tronto, Ontario, Canada. (2000).
2. T. C. Chang, P. T. Liu, M. C. Huang, T. M. Tsai, C. F. Chang, Y. L. Yang, S. M. Sze, H. Chung, J. Hou, "Improvement in the characteristics of post-CMP low-k Methylsilsequioxane", has been accepted by 197<sup>th</sup> meeting of The Electrochemical Society, Tronto, Ontario, Canada. (2000).
3. T. C. Chang, P. T. Liu, T. M. Tsai, C. F. Chang, Y. L. Yang, S. M. Sze, F. Y. Shih, E. Tsai, G. Chen, J. K. Lee, "Ammonia plasma passivation effects on properties of post-CMP low-k hydrogen silsequioxane (HSQ)", has been accepted by 197<sup>th</sup> meeting of The Electrochemical Society, Tronto, Ontario, Canada. (2000).
4. J. C. Hu, T. C. Chang, L. J. Chen, M. S. Yeh, C. S. Hsiung, W. Y. Hsieh, W. Lur, T. R. Yew, "Investigation of leveling effect on electrodeposited Cu films for ULSI applications", has been accepted by 197<sup>th</sup> meeting of The Electrochemical Society, Tronto, Ontario, Canada. (2000).

三、各儀器支援之研究成果——發表論文紀錄表

(八)氧化/擴散系統

校內使用者期刊論文

張國明教授 交通大學電子工程所

期刊論文

1. K. M. Chang, J. Y. Yang and L. W. Chen, 1998, "A novel technology to form air gap for ULSI application," accepted to IEEE Electron Devices Letters.
2. K. M. Chang, T. C. Lee and Y. L. Sun, 1998, "The characteristics of N<sub>2</sub>O-grown polyoxide by the recrystallized-polysilicon method," December 1, Electrochemical and Solid State Letters.
3. K. M. Chang, C. H. Li, B. S. Sheih and J. Y. Yang, 1999, "The characteristics of tunnel oxides grown on textured silicon surface with a simple and reliable process," Vol.46, No.2, February, IEEE Transactions on Electron Devices Society.
4. K. M. Chang, J. Y. Yang and L. W. Chen, 1999, "A novel technology to form air gap for ULSI application," April Vol. 20, NO. 4., pp. 185-7, IEEE Electron Device Letters.
5. K. M. Chang, I-Chung Deng, and H. Y. Lin, 1999, "Chemical vapor deposited-tungsten film to suppress fluorine penetration and dopant redistribution," Journal of Chemical Vapor Deposition, Vol. 7, January, pp. 1-18.
6. K. M. Chang, T. C. I. C. Deng, and H. Y. Lin, 1999, "Suppression of fluorine penetration by use of In situ stacked chemical vapor deposited tungsten film," Vol. 146(8), J. Electrochem. Soc.: Solid-State Scie and Tech.

研討會論文

1. K. M. Chang, I. C. Deng, T. H. Yeh and C. W. Shih, 1998, "The barrier characteristics of chemical vapor deposited amorphous tungsten with In situ nitrogen plasma treatment," 194th Meeting, The Electrochemical Society, Boston, November 1-6.
2. K. M. Chang and J. Y. Yang, 1998, "Air gap for ULSI application by bonding ultra thin HSQ layer to patterned metal lines," International Electron Device and Materials Symposium (1998 IEDMS), Taiwan.
3. K. M. Chang, and J. J. Luo, 1998, "Tungsten oxide as the temperature sensitive material for microbolometer," International Electron Devices and Materials Symposium (1998 IEDMS), Taiwan.
4. K. M. Chang, J. Y. Yang, Y. H. Chang and I. C. Deng, 1998, "The air gap and pretreatment for the future development of low dielectric material in ULSI," International Conference on Next Decades of High Technologies (ICHT'98), Nov. 14-15, Taipei, Taiwan.
5. K. M. Chang, J. Y. Yang, Y. H. Chang and I. C. Deng, 1998, "Pretreatment technique to improve the ashing resistance of low K Spin-on-Polymer (SOP)," International Conference MRS 1999 Spring Meeting, USA.

6. K. M. Chang, T. C. Lee and Y. L. Sun, 1999, "Exploration of the characteristics of polyoxides grown by thermal, rapid thermal oxidation, and TEOS deposition," The Sixth Symposium on Nano Device Technology, May.

### 葉清發教授 交通大學電子工程所

#### 期刊論文

1. C. F. Yeh, Y. C. Lee, K. H. Wu, Y. C. Su, S. C. Lee, "Comprehensive Investigation on Fluorosilicate Glass Prepared by Temperature-Difference Based Liquid-Phase Deposition", J. Electrochemical. Soc. Vol. 147 (1), p.330-334 (2000)
2. C. F. Yeh, Y. C. Lee, Y. C. Su, K. H. Wu, C. H. Lin, "Novel Sidewall Capping for Degradation-Free Damascene Trenches of Low-Permittivity Methylsilsequioxane", J. Appl. Phys. Vol. 39, p.354-356 (2000)
3. C. F. Yeh, Y. C. Lee, and S. C. Lee, "Reliability of Fluorinated Silicon Oxide Film Prepared by Temperature Difference-Based Liquid Phase Deposition", J. Electrochemical Soc. Vol. 147, p. S-6-1~S-6-5 (2000)
4. C. F. Yeh, T. J. Chen, and C. L. Jon T. Gudmundsson, Member, IEEE, and Michael A. Lieberman, Fellow, IEEE, "Hydrogenation of Polysilicon Thin-Film Transister in a Planar Inductive H<sub>2</sub>/Ar Discharge", IEEE Electron Device Lett. Vol.20, No. 5, P. 223, (1999).
5. C. F. Yeh, P. S. Shih, C. Y. Chang, Fellow, IEEE, T. C. Chang, T. Y. Huang, Fellow, IEEE, and D. Z. Peng, "A Novel Lightly Doped Drain Polysilicon Thin-Film Transister with Oxide Sidewall Spacer Formed by One-Step Selective Liquid Phase Deposition", IEEE Electron Device Lett. Vol. 20, No. 8, P. 421. (1999)

#### 研討會論文

1. C. F. Yeh, C. H. Liu, S. C. Wang, and Y. J. Hsiao, "Applying Selective Liquid-Phase Deposition Instead of Reactive Ion Etching to The Contact Hole Formation of MOSFETs" accepted for the presentation to IEEE DRC, June 28-30, 1999.
2. C. F. Yeh, C. H. Liu, S. C. Wang, and Y. J. Hsiao, accepted for the presentation in Advanced Workshop on frontiers in Electronics?(99 OFE), May31-June 4, 1999.
3. C. F. Yeh, Y. C. Lee, K. H. Wu, Y. C. Su, "Properties of Silicon Oxide Prepared by Liquid-Phase Deposition", 1999 APS Centennial Meeting, Session VC23: Novel Dielectric Semiconductor System II, March 20~26, 1999.
4. C.F. Yeh, J.S. Liu, M.C. Chiang, "Characteristics of Novel Polysilicon Oxide by Anodic Oxidation", in Proc. on Insulating Film on Semiconductor (infos'99), 16-19, June, 1999
5. C. F. Yeh, C. H. Liu, "Applying Selective Liquid-Phase Deposition to Create Contact Hole in Plasma Damage-Free Process" in Proc. on Plasma Process Induced Damage(98 2ID), pp223-226, 1998.

曾俊元教授 交通大學電子工程所

期刊論文

1. M. S. Tsai and T. Y. Tseng, "Effect of Bottom Electrodes on Resistance Degradation of (Ba,Sr)TiO<sub>3</sub> Thin Films", IEEE Trans on CPMTA, Vol.23 pp.128-135, 2000.
2. M. S. Tsai and T. Y. Tseng, "The effect of oxygen-to-argon ratio on the electrical and reliability characteristics of sputtered Sr<sub>0.8</sub>Bi<sub>2.5</sub>Ta<sub>1.2</sub>Nb<sub>0.9</sub>O<sub>9+x</sub> thin films", Thin Solid Films, 382(2000) 190-199.
3. W. K. Chen, C.M, Chen, J.Y. Huang, W.F.Hsieh, T.Y.Tseng, "Study of linear and nonlinear optical properties of distorted Ti-O<sub>6</sub> perovskite structure in Ba<sub>x</sub>Sr<sub>x</sub>TiO<sub>3</sub>", Journal of Phys. And Chem, Of Solids, 61(2000) 969-977.
4. S. Ezbilvalavan, M. S. Tsai, T.Y. Tseng, "Dielectric relaxation and defect analysis of Ta<sub>2</sub>O<sub>5</sub> thin films", J. Phys. D. Appl. Phys.33, (2000) 1137-1142.
5. W. H. Lee, T. Y. Tseng, and D. F. K. Hennings, "Effects of calcinations temperature and A/B ratio on the dielectric properties of (Ba,Ca)(Ti, Zr, Mn)O<sub>3</sub> for multiplayer ceramic capacitors with nickel electrodes", J. Am Ceramic. Soc., 83(6) 1402-1406(2000).
6. W. H. Lee, T. Y. Tseng, and D. Hennings, "Effects of A/B cation ratio on the microstructure and lifetime of (Ba<sub>1-x</sub>Ca<sub>x</sub>)<sub>2</sub>(Ti<sub>1-y</sub>Zr<sub>y</sub>Mn<sub>0.01</sub>)O<sub>3</sub>(BCTZM) sintered in reducing atmosphere. J. Mater Sci. Materials in Electronics,11(2000) 157-162.
7. C. M. Cheng, C. F. Yang and T. Y. Tseng "Sintering BaTi<sub>4</sub>O<sub>p</sub>/Ba<sub>2</sub>Ti<sub>p</sub>O<sub>20</sub>- based Ceramics by glass addition", J. Europe Ceram. Soc., 20(2000) 157-162.

研討會論文

1. S. Ezilvalavan and T.Y. Tseng, "Properties and reliability of Ta<sub>2</sub>O<sub>5</sub> thin films deposited on Ta", 1999 IEEE 49<sup>th</sup> Electronic Components 8 Technology Conference (San Diego, CA), Paper # S29P5 (ISBN 0-7803-5234-3), P1042-46.
2. T. Y. Tseng, "(Ba, Sr)TiO<sub>3</sub> thin films : preparation, properties and reliability", 2<sup>nd</sup> Asian Meeting on Ferroelectrics International, Singapore, 7-11 December, 1998.
3. M. S. Tsai and T. Y. Tseng, "Electrical properties of Sr<sub>0.8</sub>Bi<sub>2.5</sub>Ta<sub>1.2</sub>Nb<sub>0.9</sub>O<sub>9+x</sub> ferroelectric thin films", Proceedings of the 1998 annual conference of the Chinese Society for Materials Science, 1998.
4. W. H. Lee, T. Y. Tseng, K.H. Ou, T.H. Hsieh and T.L. Tsai, "Effects of calcination temperature and Ba/Ti ratio on dispersion of aqueous (Ba,Ca)(Ti,Zr,Mu)O<sub>3</sub> suspension for Ni-based multilayer ceramic capacitors", 100<sup>th</sup> Acers Annual Meeting, Cincinnati, U.S.A., May 3-6, 1998.
5. S. Ezhilualavan and T.Y. Tseng, "Rapid Thermal Processed Ta<sub>2</sub>O<sub>5</sub> Thin Films", 100<sup>th</sup> Acers Annual Meeting, Cincinnati, U.S.A. May 3-6, 1998.



**雷添福教授 交通大學電子工程所**

## 期刊論文

1. Jiann Heng Chen, **Tan Fu Lei**, Tien Sheng Chao, Tien Pao Su, Jim Huang, Andy Tuan, and S. K. Chen, "Study on the Contact Resistance of Poly-plug Structure by In-Situ HF Vapor Clean," IEE Electronics Letters, Vol. 36, No. 8, pp. 756-757, 2000.
  2. Tung Ming Pan, **Tan Fu Lei**, Chao Chyi Chen, Tien Sheng Chao, Ming Chi Liaw, Wen Lu Yang, Ming Shih Tsai, C. P. Lu, and W. H. Chang, "Novel cleaning solutions for polysilicon film post chemical mechanical polishing," IEEE Electron Devices lett., Vol. 21, No. 7, pp. 338-340, 2000. Tung Ming Pan, **Tan Fu Lei**, and Tien Sheng Chao, "Robust ultra-thin oxynitride dielectrics by NH<sub>3</sub> nitridation and N<sub>2</sub>O RTA treatment," IEEE Electron Devices lett., Vol. 21, No. 8, pp. 378-380, 2000.
  3. **Tan Fu Lei**, Jiann Heng Chen, Ming Fang Wang, and Tien Sheng Chao, "Characteristics of Polysilicon Oxides Combining N<sub>2</sub>O Nitridation and CMP Processes," IEEE Trans. on Electron Device, Vol. 47, No. 8, pp. 1545-1552, 2000.
- Tung Ming Pan, **Tan Fu Lei**, Tien Sheng Chao, Kuo Lih Chang, and Kuang Chien Hsieh, "High quality ultra-thin CoTiO<sub>3</sub> high-k gate dielectrics," Electrochemical and Solid-State lett., vol. 3, No. 9, pp. 433-434, 2000.
4. Tung Ming Pan, **Tan Fu Lei**, Tien Sheng Chao, Ming Chi Liaw, and Chih Peng Lu, "The Optimum Condition of Novel One-Step Cleaning Solutions for Pre-Gate Oxide Cleaning using the Robust Design Methodology," J. J. Applied Phys. Vol. 39, No.10, p. 5805, 2000.
  5. Chin-Yu Ku, Jia-Min Shieh, Tsann-Bim Chiou, Hwang-Kuen Lin, and **Tan Fu Lei**, "Postexposure delay effect on linewidth variation in base added chemically amplified resist", J. Electrochem. Soc., Vol.147, No.10, pp.3833-3839, 2000.
  6. Jiann Heng Chen, **Tan Fu Lei**, Jian-Hong Chen, and Tien Sheng Chao, "Characteristics of TEOS Polysilicon Oxides: The Improvement by CMP Process and High Temperature RTA N<sub>2</sub>/N<sub>2</sub>O Annealing," J. Electrochem. Soc., Vol.147, No.11, p.4282, 2000.
  7. Horng Chih Lin, C. M. Yu, C. Y. Lin, K. L. Yeh, Tiao Yuan Huang, and **Tan Fu Lei**, "A Novel Thin-Film Transistor with Self-Aligned Field Induced Drain," IEEE Electron Devices lett., Vol. 22, No. 1, pp. 26-28, 2001.
  8. Tung Ming Pan, **Tan Fu Lei**, Wen Luh Yang, Chun Ming Cheng, Tien Sheng Chao, "High Quality Interpoly-Oxynitride Grown by NH<sub>3</sub> Nitridation and N<sub>2</sub>O RTA Treatment," IEEE Electron Devices lett., Vol. 22, No. 2, pp. 68-71, 2001.
  9. Tung Ming Pan, **Tan Fu Lei** and Tien Sheng Chao, "High-k CoTiO<sub>3</sub> dielectrics formed by oxidation of sputtered Co/Ti or Ti/Co films," Applied Phys. Lett., vol. 78, pp.1439-1441, 2001.
  10. W. L. Yang, T. S. Chao, C. M. Cheng, T. M. Pan, and **T. F. Lei**, "High Quality Interpoly Dielectrics Deposited on the Nitride-Polysilicon for Nonvolatile Memory Devices," IEEE

- Trans. On Electron Devices, 48, pp. 1304-1309, July, 2001.
11. Tung Ming Pan, **Tan Fu Lei** and Tien Sheng Chao, "Comparison of Ultrathin CoTiO<sub>3</sub> and NiTiO<sub>3</sub> High-k Gate Dielectrics," J. Applied Phys., Vol. 89, March 15, 2001.
  12. Tung Ming Pan, **Tan Fu Lei**, Huang Chun Wen, and Tien Sheng Chao, "Characterization of Ultrathin Oxynitride (18-21 Å) Gate Dielectrics by NH<sub>3</sub> Nitridation and N<sub>2</sub>O RTA Treatment," IEEE Trans. on Electron Devices, Vol. 48, April., 2001.
  13. Tung Ming Pan; **Tan Fu Lei**; Fu Hsiang Ko; Tien Sheng Chao; Tzu Huan Chiu; Ying Hao Lee; Chih Peng Lu, "Comparison of novel cleaning solutions with various chelating agents for post-CMP cleaning on poly-Si film," Semiconductor Manufacturing, IEEE Transactions on , Volume: 14 Issue: 4 , Page(s): 365 –371, Nov. 2001.
  14. Jam Wem Lee; **Tan Fu Lei**; Chung-Len Lee, "Thin tunnel oxide grown on silicon substrate pretreated by CF<sub>4</sub> plasma," IEEE Electron Device Letters , Volume: 22 Issue: 11 , Page(s): 513 –515, Nov, 2001.
  15. Tung Ming Pan, Chao Hsin Chien, **Tan Fu Lei**, Tien Sheng Chao, and Tiao Yuan Huang, "Electrical Characteristics of Thin Cerium Oxide Film on Silicon Substrate by Reactive DC Sputtering," Electrochem. Solid-State Lett. , Volume 4, Issue 9 pp. F15-F17, Sep. 2001.
  16. Jam Wem Lee, Won-Der Chen, **Tan Fu Lei**, and Chung-Len Lee, "The Enhancement of Nitrogen Incorporation in RTN<sub>2</sub>O Annealed TEOS Oxide Fabricated on Disilane-Based Polysilicon Films," Journal of The Electrochemical Society, Volume 148, Issue 8 pp. F164-F169, Aug. 2001.
  17. Tung Ming Pan, **Tan Fu Lei**, Tien Sheng Chao, Ming Chi Liaw, Fu Hsiang Ko, and Chih Peng Lu, "One-Step Cleaning Solution to Replace the Conventional RCA Two-Step Cleaning Recipe for Pregate Oxide Cleaning," Journal of The Electrochemical Society, Volume 148, Issue 6 pp. G315-G320, June 2001.
  18. Chin Yu Ku, **Tan Fu Lei**, and Hwang Kuen Lin, "Focus measurement with a simple pattern design," APPLIED OPTICS, Volume 40, No.16 pp.2662-2669, June 2001.
  19. Chin Yu Ku, Jia Min Shieh, Tsann Bim Chiou, Hwang Kuen Lin and **Tan Fu Lei**, "Expanding the Process Window and Reducing the Optical Proximity Effect by Post-Exposure Delay," Journal of The Electrochemical Society, Volume 148, Issue 8 pp. G434-G438, June 2001.
  20. Chin Yu Ku, Dong Shieh Cheng, and **Tan Fu Lei**, "Monitoring the Lithographic Focus and Tilting Performance by Off-line Overlay Measurement Tools", J. Vac. Sci. Technol.B Volume 19, Issue 5 pp. 1915-1924, September 2001.
  21. M. N. Chang, T. Y. Chang, F. M. Pan, B. W. Wu, and **T. F. Lei**, "An Investigation of Scanning Capacitance Microscopy on Iron-Contaminated p-Type Silicon", Electrochemical and Solid-State Letters, Volume 4, Issue 9 G69-G71, 2001.
  22. Yiming Li, Jam-Wem Lee, Ting-Wei Tang, T.-S. Chao, **Tan-Fu Lei**, and S. M. Sze,

“Numerical Simulation of Quantum Effects in High-k Gate Dielectrics MOS Structures using Quantum Mechanical Models,” *Computer Physics Communications* (accepted to appear in 2002).

23. J. H. Chen, **T. F. Lei**, C. L. Chen, T. S. Chao, W. Y. Wen, K. T. Chen, “Nitrogen implantation and in situ HF vapor clean for deep submicrometer n-MOSFETs,” *J. Electrochem. Soc.*, 149 (1): G63-G69, Jan., 2002.

24. T. Y. Chang, **T. F. Lei**, T. S. Chao, S. W. Chen, L. M. Kao, S. K. Chen, A. Tuan, and T. P. Su, “Impact of Nitrogen and/or Fluorine Implantation on Deep-submicron Co-salicide Process,” accepted by *Solid State Electronics*.

25. C. M. Yu, H. C. Lin, C. Y. Lin, K. L. Yeh, T. Y. Huang, and **T. F. Lei**, “Self-Aligned Fabrication of Thin-Film Transistors with Field-Induced Drain (FID),” accepted by *Solid State Electronics*.

26. Michael Yu, H. C. Lin, G. H. Chen, T. Y. Huang, and **T. F. Lei**, “Characteristics of Poly-Si Thin-Film Transistors with Electrical Source/Drain Extensions Induced by a Bottom Sub-Gate” accepted by *Jpn. J. Appl. Phys.*

#### 研討會論文

1. Chin-Yu Ku, **Tan Fu Lei**, Jia-Min Shieh, Tsann-Bim Chiou, and Yung-Cheng Chen, “New overlay pattern design for real-time focus and tilt monitor”, *Microelectronic Manufacturing, Proc. of SPIE Vol. 4182*, 2000.

2. Chin-Yu Ku, **Tan Fu Lei**, Jia-Min Shieh, Tsann-Bim Chiou, and Hwang-Kuen Lin, “Real-time process control to prevent CD variation induced by post exposure delay”, *Microelectronic Manufacturing, Proc. of SPIE Vol. 4182*, 2000.

3. Jiann Heng Chen, **Tan Fu Lei**, Chia Lin Chen, Tien Sheng Chao, Wen Ying Wen, and Kuag Ting Chen, “High Performance Deep-Submicron n-MOSFETs by Nitrogen Implantation and In-situ HF Vapor Clean,” *IRPS*, 2000.

4. M. N. Chang, T. Y. Chang, C. Y. Chen, F. M. Pan, B. W. Wu, **T. F. Lei**, “A Study of Iron-Contaminated p-type Silicon by Scanning Probe Microscopy”, *AVS 48th International Symposium, IUUSTA 15th International Vacuum Congress, 11th International Congress on Solid Surfaces*, San Francisco, CA, U.S.A, 2001.

5. H. W. Chen, H. C. Tzeng, T. Y. Chang, J. W. Lee, **T. F. Lei**, and C. L. Lee, “The Electrical Properties of the Gate Oxide with CF<sub>4</sub> Plasma Pretreatment,” *EDMS*, 2001.

6. T. L. Lee, J. W. Lee, **T. F. Lei**, and C. L. Lee, “Improved Thin Gate Oxide Characteristics with Chlorine Plasma Pretreatment,” *EDMS*, 2001.

J. H. Chen, Yen-An Chang, M. Z. Lee, **T. F. Lei**, and C. L. Lee, “Electrical Properties of Vertical Polysilicon Oxide,” *EDMS*, 2001.

7. Y. P. Hong, J. C. Wang, J. W. Lee, **T. F. Lei**, and C. L. Lee, “The Electrical Properties of Thin Oxynitride Dielectrics Using N<sub>2</sub>O Plasma Annealing,” *EDMS*, 2001.

荊鳳德教授 交通大學電子工程所

## 期刊論文

1. K. T. Chan, A. Chin, J. T. Kuo, C. Y. Chang, D. S. Duh, W. J. Lin, C. X. Zhu, M. F. Li, and D. L. Kwong, "Microwave Coplanar Filters on Si Substrates," *IEEE MTT-S International Microwave Symp.*, June 2003.
2. K. T. Chan, A. Chin, S. P. McAlister, C. Y. Chang, C. Tseng, V. Liang, J. K. Chen, D. S. Duh, and W. J. Lin, "Low RF loss and noise of transmission lines on Si substrates using an improved ion implantation process," *IEEE MTT-S International Microwave Symp.*, June 2003.
3. C. H. Huang, M. Y. Yang, A. Chin, C. X. Zhu, M. F. Li, and D. L. Kwong, "High Density RF MIM Capacitors Using High-k AlTaO<sub>x</sub> Dielectrics," *IEEE MTT-S International Microwave Symp.*, June 2003.
4. C. H. Huang, K. T. Chan, C. Y. Chen, A. Chin, G. W. Huang, C. Tseng, V. Liang, and J. K. Chen, "The minimum noise figure and mechanism as scaling RF MOSFETs from 0.18 to 0.13  $\mu\text{m}$  technology nodes," *IEEE RF-IC International Microwave Symp. (RFIC)*, June 2003.
5. S. B. Chen, J. H. Chou, A. Chin, J. C. Hsieh, and J. Liu, "RF MIM Capacitors Using High-K Al<sub>2</sub>O<sub>3</sub> and AlTiO<sub>x</sub> Dielectrics," *IEEE MTT-S International Microwave Symp.*, June 2002.
6. K. T. Chan, A. Chin, Y. B. Chen, Y.-D. Lin, D. T. S. Duh, and W. J. Lin, "Integrated Antennas on Si and Si-on-Quartz up to 20GHz," *International Electron Devices Meeting (IEDM)*, Washington DC, USA, Dec., 2001.
7. M. Y. Yang, S. B. Chen, A. Chin, C. L. Sun, B. C. Lan, and S. Y. Chen, "One-Transistor Stacked Gate Memory," *International Electron Devices Meeting (IEDM)*, Washington DC, USA, Dec., 2001.
8. A. Chin, C. S. Liang, C. Y. Lin, C. C. Wu, and J. Liu, "Strong and Efficient Light Emission in Si-based Superlattice Tunnel Diode," *International Electron Devices Meeting (IEDM)*, Washington DC, USA, Dec., 2001.
9. K. T. Chan, A. Chin, C. M. Kwei, D. T. Shien, and W. J. Lin "Transmission Line Noise from Standard and Proton-Implanted Si," *IEEE MTT-S International Microwave Symp.*, June 2001.
10. K. T. Chan, A. Chin, S. P. McAlister, C. Y. Chang, J. Liu, S. C. Chien, D. S. Duh, and W. J. Lin, "Low RF noise and power loss for ion implanted Si having an improved implantation process," *IEEE Electron Device Lett.* 24, Jan. (2003).
11. H. Hu, C. Zhu, X. Yu, A. Chin, M. F. Li, B. J. Cho, and D. L. Kwong, "MIM Capacitors Using Atomic-Layer-Deposited High- $\kappa$  (HfO<sub>2</sub>)<sub>1-x</sub>(Al<sub>2</sub>O<sub>3</sub>)<sub>x</sub> dielectrics," *IEEE Electron Device Lett.* 24, (2003).
12. X. Yu, C. Zhu, H. Hu, A. Chin, M. F. Li, B. J. Cho, and D. L. Kwong, "A High Density MIM Capacitor (13 fF/ $\mu\text{m}^2$ ) Using ALD HfO<sub>2</sub> Dielectrics," *IEEE Electron Device Lett.* 24, (2003).
13. K. T. Chan, C. Y. Chen, A. Chin, J. C. Hsieh, J. Liu, T. S. Duh, and W. J. Lin, "40-GHz Coplanar Waveguide Bandpass Filters on Silicon Substrate," *IEEE Wireless & Microwave Components Lett.* 23, Nov. (2002).
14. C. H. Huang, C. H. Lai, J. C. Hsieh and J. Liu and A. Chin, "RF noise in 0.18 $\mu\text{m}$  and 0.13 $\mu\text{m}$  MOSFETs," *IEEE Wireless & Microwave Components Lett.* 23, Dec. (2002).

15. C. H. Huang, S. B. Chen, and A. Chin, "La<sub>2</sub>O<sub>3</sub>/Si<sub>0.3</sub>Ge<sub>0.7</sub> p-MOSFETs with high hole mobility and good device characteristics," *IEEE Electron Device Lett.* 23, Dec (2002).
16. C. Y. Lin, W. J. Chen, C. H. Lai, A. Chin, and J. Liu, "Formation of Ni Germano-Silicide on Single Crystalline Si<sub>0.3</sub>Ge<sub>0.7</sub>/Si," *IEEE Electron Device Lett.* 23, 464 (2002).
17. C. H. Tseng, T. K. Chang, F. T. Chu, J. M. Shieh, B. T. Dai, H. C. Cheng, and A. Chin, "Investigation of Inductively Coupled Plasma Gate Oxide on Low Temperature Polycrystalline-Silicon Thin Film Transistors," *IEEE Electron Device Lett.* 23, 333 (2002).
18. S. B. Chen, J. H. Chou, K. T. Chan, A. Chin, J. C. Hsieh, and J. Liu, "Frequency-dependent capacitance reduction in high-k AlTiO<sub>x</sub> and Al<sub>2</sub>O<sub>3</sub> gate dielectrics from IF to RF frequency range," *IEEE Electron Device Lett.* 23, 203 (2002).
19. S. B. Chen, J. H. Chou, A. Chin, J. C. Hsieh, and J. Liu, "High Density MIM Capacitors Using Al<sub>2</sub>O<sub>3</sub> and AlTiO<sub>x</sub> Dielectrics," *IEEE Electron Device Lett.* 23, 185 (2002).
20. C. L. Sun, S. Y. Chen, S. B. Chen and A. Chin, "Bi<sub>3.25</sub>La<sub>0.75</sub>Ti<sub>3</sub>O<sub>12</sub> Thin Films on Ultra-thin Al<sub>2</sub>O<sub>3</sub> Buffered Si for Ferroelectric Memory Application," *Appl. Phys. Lett.* 80, 3168 (2002).
21. C. L. Sun and S. Y. Chen, S. B. Chen, A. Chin, "Effect of annealing temperature on physical and electrical properties of Bi<sub>3.25</sub>La<sub>0.75</sub>Ti<sub>3</sub>O<sub>12</sub> thin films on Al<sub>2</sub>O<sub>3</sub>-buffered Si," *Appl. Phys. Lett.* 80, 1984 (2002).
22. S. B. Chen, C. H. Huang, A. Chin, J. Lin, J. P. Jou, K. C. Su, and J. Liu, "RF noise characteristics of high-k AlTiO<sub>x</sub> and Al<sub>2</sub>O<sub>3</sub> gate dielectrics," *J. Electrochem. Soc.* 149, F69 (2002).
23. C. Y. Lin, K. H. Shih, C. C. Wu, and A. Chin, "Poly-Si Thin-Film Transistors Crystallized by Electron-beam Annealing," *J. Electrochem. Soc.* 149, G391 (2002).
24. C. H. Huang, A. Chin, and W. J. Chen, "Characterization of Si/SiGe Heterostructures on Si Formed by Solid Phase Reaction," *J. Electrochem. Soc.*, 149, G209 (2002).
25. A. Chin, M. Y. Yang, C. L. Sun, and S. Y. Chen, "Stack gate one transistor ferroelectric memory," *IEEE Electron Device Lett.* 22, 336 (2001).
26. Y. H. Lin, F. M. Pan, Y. C. Liao, Y. C. Chen, I. J. Hsieh, and A. Chin, "The Cu contamination effect in oxynitride gate dielectrics," *J. Electrochem. Soc.*, G627 (2001).
27. C. L. Sun, S. Y. Chen, M. Y. Yang, and A. Chin, "Characteristics of Pb(Zr<sub>0.53</sub>Ti<sub>0.47</sub>)O<sub>3</sub> on Metal and Al<sub>2</sub>O<sub>3</sub>/Si Substrates," *J. Electrochem. Soc.* 148, F203 (2001).
28. C. H. Tseng, C. W. Lin, T. K. Chang, H. C. Cheng, and A. Chin, "Effects of Excimer Laser Dopant Activation on the Low Temperature Polysilicon Thin-Film Transistors with Lightly Doped Drains," *Electrochem. Solid-State Lett.* 4, G94 (2001).
29. Y. H. Lin, Y. C. Chen, K. T. Chan, F. M. Pan, I. J. Hsieh, and A. Chin, "The strong degradation on 30 Å oxide integrity contaminated by copper," *J. Electrochem. Soc.* 148, F73 (2001).

30. Y. H. Wu, A. Chin, K. H. Shih, C. C. Wu, C. P. Liao, S. C. Pai, C. C. Chi, "The fabrication of very high resistivity Si with low loss and cross talk," *IEEE Electron Device Lett.* 21, 394 (2000).
31. Y. H. Lin, Y. H. Wu, A. Chin, and F. M. Pan, "The effect of copper on gate oxide integrity," *J. Electrochem. Soc.* 147, 4305 (2000).
32. Y. H. Wu, A. Chin, and W. J. Chen, "Thickness dependent gate oxide quality of thin thermal oxide grown on high temperature formed SiGe," *IEEE Electron Device Lett.* 21, 289 (2000).
33. Y. H. Wu and A. Chin, "High temperature formed SiGe p-MOSFETs with good device characteristics," *IEEE Electron Device Lett.* 21, 350 (2000).
34. Y. H. Wu, M. Y. Yang, A. Chin, and W. J. Chen, "Electrical characteristics of high quality  $\text{La}_2\text{O}_3$  dielectric with equivalent oxide thickness of 5Å," *IEEE Electron Device Lett.* 21, 341 (2000).
35. Y. H. Wu and A. Chin, "Gate oxide integrity of thermal oxide grown on high temperature formed  $\text{Si}_{0.3}\text{Ge}_{0.7}$ ," *IEEE Electron Device Lett.* 21, 113 (2000).
36. Y. H. Wu, C. H. Huang, W. J. Chen, C. N. Lin, and A. Chin, "The buried oxide property in oxygen plasma enhanced low-temperature wafer bonding," *J. Electrochem. Soc.* 147, 2754 (2000).
37. Y. H. Wu, S. B. Chen, A. Chin, and W. J. Chen "High Quality Thermal Oxide Grown on High Temperature Formed SiGe," *J. Electrochem. Soc.* 147, 1962 (2000).

#### 研討會論文

1. K. T. Chan, A. Chin, J. T. Kuo, C. Y. Chang, D. S. Duh, W. J. Lin, C. X. Zhu, M. F. Li, and D. L. Kwong, "Microwave Coplanar Filters on Si Substrates," *IEEE MTT-S International Microwave Symp.*, June 2003.
2. K. T. Chan, A. Chin, S. P. McAlister, C. Y. Chang, C. Tseng, V. Liang, J. K. Chen, D. S. Duh, and W. J. Lin "Low RF loss and noise of transmission lines on Si substrates using an improved ion implantation process," *IEEE MTT-S International Microwave Symp.*, June 2003.
3. C. H. Huang, M. Y. Yang, A. Chin, C. X. Zhu, M. F. Li, and D. L. Kwong, "High Density RF MIM Capacitors Using High-k  $\text{AlTaO}_x$  Dielectrics," *IEEE MTT-S International Microwave Symp.*, June 2003.
4. C. H. Huang, K. T. Chan, C. Y. Chen, A. Chin, G. W. Huang, C. Tseng, V. Liang, and J. K. Chen, "The minimum noise figure and mechanism as scaling RF MOSFETs from 0.18 to 0.13  $\mu\text{m}$  technology nodes," *IEEE RF-IC International Microwave Symp.*, June 2003.
5. C. H. Huang, C. H. Lai, A. Chin, V. Liang, and S. C. Chien "Optimized Noise and Consistent RF Model for 0.18 $\mu\text{m}$  MOSFETs," *International Symp. on VLSI Technology, System, and Applications*, June 2003.

6. C. H. Huang, C.Y. Lin, H. Y. Li, W. J. Chen, A. Chin, and P. Mei "La<sub>2</sub>O<sub>3</sub>/Si<sub>0.3</sub>Ge<sub>0.7</sub> p-MOSFETs and Ni Germano-Silicide," *International Symp. on VLSI Technology, System, and Applications*, June 2003.
7. S. B. Chen, J. H. Chou, A. Chin, J. C. Hsieh, and J. Liu, "RF MIM Capacitors Using High-K Al<sub>2</sub>O<sub>3</sub> and AlTiO<sub>x</sub> Dielectrics," *IEEE MTT-S International Microwave Symp.*, June 2002.
8. K. T. Chan, C. Y. Chen, A. Chin, J. C. Hsieh, and J. Liu, T. S. Duh, and W. J. Lin, "High Performance 40-GHz Bandpass Filters on Si Using Proton Implantation," *60<sup>th</sup> IEEE Device Research Conference (DRC)*, Santa Barbara, CA, pp., June 2002.
9. C. H. Huang, C. H. Lai, J. C. Hsieh, and J. Liu, and A. Chin, "RF noise in deep sub- m MOSFETs and proposed solution," *60<sup>th</sup> IEEE Device Research Conference (DRC)*, Santa Barbara, CA, pp., June 2002.
10. C. Y. Lin, C. H. Lai, W. J. Chen,\* and A. Chin, "Formation of high quality silicide on SiGe with high Ge contents," *44<sup>th</sup> Electronic Materials Conference (EMC)*, Santa Barbara, CA, June 2002.
11. K. T. Chan, A. Chin, Y. B. Chen, Y.-D. Lin, D. T. S. Duh, and W. J. Lin, "Integrated Antennas on Si and Si-on-Quartz up to 20GHz," *International Electron Devices Meeting (IEDM)*, Washington DC, USA, Dec., 2001.
12. M. Y. Yang, S. B. Chen, A. Chin, C. L. Sun, B. C. Lan, and S. Y. Chen, "One-Transistor Stacked Gate Memory," *International Electron Devices Meeting (IEDM)*, Washington DC, USA, Dec., 2001.
13. A. Chin, C. S. Liang, C. Y. Lin, C. C. Wu, and J. Liu, "Strong and Efficient Light Emission in Si-based Superlattice Tunnel Diode," *International Electron Devices Meeting (IEDM)*, Washington DC, USA, Dec., 2001.
14. K. T. Chan, A. Chin, C. M. Kwei, D. T. Shien, and W. J. Lin, "Transmission Line Noise from Standard and Proton-Implanted Si," *IEEE MTT-S International Microwave Symp.*, June 2001.
15. A. Chin, S. B. Chen, K. T. Chan, J. Lin, J. P. Jou, K. C. Su, and J. Liu, "RF challenges for high-k gate dielectrics," *High K dielectric workshop*, Japan, Nov. 2001. (Invited)
16. A. Chin, M. Y. Yang, S. B. Chen, C. L. Sun, and S. Y. Chen, "Fast Write Time and Long Retention 1T Memory," *59th IEEE Device Research Conference (DRC)*, Notre Dame, IN, June 2001.
17. A. Chin, "Gate oxide integrity of SiGe p-MOSFET with high current drive," *International Semiconductor Technology Conference*, 2001. (Invited)
18. Y. H. Lin, Y. C. Chen, F. M. Pan, I. J. Hsieh, and A. Chin, "The thickness dependent gate oxide integrity degradation by Cu contamination," *43<sup>th</sup> Electronic Materials Conference (EMC)*, Notre Dame, IN, June 2000.
19. A. Chin, "Super MOSFET using high K gate dielectric and SiGe," *59<sup>th</sup> Symp. on*

- Semiconductors & IC Technology*, Japan 2000. (Invited)
20. Y. H. Wu, A. Chin, K. H. Shih, C. C. Wu, S. C. Pai, C. C. Chi, and C. P. Liao, "RF loss and cross talk on extremely high resistivity (10K-1M  $\Omega$ -cm) Si fabricated by ion implantation," *IEEE MTT-S International Microwave Symp.*, June 2000.
  21. Y. H. Wu, A. Chin, C. S. Liang, and C. C. Wu, "The performance limiting factors as RF MOSFETs scaling down," *IEEE MTT-S International RF-IC Symp.*, June 2000.
  22. A. Chin, Y. H. Wu, S. B. Chen, C. C. Liao, and W. J. Chen, "High Quality  $\text{La}_2\text{O}_3$  and  $\text{Al}_2\text{O}_3$  Gate Dielectrics with Equivalent Oxide Thickness 5-10Å," *Symp. on VLSI Technology*, p. 19, US, June 2000. (Highlight Section Paper)
  23. A. Chin "The possible materials and requirement of high-K gate dielectrics for VLSI," *MRS High-K Gate Dielectrics workshop*, US, June 2000. (Invited)
  24. Y. H. Wu, K. T. Chan, S. B. Chen, W. J. Chen, and A. Chin, "Improved shallow junction integrity using single crystalline  $\text{CoSi}_2$ ," *42<sup>th</sup> Electronic Materials Conference (EMC)*, Boulder, CO, June 2000.
  25. S. B. Chen, C. H. Huang, Y. H. Wu, W. J. Chen, and A. Chin, "High quality thermal ultra-thin gate oxide directly grown on high temperature formed  $\text{Si}_{0.3}\text{Ge}_{0.7}$ ," *42<sup>th</sup> Electronic Materials Conference (EMC)*, Boulder, CO, June 2000.
  26. Y. H. Wu, M. Y. Yang, S. B. Chen, W. J. Chen, A. Chin, and C. M. Kwei, "High frequency characterization of mega-ohm resistivity Si formed by high-energy ion implantation," *42<sup>th</sup> Electronic Materials Conference (EMC)*, Boulder, CO, June 2000.



## (三) 氧化擴散系統---校外論文

方維倫 清華大學動力機械

## 期刊論文

1. W. Fang, H.-C., Tsai, and C.-Y. Lo, 1999, "Determining Thermal Expansion Coefficients of Thin Films Using Micromachined Cantilevers," *Sensors and Actuators A*, Vol. 77, pp. 21-27.
2. W. Fang, 1999, "Determining of Elastic Constants of Thin Film Materials Using Self-deformed Micromachined Cantilevers," *Journal of Micromechanics and Microengineering*, Vol. 9, pp. 230-235.
3. W. Fang, C.-H. Lee, and H.-H. Hu, 1999, "On the Buckling Behavior of Micromachined Beams," *Journal of Micromechanics and Microengineering*, Vol. 9, pp. 236-244.
4. J. Hsieh and W. Fang, 2000, "A Novel Microelectrostatic Torsional Actuator," *Sensors and Actuators A*, Vol. 79, pp. 64-70.
5. C. Tsou and W. Fang, 2000, "The Effect of Residual Stresses on the Deformation of Semi-circular Micromachined Beams," *Journal of Micromechanics and Microengineering*, Vol. 10, pp. 34-41.
6. H.-Y. Lin and W. Fang, 2000, "The Rib-Reinforced Micromachined Beam and Its Application," *Journal of Micromechanics and Microengineering*, Vol. 10, pp. 93-99.
7. S.-T. Hung, S.-C. Wong, and W. Fang, 2000, "The Development and Application of Micro Thermal Sensors with a Supporting Mesh-Membrane Structure," *Sensors and Actuators A* Vol. 84, pp. 70-75.
8. W. Fang, and C.-Y. Lo, 2000, "On the Thermal Expansion Coefficients of Thin Films," *Sensors and Actuators A*, Vol. 84, pp. 310-314.
9. C. Tsou, H. Yin, and W. Fang, 2000, "On the Out-of-plane Deformation of V-shaped Micromachined Beams," *Journal of Micromechanics and Microengineering*, (accepted).
10. H.-H. Hu and W. Fang, 2000, "Characteristics of the Micromachined Beams on the (111) Substrate," *Sensors and Actuators A*, (submitted).
11. W.-P. Lai and W. Fang, 2000, "A Novel Anti-Stiction Method Using Harmonic Excitation on the Microstructure," *Journal of Vacuum Science and Technology* (submitted).

## 研討會論文

1. J. Hsieh and W. Fang, 1999, "Fabrication and Measurement of an Improved Micro Electrostatic Torsional Actuator," *Transducer '99 - International Conference on Solid-State Sensors and Actuators*, Sendai, Japan.
2. 謝哲偉、方維倫、陳世洲, 1999, 鋁結構微扭轉致動器之研製, 第三屆奈米工程暨微系統技術研討會, 工研院, 新竹市.
3. 鄒慶福、方維倫, 1999, 平坦微機械結構之設計與製造, 第三屆奈米工程暨微系統技術研討會, 工研院, 新竹市.
4. T.-S. Lin and W. Fang, 1999, "Development of a Novel Piezoresistive Sensor," SPIE

- Micromachining and Microfabrication Conference, Santa Clara, CA, USA.
5. C. Tsou and W. Fang, 1999, "The Effect of Residual Stresses on the Deformation of Semi-circular Micromachined beams," the *ASME Proceedings of the 1999 International Mechanical Engineering Congress and Exhibition (IMECE)*, Nashville, TENN, USA.
  6. 羅俊彥、蔡欣昌、方維倫, 1999, 微懸臂樑於材料熱膨脹係數之量測, 中國機械工程學會第十六屆全國學術研討會, 國立清華大學, 新竹市.
  7. 李俊賢、胡馨華、方維倫, 1999, On the Buckling Behavior of Micromachined Beams, 中國機械工程學會第十六屆全國學術研討會, 國立清華大學, 新竹市.
  8. 洪仕達、王訓忠、方維倫, 1999, The develop and Application of Micro Thermal Sensors with a Mesh-membrane Supporting Structure, 中國機械工程學會第十六屆全國學術研討會, 國立清華大學, 新竹市.
  9. T.-J. Yao, S. Lee, W. Fang, and Y.-C. Tai, 2000, "Micromachined Rubber O-ring Micro-Fluidic Couplers," the *IEEE Proceedings of the 13<sup>th</sup> Annual International Conference on MEMS*, Miyazaki, Japan.
  10. H.-Y. Lin, M. Wu, and W. Fang, 2000, "The Improvement of Micro-torsional-mirror for High Frequency Scanning," SPIE Micromachining and Microfabrication Conference, Santa Clara, CA, USA.
  11. Y.-M. Chou and W. Fang, 2000, "On the Nonlinear Dynamic Behavior of Electrostatically Actuated Devices," SPIE Micromachining and Microfabrication Conference, Santa Clara, CA, USA.
  12. H.-Y. Lin and W. Fang, 2000, "Out-of-plane Comb-drive Lever Actuator," the *ASME Proceedings of the 2000 International Mechanical Engineering Congress and Exhibition (IMECE)*, Orlando, FL, USA.
  13. H.-Y. Lin and W. Fang, 2000, "The Improvement of the Micro Torsional Mirror by a Reinforced Folded Frame," the *ASME Proceedings of the 2000 International Mechanical Engineering Congress and Exhibition (IMECE)*, Orlando, FL, USA.
  14. W.-P. Lai and W. Fang, 2000, "A Novel Anti-Stiction Method Using the Harmonic Excitation on the Microstructure," the *American Vacuum Society 47<sup>th</sup> International Symposium*, Boston, MA, USA.
  15. H.-C. Tsai and W. Fang, 2000, "Characterizing the Thermal Behavior of Thin Films Using Micromachined Cantilevers," the *American Vacuum Society 47<sup>th</sup> International Symposium*, Boston, MA, USA.
  16. H.-Y. Lin and W. Fang, 2000, "Torsional Mirror with an Electrostatically Driven Lever-Mechanism," the *IEEE Optical MEMS 2000*, Kauai, Hawaii, USA.
  17. 鄒慶福、殷宏林、方維倫, 2000, V 型微機械結構挫曲行為之研究, 中國機械工程學會第十七屆全國學術研討會, 國立高雄第一科技大學, 高雄市.
  18. 蔡明霖、方維倫、周正三, 2000, VLSI 電容式感測電路設計及應用, 中國機械工程學會第十七屆全國學術研討會, 國立高雄第一科技大學, 高雄市.

19. 沈文銘、方維倫, 2000, 應用曲形拱結構設計簡易式離合器, 中華民國力學學會第二十四屆全國力學會議, 中原大學, 中壢市.
20. C. Lo, H.-Y. Lin and W Fang, 2001, "A Novel Out-of-plane Electrothermal Microactuator," *2001 Microsystem Technologies Conference*, Dusseldorf, Germany. (accepted)

**張忠誠 海洋大學材料工程所**

期刊論文

1. C.C.Chang and P.C.Lu, 1999, "Annealing Effect on Improving the Quality of Lead Zirconate Titanate Thin Films on Pt/SiO<sub>2</sub>/Si Substrates" *Journal of Materials processing technology*, vol.95, pp.128-132 . (SCI)
2. C.C.Chang and C.H.Hwang ,1999, "XRD Analysis of PZT Thin Films on Si Substrates by Rapid Thermal Annealing Processes", *Chinese Journal of Materials Science*, vol.31, no.4, pp.220-225 .
3. C.C.Chang and K.H.Chang, 1999, "Characterization of Lead Zirconate Titanate Thin Film Deposition onto Pt/Ti/SiO<sub>2</sub>/Si Substrate", *Journal of Material Science : Materials in Electronics*, vol.10, pp.551-556 .(SCI)
4. C.C.Chang and K.T.Wu, 2000, "Fabrication of n-ZnSe / p-Si / n-Si Heterojunction Photo-transistors Using IR Furnace Chemical Vapor Deposition and its Optical Properties Analysis " accepted by IEE proceedings, *optoelectronics*, vol 147, No.2, April 2000. (SCI)
5. C.C.Chang and W.J.Lin, 2000, " Study and Fabrication of the PbTiO<sub>3</sub> Thin Film Acoustic Sensors " *ultrasonics*, vol 37, pp.585-588 (2000) (SCI).
6. C.C.Chang and S.K.Fang, 2000, "A Study on Designing ZnO Thin Film Pressure Sensors " *International Journal of Electronics*, vol 87, No.8, pp 1013-1023 (2000). (SCI)
7. C.C.Chang and K.H.Chen, 2000, "Fabrication and Characterzation of PZT thin film Ularasonic Device " *Journal of the Chinese Institute of Engineers*, vol 23, No. 2, pp 179-184. (SCI)
8. C.C. Chang. and C.H.Lee, " Study and Fabrication of PIN photodiode by using ZnSe/Ps/Si structure", *IEEE Trans. on Electron Devices*, vol 47, No.1, pp.50 -54 (2000) (SCI)
9. C.C.Chang and C.S.Tang, 2000, "Preparation and Properties of Lead Zirconate Titanate Ferroelectric Thin Film Using Ratio Frequency Planar Magnetron Sputtering", *Journal of Applied Physis* , vol 87, No. 8, 15 April 2000 .
10. C.C.Chang, 2000, "The Fabrication and characterization of PZT Thin Film Acoustic Devices For Application in Underwater Robotic Systems", *Proceedings of the Natural Science Control of R.O.C.* vol. 24, No.4, pp.287-292, July 2000
11. C.C.Chang and C.H.Lee, "Characterization and Fabrication of ZnSe Epilayer on Porous Silicon Substrate" will be published in *Thin Solid Film*.(SCI)
12. 張忠誠, 鄭募德, 王榮華, 林鎮洲, 曾世和, 2001, 智慧型水下機械系統 術研習與實作, *工程科技通訊*, vol.56, 45-50

13.C.C.Chang and C.H.Lee, "The Study of Highly Crystalline ZnSe Growth on Porous Silicon" accepted by Journal of Material Science.(SCI)

#### 研討會論文

1. C. C. Chang, K. T. Wu and M. H. Chien "Characterization of In doped ZnSe Epilayer on (111) Si Substrate Using IR Furnace Chemical Vapor Deposition" Proceeding of the 1999 annual conference of the Chinese society for material science, H-11, Hsinchu, Taiwan, 1999.
2. C. C. Chang, C. C. Lin, M. D. Jeng, J. H. Wang, S. K. Kau and U. C. Chen "The Study of Distance Measurement Using Ultrasonic Sensors" The 12th symposium of the Acoustical society of the Republic of China, pp. 153-161, Taipei, Taiwan, 1999.
3. C. C. Chang, H. Y. Chang and C. Y. Lin "The Study of ZnSe Metal-semiconductor-metal Photodetectors" pp. 405-408, Taoyuan, Taiwan, 1999.
4. C.C.Chang and M.H.Chien, "Chemical Vapor Deposition Grown n-ZnSe/p-GaAs Heterojunction Metal-Semiconductor-Metal (MSM) Photodetector", Optics and Photonics Taiwan'99, pp.143-146, Chungli, Taiwan, 1999
5. C.C.Chang, J.C.Liou and H.C.Wang, "An Integrated Infrared Sensor Using PZT Thin Film on Depletion NMOSFETs", 第一屆海峽兩岸微系統科技研討會, 台南市, 2000,5
6. C. C. Chang and H. C. Wang, "The Fabrication of PbTiO<sub>3</sub> Thin Film IR Sensors Using Microelectro-Mechanical System (MEMS) Technique", 奈米技術研討會, 工研院, 2000,11
7. Lin, C.C., C.C.Chang, M.D.Jeng, J.H.Wang, and S.H.Tseng, "Technology Development and Implementation of an Intelligent Underwater Robotic Manipulator System" Proceedings of the Third conference on Under Sea Technology, Keelung, ppE-1~E-5, March, 2001. °
8. C. C. Chang and S.H.Tseng, "The Development and Implementation of Measurement Distance Sensor for an Intelligent Underwater Robotic Manipulator System" Proceedings of the Third conference on Under Sea Technology, Keelung, ppE-6~E-9, March, 2001. °
9. 張忠誠, 曾世和 "超音波測距元件研究" 中華民國震動與噪音工程學會第九 學術研討會, 新竹, pp.46-48, April, 2001. °
10. C. C. Chang, M.H.Chier and W.C.Wang "Characterization of ZnSe Short-Wavelength Heterojunction Bipolar Phototransistor and Schottky Barrier Metal Semiconductor metal photodiode" International Photonic Conference 2000, Hsinchu, pp887-891, Dec.2000. °
11. C. C. Chang, R.C.Wu and M.S.Lo "Fabrication and Characterization of Integratedn pressure sensor" Electron Devices and Materials Symposia Tainan'01, p65-68 kaohsiung, Taiwan, 2001. °
12. C. C. Chang, W.C.Wang and M.Y.Chen "The Study of ZnSe/GaAs Heterojunction bipolar 91/01/18 修訂 transistor" Optics and Photonics Taiwan'01, pp.422-424, kaohsiung, Taiwan, 2001. °
13. H.C.Chang, C.C.Lin, J.H.Wang, M.D.Jeng and S.H.Tseng "The Study of Ultrasonic

Distance Measurement Device for an Teleoperated Robotic Manipulator System”  
OCEANS 2001 MTS/IEEE conference, Hawaii, Nov. 5-8, 2001。

### 李世光 台灣大學應用力學所

#### 期刊論文

1. Chi-Tang Hsieh, and C. K. Lee, "Cylindrical-type Nanometer-resolution Laser Diffractive Optical Encoders," *Applied Optics*, Vol. 38, No. 22, pp. 4743-4750 (August 1999).
3. C. K. Lee, Jeremy W.J. Wu, S. L. Yeh, C. W. Tu, Y. A. Han, Eric H.Z. Liao, I. E. Tsai, S. H. Lin, Jeffrey C. T. Hsieh, Julie T. Lee, "Optical Configuration and Color Representation Range of a Variable Pitch Dot Matrix Holographic Printer," *Applied Optics*, Vol. 39, No. 1, pp. 40-53 (January 1, 2000).
4. C. K. Lee, and James G.Y. Wu, "Interferometric Metrology of Dynamic Properties of MEMS," *Transactions of The Institute of Electrical Engineers of Japan*, Vol.120-E, pp381-385 (August 2000).
5. Y. H. Liu, T. T. Wu, and C. K. Lee, "Application of Narrowband Laser Ultrasonics to the Nondestructive Evaluation of Thin Bonding Layers," Submitted to *Journal of Acoustical Society of America* (July 1999).
6. J. H. Tong, T. T. Wu, and C. K. Lee, "Fabrication of a Piezoelectric Impact Hammer and Its Application to the In-situ Nondestructive Evaluation of Concrete," Submitted to *Journal of Acoustical Society of America* (July 1999).
7. C. C. Kao, G. B. Yeh, C. S. Yang, C. K. Lee, K. C. Wu, "New Phase-Shifting Algorithms for Electronic Speckle Pattern Interferometry," Submitted to *Applied Optics* (September 2000).

#### 研討會論文

1. C. H. Tsai, P. Lai, K. Lee, and C. K. Lee, "Fabrication of a Large F-number Lenticular Plate and Its Use As a Small-angle Flat-top Diffuser in Autostereoscopic Display Screens," *Stereoscopic Displays and Applications XI, SPIE Proceedings, Electronics Imaging 2000* (January 2000).
2. C. H. Tsai, K. Lee, and C. K. Lee, "Fabricating Polymeric Micro-retardation Arrays by CO<sub>2</sub> Laser Heat Processing Technology," *Stereoscopic Displays and Applications XI, SPIE Proceedings, Electronics Imaging 2000* (January 2000).

3. Y.-H. Liu, T.-T. Wu, C. K. Lee, and G.-Y. Wu, "Calibration of Piezoelectric Transducers Using Laser Interferometer," Proc. 6th International Conference on Automation Technology, pp. 421-426 (May 9-11, 2000).
4. C. K. Lee, and Y. H. Hsu, "The Effect of Feedback Theory to APROPOS Devices," Proc. 6th International Conference on Automation Technology, pp. 427-434 (May 9-11, 2000).
5. Y. H. Hsu, and C. K. Lee, "Designing APROPOS Devices by Using the Method of Imaging," Proc. 6th International Conference on Automation Technology, pp. 435-442 (May 9-11, 2000).
6. 李世光, 李兆祐, "超精準橢偏儀之設計與研製," 第七屆陸軍官校機械基礎學術研討會論文光碟片, Fong-Shan, Kao-Hsiung, Taiwan (March 7, 2000).
7. W. J. Chen, C. K. Lee, and S. S. Lu, "Design and Performance Evaluation of a Multi-Functional Microscope," The second Asia-Pacific Symposium on Confocal Microscopy and Related Technologies (Multi-dimensional Microscopy 2000), Kaohsiung, Taiwan, R.O.C (July 30-August 2, 2000).
8. C. K. Lee, and Y. H. Hsu, "Theory and Experiment of Autonomous Phase-Gain Piezoelectric Optimal Sensing Devices," The 20th International Congress of Theoretical and Applied Mechanics, Chicago, USA (August 27-September 2, 2000). Also, p.231, IUTAM Abstract book, Technical Report No. 950, Department of Theoretical and Applied Mechanics, University of Illinois at Urbana-Champaign, ISSN 0073-5264.
9. W. J. Chen, C.Y. Lee, H. Chang, C. K. Lee, and S. S. Lu, "An Optical Inhomogeneous Surface Profiler," Interferometry in Speckle Light Theory and Applications (INTSL2000), Proceedings of the International Conference (Published by Springer, New York, New Your, USAr), pp.511-518, ed. P. Jacquot and J. M. Fournier, Lausanne, Switzerland, (September 25-28, 2000).
10. C. C. Wu, C. K. Lee, C. T. Hsieh, and S. S. Lu, " A Position Detection Apparatus for Ultra Precision Machine Applications," Proceedings of the 2000 International Symposium on Mechatronics and Intelligent Mechanical System for 21 Century (ISIM2000), Chongwon, KyongSangNam-Do, Korea, pp. 188-193 (October 4-7, 2000).
11. W. J. Chen, C. K. Lee, and S. S. Lu, "A Multi-functional Microscope for Measuring Inhomogeneous Surface Profile," Proceedings of the 2000 International Symposium on Mechatronics and Intelligent Mechanical System for 21 Century (ISIM2000), Chongwon, KyongSangNam-Do, Korea, pp. 290-295 (October 4-7, 2000).

吳泰伯 清華大學材料工程所

期刊論文

1. T. B. Wu and H. J. Shy, 2000, "Deposition and Properties of Highly

- (100)-Oriented Barium Titanate Thin Films on LaNiO<sub>3</sub> Electrode", *Ceramics International* Vol. 26, pp. 599-603.
2. C. H. Lin, B. M. Yen, H. C. Kuo, H. Chen, T. B. Wu, G. E. Stillman, 2000, "Domain structure and Electrical Properties of Highly Textured Pb(Zr<sub>x</sub>Ti<sub>1-x</sub>)O<sub>3</sub> Thin Films Grown on LaNiO<sub>3</sub>-Electrode-Buffered Si by Metalorganic Chemical Vapor Deposition", *J. Mater. Res.*, Vol. 15, pp. 115-124.
  3. C. H. Lin, P. A. Friddle, X. Lu, H. Chen, Y. Kim and T. B. Wu, 2000, "Electrical Characteristics of 25nm Pb(Zr Ti)O<sub>3</sub> Thin Films Grown on Si by Metalorganic Chemical Vapor Deposition", *J. Appl. Phys.* Vol. 88, pp. 2157-2159.
  4. C. S. Chang, T. B. Wu, C. K. Huang, W. C. Shin and L. L. Chao, 2000, "Thermal Stability and Oxidation Resistance of W, TiW, W(N) and TiW(N) Thin Films Deposited on Si", *Jpn. J. Appl. Phys.* Vol. 39, pp. 6413-6421.
  5. H. Y. Lee, K. S. Liang, C. H. Lee and T. B. Wu, 2000, "Real-time x-ray scattering study of growth behavior of sputter-deposited LaNiO<sub>3</sub> thin films on Si substrates", *J. Mat. Res.* Vol. 15, 2606-2611.
  6. C. S. Chang, T. P. Liu and T. B. Wu, 2000, "Effect of Post-annealing on the Electrical Properties of Ta<sub>2</sub>O<sub>5</sub> Thin Films Deposited on TiN / Ti ", *J. Appl. Phys.*, Vol. 88, pp. 7242-7248.
  7. J. H. Tseng and T. B. Wu, 2001, "Ferroelectric lead barium zirconate thin film of high fatigue resistance", *Appl. Phys. Lett.*, Vol. 78, pp. 1721-1723.
  8. C. L. Liu and T. B. Wu, 2001, "Effects of Ca substitution on the structural and microwave dielectric characteristics of [( Pb<sub>1-x</sub> Ca<sub>x</sub> )<sub>1/2</sub> La<sub>1/2</sub> ] ( Mg<sub>1/2</sub> Nb<sub>1/2</sub> )O<sub>3</sub> ceramics", *J. Am. Ceram. Soc.*, Vol. 84, pp. 1291-1295.
  9. T. B. Wu, C. L. Liu, and Y. W. Liu, 2002, "Interfacial Structural and Electrical Characteristics of LaNiO<sub>3</sub>/Si Contacts", accepted for publication by *J. Mater. Res.*
  10. C. L. Liu, and T. B. Wu, 2002, "Polarization Switching Characteristics of Pb(Zr,Ti)O<sub>3</sub> thin films deposited on annealed PtOx-Pt electrode", accepted for publication by *Jpn. J. Appl. Phys.*
  11. T. P. Liu and T. B. Wu, 2002, "Effects of N<sub>2</sub>O plasma annealing on the characteristics of Ta<sub>2</sub>O<sub>5</sub> thin films deposited on TaN/Ta Electrode", accepted by *Jpn. J. Appl. Phys.*
  12. J. Zhai, M. H. Cheung, Z. K. Xu, X. Li, H. Chen, E. V. Colla, and T. B. Wu, 2002, "Dielectric and Ferroelectric Properties of Highly Oriented (Pb,Nb)(Zr,Sn,Ti)O<sub>3</sub> Thin Films Growth by Sol-Gel Process", accepted for publication by *Appl. Phys. Lett.*
  13. J. Zhai, Y. Yao, X. Li, T. F. Hung, Z. K. Xu, H. Chen, E. V. Colla, and T. B. Wu, 2002, "Dielectric Properties of Oriented PbZrO<sub>3</sub> Thin Films Growth by Sol-Gel Process", accepted for publication by *J. Appl. Phys.*
  14. S. L. Lung, S. S. Chen, C. W. Tsai, T. T. Sheng, S. C. Lia, C. L. Liu, T. B. Wu and R. Liu, 2002, "A Low Temperature LNO/PZT/LNO ferroelectric

Capacitor-Over-Interconnect(COI) FeRAM Module for Advanced Modular SOC", accepted for publication by Integrated Ferroelectrics.

### 研討會論文

1. C. H. Lin, B. M. Yen, H. Chen, T. B. Wu, H. C. Kuo and G. E. Stillman, 1998, "Characterization of Highly Textured PZT Thin Films Grown on LaNiO<sub>3</sub>-Coated Si Substrates by MOCVD", Mat. Res. Soc. Symp. Proc., Vol. 493, pp. 189-194.
2. H. Y. Lee, K. S. Liang, C. H. Lee and T. B. Wu, 1999, "Real-time x-ray scattering study of growth behavior of sputter-deposited LaNiO<sub>3</sub> thin films on Si substrates", Mat. Res. Soc. Symp. Proc., Vol 569, pp. 153-158.

### 黃惠良 清華大學電子工程所

1. "Comprehensive Study on A Novel Bi-directional Tunneling Program/Erase NOR-type (BiNOR) 3-D Flash Memory Cell" To appear in IEEE Trans. Electron Devices, 2001
2. "Photoelectrochemical Etching of In<sub>x</sub>Ga<sub>1-x</sub>N", Appl. Phys. Lett. 76(26)(2000)3917.
3. "Photoluminescence Study on Threading Dislocations in GaN Revealed by Selective Photoelectrochemical Etching", Electrochemical and Solid State Electronics Letters, 3(8) 2000.
4. "Adjustable Emissions from Silicon-Rich Oxide Films Prepared by Plasma-enhanced Chemical-Vapor-Deposition", Appl. Phys. Lett. Vol. 74, No. 16 (1999) 2316.
5. "The White Electroluminescence from a-SiN<sub>x</sub>:H Thin Films" Appl. Phys. Lett. (to appear).
6. "Origin of Photoluminescence in Hydrogenated Amorphous Silicon-rich Nitride and Oxynitride Thin Films", Physical Rev. B (to appear)
7. "The Method to Optimize Gate Oxide Integrity, Hot Carrier Effect and Electro-Static Discharge Without Sacrificing the Performance in Dual Gate Oxide Process", Jpn. J. Appl. Phys. 38 (1999) L1287
8. "Improvement on Properties and Reliability of Ultra-thin Silicon Oxide (3- 5nm) Grown by Microwave Plasma Afterglow at the Low Temperature Using Mixtures of O<sub>2</sub> and N<sub>2</sub>O", Appl. Surf. Sci. 142 (1999) 322.
9. "Properties and Reliability of ultra-thin Oxides Grown on Four Inch Diameter Silicon Wafers by Microwave Plasma Afterglow Oxidation", J. Vac. Sci. Tech. 16(5) (1998) 2712
10. "Modification of Surface and Bandgap on Sb-incorporated CuInSe<sub>2</sub> Thin Films by (NH<sub>4</sub>)S<sub>x</sub> Sulfurization", Appl. Surf. Sci.123/124(1998)603



### 三、各儀器支援之研究成果——發表論文紀錄表

#### (九)低壓化學氣相沉積系統

##### 校內使用者期刊論文

##### 張國明教授 交通大學電子工程所

##### 期刊論文

1. K. M. Chang, J. Y. Yang and L. W. Chen, 1998, "A novel technology to form air gap for ULSI application," accepted to IEEE Electron Devices Letters.
2. K. M. Chang, T. C. Lee and Y. L. Sun, 1998, "The characteristics of N<sub>2</sub>O-grown polyoxide by the recrystallized-polysilicon method," December 1, Electrochemical and Solid State Letters.
3. K. M. Chang, C. H. Li, B. S. Sheih and J. Y. Yang, 1999, "The characteristics of tunnel oxides grown on textured silicon surface with a simple and reliable process," Vol.46, No.2, February, IEEE Transactions on Electron Devices Society.
4. K. M. Chang, J. Y. Yang and L. W. Chen, 1999, "A novel technology to form air gap for ULSI application," April Vol. 20, NO. 4., pp. 185-7, IEEE Electron Device Letters.
5. K. M. Chang, I-Chung Deng, and H. Y. Lin, 1999, "Chemical vapor deposited-tungsten film to suppress fluorine penetration and dopant redistribution," Journal of Chemical Vapor Deposition, Vol. 7, January, pp. 1-18.
6. K. M. Chang, T. C. I. C. Deng, and H. Y. Lin, 1999, "Suppression of fluorine penetration by use of In situ stacked chemical vapor deposited tungsten film," Vol. 146(8), J. Electrochem. Soc.: Solid-State Scie and Tech.

##### 研討會論文

1. K, M, Chang, I. C. Deng, T. H. Yeh and C. W. Shih, 1998, "The barrier characteristics of chemical vapor deposited amorphous tungsten with In situ nitrogen plasma treatment," 194th Meeting, The Electrochemical Society, Boston, November 1-6.
2. K. M. Chang and J. Y. Yang, 1998, "Air gap for ULSI application by bonding ultra thin HSQ layer to patterned metal lines," International Electron Device and Materials Symposium (1998 IEDMS), Taiwan.
3. K. M. Chang, and J. J. Luo, 1998, "Tungsten oxide as the temperature sensitive material for microbolometer," International Electron Devices and Materials Symposium (1998 IEDMS), Taiwan.
4. K. M. Chang, J. Y. Yang, Y. H. Chang and I. C. Deng, 1998, "The air gap and pretreatment for the future development of low dielectric material in ULSI," International Conference on Next Decades of High Technologies (ICHT'98), Nov. 14-15, Taipei, Taiwan.
5. K. M. Chang, J. Y. Yang, Y. H. Chang and I. C. Deng, 1998, "Pretreatment technique to improve the ashing resistance of low K Spin-on-Polymer (SOP)," International Conference

MRS 1999 Spring Meeting, USA.

6. K. M. Chang, T. C. Lee and Y. L. Sun, 1999, "Exploration of the characteristics of polyoxides grown by thermal, rapid thermal oxidation, and TEOS deposition," The Sixth Symposium on Nano Device Technology, May.

### 雷添福教授 交通大學電子工程所

期刊論文

1. Jiann Heng Chen, **Tan Fu Lei**, Tien Sheng Chao, Tien Pao Su, Jim Huang, Andy Tuan, and S. K. Chen, "Study on the Contact Resistance of Poly-plug Structure by In-Situ HF Vapor Clean," IEE Electronics Letters, Vol. 36, No. 8, pp. 756-757, 2000.
2. Tung Ming Pan, **Tan Fu Lei**, Chao Chyi Chen, Tien Sheng Chao, Ming Chi Liaw, Wen Lu Yang, Ming Shih Tsai, C. P. Lu, and W. H. Chang, "Novel cleaning solutions for polysilicon film post chemical mechanical polishing," IEEE Electron Devices lett., Vol. 21, No. 7, pp. 338-340, 2000. Tung Ming Pan, **Tan Fu Lei**, and Tien Sheng Chao, "Robust ultra-thin oxynitride dielectrics by  $\text{NH}_3$  nitridation and  $\text{N}_2\text{O}$  RTA treatment," IEEE Electron Devices lett., Vol. 21, No. 8, pp. 378-380, 2000.
3. **Tan Fu Lei**, Jiann Heng Chen, Ming Fang Wang, and Tien Sheng Chao, "Characteristics of Polysilicon Oxides Combining  $\text{N}_2\text{O}$  Nitridation and CMP Processes," IEEE Trans. on Electron Device, Vol. 47, No. 8, pp. 1545-1552, 2000.  
Tung Ming Pan, **Tan Fu Lei**, Tien Sheng Chao, Kuo Lih Chang, and Kuang Chien Hsieh, "High quality ultra-thin  $\text{CoTiO}_3$  high-k gate dielectrics," Electrochemical and Solid-State lett., vol. 3, No. 9, pp. 433-434, 2000.
4. Tung Ming Pan, **Tan Fu Lei**, Tien Sheng Chao, Ming Chi Liaw, and Chih Peng Lu, "The Optimum Condition of Novel One-Step Cleaning Solutions for Pre-Gate Oxide Cleaning using the Robust Design Methodology," J. J. Applied Phys. Vol. 39, No.10, p. 5805, 2000.
5. Chin-Yu Ku, Jia-Min Shieh, Tsann-Bim Chiou, Hwang-Kuen Lin, and **Tan Fu Lei**, "Postexposure delay effect on linewidth variation in base added chemically amplified resist", J. Electrochem. Soc., Vol.147, No.10, pp.3833-3839, 2000.
6. Jiann Heng Chen, **Tan Fu Lei**, Jian-Hong Chen, and Tien Sheng Chao, "Characteristics of TEOS Polysilicon Oxides: The Improvement by CMP Process and High Temperature RTA  $\text{N}_2/\text{N}_2\text{O}$  Annealing," J. Electrochem. Soc., Vol.147, No.11, p.4282, 2000.
7. Horng Chih Lin, C. M. Yu, C. Y. Lin, K. L. Yeh, Tiao Yuan Huang, and **Tan Fu Lei**, "A Novel Thin-Film Transistor with Self-Aligned Field Induced Drain," IEEE Electron Devices lett., Vol. 22, No. 1, pp. 26-28, 2001.
8. Tung Ming Pan, **Tan Fu Lei**, Wen Luh Yang, Chun Ming Cheng, Tien Sheng Chao, "High Quality Interpoly-Oxynitride Grown by  $\text{NH}_3$  Nitridation and  $\text{N}_2\text{O}$  RTA Treatment," IEEE Electron Devices lett., Vol. 22, No. 2, pp. 68-71, 2001.
9. Tung Ming Pan, **Tan Fu Lei** and Tien Sheng Chao, "High-k  $\text{CoTiO}_3$  dielectrics formed

by oxidation of sputtered Co/Ti or Ti/Co films," *Applied Phys. Lett.*, vol. 78, pp.1439-1441, 2001.

10. W. L. Yang, T. S. Chao, C. M. Cheng, T. M. Pan, and **T. F. Lei**," High Quality Interpoly Dielectrics Deposited on the Nitride-Polysilicon for Nonvolatile Memory Devices," *IEEE Trans. On Electron Devices*, 48, pp. 1304-1309, July, 2001.

11. Tung Ming Pan, **Tan Fu Lei** and Tien Sheng Chao, "Comparison of Ultrathin  $\text{CoTiO}_3$  and  $\text{NiTiO}_3$  High-k Gate Dielectrics," *J. Applied Phys.*, Vol. 89, March 15, 2001.

12. Tung Ming Pan, **Tan Fu Lei**, Huang Chun Wen, and Tien Sheng Chao, "Characterization of Ultrathin Oxynitride (18-21 Å) Gate Dielectrics by  $\text{NH}_3$  Nitridation and  $\text{N}_2\text{O}$  RTA Treatment," *IEEE Trans. on Electron Devices*, Vol. 48, April., 2001.

13. Tung Ming Pan; **Tan Fu Lei**; Fu Hsiang Ko; Tien Sheng Chao; Tzu Huan Chiu; Ying Hao Lee; Chih Peng Lu, "Comparison of novel cleaning solutions with various chelating agents for post-CMP cleaning on poly-Si film," *Semiconductor Manufacturing*, *IEEE Transactions on* , Volume: 14 Issue: 4 , Page(s): 365 –371, Nov. 2001.

14. Jam Wem Lee; **Tan Fu Lei**; Chung-Len Lee, "Thin tunnel oxide grown on silicon substrate pretreated by  $\text{CF}_4$  plasma," *IEEE Electron Device Letters* , Volume: 22 Issue: 11 , Page(s): 513 –515, Nov, 2001.

15. Tung Ming Pan, Chao Hsin Chien, **Tan Fu Lei**, Tien Sheng Chao, and Tiao Yuan Huang, "Electrical Characteristics of Thin Cerium Oxide Film on Silicon Substrate by Reactive DC Sputtering,"*Electrochem. Solid-State Lett.* , Volume 4, Issue 9 pp. F15-F17, Sep. 2001.

16. Jam Wem Lee, Won-Der Chen, **Tan Fu Lei**, and Chung-Len Lee, "The Enhancement of Nitrogen Incorporation in  $\text{RTN}_2\text{O}$  Annealed TEOS Oxide Fabricated on Disilane-Based Polysilicon Films," *Journal of The Electrochemical Society*, Volume 148, Issue 8 pp. F164-F169, Aug. 2001.

17. Tung Ming Pan, **Tan Fu Lei**, Tien Sheng Chao, Ming Chi Liaw, Fu Hsiang Ko, and Chih Peng Lu, "One-Step Cleaning Solution to Replace the Conventional RCA Two-Step Cleaning Recipe for Pre-gate Oxide Cleaning," *Journal of The Electrochemical Society*, Volume 148, Issue 6 pp. G315-G320, June 2001.

18. Chin Yu Ku, **Tan Fu Lei**, and Hwang Kuen Lin, "Focus measurement with a simple pattern design," *APPLIED OPTICS*, Volume 40, No.16 pp.2662-2669, June 2001.

19. Chin Yu Ku, Jia Min Shieh, Tsann Bim Chiou, Hwang Kuen Lin and **Tan Fu Lei**," Expanding the Process Window and Reducing the Optical Proximity Effect by Post-Exposure Delay," *Journal of The Electrochemical Society*, Volume 148, Issue 8 pp. G434-G438, June 2001.

20. Chin Yu Ku, Dong Shieh Cheng, and **Tan Fu Lei**, "Monitoring the Lithographic Focus and Tilting Performance by Off-line Overlay Measurement Tools", *J. Vac. Sci. Technol.B* Volume 19, Issue 5 pp. 1915-1924, September 2001.

21. M. N. Chang, T. Y. Chang, F. M. Pan, B. W. Wu, and **T. F. Lei**, "An Investigation of Scanning Capacitance Microscopy on Iron-Contaminated p-Type Silicon", *Electrochemical and Solid-State Letters*, Volume 4, Issue 9 G69-G71, 2001.
22. Yiming Li, Jam-Wem Lee, Ting-Wei Tang, T.-S. Chao, **Tan-Fu Lei**, and S. M. Sze, "Numerical Simulation of Quantum Effects in High-k Gate Dielectrics MOS Structures using Quantum Mechanical Models," *Computer Physics Communications* (accepted to appear in 2002).
23. J. H. Chen, **T. F. Lei**, C. L. Chen, T. S. Chao, W. Y. Wen, K. T. Chen, "Nitrogen implantation and in situ HF vapor clean for deep submicrometer n-MOSFETs," *J. Electrochem. Soc.*, 149 (1): G63-G69, Jan., 2002.
24. T. Y. Chang, **T. F. Lei**, T. S. Chao, S. W. Chen, L. M. Kao, S. K. Chen, A. Tuan, and T. P. Su, "Impact of Nitrogen and/or Fluorine Implantation on Deep-submicron Co-salicide Process," accepted by *Solid State Electronics*.
25. C. M. Yu, H. C. Lin, C. Y. Lin, K. L. Yeh, T. Y. Huang, and **T. F. Lei**, "Self-Aligned Fabrication of Thin-Film Transistors with Field-Induced Drain (FID)," accepted by *Solid State Electronics*.
26. Michael Yu, H. C. Lin, G. H. Chen, T. Y. Huang, and **T. F. Lei**, "Characteristics of Poly-Si Thin-Film Transistors with Electrical Source/Drain Extensions Induced by a Bottom Sub-Gate" accepted by *Jpn. J. Appl. Phys.*
27. J. H. Chen, **T. F. Lei**, C. L. Chen, T. S. Chao, W. Y. Wen, K. T. Chen, "Nitrogen implantation and in situ HF vapor clean for deep submicrometer n-MOSFETs," *J. Electrochem. Soc.*, 149 (1): G63-G69, Jan., 2002.
28. T. Y. Chang, **T. F. Lei**, T. S. Chao, S. W. Chen, L. M. Kao, S. K. Chen, A. Tuan, and T. P. Su, "Impact of Nitrogen and/or Fluorine Implantation on Deep-submicron Co-salicide Process," *Solid-State Electronics*, v 46, n 8, August, p 1097-1101, 2002.
29. C. M. Yu, H. C. Lin, C. Y. Lin, K. L. Yeh, T. Y. Huang, and **T. F. Lei**, "Self-Aligned Fabrication of Thin-Film Transistors with Field-Induced Drain (FID)," *Solid-State Electronics*, v 46, n 8, August, p 1091-1095, 2002
30. Michael Yu, H. C. Lin, G. H. Chen, T. Y. Huang, and **T. F. Lei**, "Characteristics of Poly-Si Thin-Film Transistors with Electrical Source/Drain Extensions Induced by a Bottom Sub-Gate" *Japanese Journal of Applied Physics, Part 1: Regular Papers and Short Notes and Review Papers*, v 41, n 5 A, May, p 2815-2820, 2002.
31. J. W. Lee, **T. F. Lei** and C. L. Lee, "Thin oxides grown on disilane-based polysilicon" *Japanese Journal of Applied Physics*, v41, n 6A, June, p 3651-3654, 2002
32. T. M. Pan, **T. F. Lei**, F. H. Ko, T. S. Chao, M. C. Liaw, Y. H. Lee and C. P. Lu, "Performance evaluation of cleaning solutions enhanced with tetraalkylammonium hydroxide substituents for post-CMP cleaning on poly-Si film", *Journal of the Electrochemical Society*, v 149, n 6, June, p G336-G342, 2002.

33. T. Y. Chang, **T. F. Lei**, T. S. Chao, H. C. Wen and H. W. Chen, "Improvement of low-temperature gate dielectric formed in N<sub>2</sub>O plasma by an additional CF<sub>4</sub> pretreatment process", IEEE Electron Device Letters, v 23, n 7, July, p 389-391, 2002.
34. J. C. Wang, S. H. Lee and **T. F. Lei**, "A physical model for the hysteresis phenomenon of the ultrathin ZrO<sub>2</sub> Film", Journal of Applied Physics 92(7) : p.3936-3940 OCT 2002.
35. W. Y. Yang, W. F. Wu, H. C. You, K. L. Ou and **T. F. Lei**, "Improving the Electrical Integrity of Cu-CoSi<sub>2</sub> Contacted n+p Junction Diodes Using Nitrogen-Incorporated Ta Films as a Diffusion Barrier" IEEE Trans. on Electron Devices, Vol. 49, No.11 November, p.1947-1953 2002.
36. T. Y. Chang, J. W. Lee, **T. F. Lei**, C. L. Lee, and H. C. Wen, "Growing High Performance Tunneling Oxide by CF<sub>4</sub> Plasma Pre-Treatment", accepted for publication on Journal of Electrochemical Society 2002.
37. T. Y. Chang, H. W. Chen, Tan Fu Lei, and Tien Sheng Chao, "Metal Gate Transistors with Low Temperature Gate Dielectric and Additional CF<sub>4</sub> Pretreatment", has been submitted to IEEE Transactions on Electron Devices 2002.
38. Tzu Yun Chang, Hsiao Wei Chen, **T. F. Lei**, and T. S. Chao, "Improvement of CF<sub>4</sub> Plasma Pretreatment on TiO<sub>2</sub> High-k Film", has been submitted to Japanese Journal Applied Physics 2002.
39. T. Y. Chang, H. C. Wen, and **T. F. Lei**, "Defect Free Ultra Shallow Junction Formation by Implanting through Amorphous-Silicon/Oxide Stack Structure", to be submitted to IEEE Electron Device Letters 2002.

#### 研討會論文

1. Chin-Yu Ku, **Tan Fu Lei**, Jia-Min Shieh, Tsann-Bim Chiou, and Yung-Cheng Chen, "New overlay pattern design for real-time focus and tilt monitor", Microelectronic Manufacturing, Proc. of SPIE Vol. 4182, 2000.
2. Chin-Yu Ku, **Tan Fu Lei**, Jia-Min Shieh, Tsann-Bim Chiou, and Hwang-Kuen Lin, "Real-time process control to prevent CD variation induced by post exposure delay", Microelectronic Manufacturing, Proc. of SPIE Vol. 4182, 2000.
3. Jiann Heng Chen, **Tan Fu Lei**, Chia Lin Chen, Tien Sheng Chao, Wen Ying Wen, and Kuag Ting Chen, "High Performance Deep-Submicron n-MOSFETs by Nitrogen Implantation and In-situ HF Vapor Clean," IRPS, 2000.
4. M. N. Chang, T. Y. Chang, C. Y. Chen, F. M. Pan, B. W. Wu, **T. F. Lei**, "A Study of Iron-Contaminated p-type Silicon by Scanning Probe Microscopy", AVS 48th International Symposium, IUVSTA 15th International Vacuum Congress, 11th International Congress on Solid Surfaces, San Francisco, CA, U.S.A, 2001.
5. H. W. Chen, H. C. Tzeng, T. Y. Chang, J. W. Lee, **T. F. Lei**, and C. L. Lee, "The Electrical Properties of the Gate Oxide with CF<sub>4</sub> Plasma Pretreatment," EDMS, 2001.

6. T. L. Lee, J. W. Lee, **T. F. Lei**, and C. L. Lee, "Improved Thin Gate Oxide Characteristics with Chlorine Plasma Pretreatment," EDMS, 2001.
- J. H. Chen, Yen-An Chang, M. Z. Lee, **T. F. Lei**, and C. L. Lee, "Electrical Properties of Vertical Polysilicon Oxide," EDMS, 2001.
7. Y. P. Hong, J. C. Wang, J. W. Lee, **T. F. Lei**, and C. L. Lee, "The Electrical Properties of Thin Oxynitride Dielectrics Using N<sub>2</sub>O Plasma Annealing," EDMS, 2001.
8. M. Z. Lee, C. L. Lee, and **T. F. Lei**, "Novel Vertical Polysilicon Thin-Film Transistor with Excimer-Laser Annealing," International Conference on Solid State Devices and Materials, 2002.
9. C. M. Yu, H. C. Lin, T. F. Lei, and T. Y. Huang, "Effects of Plasma Treatments on the Characteristics of Poly-Si Thin-Film Transistors Having Electrical Junctions Induced by a Bottom Sub-Gate," International Meeting of The Electrochemical Society, 2002.
10. J. C. Wang, Y. H. Lin, Y. P. Hung, **T. F. Lei**, and C. L. Lee "Characteristics of Ultra-Thin Cerium Dielectrics with Surface Nitridation Pretreatment and Post Furnace Annealing," IEDMS, 2002.
11. S. D. Wang, T. Y. Chang, and **T. F. Lei**, "Low Temperature Alumina Nitride Formed as Polyoxide by NH<sub>3</sub> Plasma Treatment," IEDMS, 2002.
12. C. M. Yu, H. C. Lin, **T. F. Lei**, and T. Y. Huang, "Effects of H<sub>2</sub> and NH<sub>3</sub> Plasma Treatments on Poly-Si Thin-Film Transistors with Electrical Source/Drain Extensions Induced By a Bottom Sub-Gate," IEDMS, 2002.
13. M. Z. Lee, S. H. Chiao, **T. F. Lei** and C. L. Lee, "Thermal Vertical Polysilicon Oxides deposited on the Sidewall of Polysilicon Films," IEDMS, 2002.
14. J. H. Chen, T. Y. Chang, H. W. Chen, and **T. F. Lei**, "Low Temperature Polyoxide Formation by N<sub>2</sub>O Plasma with CF<sub>4</sub> Pre-Treatment," IEDMS, 2002.
- H. C. You, F. H. Ko, **T. F. Lei**, C. C. Hsu and T. C. Chu, "Chemical Shrink Techniques for Sub-100nm Contact Hole Fabrication in Electron Beam Lithography," IEDMS, 2002.

### 鄭晃忠教授 交通大學電子工程所

#### 期刊論文

1. H. C. Cheng, C. Y. Huang, F. S. Wang, K. H. Lin, and F. G. Tarntair, "Thin-film transistors with polycrystalline silicon films prepared by two-step rapid thermal annealing," *Jpn. J. Appl. Phys.*, vol. 39, Part 2, no. 1A/B, pp. L 19-21, 2000.
2. F. G. Tarntair, C. Y. Wen, L. C. Chen, J. J. Wu, K. H. Chen, P. F. Kuo, S. W. Chang, Y. F. Chen, W. K. Hong, and H. C. Cheng, "Field emission from quasi-aligned SiCN nanorods," *Appl. Phys. Lett.*, vol. 76, no. 18, pp. 2630-2632, 2000.
3. W. K. Hong, H. C. Shih, S. H. Tsai, C. T. Shu, F. G. Tarntair, and H. C. Cheng, "Field emission properties of aligned carbon nanotubes," *Jpn. J. Appl. Phys.*, vol. 39, Part 2, no. 9A/B, pp. L 925-928, 2000.

4. C. C. Hwang, M. J. Lai, C. C. Jaing, J. S. Chen, S. Huang, M. H. Juang, and H. C. Cheng, "Low-temperature process to improve the leakage current of (Ba, Sr)TiO<sub>3</sub> films on Pt/TiN/Ti/Si substrates," *Jpn. J. Appl. Phys.*, vol. 39, Part 2, no. 12B, pp. L 1314-1316, 2000.
5. C. C. Hwang, C. C. Jaing, M. J. Lai, J. S. Chen, S. Huang, M. H. Juang, and H. C. Cheng, "Effect of rapid thermal annealed TiN barrier layer on BST capacitors prepared by RF magnetron cosputter system at low substrate temperatures," *Electrochemical and Solid-State Lett.*, vol. 3, no. 12, pp. 563-565, 2000.
6. F. G. Tarntair, L. C. Chen, S. L. Wei, W. K. Hong, K. H. Chen, and H. C. Cheng, "High current density field emission from arrays of carbon nanotubes and diamond-clad Si tips," *J. Vac. Sci. & Technol. B.*, vol. 18, no. 3, pp. 1207-1211, 2000.
7. Fu-Gow Tarntair, Wei-Kai Hong, Tzu-Kun Ku, Nan-Jie She, Chia-Fu Chen and Huang-Chung Cheng, "Fabrication and characterization of various carbon-clad silicon microtips with ultra-small tips radii," *Jpn. J. Appl. Phys.*, vol. 39, Part 1, no. 2A, pp. 432-437, 2000.
8. Chun-Yao Huang, Teh-Hung Teng, Jun-Wei Tsai and Huang-Chung Cheng, "The instability mechanisms of hydrogenated amorphous silicon thin film transistors under AC bias stress," *Jpn. J. Appl. Phys.*, vol. 39, Part 1, no. 7A, pp. 3867-3871, 2000.
9. Chun-Yao Huang, Jun-Wei Tsai, Teh-Hung Teng, Cheng-Jer Yang and Huang-Chung Cheng, "Turnaround phenomenon of threshold voltage shifts in amorphous silicon thin film transistors under negative bias stress", *Jpn. J. Appl. Phys.*, vol. 39, Part 1, no. 10, pp. 5763-5766, 2000.
10. Huang-Chung Cheng, Li-Jing Cheng, Ching-Wei Lin, Yin-Lung Lu, and Chi-Yuan Chen, "High performance low-temperature processed polysilicon TFTs fabricated by excimer laser crystallization with recessed-channel structure," *International workshop on AMLCDs 2000*, pp. 281-284. **(The Best Paper Award)**
11. C. W. Lin, M. Z. Yang, C. C. Yeh, L. J. Cheng, T. Y. Huang, H. C. Cheng, H. C. Lin, T. S. Chao, and C. Y. Chang, "Effects of plasma treatments, substrate types, and crystallization methods on performance and reliability of low temperature polysilicon TFTs," in *IEDM Tech. Dig.*, 1999, pp. 305-308.
12. Y. L. Lu, L. J. Chou, C. W. Lin, L. J. Cheng, and H. C. Cheng, "Dimensional effects on the performance of low temperature polycrystalline thin film transistor fabricated by nickel silicide mediated crystallization method," *2000 International Electron Devices and Materials Symposia (2000 IEDMS)*, pp. 100-103.
13. C. Y. Huang, T. K. Chang, C. W. Lin, L. J. Cheng, Y. L. Lu, and H. C. Cheng, "Degradation of passivated and non-passivated n-channel low-temperature polycrystalline silicon TFTs prepared by excimer laser processing," *2000 International Electron Devices and Materials Symposia (2000 IEDMS)*, pp. 257-260.
14. L. J. Cheng, Y. L. Lu, C. W. Lin, T. K. Chang, and H. C. Cheng, "Novel growth in

- channel region," *Photonics Taiwan*, 2000, *Proceeding of SPIE Vol. 4079-06*.
15. C. C. Hwang, M. H. Juang, M. J. Lai, C. C. Jaing, J. S. Chen, S. Huang, and H. C. Cheng, "Effect of rapid-thermal-annealed TiN barrier layer on the Pt/BST/Pt capacitor prepared by RF magnetron co-sputter technique at low substrate temperature," *Solid-State Electronics*, vol. 45, no. 1, pp. 121-125, 2001.
  16. W. K. Hong, K. H. Chen, L. C. Chen, F. G. Tarntair, K. J. Chen, J. B. Lin, and H. C. Cheng, "Fabrication and characterization of carbon nanotube triodes," *Jpn. J. Appl. Phys.*, vol. 40, Part 1, no. 5A, pp. 3468-3473, 2001.
  17. H. C. Cheng, W. K. Hong, F. G. Tarntair, K. J. Chen, J. B. Lin, K. H. Chen, and L. C. Chen, "Integration of thin-film-transistor-controlled carbon nanotubes for field emission devices," *Electrochemical and Solid-State Lett.*, vol. 4, no. 4, pp. H5-H7, 2001
  18. Ching-Wei Lin, Li-Jing Cheng, Yin-Lung Lu, Yih-Shing Lee, and Huang-Chung Cheng, "High-performance low-temperature poly-Si TFTs crystallized by excimer laser irradiation with recessed-channel structure," *IEEE Electron Device Lett.*, vol. 22, pp. 269-271, 2001
  19. Huang-Chung Cheng, Kuo-Ji Chen, Wei-Kai Hong, Fu-Gow Tantai, Chia-Pin Lin, Kuei-Hsien Chen, and Li-Chyong Chen, "Fabrication and characterization of low turn-on voltage carbon nanotube field emission triodes," *Electrochemical and Solid-State Lett.*, vol. 4, no.8, pp. H15-H17, 2001.
  20. Chang-Ho Tseng, Ching-Wei Lin, Ting-Kuo Chang, Huang-Chung Cheng, and Albert Chin, "Effects of excimer laser dopant activation on low temperature polysilicon thin-film transistors with lightly doped drains," *Electrochemical and Solid-State Lett.*, vol. 4, no.11, pp. G94-G97, 2001.
  21. K. J. Chen, W. K. Hong, J. B. Lin, K. H. Chen, L. C. Chen, and H. C. Cheng, "Low turn-on voltage field emission triodes with selective growth of carbon nanotubes," *IEEE Electron Device Letters*, Vol. 22, No. 11, pp.516-518,2001
  22. K. J. Chen, W. K. Hong, C. P. Lin, K. H. Chen, L. C. Chen, and H. C. Cheng, "Low turn-on voltage field emission triodes with selective growth of carbon nanotubes," *IEEE Electron Device Lett.*, vol. 22, pp. 516-518, 2001.
  23. Ching-Wei Lin, Li-Jing Cheng, Yin-Lung Lu, Yih-Shing Lee, and Huang-Chung Cheng, "High-performance low-temperature poly-Si TFTs crystallized by excimer laser irradiation with recessed-channel structure," *IEEE Electron Device Lett.*, vol. 22, pp. 269-271, 2001.
  24. Ching-Wei Lin, Li-Jing Cheng, Yin-Lung Lu, and Huang-Chung Cheng, "Characterization of low temperature polysilicon TFTs with self-aligned graded LDD structure," *Mat. Res. Soc. Symp. Proc.*, vol. 685E, D12.7.1 - D12.7.6, 2001.
  25. Chang-Ho Tseng, Ting-Kuo Chang, Fang-Tsun Chu, Jia-Min Shieh, Bau-Tong Dai, Huang-Chung Cheng, and Albert Chin, " Investigation of Inductively Coupled Plasma Gate Oxide on Low Temperature Polycrystalline-Silicon Thin Film Transistors", *IEEE Electron Device Letter*, Vol. 23, No. 6, p. 333-335, 2002.



26. Ching-Wei Lin, Chang-Ho Tseng, Ting-Kuo Chang, Yuan-Hsun Chang, Fang-Tsun Chu, Chiung-Wei Lin, Wen-Tung Wang, and Huang-Chung Cheng, "An Investigation of Bias Temperature Instability in Hydrogenated Low-Temperature Polycrystalline Silicon Thin Film Transistors," *Jpn. J. Appl. Phys., Part 1*, vol. 41, pp. 2002.
27. Ching-Wei Lin, Chang-Ho Tseng, Ting-Kuo Chang, Chiung-Wei Lin, Wen-Tung Wang, and Huang-Chung Cheng, "A Novel Laser-Processed Self-Aligned Gate-Overlapped LDD Poly-Si TFT," *IEEE Electron Device Lett.*, vol. 23, pp. 133-135, 2002.
28. Huang-Chung Cheng, Ching-Wei Lin, Li-Jing Cheng, Chang-Ho Tseng, Ting-Kuo Chang, Yuan-Ching Peng, and Wen-Tung Wang, "Fabrication of low-temperature poly-Si thin film transistors with self-aligned graded lightly doped drain structure," *IEEE/ECS Electrochemical and Solid-State Lett.*, vol. 5, no.1, pp. G1-G3, 2002.
29. Huang-Chung Cheng, Ching-Wei Lin, Li-Jing Cheng, Chang-Ho Tseng, Ting-Kuo Chang, Yuan-Ching Peng, and Wen-Tung Wang, "Fabrication of low-temperature poly-Si thin film transistors with self-aligned graded lightly doped drain structure," *Electrochemical and Solid-State Lett.*, vol. 5, no.1, pp. G1-G3, 2002.
30. Chang-Ho Tseng, Ching-Wei Lin, Teh-Hung Teng, Ting-Kuo Chang, Huang-Chung Cheng, and A. Chin, " Study on dopant activation of phosphorous implanted polycrystalline silicon thin films by KrF excimer laser annealing", *Solid-State Electronics*, Vol. 46, Issue 8, August 2002, Pages 1085-1090
31. T.H.Teng, C.Y.Huang, T.K.Chang, C.W.Lin, L.J.Cheng, Y.L.Lu, H.C.Cheng, "Degradation of passivated and non-passivated N-channel low-temperature polycrystalline silicon TFTs prepared by excimer laser processing," *Solid State Electronics*, vol. 46, pp. 1079-1083, 2002

#### 研討會論文

1. Huang-Chung Cheng, Li-Jing Cheng, Ching-Wei Lin, Yin-Lung Lu and Chi-Yuan Chen," High Performance Low-Temperature Processed Polysilicon TFTs Fabricated by Excimer Laser Crystallization with Recessed-Channel Structure, 2000 AMLCD. Chang-Ho Tseng, Ting-Kuo Chang, Huang-Chung Cheng, and A. Chin, "Dopant activation of phosphorous implanted poly-silicon film capped with silicon oxide film by KrF excimer laser annealing, " *2000 International Electron Devices and Materials Symposia (2000 IEDMS)*.
2. Cheng-Jer Yang, Gwo-Yann Lee, Jyh-Liang Wang, I-Feng Chang, Chih-Wei Tsai, Huang-Chung Cheng, Ting-Chang Chang, and Li-Jen Chou, "Low dielectric material formation by CF<sub>4</sub>/SiH<sub>4</sub> mixed gas in plasma enhanced chemical vapor deposition system," *2000 International Electron Devices and Materials Symposia (2000 IEDMS)*.
3. Cheng-Jer Yang, I-Feng Chang, Gwo-Yann Lee, Huang-Chung Cheng, Ting-Chang Chang, Chih-Wei Tsai, and Li-Jen Chou, "The mechanism of copper ions formation in the

low k film during the post metallization annealing,” *2000 International Electron Devices and Materials Symposia (2000 IEDMS)*.

4. Der-Chi Shye, Ming-Jiunn Lai, Chuan-Chou Hwang, Cheng-Chung Jaing, Jyh-Shin Chen, Bi-Shiou, and Huang-Chung Cheng, “The study of oxygen effect during RF sputtering BST films deposited on Pt/TiN/Ti/Si substrate at low temperature for DRAMs’ capacitors,” *2000 International Electron Devices and Materials Symposia (2000 IEDMS)*, pp. 339-342.

5. Y. L. Lu, L. J. Chou, C. W. Lin, L. J. Cheng, and H. C. Cheng, “Dimensional effects on the performance of low temperature polycrystalline thin film transistor fabricated by nickel silicide mediated crystallization method,” *2000 International Electron Devices and Materials Symposia (2000 IEDMS)*.

6. C. Y. Huang, T. K. Chang, C. W. Lin, L. J. Cheng, Y. L. Lu, and H. C. Cheng, “Degradation of passivated and non-passivated n-channel low-temperature polycrystalline silicon TFTs prepared by excimer laser processing,” *2000 International Electron Devices and Materials Symposia (2000 IEDMS)*. (The Best Paper Award)

7. L. J. Cheng, Y. L. Lu, C. W. Lin, T. K. Chang, and H. C. Cheng, “Novel device structure for low temperature polysilicon TFT with controlled grain growth in channel region,” *Photonics Taiwan, 2000, Proceeding of SPIE Vol. 4079-06*.

8. Huang-Chung Cheng, Chuan-Chou Hwang, Cheng-Chung Jaing, Der-Chi Shye, Hsien-Wen Hsu, Jyh-Shin Chen, and Miin-Horng Juang, “A novel excimer laser annealing to achieve thin BST films at low substrate temperatures,” *2000 International Electron Devices and Materials Symposia (2000 IEDMS)*, pp. 343-345.

9. C. B. Lin, K. J. Chen, F. G. Tantair, W. K. Hong, and H. C. Cheng, “The Integrated Process of TFT-Controlled CNTs for Stabilized Emission Current” *Proceedings of the 8<sup>th</sup> International Display Workshops, 2000, Kobe, Japan*.

10. Trent Gwo-Yann Lee, Tseung-Yuan Tseng, Shyh-Chyi Wong, Cheng-Jer Yang, Mong-Song Liang, and Huang-Chung Cheng, “Interconnect optimization design with guaranteed performance methods,” *International Symposium on Integrated Circuits, Devices and Systems (ISIC), 2001*.

11. Trent Gwo-Yann Lee, Tseung-Yuan Tseng, Shyh-Chyi Wong, Cheng-Jer Yang, Mong-Song Liang, and Huang-Chung Cheng, “The generalized interconnect delay time and cross-talk models,” *International Symposium on Integrated Circuits, Devices and Systems (ISIC), 2001*.

12. Ching-Wei Lin, Li-Jing Cheng, Yin-Lung Lu, and Huang-Chung Cheng, “Characterization of low temperature polysilicon TFTs with self-aligned graded LDD structure,” *Mat. Res. Soc. Symp. Proc.*, vol. 685E, D12.7.1 - D12.7.6, 2001.

13. W. K. Hong, K. J. Chen, J. B. Lin, H. C. Cheng, P. H. Lin, K. H. Chen, and L. C. Chen, “Carbon nanotube based triodes and TFT-controlled field emission displays,” *International Conference on Material for Advanced Technologies, Singapore, 2001*.

14. K. J. Chen, F. G. Tair, W. K. Hong, J. B. Lin, K. H. Chen, L. C. Chen and H.C. Cheng, "Fabrication and characterization of low turn-on voltage carbon nanotube field emission triode" *Material Research Society (MRS) 2001 spring meeting*, San Francisco, USA.2001.
15. K. J. Chen, W. K. Hong, C. P. Lin, K. H. Chen, L. C. Chen and H. C. Cheng, "Upgraded Field Emission Characteristics of Carbon Nanotubes by Excimer Laser Treatment" *Jpn. J. Appl. Phys* Vol.41, No.10, 2002.
16. K. J. Chen, W. K. Hong, C. P. Juan, K. H. Chen, L. C. Chen and H. C. Cheng, "Fabrication and Characterization of Carbon Nanotubes Field Emission Triodes for Field Emission Display" submitted to *Jpn. J. Appl. Phys*
17. W. K. Hong, K. H. Chen, L. C. Chen, F. G. Tarntair, K. J. Chen, J. B. Lin, and H. C. Cheng, "Fabrication and characterization of carbon nanotube triodes," *Jpn. J. Appl. Phys.*, Vol. 40, Part 1, No. 5A, pp. 3468-3473, 2001.
18. W. K. Hong, K. J. Chen, J. B. Lin, P. H. Lin, K. H. Chen, L. C. Chen, and H. C. Cheng, "Fabrication of carbon nanotube triodes for field emission display," submitted to *J. Appl. Phys*.
19. K. J. Chen, W. K. Hong, L.C.Chen, K.H. Chen and H.C.Cheng, "Fabrication and characterization of lateral field emission device based on carbon nanotubes" *13<sup>th</sup> European Conference on Diamond, Diamond-like Materials, Nitrides and Silicon Carbide*, 2002, Granada, Spain.

### 謝文峰教授 交通大學光電工程所

#### 期刊論文

1. Ming-Dar Wei, Wen-Feng Hsieh 2000, "Cavity configuration dependent nonlinear dynamics in Kerr lens mode-locked lasers," *JOSA B* 17(8), 1335-1342.
2. Hsiao-Hwa Wu and Wen-Feng Hsieh 2001, "Observation of multipass transverse modes in an axially pumped solid state laser with different fractional degenerate resonator configurations," *JOSA(B)* 18(1), 7-12.
3. Ching-Hsu Chen, Ming-Dar Wei, and Wen-Feng Hsieh, 2001, "Beam propagation dominant instability in an axially pumped solid-state laser near degenerate resonator configurations," *JOSA (B)*, 18(8), 1076-1083.
4. Shou-Yi Kuo, Wen-Yi Liao, and Wen-Feng Hsieh, 2001, "Structural ordering transition and repulsion of the giant LO-TO splitting in polycrystalline  $BaxSr_{1-x}TiO_3$ ," Accepted by *Physics Rev. B*.
5. F. S.-S. Chien, J.-W. Chang, S.-W. Lin, Y.-C. Chou, T. T. Chen, S. Gwo, T.-S. Chao and Wen-Feng Hsieh, 2000, "Nanometer-scale conversion of  $Si_3N_4$  to  $SiO_x$ ," *Appl. Phys. Letts.* 76(3), 360-362.

6. F. S.-S. Chien, Y. C. Chou, T. T. Chen, Wen-Feng Hsieh, T.-S. Chao, and S. Gwo, 2001, "Nano-oxidation of silicon nitride films with an atomic force microscope: Chemical mapping, kinetics, and applications," *JAP* 89(4), 2465-2472.

**馮明憲教授 交通大學材料工程所**

期刊論文

1. C. F. Lin, W. T. Tseng, and M. S. Feng, "Effect of Inter-Layer-Dielectric Material Properties on Nonvolatile Memory IC Characteristics", to be submitted to *Jpn. of Appl. Phys.*, Vol. 37, Part 1, No. 12A, 6364 (1998).
2. C. F. Lin, W. T. Tseng, and M. S. Feng, "Process Optimization and Integration for Silicon Oxide Intermetal Dielectric Planarization by Chemical Mechanical Polish", *J. Electrochem. Soc.*, 146 (5), 1984~1990 (1999). NSC 88-2215-E009-049
3. C. F. Lin, W. T. Tseng, M. S. Feng, and Y. L. Wang, "Impact of PECVD Oxide Characteristics on Interconnect Via Resistance and Device performance of 4-T SRAM with Polysilicon Load Resistor", *J. of Vac. Sci. Tech. B*, 17(4), 1456-1463 (1999).
4. C. F. Lin, W. T. Tseng, and M. S. Feng, "Formation and Characteristics of Silicon Nanocrystals in Plasma-Enhanced Chemical-Vapor Deposited Silicon-Rich Oxide", *J. Appl. Phys.*, 87(6), 2808-2815 (2000). NSC89-2216-E-006-042
5. Chen YC, Wu YCS, Chao CW, Hu GR, Feng MS, *Jpn J Appl. Physic.* 40 (9A) p 5244-5246 2001
6. C. W. Chao, G.R. Hu, Y. S. Wu, Y.C Chen and M. S. Feng, *Electrochemical and Solid State Lett.* 5: C31.

(四) 低壓化學器相沈積系統---校外論文

方維倫 清華大學動力機械

期刊論文

1. W. Fang, H.-C., Tsai, and C.-Y. Lo, 1999, "Determining Thermal Expansion Coefficients of Thin Films Using Micromachined Cantilevers," *Sensors and Actuators A*, Vol. 77, pp. 21-27.
2. W. Fang, 1999, "Determining of Elastic Constants of Thin Film Materials Using Self-deformed Micromachined Cantilevers," *Journal of Micromechanics and Microengineering*, Vol. 9, pp. 230-235.
3. W. Fang, C.-H. Lee, and H.-H. Hu, 1999, "On the Buckling Behavior of Micromachined Beams," *Journal of Micromechanics and Microengineering*, Vol. 9, pp. 236-244.
4. J. Hsieh and W. Fang, 2000, "A Novel Microelectrostatic Torsional Actuator," *Sensors and Actuators A*, Vol. 79, pp. 64-70.
5. C. Tsou and W. Fang, 2000, "The Effect of Residual Stresses on the Deformation of Semi-circular Micromachined Beams," *Journal of Micromechanics and Microengineering*, Vol. 10, pp. 34-41.
6. H.-Y. Lin and W. Fang, 2000, "The Rib-Reinforced Micromachined Beam and Its Application," *Journal of Micromechanics and Microengineering*, Vol. 10, pp. 93-99.
7. S.-T. Hung, S.-C. Wong, and W. Fang, 2000, "The Development and Application of Micro Thermal Sensors with a Supporting Mesh-Membrane Structure," *Sensors and Actuators A* Vol. 84, pp. 70-75.
8. W. Fang, and C.-Y. Lo, 2000, "On the Thermal Expansion Coefficients of Thin Films," *Sensors and Actuators A*, Vol. 84, pp. 310-314.
9. C. Tsou, H. Yin, and W. Fang, 2000, "On the Out-of-plane Deformation of V-shaped Micromachined Beams," *Journal of Micromechanics and Microengineering*, (accepted).
10. H.-H. Hu and W. Fang, 2000, "Characteristics of the Micromachined Beams on the (111) Substrate," *Sensors and Actuators A*, (submitted).
11. W.-P. Lai and W. Fang, 2000, "A Novel Anti-Stiction Method Using Harmonic Excitation on the Microstructure," *Journal of Vacuum Science and Technology* (submitted).

研討會論文

1. J. Hsieh and W. Fang, 1999, "Fabrication and Measurement of an Improved Micro Electrostatic Torsional Actuator," *Transducer '99 - International Conference on Solid-State Sensors and Actuators*, Sendai, Japan.
2. 謝哲偉、方維倫、陳世洲, 1999, 鋁結構微扭轉致動器之研製, 第三屆奈米工程暨微系統技術研討會, 工研院, 新竹市.
3. 鄒慶福、方維倫, 1999, 平坦微機械結構之設計與製造, 第三屆奈米工程暨微系統技術研討會, 工研院, 新竹市.
4. T.-S. Lin and W. Fang, 1999, "Development of a Novel Piezoresistive Sensor," SPIE

- Micromachining and Microfabrication Conference, Santa Clara, CA, USA.
5. C. Tsou and W. Fang, 1999, "The Effect of Residual Stresses on the Deformation of Semi-circular Micromachined beams," the *ASME Proceedings of the 1999 International Mechanical Engineering Congress and Exhibition (IMECE)*, Nashville, TENN, USA.
  6. 羅俊彥、蔡欣昌、方維倫, 1999, 微懸臂樑於材料熱膨脹係數之量測, 中國機械工程學會第十六屆全國學術研討會, 國立清華大學, 新竹市.
  7. 李俊賢、胡馨華、方維倫, 1999, On the Buckling Behavior of Micromachined Beams, 中國機械工程學會第十六屆全國學術研討會, 國立清華大學, 新竹市.
  8. 洪仕達、王訓忠、方維倫, 1999, The develop and Application of Micro Thermal Sensors with a Mesh-membrane Supporting Structure, 中國機械工程學會第十六屆全國學術研討會, 國立清華大學, 新竹市.
  9. T.-J. Yao, S. Lee, W. Fang, and Y.-C. Tai, 2000, "Micromachined Rubber O-ring Micro-Fluidic Couplers," the *IEEE Proceedings of the 13<sup>th</sup> Annual International Conference on MEMS*, Miyazaki, Japan.
  10. H.-Y. Lin, M. Wu, and W. Fang, 2000, "The Improvement of Micro-torsional-mirror for High Frequency Scanning," SPIE Micromachining and Microfabrication Conference, Santa Clara, CA, USA.
  11. Y.-M. Chou and W. Fang, 2000, "On the Nonlinear Dynamic Behavior of Electrostatically Actuated Devices," SPIE Micromachining and Microfabrication Conference, Santa Clara, CA, USA.
  12. H.-Y. Lin and W. Fang, 2000, "Out-of-plane Comb-drive Lever Actuator," the *ASME Proceedings of the 2000 International Mechanical Engineering Congress and Exhibition (IMECE)*, Orlando, FL, USA.
  13. H.-Y. Lin and W. Fang, 2000, "The Improvement of the Micro Torsional Mirror by a Reinforced Folded Frame," the *ASME Proceedings of the 2000 International Mechanical Engineering Congress and Exhibition (IMECE)*, Orlando, FL, USA.
  14. W.-P. Lai and W. Fang, 2000, "A Novel Anti-Stiction Method Using the Harmonic Excitation on the Microstructure," the *American Vacuum Society 47<sup>th</sup> International Symposium*, Boston, MA, USA.
  15. H.-C. Tsai and W. Fang, 2000, "Characterizing the Thermal Behavior of Thin Films Using Micromachined Cantilevers," the *American Vacuum Society 47<sup>th</sup> International Symposium*, Boston, MA, USA.
  16. H.-Y. Lin and W. Fang, 2000, "Torsional Mirror with an Electrostatically Driven Lever-Mechanism," the *IEEE Optical MEMS 2000*, Kauai, Hawaii, USA.
  17. 鄒慶福、殷宏林、方維倫, 2000, V 型微機械結構挫曲行為之研究, 中國機械工程學會第十七屆全國學術研討會, 國立高雄第一科技大學, 高雄市.
  18. 蔡明霖、方維倫、周正三, 2000, VLSI 電容式感測電路設計及應用, 中國機械工程學會第十七屆全國學術研討會, 國立高雄第一科技大學, 高雄市.

19. 沈文銘、方維倫, 2000, 應用曲形拱結構設計簡易式離合器, 中華民國力學學會第二十四屆全國力學會議, 中原大學, 中壢市.
20. C. Lo, H.-Y. Lin and W Fang, 2001, "A Novel Out-of-plane Electrothermal Microactuator," *2001 Microsystem Technologies Conference*, Dusseldorf, Germany. (accepted)

### 李世光 台灣大學應用力學所

#### 期刊論文

1. Chi-Tang Hsieh, and C. K. Lee, "Cylindrical-type Nanometer-resolution Laser Diffractive Optical Encoders," *Applied Optics*, Vol. 38, No. 22, pp. 4743-4750 (August 1999).
7. C. K. Lee, Jeremy W.J. Wu, S. L. Yeh, C. W. Tu, Y. A. Han, Eric H.Z. Liao, I. E. Tsai, S. H. Lin, Jeffrey C. T. Hsieh, Julie T. Lee, "Optical Configuration and Color Representation Range of a Variable Pitch Dot Matrix Holographic Printer," *Applied Optics*, Vol. 39, No. 1, pp. 40-53 (January 1, 2000).
8. C. K. Lee, and James G.Y. Wu, "Interferometric Metrology of Dynamic Properties of MEMS," *Transactions of The Institute of Electrical Engineers of Japan*, Vol.120-E, pp381-385 (August 2000).
9. Y. H. Liu, T. T. Wu, and C. K. Lee, "Application of Narrowband Laser Ultrasonics to the Nondestructive Evaluation of Thin Bonding Layers," Submitted to *Journal of Acoustical Society of America* (July 1999).
10. J. H. Tong, T. T. Wu, and C. K. Lee, "Fabrication of a Piezoelectric Impact Hammer and Its Application to the In-situ Nondestructive Evaluation of Concrete," Submitted to *Journal of Acoustical Society of America* (July 1999).
11. C. C. Kao, G. B. Yeh, C. S Yang, C. K. Lee, K. C. Wu, "New Phase-Shifting Algorithms for Electronic Speckle Pattern Interferometry," Submitted to *Applied Optics* (September 2000).

#### 研討會論文

1. C. H. Tsai, P. Lai, K. Lee, and C. K. Lee, "Fabrication of a Large F-number Lenticular Plate and Its Use As a Small-angle Flat-top Diffuser in Autostereoscopic Display Screens," *Stereoscopic Displays and Applications XI*, SPIE Proceedings, Electronics Imaging 2000 (January 2000).
2. C. H. Tsai, K. Lee, and C. K. Lee, "Fabricating Polymeric Micro-retardation Arrays by CO<sub>2</sub> Laser Heat Processing Technology," *Stereoscopic Displays and Applications XI*, SPIE Proceedings, Electronics Imaging 2000 (January 2000).
3. Y.-H. Liu, T.-T. Wu, C. K. Lee, and G.-Y. Wu, "Calibration of Piezoelectric Transducers Using Laser Interferometer," *Proc. 6th International Conference on Automation Technology*, pp. 421-426 (May 9-11, 2000).

4. C. K. Lee, and Y. H. Hsu, "The Effect of Feedback Theory to APROPOS Devices," Proc. 6th International Conference on Automation Technology, pp. 427-434 (May 9-11, 2000).
5. Y. H. Hsu, and C. K. Lee, "Designing APROPOS Devices by Using the Method of Imaging," Proc. 6th International Conference on Automation Technology, pp. 435-442 (May 9-11, 2000).
6. 李世光，李兆祐，"超精準橢偏儀之設計與研製"，"第七屆陸軍官校機械基礎學術研討會論文光碟片"，Fong-Shan, Kao-Hsiung, Taiwan (March 7, 2000).
7. W. J. Chen, C. K. Lee, and S. S. Lu, "Design and Performance Evaluation of a Multi-Functional Microscope," The second Asia-Pacific Symposium on Confocal Microscopy and Related Technologies (Multi-dimensional Microscopy 2000), Kaohsiung, Taiwan, R.O.C (July 30-August 2, 2000).
8. C. K. Lee, and Y. H. Hsu, "Theory and Experiment of Autonomous Phase-Gain Piezoelectric Optimal Sensing Devices," The 20th International Congress of Theoretical and Applied Mechanics, Chicago, USA (August 27-September 2, 2000). Also, p.231, IUTAM Abstract book, Technical Report No. 950, Department of Theoretical and Applied Mechanics, University of Illinois at Urbana-Champaign, ISSN 0073-5264.
9. W. J. Chen, C.Y. Lee, H. Chang, C. K. Lee, and S. S. Lu, "An Optical Inhomogeneous Surface Profiler," Interferometry in Speckle Light Theory and Applications (INTSL2000), Proceedings of the International Conference (Published by Springer, New York, New Your, USAr), pp.511-518, ed. P. Jacquot and J. M. Fournier, Lausanne, Switzerland, (September 25-28, 2000).
10. C. C. Wu, C. K. Lee, C. T. Hsieh, and S. S. Lu, "A Position Detection Apparatus for Ultra Precision Machine Applications," Proceedings of the 2000 International Symposium on Mechatronics and Intelligent Mechanical System for 21 Century (ISIM2000), Chongwon, KyongSangNam-Do, Korea, pp. 188-193 (October 4-7, 2000).
11. W. J. Chen, C. K. Lee, and S. S. Lu, "A Multi-functional Microscope for Measuring Inhomogeneous Surface Profile," Proceedings of the 2000 International Symposium on Mechatronics and Intelligent Mechanical System for 21 Century (ISIM2000), Chongwon, KyongSangNam-Do, Korea, pp. 290-295 (October 4-7, 2000).

### 張培仁 台灣大學應用力學所

#### 期刊論文

1. Chienliu Chang and Peizen Chang (2000), "Innovative Micromachined Microwave Switch with Very Low Insertion Loss," Sensors and Actuators A, Vol. 79, pp. 71-75. (SCI, EI)



2. Chienliu Chang, Ching-Liang Dai, Jenn-Yi Chen, Honglin Chen, Kaihsiang Yen, Jing-Hung Chiou and Pei-Zen Chang (2000), "A Wideband Electrostatic Microwave Switch Fabricated by Surface Micromachining," *Journal of the Chinese Institute of Engineers*, Vol. 23, pp. 781-787. (EI)
3. Lungjieh Yang, Tsungwei Huang and Pei-Zen Chang (2001), "CMOS Microelectromechanical Bandpass Filters," *Sensors and Actuators A*, Vol. 90, pp. 148-152. (SCI, EI)
4. Ching-Liang Dai, Hung-Lin Chen and Pei-Zen Chang (2001), "Fabrication of a Micromachined Optical Modulator Using the CMOS Process," *J. Micromechanics and Microengineering*, Vol. 11, pp. 612-615. (SCI, EI)
5. Lung-Jieh Yang, Chih-Wei Liu, and Pei-Zen Chang (2001), "Phase Synchronization of Micro Mirror Arrays Using Elastic Linkages," *Sensors and Actuators A*, Vol. 95, pp. 55-60. (SCI, EI)
6. Ching-Liang Dai, Kaihsiang Yen and Pei-Zen Chang (2001), "Applied Electrostatic Parallelogram Actuators for Microwave Switches by Standard CMOS Process," *J. Micromechanics and Microengineering*, Vol. 11, pp. 697-702. (SCI, EI)
7. Ching-Liang Dai, Hong-Lin Chen, Liang-Bin Yu, Chun-Hui Lin, and Pei-Zen Chang (2001), "Design and Fabrication of CMOS Optical Modulator," *Sensors and Actuators A*, Vol. 95, pp. 69-74. (SCI, EI)
8. Ching-Liang Dai, Hung-Lin Chen, Chi-Yuan Lee, and Pei-Zen Chang (2002) "Fabrication of Diffractive Optical Elements Using the CMOS Process," *J. Micromechanics and Microengineering*, Vol. 12, pp. 21-25. (SCI, EI)
9. Jen-Yi Chen, Long-Sun Huang, Chia-Hua Chu, and Pei-Zen Chang (2002), "A New Transferred Ultra-thin Silicon Micropackaging," *J. Micromechanics and Microengineering*, Vol. 12, pp. 406-409. (SCI, EI)
10. T.-T. Wu, S.-M. Wang, Y.-Y. Chen, T.-Y. Wu, P.-Z. Chang, L.-S. Huang, C.-L. Wang, C.-W. Wu, and C.-K. Lee (2002), "Inverse Determination of Coupling of Modes Parameters of Surface Acoustic Wave Resonators," *Jap. J. Appl. Phys.*, accepted. (SCI)

#### 研討會論文

1. 戴慶良、張培仁、呂秀雄(2000)，"CMOS 微感測器和制動器之研製"，第一屆海峽兩岸製造技術研討會論文集，台北，台灣。
2. Hunglin Chen, Chienliu Chang, Kaihsiang Yen, Huiwen Huang, Jinhung Chio, Chingyi Wu, and Pei-Zen Chang (2000), "Fabrication of the planar angular rotator using the CMOS process," *Proc. the 13th Annual International Workshop on Micro Electro Mechanical Systems (MEMS-2000)*, Miyazaki, Japan.
3. Tsungwei Huang, Pei-Zen Chang, Chiyuan Lee, and Fuyuan Xiao (2000), "Microelectromechanical Bandpass Filters for Signal Processing by Standard CMOS

- Process,” Proc. SPIE 7th Annual International Symposium on Smart Structures and Materials, pp. 61-68, Newport Beach, USA.
4. Pei-Zen Chang, Chih-Wei Liu, Shyh-Yung Pao, and Jenn-Yi Chen (2000), “Phase Synchronization of Micro-mirror Arrays Using Elastic Linkages,” Proc. SPIE 7<sup>th</sup> Annual International Symposium on Smart Structures and Materials, pp. 326-334, Newport Beach, USA.
  5. Hunglin Chen, Kaihsiang Yen, Huiwen Huang, Jinhung Chio, Chingliang Dai, Chienliu Chang and Peizen Chang (2000), “Fabrication of Micromachined Optical Modulator Using the CMOS Process,” Proc. Photonics Taiwan 2000, pp. 620-626, Taipei, Taiwan.
  6. Hunglin Chen, Huiwen Huang, Kaihsiang Yen, Jinhung Chio, Chingliang Dai, Chienliu Chang and Peizen Chang (2000), “Fabrication of Diffractive Optical Elements Using the CMOS Process,” Proc. Photonics Taiwan 2000, pp. 627-636, Taipei, Taiwan.
  7. Hunglin Chen, Kaihsiang Yen, Jinhung Chio, Huiwen Huang, Chingliang Dai, Chienliu Chang and Peizen Chang (2000), “Integrated Eyeball-Tracking Device,” Proc. Photonics Taiwan 2000, pp. 637-645, Taipei, Taiwan.
  8. Shih-chen Chang , Ching-liang Dai, Jing-hung Chiou and Pei-zen Chang (2001), “Capacitive Micro Pressure Sensors with Underneath Readout Circuit Using a Standard CMOS Process,” Proc. SPIE’ s Smart Structures and Materials 2001 Symposium, pp. 336-344, Newport Beach, USA.
  9. Jenyi Chen, Long-Sun Huang, Chia-Hua Chu, Yao-Hui Kuo and Pei-Zen Chang (2001), “A Novel Micro Encapsulation Using Flip Chip Assembly,” Proc. IMAPS Taiwan Technical Symposium 2001, pp. 30-34, Hsinchu, Taiwan.
  10. Jenyi Chen, Long-Sun Huang, Chia-Hau Chu, and Pei-Zen Chang (2001), “A New Transferred Ultra-Thin Silicon Micropackaging,” Proc. 12th Micromechanics Europe Workshop, pp. 86-89, Cork, Ireland.
  11. Wing Wu, Long-Sun Huang, Bin-Ru Chen, and Pei-Zen Chang (2001), “A Novel Segmental, Dual Torsion Microstructure of A Magnetically Levitated and Electrostatic Actuator for Large Displacement and Low Driving Voltage,” Proc. 12th Micromechanics Europe Workshop, pp. 249-252, Cork, Ireland.
  12. 吳政忠、王聖銘、張培仁、黃榮山、陳永裕、陳永裕、吳志偉、吳宗穎、王誌麟(2001), “通訊用表面聲波濾波器之設計與量測”, 中國機械工程學會第十八屆全國學術研討會論文集, pp. 311-318, 台北, 台灣。
  13. S.C. Tsai, T.K. Tseng, Y.L. Song, Y.F. Chou, C.S. Tsai, and P.Z. Chang (2002), “High Frequency MEMS-Fabricated Ultrasonic Nozzles for Nanoparticles Synthesis,” Proc. MRS Meeting, pp. xxx-xxx, San Francisco, USA.

潘吉祥 勤益技術學院機械所

期刊論文

1. **C. S. Pan**, "A Simple Method for Determination of Linear Thermal Expansion Coefficients of Thin Films", J. Micromech. and Microeng. 12 (2002) 548-555 [SCI, EI] (NSC89-2212-E-167-001)
2. **C. S. Pan**, "A Simple Method for the Characterization of Thin Films During Heat Treatment", Microsystem Technologies, 8 (2002) 63-66. [SCI, EI] (NSC 89-2218-E-167-003)
3. **C. S. Pan** and W. Hsu, "Electro-thermally Driven Microgrippers with Bilateral Motion", J. of the Chinese Society of Mechanical Engineers, Vol.22, No.1, pp.71-78, 2001. [EI] (NSC 87-2218-E009-015)
4. **C. S. Pan** and W. Hsu, "A Microstructure for in-situ Determination of Residual Strain", IEEE J. Microelectromechanical Systems, Vol. 8, No. 2, June, 1999, pp.200-207. [SCI, EI] (NSC 87-2218-E009-015)
5. **C. S. Pan** and W. Hsu, "An Electro-thermally and Laterally Driven Polysilicon Microactuator", J. Micromech. and Microeng., 1997, pp.7-13. [SCI, EI] (NSC 86-2221-E009-042)
6. Y. S. Lin, **C. S. Pan** and W. Hsu, "Thermally Actuated Bimorph Microactuators", J. of the Chinese Society of Mechanical Engineers, Vol.18, No.6, pp.525-531, 1997. [EI] (NSC 86-2221-E009-042)
7. 潘吉祥, 鍾志偉, 田慧仙, 張嘉峰, 曹貿盛, 李建璋, "微電鍍實驗槽的設計與製造", 勤益學報第二十期, 2002。
8. 潘吉祥, "微機電系統技術於生醫的應用", 勤益學報第十九期, 2001。
9. 潘吉祥, 徐文祥, "水平式微熱致動器", 電子月刊第四卷第十二期, 十二月號, 1998.
21. 潘吉祥, "A Honeycomb Compliant Micromechanism", 勤益學報第十五期, 1997。

#### 研討會論文

1. **C. S. Pan**, "A novel method for determining Young's modulus of thin films by micro-strain gauges", DTIP 2003, Symposium on Design, Test, Integration and Packaging of MEMS/MOEMS, 5-7 May 2003, Mandelieu-La Napoule, France.
2. **C. S. Pan**, "A Step-By-Step Procedure For Determining Thermal Resistivity Coefficients Of Doped Polysilicon Thin Films", ISEM 2002 International symposium on Experimental Mechanics, Dec. 28-30, The Grand Hotel, Taiwan, Taipei.
3. **C. S. Pan**, "A Simple Method for Determination of Thermal Conductivity Coefficients of Thin Films" ASME 2001 IMECE symposium on Fabrication and Testing of Micro-Electromechanical-Systems, Nov. 11-16, 2001, New York, USA.
4. **C.S Pan** and C. L. Tung, "A simple method for determination of thermal conductivity coefficients of dielectric films", 2001 International Symposium on Micromechatronics and Human Science (MHS 2001), Sept. 10-12, 2001, Nagoya, Japan.

5. **C. S. Pan** and S. Y. Tyan, "An Electro-thermally Driven Microactuator with Bilateral Motion in Plane and out-off Plane", 2001 International Symposium on Micromechanics and Human Science (MHS 2001), Sept. 10-12, 2001, Nagoya, Japan.
6. **C. S. Pan**, "A Simple Method for the Characterization of Thin Films During Heat Treatment", International Conference & Exposition on Micro Electro, Opto, Mechanical Systems and Components, Micro System Technologies 2001, March 27-29, Berlin.
7. **C. S. Pan**, "A Simple Method for in situ Determination of Linear Thermal Expansion Coefficients of Thin Films", The Symposium on Instrumentation, Measurements, and Sensors at the 2000 ASME International Mechanical Engineering Congress and Exposition, November 5-10, 2000, Orlando, Florida, USA
8. **C. S. Pan**, "A Simple Microstructure Serves as a Material Characterization Structure", International Symposium on Smart structures and Microsystems, Oct. 19-21, 2000, in the Jockey Club, Hong Kong.

### 陳榮順 清華大學動力機械

#### 期刊論文

1. M. T. K. Hou and R. Chen, "Effect of Width on the Stress-induced Bending of Micromachined Bilayer Cantilevers," Journal of Micromechanics and Microengineering (Accepted on Nov. 21, 2002)
2. C. A. Hsuan, and R. Chen, "Intelligent Control of Exit Temperature in a Gas Fuel Can-Type Combustor," Engineering Applications of Artificial Intelligence. (Accepted on Oct. 27, 2002)
3. M. J. Lin and R. Chen, "Adhesion Criterion for Center-anchored Circular Plates in Microstructures," Sensors and Actuators, A: Physical, Vol. 101, No. 1-2, pp. 14 -23, Oct., 2002.
4. T. L. Yang and R. Chen, "The Semi-Empirical and Empirical Models for Predicting Sound Absorption Coefficients for a Novel Porous Laminated Composite Material," Journal of Vibration and Control (accepted).
5. M. J. Lin and R. Chen, "Sticking Effect on Center-anchored Circular Plates in Microstructures," IEEE Trans. On Components and Packaging Technologies, Vol. 24, No. 4, December 2001.
6. C. Y. Huang and R. Chen, "Fuzzy Control of Exit Temperature and Oxygen Concentration For a Combustion Chamber," International Journal of Fuzzy Systems, Vol. 3, No. 3, Sep. 2001. (EI only)
7. T. L. Yang, D. M. Chiang, and R. Chen, "Development of a Novel Porous Laminated Composite Material for High Sound Absorption," Journal of Vibration and Control, Vol. 7, No. 5, July 2001, pp. 675 - 698.

8. C. L. Chen, H. C. Chen, M. K. Wong, F. T. Tang, and R. Chen, "Temporal Stride and Physical Medicine & Rehabilitation, Vol. 82, Jan., 2001, pp. 43 - 48.
9. Y. J. Tsao and R. Chen, "Force Control for Active Suspension Design of a Half Car Model by Using Genetic Algorithms with Maximum Stroke Constraints," P. of Imech., Part D, Journal of Automobile Engineering, Vol. 215, Issue: D3, 2001, pp. 317 - 327).

#### 研討會論文

1. M. T. K. Hou, K. M. Liao, H. Z. Yeh, P.Y. Hong, and R. Chen, 2003, "Fabrication of micromachined Focusing Mirrors with Seamless Reflective Surface," SPIE's Micromachining and Microfabrication, 27 -31, Jan., 2003, San Jose, California, USA. (EI)
2. 葉志賢、陳榮順，2002，「扭轉式微掃瞄鏡回授控制」，中國機械工程學會第十八屆學術研討會，雲林縣，2002年11月29-30日。
3. M. J. Lin and R. Chen, 2002, "Deformation of Center-anchored Circular Plate Caused by Residual Stress," 2002 奈米工程暨微系統技術研討會，台南市，2002年11月21-22日。
4. K. M. Liao, C. C. Chueh, and R. Chen, "A Novel Electro-Thermally Driven Bi-directional Microactuator," 2002 International Symposium on Micromechatronics and Human Science, October 20-23, 2002, Nagoya, Aichi, Japan. (EI)
5. M. T. K. Hou, K. M. Liao, H. Z. Yeh, P.Y. Hong, and R. Chen, "Design and Fabrication of Surface-micromachined Spherical Mirrors," IEEE/LEOS Optical MEMS 2002, International Conference on Optical MEMS and Their Applications, August 20 -23, 2002, Lugano, Switzerland.
6. T. K. Hou and R. Chen, 2001, "Shape Analysis of Cylindrical Micromirrors for Angular Focusing," SPIE 2001 International Symposium on Microelectronics and Micro-electro-mechanical Systems, Dec. 17-19, 2001, Adelaide, Australia. (EI)
7. H. Yen, C. Lee, R. Chen, and M. J. Lin, 2001, "Analysis and Fabrication of Deformable Focusing Micromirrors," Proceedings of 2001 ASME International Mechanical Engineering Congress Exposition, Nov. 11-16, 2001, New York, NY, U. S. A. (EI)
8. T. K. Hou and R. Chen, 2001, "On the Initial Stress-induced Bending in Bilayer Microcantilevers," 第25屆全國理論及應用力學學術研討會，台中市，2001年12月15、16日。
9. P. Y. Hong and R. Chen, 2001, "Design and Fabrication of Micro Cylindrical Mirrors"，中國機械工程學會第十八屆學術研討會，台北市，2001年12月7、8日。
10. M. J. Lin and R. Chen, 2000, "Sticking Effect on Circular Plates in Microstructures," Mechatronics 2000, Sep. 6 -9, Atlanta, U. S. A. (EI)

### 三、各儀器支援之研究成果——發表論文紀錄表

#### (十)熱阻絲蒸鍍系統

校內使用者期刊論文

**張國明教授 交通大學電子工程所**

期刊論文

1. K. M. Chang, J. Y. Yang and L. W. Chen, 1998, "A novel technology to form air gap for ULSI application," accepted to IEEE Electron Devices Letters.
2. K. M. Chang, T. C. Lee and Y. L. Sun, 1998, "The characteristics of N<sub>2</sub>O-grown polyoxide by the recrystallized-polysilicon method," December 1, Electrochemical and Solid State Letters.
3. K. M. Chang, C. H. Li, B. S. Sheih and J. Y. Yang, 1999, "The characteristics of tunnel oxides grown on textured silicon surface with a simple and reliable process," Vol.46, No.2, February, IEEE Transactions on Electron Devices Society.
4. K. M. Chang, J. Y. Yang and L. W. Chen, 1999, "A novel technology to form air gap for ULSI application," April Vol. 20, NO. 4., pp. 185-7, IEEE Electron Device Letters.
5. K. M. Chang, I-Chung Deng, and H. Y. Lin, 1999, "Chemical vapor deposited-tungsten film to suppress fluorine penetration and dopant redistribution," Journal of Chemical Vapor Deposition, Vol. 7, January, pp. 1-18.
6. K. M. Chang, T. C. I. C. Deng, and H. Y. Lin, 1999, "Suppression of fluorine penetration by use of In situ stacked chemical vapor deposited tungsten film," Vol. 146(8), J. Electrochem. Soc.: Solid-State Scie and Tech.

研討會論文

1. K, M, Chang, I. C. Deng, T. H. Yeh and C. W. Shih, 1998, "The barrier characteristics of chemical vapor deposited amorphous tungsten with In situ nitrogen plasma treatment," 194th Meeting, The Electrochemical Society, Boston, November 1-6.
2. K. M. Chang and J. Y. Yang, 1998, "Air gap for ULSI application by bonding ultra thin HSQ layer to patterned metal lines," International Electron Device and Materials Symposium (1998 IEDMS), Taiwan.
3. K. M. Chang, and J. J. Luo, 1998, "Tungsten oxide as the temperature sensitive material for microbolometer," International Electron Devices and Materials Symposium (1998 IEDMS), Taiwan.
4. K. M. Chang, J. Y. Yang, Y. H. Chang and I. C. Deng, 1998, "The air gap and pretreatment for the future development of low dielectric material in ULSI," International Conference on Next Decades of High Technologies (ICHT'98), Nov. 14-15, Taipei, Taiwan.
5. K. M. Chang, J. Y. Yang, Y. H. Chang and I. C. Deng, 1998, "Pretreatment technique to improve the ashing resistance of low K Spin-on-Polymer (SOP)," International Conference

MRS 1999 Spring Meeting, USA.

6. K. M. Chang, T. C. Lee and Y. L. Sun, 1999, "Exploration of the characteristics of polyoxides grown by thermal, rapid thermal oxidation, and TEOS deposition," The Sixth Symposium on Nano Device Technology, May.

### 雷添福教授 交通大學電子工程所

#### 期刊論文

1. Jiann Heng Chen, **Tan Fu Lei**, Tien Sheng Chao, Tien Pao Su, Jim Huang, Andy Tuan, and S. K. Chen, "Study on the Contact Resistance of Poly-plug Structure by In-Situ HF Vapor Clean," IEE Electronics Letters, Vol. 36, No. 8, pp. 756-757, 2000.
2. Tung Ming Pan, **Tan Fu Lei**, Chao Chyi Chen, Tien Sheng Chao, Ming Chi Liaw, Wen Lu Yang, Ming Shih Tsai, C. P. Lu, and W. H. Chang, "Novel cleaning solutions for polysilicon film post chemical mechanical polishing," IEEE Electron Devices lett., Vol. 21, No. 7, pp. 338-340, 2000. Tung Ming Pan, **Tan Fu Lei**, and Tien Sheng Chao, "Robust ultra-thin oxynitride dielectrics by  $\text{NH}_3$  nitridation and  $\text{N}_2\text{O}$  RTA treatment," IEEE Electron Devices lett., Vol. 21, No. 8, pp. 378-380, 2000.
3. **Tan Fu Lei**, Jiann Heng Chen, Ming Fang Wang, and Tien Sheng Chao, "Characteristics of Polysilicon Oxides Combining  $\text{N}_2\text{O}$  Nitridation and CMP Processes," IEEE Trans. on Electron Device, Vol. 47, No. 8, pp. 1545-1552, 2000.  
Tung Ming Pan, **Tan Fu Lei**, Tien Sheng Chao, Kuo Lih Chang, and Kuang Chien Hsieh, "High quality ultra-thin  $\text{CoTiO}_3$  high-k gate dielectrics," Electrochemical and Solid-State lett., vol. 3, No. 9, pp. 433-434, 2000.
4. Tung Ming Pan, **Tan Fu Lei**, Tien Sheng Chao, Ming Chi Liaw, and Chih Peng Lu, "The Optimum Condition of Novel One-Step Cleaning Solutions for Pre-Gate Oxide Cleaning using the Robust Design Methodology," J. J. Applied Phys. Vol. 39, No.10, p. 5805, 2000.
5. Chin-Yu Ku, Jia-Min Shieh, Tsann-Bim Chiou, Hwang-Kuen Lin, and **Tan Fu Lei**, "Postexposure delay effect on linewidth variation in base added chemically amplified resist", J. Electrochem. Soc., Vol.147, No.10, pp.3833-3839, 2000.
6. Jiann Heng Chen, **Tan Fu Lei**, Jian-Hong Chen, and Tien Sheng Chao, "Characteristics of TEOS Polysilicon Oxides: The Improvement by CMP Process and High Temperature RTA  $\text{N}_2/\text{N}_2\text{O}$  Annealing," J. Electrochem. Soc., Vol.147, No.11, p.4282, 2000.
7. Horng Chih Lin, C. M. Yu, C. Y. Lin, K. L. Yeh, Tiao Yuan Huang, and **Tan Fu Lei**, "A Novel Thin-Film Transistor with Self-Aligned Field Induced Drain," IEEE Electron Devices lett., Vol. 22, No. 1, pp. 26-28, 2001.
8. Tung Ming Pan, **Tan Fu Lei**, Wen Luh Yang, Chun Ming Cheng, Tien Sheng Chao, "High Quality Interpoly-Oxynitride Grown by  $\text{NH}_3$  Nitridation and  $\text{N}_2\text{O}$  RTA Treatment," IEEE Electron Devices lett., Vol. 22, No. 2, pp. 68-71, 2001.
9. Tung Ming Pan, **Tan Fu Lei** and Tien Sheng Chao, "High-k  $\text{CoTiO}_3$  dielectrics formed

- by oxidation of sputtered Co/Ti or Ti/Co films," *Applied Phys. Lett.*, vol. 78, pp.1439-1441, 2001.
10. W. L. Yang, T. S. Chao, C. M. Cheng, T. M. Pan, and **T. F. Lei**," High Quality Interpoly Dielectrics Deposited on the Nitride-Polysilicon for Nonvolatile Memory Devices," *IEEE Trans. On Electron Devices*, 48, pp. 1304-1309, July, 2001.
  11. Tung Ming Pan, **Tan Fu Lei** and Tien Sheng Chao, "Comparison of Ultrathin  $\text{CoTiO}_3$  and  $\text{NiTiO}_3$  High-k Gate Dielectrics," *J. Applied Phys.*, Vol. 89, March 15, 2001.
  12. Tung Ming Pan, **Tan Fu Lei**, Huang Chun Wen, and Tien Sheng Chao, "Characterization of Ultrathin Oxynitride (18-21 Å) Gate Dielectrics by  $\text{NH}_3$  Nitridation and  $\text{N}_2\text{O}$  RTA Treatment," *IEEE Trans. on Electron Devices*, Vol. 48, April., 2001.
  13. Tung Ming Pan; **Tan Fu Lei**; Fu Hsiang Ko; Tien Sheng Chao; Tzu Huan Chiu; Ying Hao Lee; Chih Peng Lu, "Comparison of novel cleaning solutions with various chelating agents for post-CMP cleaning on poly-Si film," *Semiconductor Manufacturing, IEEE Transactions on* , Volume: 14 Issue: 4 , Page(s): 365 –371, Nov. 2001.
  14. Jam Wem Lee; **Tan Fu Lei**; Chung-Len Lee, "Thin tunnel oxide grown on silicon substrate pretreated by  $\text{CF}_4$  plasma," *IEEE Electron Device Letters* , Volume: 22 Issue: 11 , Page(s): 513 –515, Nov, 2001.
  15. Tung Ming Pan, Chao Hsin Chien, **Tan Fu Lei**, Tien Sheng Chao, and Tiao Yuan Huang, "Electrical Characteristics of Thin Cerium Oxide Film on Silicon Substrate by Reactive DC Sputtering,"*Electrochem. Solid-State Lett.* , Volume 4, Issue 9 pp. F15-F17, Sep. 2001.
  16. Jam Wem Lee, Won-Der Chen, **Tan Fu Lei**, and Chung-Len Lee, "The Enhancement of Nitrogen Incorporation in  $\text{RTN}_2\text{O}$  Annealed TEOS Oxide Fabricated on Disilane-Based Polysilicon Films," *Journal of The Electrochemical Society*, Volume 148, Issue 8 pp. F164-F169, Aug. 2001.
  17. Tung Ming Pan, **Tan Fu Lei**, Tien Sheng Chao, Ming Chi Liaw, Fu Hsiang Ko, and Chih Peng Lu, "One-Step Cleaning Solution to Replace the Conventional RCA Two-Step Cleaning Recipe for Pregate Oxide Cleaning," *Journal of The Electrochemical Society*, Volume 148, Issue 6 pp. G315-G320, June 2001.
  18. Chin Yu Ku, **Tan Fu Lei**, and Hwang Kuen Lin, "Focus measurement with a simple pattern design," *APPLIED OPTICS*, Volume 40, No.16 pp.2662-2669, June 2001.
  19. Chin Yu Ku, Jia Min Shieh, Tsann Bim Chiou, Hwang Kuen Lin and **Tan Fu Lei**," Expanding the Process Window and Reducing the Optical Proximity Effect by Post-Exposure Delay," *Journal of The Electrochemical Society*, Volume 148, Issue 8 pp. G434-G438, June 2001.
  20. Chin Yu Ku, Dong Shieh Cheng, and **Tan Fu Lei**, "Monitoring the Lithographic Focus and Tilting Performance by Off-line Overlay Measurement Tools", *J. Vac. Sci. Technol.B* Volume 19, Issue 5 pp. 1915-1924, September 2001.



21. M. N. Chang, T. Y. Chang, F. M. Pan, B. W. Wu, and **T. F. Lei**, "An Investigation of Scanning Capacitance Microscopy on Iron-Contaminated p-Type Silicon", *Electrochemical and Solid-State Letters*, Volume 4, Issue 9 G69-G71, 2001.
22. Yiming Li, Jam-Wem Lee, Ting-Wei Tang, T.-S. Chao, **Tan-Fu Lei**, and S. M. Sze, "Numerical Simulation of Quantum Effects in High-k Gate Dielectrics MOS Structures using Quantum Mechanical Models," *Computer Physics Communications* (accepted to appear in 2002).
23. J. H. Chen, **T. F. Lei**, C. L. Chen, T. S. Chao, W. Y. Wen, K. T. Chen, "Nitrogen implantation and in situ HF vapor clean for deep submicrometer n-MOSFETs," *J. Electrochem. Soc.*, 149 (1): G63-G69, Jan., 2002.
24. T. Y. Chang, **T. F. Lei**, T. S. Chao, S. W. Chen, L. M. Kao, S. K. Chen, A. Tuan, and T. P. Su, "Impact of Nitrogen and/or Fluorine Implantation on Deep-submicron Co-salicide Process," accepted by *Solid State Electronics*.
25. C. M. Yu, H. C. Lin, C. Y. Lin, K. L. Yeh, T. Y. Huang, and **T. F. Lei**, "Self-Aligned Fabrication of Thin-Film Transistors with Field-Induced Drain (FID)," accepted by *Solid State Electronics*.
27. Michael Yu, H. C. Lin, G. H. Chen, T. Y. Huang, and **T. F. Lei**, "Characteristics of Poly-Si Thin-Film Transistors with Electrical Source/Drain Extensions Induced by a Bottom Sub-Gate" accepted by *Jpn. J. Appl. Phys.*
- 27.J. H. Chen, **T. F. Lei**, C. L. Chen, T. S. Chao, W. Y. Wen, K. T. Chen, "Nitrogen implantation and in situ HF vapor clean for deep submicrometer n-MOSFETs," *J. Electrochem. Soc.*, 149 (1): G63-G69, Jan., 2002.
- 28.T. Y. Chang, **T. F. Lei**, T. S. Chao, S. W. Chen, L. M. Kao, S. K. Chen, A. Tuan, and T. P. Su, "Impact of Nitrogen and/or Fluorine Implantation on Deep-submicron Co-salicide Process," *Solid-State Electronics*, v 46, n 8, August, p 1097-1101, 2002.
- 29.C. M. Yu, H. C. Lin, C. Y. Lin, K. L. Yeh, T. Y. Huang, and **T. F. Lei**, "Self-Aligned Fabrication of Thin-Film Transistors with Field-Induced Drain (FID)," *Solid-State Electronics*, v 46, n 8, August, p 1091-1095, 2002
- 30.Michael Yu, H. C. Lin, G. H. Chen, T. Y. Huang, and **T. F. Lei**, "Characteristics of Poly-Si Thin-Film Transistors with Electrical Source/Drain Extensions Induced by a Bottom Sub-Gate" *Japanese Journal of Applied Physics, Part 1: Regular Papers and Short Notes and Review Papers*, v 41, n 5 A, May, p 2815-2820, 2002.
- 31.J. W. Lee, **T. F. Lei** and C. L. Lee, "Thin oxides grown on disilane-based polysilicon" *Japanese Journal of Applied Physics*, v41, n 6A, June, p 3651-3654, 2002
- 32.T. M. Pan, **T. F. Lei**, F. H. Ko, T. S. Chao, M. C. Liaw, Y. H. Lee and C. P. Lu, "Performance evaluation of cleaning solutions enhanced with tetraalkylammonium hydroxide substituents for post-CMP cleaning on poly-Si film", *Journal of the Electrochemical Society*, v 149, n 6, June, p G336-G342, 2002.

33. T. Y. Chang, **T. F. Lei**, T. S. Chao, H. C. Wen and H. W. Chen, "Improvement of low-temperature gate dielectric formed in N<sub>2</sub>O plasma by an additional CF<sub>4</sub> pretreatment process", IEEE Electron Device Letters, v 23, n 7, July, p 389-391, 2002.
34. J. C. Wang, S. H. Lee and **T. F. Lei**, "A physical model for the hysteresis phenomenon of the ultrathin ZrO<sub>2</sub> Film", Journal of Applied Physics 92(7) : p.3936-3940 OCT 2002.
35. W. Y. Yang, W. F. Wu, H. C. You, K. L. Ou and **T. F. Lei**, "Improving the Electrical Integrity of Cu-CoSi<sub>2</sub> Contacted n+p Junction Diodes Using Nitrogen-Incorporated Ta Films as a Diffusion Barrier" IEEE Trans. on Electron Devices, Vol. 49, No.11 November, p.1947-1953 2002.
36. T. Y. Chang, J. W. Lee, **T. F. Lei**, C. L. Lee, and H. C. Wen, "Growing High Performance Tunneling Oxide by CF<sub>4</sub> Plasma Pre-Treatment", accepted for publication on Journal of Electrochemical Society 2002.
37. T. Y. Chang, H. W. Chen, Tan Fu Lei, and Tien Sheng Chao, "Metal Gate Transistors with Low Temperature Gate Dielectric and Additional CF<sub>4</sub> Pretreatment", has been submitted to IEEE Transactions on Electron Devices 2002.
38. Tzu Yun Chang, Hsiao Wei Chen, **T. F. Lei**, and T. S. Chao, "Improvement of CF<sub>4</sub> Plasma Pretreatment on TiO<sub>2</sub> High-k Film", has been submitted to Japanese Journal Applied Physics 2002.
39. T. Y. Chang, H. C. Wen, and **T. F. Lei**, "Defect Free Ultra Shallow Junction Formation by Implanting through Amorphous-Silicon/Oxide Stack Structure", to be submitted to IEEE Electron Device Letters 2002.

#### 研討會論文

1. Chin-Yu Ku, **Tan Fu Lei**, Jia-Min Shieh, Tsann-Bim Chiou, and Yung-Cheng Chen, "New overlay pattern design for real-time focus and tilt monitor", Microelectronic Manufacturing, Proc. of SPIE Vol. 4182, 2000.
2. Chin-Yu Ku, **Tan Fu Lei**, Jia-Min Shieh, Tsann-Bim Chiou, and Hwang-Kuen Lin, "Real-time process control to prevent CD variation induced by post exposure delay", Microelectronic Manufacturing, Proc. of SPIE Vol. 4182, 2000.
3. Jiann Heng Chen, **Tan Fu Lei**, Chia Lin Chen, Tien Sheng Chao, Wen Ying Wen, and Kuag Ting Chen, "High Performance Deep-Submicron n-MOSFETs by Nitrogen Implantation and In-situ HF Vapor Clean," IRPS, 2000.
4. M. N. Chang, T. Y. Chang, C. Y. Chen, F. M. Pan, B. W. Wu, **T. F. Lei**, "A Study of Iron-Contaminated p-type Silicon by Scanning Probe Microscopy", AVS 48th International Symposium, IUVSTA 15th International Vacuum Congress, 11th International Congress on Solid Surfaces, San Francisco, CA, U.S.A., 2001.
5. H. W. Chen, H. C. Tzeng, T. Y. Chang, J. W. Lee, **T. F. Lei**, and C. L. Lee, "The Electrical Properties of the Gate Oxide with CF<sub>4</sub> Plasma Pretreatment," EDMS, 2001.

6. T. L. Lee, J. W. Lee, **T. F. Lei**, and C. L. Lee, "Improved Thin Gate Oxide Characteristics with Chlorine Plasma Pretreatment," EDMS, 2001.
- J. H. Chen, Yen-An Chang, M. Z. Lee, **T. F. Lei**, and C. L. Lee, "Electrical Properties of Vertical Polysilicon Oxide," EDMS, 2001.
8. Y. P. Hong, J. C. Wang, J. W. Lee, **T. F. Lei**, and C. L. Lee, "The Electrical Properties of Thin Oxynitride Dielectrics Using N<sub>2</sub>O Plasma Annealing," EDMS, 2001.
- 8.M. Z. Lee, C. L. Lee, and **T. F. Lei**, "Novel Vertical Polysilicon Thin-Film Transistor with Excimer-Laser Annealing, "International Conference on Solid State Devices and Materials, 2002.
- 9.C. M. Yu, H. C. Lin, T. F. Lei, and T. Y. Huang,"Effects of Plasma Treatments on the Characteristics of Poly-Si Thin-Film Transistors Having Electrical Junctions Induced by a Bottom Sub-Gate," International Meeting of The Electrochemical Society, 2002.
- 10.J. C. Wang, Y. H. Lin, Y. P. Hung, **T. F. Lei**, and C. L. Lee "Characteristics of Ultra -Thin Cerium Dielectrics with Surface Nitridation Pretreatment and Post Furnace Annealing," IEDMS, 2002.
- 11.S. D. Wang, T. Y. Chang, and **T. F. Lei**, "Low Temperature Alumini Nitride Formed as Polyoxide by NH<sub>3</sub> Plasma Treatment," IEDMS, 2002.
- 12.C. M. Yu, H. C. Lin, **T. F. Lei**, and T. Y. Huang, "Effects of H<sub>2</sub> and NH<sub>3</sub> Plasma Treatments on Poly-Si Thin-Film Transistors with Electrical Source/Drain Extensions Induced By a Bottom Sub-Gate," IEDMS, 2002.
- 13.M. Z. Lee, S. H. Chiao, **T. F. Lei** and C. L. Lee, "Thermal Vertical Polysilicon Oxides deposited on the Sidewall of Polysilicon Films," IEDMS, 2002.
- 14.J. H. Chen, T. Y. Chang, H. W. Chen, and **T. F. Lei**, "Low Temperature Polyoxide Formation by N<sub>2</sub>O Plasma with CF<sub>4</sub> Pre-Treatment," IEDMS, 2002.
- H. C. You, F. H. Ko, **T. F. Lei**, C. C. Hsu and T. C. Chu, "Chemical Shrink Techniques for Sub-100nm Contact Hole Fabrication in Electron Beam Lithography," IEDMS, 2002.

**鄭冕忠教授 交通大學電子工程所**

期刊論文

1. H. C. Cheng, C. Y. Huang, F. S. Wang, K. H. Lin, and F. G. Tarntair, "Thin-film transistors with polycrystalline silicon films prepared by two-step rapid thermal annealing," *Jpn. J. Appl. Phys.*, vol. 39, Part 2, no. 1A/B, pp. L 19-21, 2000.
2. F. G. Tarntair, C. Y. Wen, L. C. Chen, J. J. Wu, K. H. Chen, P. F. Kuo, S. W. Chang, Y. F. Chen, W. K. Hong, and H. C. Cheng, "Field emission from quasi-aligned SiCN nanorods," *Appl. Phys. Lett.*, vol. 76, no. 18, pp. 2630-2632, 2000.
3. W. K. Hong, H. C. Shih, S. H. Tsai, C. T. Shu, F. G. Tarntair, and H. C. Cheng, "Field emission properties of aligned carbon nanotubes," *Jpn. J. Appl. Phys.*, vol. 39, Part 2, no. 9A/B, pp. L 925-928, 2000.

4. C. C. Hwang, M. J. Lai, C. C. Jaing, J. S. Chen, S. Huang, M. H. Juang, and H. C. Cheng, "Low-temperature process to improve the leakage current of (Ba, Sr)TiO<sub>3</sub> films on Pt/TiN/Ti/Si substrates," *Jpn. J. Appl. Phys.*, vol. 39, Part 2, no. 12B, pp. L 1314-1316, 2000.
5. C. C. Hwang, C. C. Jaing, M. J. Lai, J. S. Chen, S. Huang, M. H. Juang, and H. C. Cheng, "Effect of rapid thermal annealed TiN barrier layer on BST capacitors prepared by RF magnetron cosputter system at low substrate temperatures," *Electrochemical and Solid-State Lett.*, vol. 3, no. 12, pp. 563-565, 2000.
6. F. G. Tarntair, L. C. Chen, S. L. Wei, W. K. Hong, K. H. Chen, and H. C. Cheng, "High current density field emission from arrays of carbon nanotubes and diamond-clad Si tips," *J. Vac. Sci. & Technol. B.*, vol. 18, no. 3, pp. 1207-1211, 2000.
7. Fu-Gow Tarntair, Wei-Kai Hong, Tzu-Kun Ku, Nan-Jie She, Chia-Fu Chen and Huang-Chung Cheng, "Fabrication and characterization of various carbon-clad silicon microtips with ultra-small tips radii," *Jpn. J. Appl. Phys.*, vol. 39, Part 1, no. 2A, pp. 432-437, 2000.
8. Chun-Yao Huang, Teh-Hung Teng, Jun-Wei Tsai and Huang-Chung Cheng, "The instability mechanisms of hydrogenated amorphous silicon thin film transistors under AC bias stress," *Jpn. J. Appl. Phys.*, vol. 39, Part 1, no. 7A, pp. 3867-3871, 2000.
9. Chun-Yao Huang, Jun-Wei Tsai, Teh-Hung Teng, Cheng-Jer Yang and Huang-Chung Cheng, "Turnaround phenomenon of threshold voltage shifts in amorphous silicon thin film transistors under negative bias stress," *Jpn. J. Appl. Phys.*, vol. 39, Part 1, no. 10, pp. 5763-5766, 2000.
10. Huang-Chung Cheng, Li-Jing Cheng, Ching-Wei Lin, Yin-Lung Lu, and Chi-Yuan Chen, "High performance low-temperature processed polysilicon TFTs fabricated by excimer laser crystallization with recessed-channel structure," *International workshop on AMLCDs 2000*, pp. 281-284. **(The Best Paper Award)**
11. C. W. Lin, M. Z. Yang, C. C. Yeh, L. J. Cheng, T. Y. Huang, H. C. Cheng, H. C. Lin, T. S. Chao, and C. Y. Chang, "Effects of plasma treatments, substrate types, and crystallization methods on performance and reliability of low temperature polysilicon TFTs," in *IEDM Tech. Dig.*, 1999, pp. 305-308.
12. Y. L. Lu, L. J. Chou, C. W. Lin, L. J. Cheng, and H. C. Cheng, "Dimensional effects on the performance of low temperature polycrystalline thin film transistor fabricated by nickel silicide mediated crystallization method," *2000 International Electron Devices and Materials Symposia (2000 IEDMS)*, pp. 100-103.
13. C. Y. Huang, T. K. Chang, C. W. Lin, L. J. Cheng, Y. L. Lu, and H. C. Cheng, "Degradation of passivated and non-passivated n-channel low-temperature polycrystalline silicon TFTs prepared by excimer laser processing," *2000 International Electron Devices and Materials Symposia (2000 IEDMS)*, pp. 257-260.
14. L. J. Cheng, Y. L. Lu, C. W. Lin, T. K. Chang, and H. C. Cheng, "Novel growth in

channel region," *Photonics Taiwan*, 2000, *Proceeding of SPIE Vol. 4079-06*.

15. C. C. Hwang, M. H. Juang, M. J. Lai, C. C. Jaing, J. S. Chen, S. Huang, and H. C. Cheng, "Effect of rapid-thermal-annealed TiN barrier layer on the Pt/BST/Pt capacitor prepared by RF magnetron co-sputter technique at low substrate temperature," *Solid-State Electronics*, vol. 45, no. 1, pp. 121-125, 2001.
16. W. K. Hong, K. H. Chen, L. C. Chen, F. G. Tairair, K. J. Chen, J. B. Lin, and H. C. Cheng, "Fabrication and characterization of carbon nanotube triodes," *Jpn. J. Appl. Phys.*, vol. 40, Part 1, no. 5A, pp. 3468-3473, 2001.
17. H. C. Cheng, W. K. Hong, F. G. Tairair, K. J. Chen, J. B. Lin, K. H. Chen, and L. C. Chen, "Integration of thin-film-transistor-controlled carbon nanotubes for field emission devices," *Electrochemical and Solid-State Lett.*, vol. 4, no. 4, pp. H5-H7, 2001
18. Ching-Wei Lin, Li-Jing Cheng, Yin-Lung Lu, Yih-Shing Lee, and Huang-Chung Cheng, "High-performance low-temperature poly-Si TFTs crystallized by excimer laser irradiation with recessed-channel structure," *IEEE Electron Device Lett.*, vol. 22, pp. 269-271, 2001
19. Huang-Chung Cheng, Kuo-Ji Chen, Wei-Kai Hong, Fu-Gow Tairair, Chia-Pin Lin, Kuei-Hsien Chen, and Li-Chyong Chen, "Fabrication and characterization of low turn-on voltage carbon nanotube field emission triodes," *Electrochemical and Solid-State Lett.*, vol. 4, no.8, pp. H15-H17, 2001.
20. Chang-Ho Tseng, Ching-Wei Lin, Ting-Kuo Chang, Huang-Chung Cheng, and Albert Chin, "Effects of excimer laser dopant activation on low temperature polysilicon thin-film transistors with lightly doped drains," *Electrochemical and Solid-State Lett.*, vol. 4, no.11, pp. G94-G97, 2001.
21. K. J. Chen, W. K. Hong, J. B. Lin, K. H. Chen, L. C. Chen, and H. C. Cheng, "Low turn-on voltage field emission triodes with selective growth of carbon nanotubes," *IEEE Electron Device Letters* , Vol. 22, No. 11 , pp.516-518,2001
22. K. J. Chen, W. K. Hong, C. P. Lin, K. H. Chen, L. C. Chen, and H. C. Cheng, "Low turn-on voltage field emission triodes with selective growth of carbon nanotubes," *IEEE Electron Device Lett.*, vol. 22, pp. 516-518, 2001.
23. Ching-Wei Lin, Li-Jing Cheng, Yin-Lung Lu, Yih-Shing Lee, and Huang-Chung Cheng, "High-performance low-temperature poly-Si TFTs crystallized by excimer laser irradiation with recessed-channel structure," *IEEE Electron Device Lett.*, vol. 22, pp. 269-271, 2001.
24. Ching-Wei Lin, Li-Jing Cheng, Yin-Lung Lu, and Huang-Chung Cheng, "Characterization of low temperature polysilicon TFTs with self-aligned graded LDD structure," *Mat. Res. Soc. Symp. Proc.*, vol. 685E, D12.7.1 - D12.7.6, 2001.
25. Chang-Ho Tseng, Ting-Kuo Chang, Fang-Tsun Chu, Jia-Min Shieh, Bau-Tong Dai, Huang-Chung Cheng, and Albert Chin, " Investigation of Inductively Coupled Plasma Gate Oxide on Low Temperature Polycrystalline-Silicon Thin Film Transistors", *IEEE Electron Device Letter*, Vol. 23, No. 6, p. 333-335, 2002.

26. Ching-Wei Lin, Chang-Ho Tseng, Ting-Kuo Chang, Yuan-Hsun Chang, Fang-Tsun Chu, Chiung-Wei Lin, Wen-Tung Wang, and Huang-Chung Cheng, "An Investigation of Bias Temperature Instability in Hydrogenated Low-Temperature Polycrystalline Silicon Thin Film Transistors," *Jpn. J. Appl. Phys., Part 1*, vol. 41, pp. 2002.
27. Ching-Wei Lin, Chang-Ho Tseng, Ting-Kuo Chang, Chiung-Wei Lin, Wen-Tung Wang, and Huang-Chung Cheng, "A Novel Laser-Processed Self-Aligned Gate-Overlapped LDD Poly-Si TFT," *IEEE Electron Device Lett.*, vol. 23, pp. 133-135, 2002.
28. Huang-Chung Cheng, Ching-Wei Lin, Li-Jing Cheng, Chang-Ho Tseng, Ting-Kuo Chang, Yuan-Ching Peng, and Wen-Tung Wang, "Fabrication of low-temperature poly-Si thin film transistors with self-aligned graded lightly doped drain structure," *IEEE/ECS Electrochemical and Solid-State Lett.*, vol. 5, no.1, pp. G1-G3, 2002.
29. Huang-Chung Cheng, Ching-Wei Lin, Li-Jing Cheng, Chang-Ho Tseng, Ting-Kuo Chang, Yuan-Ching Peng, and Wen-Tung Wang, "Fabrication of low-temperature poly-Si thin film transistors with self-aligned graded lightly doped drain structure," *Electrochemical and Solid-State Lett.*, vol. 5, no.1, pp. G1-G3, 2002.
30. Chang-Ho Tseng, Ching-Wei Lin, Teh-Hung Teng, Ting-Kuo Chang, Huang-Chung Cheng, and A. Chin, "Study on dopant activation of phosphorous implanted polycrystalline silicon thin films by KrF excimer laser annealing", *Solid-State Electronics*, Vol. 46, Issue 8, August 2002, Pages 1085-1090
31. T.H.Teng, C.Y.Huang, T.K.Chang, C.W.Lin, L.J.Cheng, Y.L.Lu, H.C.Cheng, "Degradation of passivated and non-passivated N-channel low-temperature polycrystalline silicon TFTs prepared by excimer laser processing," *Solid State Electronics*, vol. 46, pp. 1079-1083, 2002

#### 研討會論文

1. Huang-Chung Cheng, Li-Jing Cheng, Ching-Wei Lin, Yin-Lung Lu and Chi-Yuan Chen," High Performance Low-Temperature Processed Polysilicon TFTs Fabricated by Excimer Laser Crystallization with Recessed-Channel Structure, 2000 AMLCD. Chang-Ho Tseng, Ting-Kuo Chang, Huang-Chung Cheng, and A. Chin, "Dopant activation of phosphorous implanted poly-silicon film capped with silicon oxide film by KrF excimer laser annealing," *2000 International Electron Devices and Materials Symposia (2000 IEDMS)*.
2. Cheng-Jer Yang, Gwo-Yann Lee, Jyh-Liang Wang, I-Feng Chang, Chih-Wei Tsai, Huang-Chung Cheng, Ting-Chang Chang, and Li-Jen Chou, "Low dielectric material formation by  $CF_4/SiH_4$  mixed gas in plasma enhanced chemical vapor deposition system," *2000 International Electron Devices and Materials Symposia (2000 IEDMS)*.
3. Cheng-Jer Yang, I-Feng Chang, Gwo-Yann Lee, Huang-Chung Cheng, Ting-Chang Chang, Chih-Wei Tsai, and Li-Jen Chou, "The mechanism of copper ions formation in the

low k film during the post metallization annealing,” *2000 International Electron Devices and Materials Symposia (2000 IEDMS)*.

4. Der-Chi Shye, Ming-Jiunn Lai, Chuan-Chou Hwang, Cheng-Chung Jaing, Jyh-Shin Chen, Bi-Shiou, and Huang-Chung Cheng, “The study of oxygen effect during RF sputtering BST films deposited on Pt/TiN/Ti/Si substrate at low temperature for DRAMs’ capacitors,” *2000 International Electron Devices and Materials Symposia (2000 IEDMS)*, pp. 339-342.

5. Y. L. Lu, L. J. Chou, C. W. Lin, L. J. Cheng, and H. C. Cheng, “Dimensional effects on the performance of low temperature polycrystalline thin film transistor fabricated by nickel silicide mediated crystallization method,” *2000 International Electron Devices and Materials Symposia (2000 IEDMS)*.

6. C. Y. Huang, T. K. Chang, C. W. Lin, L. J. Cheng, Y. L. Lu, and H. C. Cheng, “Degradation of passivated and non-passivated n-channel low-temperature polycrystalline silicon TFTs prepared by excimer laser processing,” *2000 International Electron Devices and Materials Symposia (2000 IEDMS)*. (The Best Paper Award)

7. L. J. Cheng, Y. L. Lu, C. W. Lin, T. K. Chang, and H. C. Cheng, “Novel device structure for low temperature polysilicon TFT with controlled grain growth in channel region,” *Photonics Taiwan, 2000, Proceeding of SPIE Vol. 4079-06*.

8. Huang-Chung Cheng, Chuan-Chou Hwang, Cheng-Chung Jaing, Der-Chi Shye, Hsien-Wen Hsu, Jyh-Shin Chen, and Miin-Horng Juang, “A novel excimer laser annealing to achieve thin BST films at low substrate temperatures,” *2000 International Electron Devices and Materials Symposia (2000 IEDMS)*, pp. 343-345.

9. C. B. Lin, K. J. Chen, F. G. Tairair, W. K. Hong, and H. C. Cheng, “The Integrated Process of TFT-Controlled CNTs for Stabilized Emission Current” *Proceedings of the 8<sup>th</sup> International Display Workshops*, 2000, Kobe, Japan.

10. Trent Gwo-Yann Lee, Tseung-Yuan Tseng, Shyh-Chyi Wong, Cheng-Jer Yang, Mong-Song Liang, and Huang-Chung Cheng, “Interconnect optimization design with guaranteed performance methods,” *International Symposium on Integrated Circuits, Devices and Systems (ISIC), 2001*.

11. Trent Gwo-Yann Lee, Tseung-Yuan Tseng, Shyh-Chyi Wong, Cheng-Jer Yang, Mong-Song Liang, and Huang-Chung Cheng, “The generalized interconnect delay time and cross-talk models,” *International Symposium on Integrated Circuits, Devices and Systems (ISIC), 2001*.

12. Ching-Wei Lin, Li-Jing Cheng, Yin-Lung Lu, and Huang-Chung Cheng, “Characterization of low temperature polysilicon TFTs with self-aligned graded LDD structure,” *Mat. Res. Soc. Symp. Proc.*, vol. 685E, D12.7.1 - D12.7.6, 2001.

13. W. K. Hong, K. J. Chen, J. B. Lin, H. C. Cheng, P. H. Lin, K. H. Chen, and L. C. Chen, “Carbon nanotube based triodes and TFT-controlled field emission displays,” *International Conference on Material for Advanced Technologies*, Singapore, 2001.

14. K. J. Chen, F. G. Tair, W. K. Hong, J. B. Lin, K. H. Chen, L. C. Chen and H.C. Cheng, "Fabrication and characterization of low turn-on voltage carbon nanotube field emission triode" *Material Research Society (MRS) 2001 spring meeting*, San Francisco, USA.2001.
15. K. J. Chen, W. K. Hong, C. P. Lin, K. H. Chen, L. C. Chen and H. C. Cheng," Upgraded Field Emission Characteristics of Carbon Nanotubes by Excimer Laser Treatment" *Jpn. J. Appl. Phys* Vol.41, No.10, 2002.
16. K. J. Chen, W. K. Hong, C. P. Juan, K. H. Chen, L. C. Chen and H. C. Cheng," Fabrication and Characterization of Carbon Nanotubes Field Emission Triodes for Field Emission Display" submitted to *Jpn. J. Appl. Phys*
17. W. K. Hong, K. H. Chen, L. C. Chen, F. G. Tarntair, K. J. Chen, J. B. Lin, and H. C. Cheng, "Fabrication and characterization of carbon nanotube triodes," *Jpn. J. Appl. Phys.*, Vol. 40, Part 1, No. 5A, pp. 3468-3473, 2001.
18. W. K. Hong, K. J. Chen, J. B. Lin, P. H. Lin, K. H. Chen, L. C. Chen, and H. C. Cheng, "Fabrication of carbon nanotube triodes for field emission display," submitted to *J. Appl. Phys*.
19. K. J. Chen, W. K. Hong, L.C.Chen, K.H. Chen and H.C.Cheng, "Fabrication and characterization of lateral field emission device based on carbon nanotubes" *13<sup>th</sup> European Conference on Diamond, Diamond-like Materials, Nitrides and Silicon Carbide*, 2002, Granada, Spain.

### 崔秉鉞教授 交通大學電子工程所

#### 期刊論文

1. Bing-Yue Tsui and Chih-Feng Huang, "Investigation of Cu/TaN<sub>x</sub> Metal Gate for Metal-Oxide-Silicon Devices", accepted by *J. Electrochemical Soc.*
2. Bing-Yue Tsui, Chih-Wei Chen, Shien-Ming Huang, and Shyue-ShyhLin, "Process Sensitivity and Robustness Analysis of Via-First Dual-Damascene Process", accepted by the *IEEE Trans. on Semiconductor Manufacturing*.
3. Kuo-Lung Fang and Bing-Yue Tsui, "Metal Drift Induced Electrical Instability of Porous Low Dielectric Constant Film", accepted by the *J. Appl. Phys.*
4. Bing-Yue Tsui and Chih-Feng Huang, "Wide Range Work Function Modulation of Binary Alloys for MOSFETs Application", accepted by the *IEEE Electron Device Lett.*
5. Cheng-Li Lin, Peng-Sen Chen, Yu-Chin Lin, Bing-Yue Tsui, and Mao-Chieh Chen, "Via-Filling Capability of Cu Film by Chemical Vapor Deposition", submitted to *J. Electrochemical Soc.*
6. Wei-Yang Chou, Bing-Yue Tsui, and Ching-Hui Ma, "Optimization of Backside Clean Process to Eliminate Copper Contamination", submitted to the *IEEE Trans.*



on Semiconductor Manufacturing.

7. Bing-Yue Tsui, Tian-Choy Gan, and Ming-Da Wu, "Current Distribution and Total Resistance of Small Silicided Diffusion Region", submitted to Solid-State Electronics.
8. Bing-Yue Tsui and Hsui-Wei Chang, "A Study on the Formation of Interfacial Layer during Reactive Sputtering of Hafnium Oxide", submitted to J. Appl. Phys.
9. Bing-Yue Tsui, Chen-Chi Yang, and Kuo-Lung Fang, "Anisotropic Thermal Conductivity of Nano-Porous Silica Film", submitted to the IEEE Trans. on Electron Devices.

#### 研討會論文

1. Z. Wu, Z. Shiung, C. Wang, K. Fang, R. Wu, Y. Liu, Bing-Yue Tsui and M. C. Chen, \*Electrical Reliability Issues of Integrating Low-K Dielectrics with Cu Metallization\*, Proc. of the Int. Interconnect Tech. Conf., pp.82, 2000.
2. Shyue-Shyh Lin, Chih-Wei Chen, Shien-Ming Huang, Tsung-Kuei Kang, Chen-Nan Yeh, Tsyr-Lih Li, Bing-Yue Tsui, and Chin C. Hsia, \*An optimized integration scheme for 0.13 um technology node dual damascene Cu interconnect\*, Proc. of the Int. Interconnect Tech. Conf., pp.273, 2000.
3. Chih-Feng Huang and Bing-Yue Tsui, "Investigation of Tantalum Nitride and Tantalum Alloys Metal Gate for CMOS Devices", in Proc. of The 9th Symposium on Nano Device Technology, pp.24-27, 2002.
4. Kuo-Lung Fang, Bing-Yue Tsui, Chen-Chi Yang, Mao-Chieh Chen, and <sup>a</sup>Knut Beekmann, "Electrical Stability of Nano-Porous Low Dielectric Constant Film", in Proc. of The 9th Symposium on Nano Device Technology, pp.48-52, 2002.
5. Kuo-Lung Fang, Bing-Yue Tsui, Chen-Chi Yang, Mao-Chieh Chen, Shyh-Dar Lee, Knut Beekmann, Tony Wilby, Kath Giles, and Sajid Ishaq, "Electrical and Material Stability of Orion™ CVD Ultra Low-k Dielectric Film for Copper Interconnection", in Proc. of the Int. Interconnect Tech. Conf., pp.60, 2002.
6. Chih-Feng Huang and Bing-Yue Tsui, "Novel Binary Alloy Gate Electrodes for Metal Gate MOS Devices", in Proc. of the 2002 Int. Conf. on Solid State Devices and Materials, pp.184, 2002.
7. Bing-Yue Tsui, Chen-Chi Yang, and Kuo-Lung Fang, "Anisotropic Thermal Conductivity of Nano-Porous Silica Film", to be presented in VLSI-TSA, 2003.

葉清發教授 交通大學電子工程所

期刊論文

1. C. F. Yeh, Y. C. Lee, K. H. Wu, Y. C. Su, S. C. Lee, "Comprehensive Investigation on Fluorosilicate Glass Prepared by Temperature-Difference Based Liquid-Phase Deposition", J. Electrochemical. Soc. Vol. 147 (1), p.330-334 (2000) 2000
2. C. F. Yeh, Y. C. Lee, Y. C. Su, K. H. Wu, C. H. Lin, "Novel Sidewall Capping for Degradation-Free Damascene Trenches of Low-Permittivity Methylsilsequioxane", J. Appl. Phys. Vol. 39, p.354-356 (2000) 2000
3. C. F. Yeh, Y. C. Lee, and S. C. Lee, "Reliability of Fluorinated Silicon Oxide Film Prepared by Temperature Difference-Based Liquid Phase Deposition", J. Electrochemical Soc. Vol. 147, p. S-6-1~S-6-5 (2000) 2000
4. C. F. Yeh, T. J. Chen, and C. L. Jon T. Gudmundsson, Member, IEEE, and Michael A. Lieberman, Fellow, IEEE, "Hydrogenation of Polysilicon Thin-Film Transister in a Planar Inductive H<sub>2</sub>/Ar Discharge", IEEE Electron Device Lett. Vol.20, No. 5, P. 223, (1999). 1999
5. C. F. Yeh, P. S. Shih, C. Y. Chang, Fellow, IEEE, T. C. Chang, T. Y. Huang, Fellow, IEEE, and D. Z. Peng, "A Novel Lightly Doped Drain Polysilicon Thin-Film Transister with Oxide Sidewall Spacer Formed by One-Step Selective Liquid Phase Deposition", IEEE Electron Device Lett. Vol. 20, No. 8, P. 421. (1999) 1999

研討會論文

1. C. F. Yeh, C. H. Liu, S. C. Wang, and Y. J. Hsiao, "Applying Selective Liquid-Phase Deposition Instead of Reactive Ion Etching to The Contact Hole Formation of MOSFETs" accepted for the presentation to IEEE DRC, June 28-30, 1999. 1999
2. C. F. Yeh, C. H. Liu, S. C. Wang, and Y. J. Hsiao, accepted for the presentation in Advanced Workshop on frontiers in Electronics(99 OFE), May31-June 4, 1999. 1999
3. C. F. Yeh, Y. C. Lee, K. H. Wu, Y. C. Su, "Properties of Silicon Oxide Prepared by Liquid-Phase Deposition", 1999 APS Centennial Meeting, Session VC23: Novel Dielectric Semiconductor System, March 20~26, 1999. 1999
4. C.F. Yeh, J.S. Liu, M.C. Chiang, "Characteristics of Novel Polysilicon Oxide by Anodic Oxidation", in Proc. on Insulating Film on Semiconductor (infos'99), 16-19, June, 1999 1999
5. C. F. Yeh, C. H. Liu, "Applying Selective Liquid-Phase Deposition to Create Contact Hole in Plasma Damage-Free Process" in Proc. on Plasma Process Induced Damage(98 2ID), pp223-226, 1998. 1998

(六)熱阻絲蒸鍍系統---校外論文

張鼎張教授 中山大學物理所

期刊論文

1. T. C. Chang, P. T. Liu, Y. L. Yang, J. C. Hu, S. M. Sze, "Enhancement of barrier properties in chemical vapor deposited TiN employing multi-stacked structure", Jpn. J. Appl. Phys., Part 2 39 (2A), p.L82 (2000).
2. P. T. Liu, T. C. Chang, Y. F. Cheng, L. Y. Yang, S. M. Sze, "Improvement on intrinsic electric properties of Low-k Hydrogen Silsesquioxane/ copper interconnections employing deuterium plasma treatment", Journal of Electrochemical Society, 147(3), p.1186 (2000).
3. W. C. Gau, T. C. Chang, Y. S. Lin, J. C. Hu, L. J. Chen, C. L. Cheng, "Copper electroplating for future ULSI interconnection", has been accepted by Journal of Vacuum Science & Technology A 18(2), p.656 (2000).
4. P. S. Shih, T. C. Chang, C. Y. Liang, T. Y. Huang, C. Y. Chang "Improvements of amorphous silicon inverted-staggered thin film transistors using high temperature deposited Al gate with chemical mechanical polishing", has been accepted by Electrochemical and Solid-State Letter, 3(5), p.235 (2000).
5. P. T. Liu, T. C. Chang, S. M. Sze, "Effects of NH<sub>3</sub>-plasma nitration on the electrical characterization of low-k Hydrogen Silsesquioxane with copper interconnections", IEEE Trans. on Electron Device, 47(9), p.1733 (2000).
6. J. S. Luo, W. T. Lin, C. Y. Chang, P. S. Shih, T. C. Chang, "Pulsed KrF laser annealing of Mo/SiGe", Nuclear Instruments and Methods in Physics Research B, 169, p.129 (2000).
7. P. S. Shih, H. W. Zan, T. C. Chang, T. Y. Huang, C. Y. Chang, "Dimensional Effects on the Drain Current of N- and P-Channel Polycrystalline Silicon Thin Film Transistors", Jpn. J. Appl. Phys, Part 1, 39(7A), p.3879 (2000).
8. J. C. Hu, T. C. Chang, C. W. Wu, C. J. Chen, "Effects of a new combination of additives in electroplating solution on the properties of Cu films in ULSI applications", Journal of Vacuum Science & Technology A, 18(4), p.1207 (2000).
9. P. T. Liu, T. C. Chang, J. C. Wu, Y.L. Yang, S. M. Sze, "Reliability of multi-stacked chemical vapor deposition Ti/TiN structure as a diffusion barrier in ULSI metallization", Journal of the Electrochemical Society, 147(1), p.368 (2000).
10. P. S. Shih, T. C. Chang, T. Y. Huang, C. F. Yeh, C. Y. Chang, "Characterization and reliability of lightly-doped-drain polysilicon thin-film transistors with oxide sidewall spacer formed by one-step selective liquid phase deposition, Jpn. J. Appl. Phys, 39(10) p.5758 (2000).
11. T. C. Chang, P. T. Liu, M. C. Huang, Y. L. Yang, M. S. Tsai, H. Chung, J. Hou, S. M. Sze, "Improvement of post-CMP characteristics on organic low-k methylsilsesquioxane as intermetal dielectric", Journal of Electrochemical Society

- 147(11) p.4313 (2000).
12. Y.W. Hsieh, J. S. Luo, W. T. Lin, T. C. Chang, "Improvement of the (111) texture and microstructures of Cu films by pulsed laser annealing", has been accepted by *J. Mat. Sci.: material in Electronics* (2000).
  13. T. F. Yang, C. P. Chen, Y. L. Yang, T. C. Chang, "Study on the Si-Si vibrational-states of the near-surface region of porous silicon", *Journal of Porous Materials*, 17 (1-3), p. 339 (2000).
  14. H. J. Huang, K. M. Chen, C. Y. Chang, T. Y. Huang, T. C. Chang, "Study of boron effects on the reaction of Co and SiGe at various temperatures", *Journal of Vacuum Science & Technology A*, 18(4), p.1448 (2000).
  15. D. Z. Peng, P. S. Shih, T. C. Chang, C. Y. Chang, "Reliability of passivated P-type polycrystalline silicon thin film transistor", *Microelectronics Reliability* 40 (2000), p.1491 (2000).
  16. H. W. Zan, P. S. Shih, T. C. Chang, C. Y. Chang, "Reliability of passivated P-type polycrystalline silicon thin film transistor", *Microelectronics Reliability* 40 (2000), p.1491 (2000).

#### 研討會論文

1. T. C. Chang, P. T. Liu, H. Su, C. F. Chang, Y. L. Yang, J. Hou, "Enhancement of organic low-k hybrid-organic-siloxane-polymer (HOSP) in resisting oxygen plasma process", has been accepted by 197<sup>th</sup> meeting of The Electrochemical Society, Tronto, Ontario, Canada. (2000).
2. T. C. Chang, P. T. Liu, M. C. Huang, T. M. Tsai, C. F. Chang, Y. L. Yang, S. M. Sze, H. Chung, J. Hou, "Improvement in the characteristics of post-CMP low-k Methylsilsequioxane", has been accepted by 197<sup>th</sup> meeting of The Electrochemical Society, Tronto, Ontario, Canada. (2000).
3. T. C. Chang, P. T. Liu, T. M. Tsai, C. F. Chang, Y. L. Yang, S. M. Sze, F. Y. Shih, E. Tsai, G. Chen, J. K. Lee, "Ammonia plasma passivation effects on properties of post-CMP low-k hydrogen silsequioxane (HSQ)", has been accepted by 197<sup>th</sup> meeting of The Electrochemical Society, Tronto, Ontario, Canada. (2000).
4. J. C. Hu, T. C. Chang, L. J. Chen, M. S. Yeh, C. S. Hsiung, W. Y. Hsieh, W. Lur, T. R. Yew, "Investigation of leveling effect on electrodeposited Cu films for ULSI applications", has been accepted by 197<sup>th</sup> meeting of The Electrochemical Society, Tronto, Ontario, Canada. (2000).

#### 陳文章 台灣大學化學工程所

#### 發表論文

1. W. C. Chen, S. C. Lin, B.-T. Dai, and M.-S. Tsai, "Chemical-Mechanical Polishing of Low Dielectric Constant Materials: HSQ and MSQ," *J. Electrochem. Soc.*, 146(8), 3004-3009

- (1999).
2. W. C. Chen, and C. C. Chang, "Synthesis and Characterization of Large Diameter Polymer Light Conduits," *J. Mater. Chem.*, 9, 2307-2312 (1999).
  3. W. C. Chen, Y. Chang, and J. P. Hsu, "Theoretical Analysis on a Multi-layer Co-extrusion Process for Preparing Gradient-index Polymer Optical Fibers," *J. Phys. Chem. B*, 103, 7584-7590 (1999)
  4. W. C. Chen, S.-J. Lee, L.-H. Lee, and J.-L. Lin, "Synthesis and Characterization of Trialkoxysilane-capped Poly(methyl methacrylate)-Titania Hybrid Optical Thin Films," *J. Mater. Chem.*, 9, 2999-3003 (1999)(SCI).
  5. W. C. Chen and S.-J. Lee, "Synthesis and Characterization of Poly(methyl methacrylate)-Silica Hybrid Optical Thin Films," *Polym. J.*, 32(1), 67-72 (2000)(SCI, EI).
  6. W. C. Chen, and C. T. Yen, "Effect of Slurry Chemistry on Chemical-Mechanical Polishing of Low Dielectric Constant Polysiloxanes: HOSP and MSQ," *J. Vac. Sci. Technol. B*, 18(1), 201-207 (2000).
  7. W. C. Chen, Y. Chang, and M.-S. Wei, "Theoretical Analysis of Gradient-index Polymeric Rods Prepared by Centrifugal Field," *J. Polym. Sci. Polym. Phys.*, 38, 1764-1772(2000).
  8. Y. Chang, W. C. Wu, and W. C. Chen, "Theoretical Analysis on Spin Coating of Polyimide Precursor Solutions", *J. Electrochem. Soc.*, accepted for publication(2000).  
L.-H. Lee and W. C. Chen, "High Refractive Index Thin Films Prepared From Trialkoxysilane-capped Poly(methyl methacrylate)-Titania materials", *Chem. Mater.*, accepted for publication(2001).

王天戈 清華大學工程系統所

期刊論文

1. J.J.Peir and T.K.Wang(1999) "TRIGA Full enrichment verification gased on the measurement of short-lived fission products." *Appl. Radiat. Isot.* 50, 1085-1096
2. T.K.Wang, I. M.Hou and C.L.Tseng(1999) "Well-type HPGe-detector absolute-peak-efficiency calibration and true-coincidence correction," *Nucl. Instrum. Meth.A425*, 504-515
3. M.Y. Wang, F. H. Ko, T. K. Wang, C. C. Yang and T. Y. Huang (1999) "Characterization and Modeling of Out-diffusion of Manganese and Zinc Impurities from Deep Ultra-violet Photoresist" *J. Electrochem. Soci.* 146, 3455-3460.
4. F. H. Ko, M. Y. Wang and T. K. Wang(1999), "Evaluation of Metal Migration and Determination of Trace Metals after Microwave Digestion for Lithographic Materials" *Anal. Chem.*, 71, 5413
5. F. H. Ko, L. T. Hsiao, C. T. Chou, M. Y. Wang and T. K. Wang (1999) "Evaluation of Imputation and Microwave Digestion Methods for Lithographic Materials," *Proc. SPIE*, 3677, 907-917.

6. T. K. Wang and J. J. Peir (2000) "An Iterative Approach for TRIGA fuel Burnup Determination using Nondestructive Gamma-ray Spectrometry." Appl. Radiat. Isot. 52, 105-118
7. T. K. Wang et. al., (2001) "Characterization and Modeling of the metal diffusion from deep ultraviolet photoresist and silicon-based substrate" Appl. Radiat. Isot. 54, 811-820

研討會論文

1. F. H. Ko, L. T. Hsiao, C. T. Chou, M. Y. Wang, T. K. Wang (1999) "Evaluation of Impurity Migration and Microwave Digestion Methods for Lithographic Materials," Proc. SPIE 3678-44, Santa Clara, CA.
2. C.C> Lin, T.K. Wang and K.S. Chang-Liao (2000) "Preparation of High-Quality Silicon Nitride Dielectric by LPCVD with Two-step RTP Annealing," The 7th Sym. On Nano Device Technology, NCTU, Taiwan.
3. Y.P. Lin, T.K. Wang and K.S. Chang-Liao (2000) "Suppression of Copper Penetration by Using SiO<sub>2</sub> and Amorphous Si," The 7th Sym. On Nano Device Technology, NCTU, Taiwan.

周榮泉 雲林科技大學電子工程所

1. 期刊名稱: Journal of Yunlin Institute of Technology  
著作內容: Jung Chuan Chou, June, 1992, Surface and Inner Morphology Study of Hydrogenated Amorphous Silicon Films by Electron Microscope Analysis, Journal of Yunlin Institute of Technology, Vol.1, P.29-P.37.
2. 期刊名稱: Journal of Yunlin Institute of Technology  
著作內容: Jung Chuan Chou, June,1992, Study on the Crystallization Kinetics of a-Se:Te Films by Isothermal Annealing, Journal of Yunlin Institute of Technology, Vol.1, P.23-P.27 .
3. 期刊名稱: Journal of Yunlin Institute of Technology  
著作內容: 周榮泉、鄭香平(研究生), June, 1994, SiO<sub>2</sub>/SiON/ SiO<sub>2</sub>/Si 波導應用於 0.98/1.55 微米方向耦合器之最佳化設計與理論分析, Journal of Yunlin Institute of Technology, Vol.2, P.155-P.159 .
4. 期刊名稱: Journal of Yunlin Institute of Technology  
著作內容: 周榮泉、鄭香平(研究生), June, 1993, 以電漿輔助化學氣相沉積法探討氮氧化矽薄膜之特性, Journal of Yunlin Institute of Technology, Vol.3, P.141-P.148 .
5. 期刊名稱: Chinese Journal of Materials Science  
著作內容: 周榮泉、莊典明(研究生), December, 1994, 非晶形 a-C:H/a-Se(or alloy)Al<sub>2</sub>O<sub>3</sub>/Al 結構之研製及其光電特性之探討, Chinese Journal of Materials Science, Vol.26(4), P.311-P.314.

## 6. 期刊名稱： Chinese Journal of Materials Science

著作內容： 林威全(研究生)、鍾文耀、孫台平、周榮泉、熊慎幹, June, 1995, 離子感測場效電晶體模型在電腦輔助設計上之研究, Chinese Journal of Materials Science, Vol.27(2), P.147-P.150.

## 7. 期刊名稱： Fiber and Integrated Optics (SCI 期刊)

著作內容： Yuan Kuang Tu, Jung Chuan Chou, Shiang Ping Cheng (研究生), February, 1995, Single Mode SiON/SiO<sub>2</sub>/Si Optical Waveguides Prepared by Plasma Enhanced Chemical Vapor Deposition, International Fiber and Integrated Optics, Vol.14(2), P.133-P.139. (SCI 期刊).

## 8. 期刊名稱： Chinese Journal of Materials Science

著作內容： Shu Fen Liao(研究生), Jung Chuan Chou, Wen Yaw Chung, Tai Ping Sun and Shen Kan Hsiung, December, 1995, Study on the Electrophotographic Properties of Photoreceptors by Using PN Junction Theory, Chinese Journal of Materials Science, Vol.27(4), P.318-P.322.

## 9. 期刊名稱： Journal of Yunlin Institute of Technology

著作內容： 周榮泉、周國裕(研究生), January, 1996, 非晶形硒薄膜中載子傳導之探討, Journal of Yunlin Institute of Technology, Vol.5 (1), P.159-P.169.

## 10. 期刊名稱： Journal of Technology

著作內容： 周榮泉、鄭瑞福(研究生), May, 1996, 非晶形硒恆溫熱退火後相結構之計算機理論模式分析, Journal of Technology, Vol. 11(1), P.63-P.71。

吳振名 清華大學材料工程所

## 期刊論文

1. J.M. Wu and H.L. Huang\*, "The Effect of Crystallization on Microwave Dielectric Properties of Stoichiometric Cordierite Glasses Containing B<sub>2</sub>O<sub>3</sub> and P<sub>2</sub>O<sub>5</sub>" J. Mater. Research, 15 (2000) 222-227.
2. J.M. Wu and S.P. Hwang\*, "Effects of (B<sub>2</sub>O<sub>3</sub>, P<sub>2</sub>O<sub>5</sub>) Additives on Microstructural Development and Phase Transformation Kinetics of Stoichiometric Cordierite Glasses", J. Amer. Ceram. Soc., 83 (2000) 1259-65.
3. M.C. Chang\*, J.M. Wu, S.Y. Cheng, and S.Y. Chen, "Reaction Kinetics and Mechanism of BaPbO<sub>3</sub> Formation", Mater. Chem. and Phys., 65 (2000) 57-62.
4. M.C. Chang\*, J.M. Wu, S.Y. Cheng, and S.Y. Chen, "The Effect of Ball-Milling Solvent on the Properties of Ba(Pb<sub>1-x</sub>Bi<sub>x</sub>)O<sub>3</sub> and the Decomposition of BaPbO<sub>3</sub>" Mater. Chem. and Phys., 69 (2001) 226-229.
5. W. T. Liu\* and J. M. Wu, "The Effect of Vacuum Extraction and Fe/Ba ratio on the Phase Formation of Barium Ferrite Thin Film Synthesized by Sol-Gel Method", Materials Chem. and Phys., 69 (2001) 148-153.
6. W. T. Liu\*, J. Lee, and J. M. Wu, "X-Ray Absorption Spectroscopic Study of Barium Ferrite Thin Films Synthesized by Sol-Gel Method", Materials Chem. and Phys., 69 (2001) 89-94.

7. G. C. Chao\* and J. M. Wu, "Effect of LaNiO<sub>3</sub> Electrode on Electrical Properties of RF-Magnetron Sputtered Pb(Zr,Ti)O<sub>3</sub> Ferroelectric Thin Films" Jpn. J. Appl. Phys. 40 (2001) 1306-1309.
8. S. P. Hwang\* and J. M. Wu, "The Effect of Composition on Microstructural Development of MgO-Al<sub>2</sub>O<sub>3</sub>-SiO<sub>2</sub> Glasses" J. Amer. Ceram. Soc.,84 (2001) 1108-1112.
9. G. C. Chao\* and J. M. Wu, "Leakage Current and Fatigue Properties of Pb(Zr,Ti)O<sub>3</sub> Ferroelectric Films Prepared by RF-Magnetron Sputtering on Textured LaNiO<sub>3</sub> Electrode" Jpn. J. Appl. Phys. 40 (2001) 2417-2422.
10. G. C. Chao\* and J. M. Wu, "Reducing Atmosphere Treatment of Sol-Gel Derived Pb(Zr,Ti)O<sub>3</sub> Ferroelectric Films on Textured LaNiO<sub>3</sub> Electrode" Jpn. J. Appl. Phys. 40 (2001) 6045-48.
11. Y. R. Luo\* and J. M. Wu, "BaPbO<sub>3</sub> Perovskite Electrode for Lead Zirconate Titanate Ferroelectric Thin Films" Appl. Phys. Lett. 79 (2001) 3669-71.
12. C. S. Liang\*, J. M. Wu and M. C. Chang\* "Ferroelectric BaPbO<sub>3</sub>/PZT/BaPbO<sub>3</sub> Heterostructures" Accepted by Appl. Phys. Lett. Sep., 2002.
13. Y. R. Luo\* and J. M. Wu "Magnetron sputtered conductive perovskite BaPbO<sub>3</sub> films" Accepted by Jpn. J. Appl. Phys. Oct., 2002.



## 三、各儀器支援之研究成果——發表論文紀錄表

## (十一)雙電子鎔蒸鍍系統

校內使用者期刊論文

**荊鳳德教授 交通大學電子工程所**

期刊論文

1. K. T. Chan, A. Chin, J. T. Kuo, C. Y. Chang, D. S. Duh, W. J. Lin, C. X. Zhu, M. F. Li, and D. L. Kwong, "Microwave Coplanar Filters on Si Substrates," *IEEE MTT-S International Microwave Symp.*, June 2003.
2. K. T. Chan, A. Chin, S. P. McAlister, C. Y. Chang, C. Tseng, V. Liang, J. K. Chen, D. S. Duh, and W. J. Lin, "Low RF loss and noise of transmission lines on Si substrates using an improved ion implantation process," *IEEE MTT-S International Microwave Symp.*, June 2003.
3. C. H. Huang, M. Y. Yang, A. Chin, C. X. Zhu, M. F. Li, and D. L. Kwong, "High Density RF MIM Capacitors Using High-k AlTaO<sub>x</sub> Dielectrics," *IEEE MTT-S International Microwave Symp.*, June 2003.
4. C. H. Huang, K. T. Chan, C. Y. Chen, A. Chin, G. W. Huang, C. Tseng, V. Liang, and J. K. Chen, "The minimum noise figure and mechanism as scaling RF MOSFETs from 0.18 to 0.13  $\mu\text{m}$  technology nodes," *IEEE RF-IC International Microwave Symp. (RFIC)*, June 2003.
5. S. B. Chen, J. H. Chou, A. Chin, J. C. Hsieh, and J. Liu, "RF MIM Capacitors Using High-K Al<sub>2</sub>O<sub>3</sub> and AlTiO<sub>x</sub> Dielectrics," *IEEE MTT-S International Microwave Symp.*, June 2002.
6. K. T. Chan, A. Chin, Y. B. Chen, Y.-D. Lin, D. T. S. Duh, and W. J. Lin, "Integrated Antennas on Si and Si-on-Quartz up to 20GHz," *International Electron Devices Meeting (IEDM)*, Washington DC, USA, Dec., 2001.
7. M. Y. Yang, S. B. Chen, A. Chin, C. L. Sun, B. C. Lan, and S. Y. Chen, "One-Transistor Stacked Gate Memory," *International Electron Devices Meeting (IEDM)*, Washington DC, USA, Dec., 2001.
8. A. Chin, C. S. Liang, C. Y. Lin, C. C. Wu, and J. Liu, "Strong and Efficient Light Emission in Si-based Superlattice Tunnel Diode," *International Electron Devices Meeting (IEDM)*, Washington DC, USA, Dec., 2001.
9. K. T. Chan, A. Chin, C. M. Kwei, D. T. Shien, and W. J. Lin "Transmission Line Noise from Standard and Proton-Implanted Si," *IEEE MTT-S International Microwave Symp.*, June 2001.
10. K. T. Chan, A. Chin, S. P. McAlister, C. Y. Chang, J. Liu, S. C. Chien, D. S. Duh, and W. J. Lin, "Low RF noise and power loss for ion implanted Si having an improved implantation process," *IEEE Electron Device Lett.* 24, Jan. (2003).
11. H. Hu, C. Zhu, X. Yu, A. Chin, M. F. Li, B. J. Cho, and D. L. Kwong, "MIM Capacitors Using Atomic-Layer-Deposited High- $\kappa$  (HfO<sub>2</sub>)<sub>1-x</sub>(Al<sub>2</sub>O<sub>3</sub>)<sub>x</sub> dielectrics," *IEEE Electron Device Lett.* 24, (2003).
12. X. Yu, C. Zhu, H. Hu, A. Chin, M. F. Li, B. J. Cho, and D. L. Kwong, "A High Density MIM Capacitor (13 fF/ $\mu\text{m}^2$ ) Using ALD HfO<sub>2</sub> Dielectrics," *IEEE Electron Device Lett.* 24, (2003).
13. K. T. Chan, C. Y. Chen, A. Chin, J. C. Hsieh, J. Liu, T. S. Duh, and W. J. Lin, "40-GHz Coplanar Waveguide Bandpass Filters on Silicon Substrate," *IEEE Wireless & Microwave Components Lett.* 23, Nov. (2002).

14. C. H. Huang, C. H. Lai, J. C. Hsieh and J. Liu and A. Chin, "RF noise in 0.18 $\mu$ m and 0.13 $\mu$ m MOSFETs," *IEEE Wireless & Microwave Components Lett.* 23, Dec. (2002).
15. C. H. Huang, S. B. Chen, and A. Chin "La<sub>2</sub>O<sub>3</sub>/Si<sub>0.3</sub>Ge<sub>0.7</sub> p-MOSFETs with high hole mobility and good device characteristics," *IEEE Electron Device Lett.* 23, Dec (2002).
16. C. Y. Lin, W. J. Chen, C. H. Lai, A. Chin, and J. Liu, "Formation of Ni Germano-Silicide on Single Crystalline Si<sub>0.3</sub>Ge<sub>0.7</sub>/Si," *IEEE Electron Device Lett.* 23, 464 (2002).
17. C. H. Tseng, T. K. Chang, F. T. Chu, J. M. Shieh, B. T. Dai, H. C. Cheng, and A. Chin, "Investigation of Inductively Coupled Plasma Gate Oxide on Low Temperature Polycrystalline-Silicon Thin Film Transistors," *IEEE Electron Device Lett.* 23, 333 (2002).
18. S. B. Chen, J. H. Chou, K. T. Chan, A. Chin, J. C. Hsieh, and J. Liu, "Frequency-dependent capacitance reduction in high-k AlTiO<sub>x</sub> and Al<sub>2</sub>O<sub>3</sub> gate dielectrics from IF to RF frequency range," *IEEE Electron Device Lett.* 23, 203 (2002).
19. S. B. Chen, J. H. Chou, A. Chin, J. C. Hsieh, and J. Liu, "High Density MIM Capacitors Using Al<sub>2</sub>O<sub>3</sub> and AlTiO<sub>x</sub> Dielectrics," *IEEE Electron Device Lett.* 23, 185 (2002).
20. C. L. Sun, S. Y. Chen, S. B. Chen and A. Chin, "Bi<sub>3.25</sub>La<sub>0.75</sub>Ti<sub>3</sub>O<sub>12</sub> Thin Films on Ultra-thin Al<sub>2</sub>O<sub>3</sub> Buffered Si for Ferroelectric Memory Application," *Appl. Phys. Lett.* 80, 3168 (2002).
21. C. L. Sun and S. Y. Chen, S. B. Chen, A. Chin, "Effect of annealing temperature on physical and electrical properties of Bi<sub>3.25</sub>La<sub>0.75</sub>Ti<sub>3</sub>O<sub>12</sub> thin films on Al<sub>2</sub>O<sub>3</sub>-buffered Si," *Appl. Phys. Lett.* 80, 1984 (2002).
22. S. B. Chen, C. H. Huang, A. Chin, J. Lin, J. P. Jou, K. C. Su, and J. Liu, "RF noise characteristics of high-k AlTiO<sub>x</sub> and Al<sub>2</sub>O<sub>3</sub> gate dielectrics," *J. Electrochem. Soc.* 149, F69 (2002).
23. C. Y. Lin, K. H. Shih, C. C. Wu, and A. Chin, "Poly-Si Thin-Film Transistors Crystallized by Electron-beam Annealing," *J. Electrochem. Soc.* 149, G391 (2002).
24. C. H. Huang, A. Chin, and W. J. Chen, "Characterization of Si/SiGe Heterostructures on Si Formed by Solid Phase Reaction," *J. Electrochem. Soc.*, 149, G209 (2002).
25. A. Chin, M. Y. Yang, C. L. Sun, and S. Y. Chen, "Stack gate one transistor ferroelectric memory," *IEEE Electron Device Lett.* 22, 336 (2001).
26. Y. H. Lin, F. M. Pan, Y. C. Liao, Y. C. Chen, I. J. Hsieh, and A. Chin, "The Cu contamination effect in oxynitride gate dielectrics," *J. Electrochem. Soc.*, G627 (2001).
27. C. L. Sun, S. Y. Chen, M. Y. Yang, and A. Chin, "Characteristics of Pb(Zr<sub>0.53</sub>Ti<sub>0.47</sub>)O<sub>3</sub> on Metal and Al<sub>2</sub>O<sub>3</sub>/Si Substrates," *J. Electrochem. Soc.* 148, F203 (2001).
28. C. H. Tseng, C. W. Lin, T. K. Chang, H. C. Cheng, and A. Chin, "Effects of Excimer Laser Dopant Activation on the Low Temperature Polysilicon Thin-Film Transistors with Lightly Doped Drains," *Electrochem. Solid-State Lett.* 4, G94 (2001).
29. Y. H. Lin, Y. C. Chen, K. T. Chan, F. M. Pan, I. J. Hsieh, and A. Chin, "The strong

- degradation on 30 A oxide integrity contaminated by copper," *J. Electrochem. Soc.* 148, F73 (2001).
30. Y. H. Wu, A. Chin, K. H. Shih, C. C. Wu, C. P. Liao, S. C. Pai, C. C. Chi, "The fabrication of very high resistivity Si with low loss and cross talk," *IEEE Electron Device Lett.* 21, 394 (2000).
31. Y. H. Lin, Y. H. Wu, A. Chin, and F. M. Pan, "The effect of copper on gate oxide integrity," *J. Electrochem. Soc.* 147, 4305 (2000).
32. Y. H. Wu, A. Chin, and W. J. Chen, "Thickness dependent gate oxide quality of thin thermal oxide grown on high temperature formed SiGe," *IEEE Electron Device Lett.* 21, 289 (2000).
33. Y. H. Wu and A. Chin, "High temperature formed SiGe p-MOSFETs with good device characteristics," *IEEE Electron Device Lett.* 21, 350 (2000).
34. Y. H. Wu, M. Y. Yang, A. Chin, and W. J. Chen, "Electrical characteristics of high quality  $\text{La}_2\text{O}_3$  dielectric with equivalent oxide thickness of 5A," *IEEE Electron Device Lett.* 21, 341 (2000).
35. Y. H. Wu and A. Chin, "Gate oxide integrity of thermal oxide grown on high temperature formed  $\text{Si}_{0.3}\text{Ge}_{0.7}$ ," *IEEE Electron Device Lett.* 21, 113 (2000).
36. Y. H. Wu, C. H. Huang, W. J. Chen, C. N. Lin, and A. Chin, "The buried oxide property in oxygen plasma enhanced low-temperature wafer bonding," *J. Electrochem. Soc.* 147, 2754 (2000).
37. Y. H. Wu, S. B. Chen, A. Chin, and W. J. Chen "High Quality Thermal Oxide Grown on High Temperature Formed SiGe," *J. Electrochem. Soc.* 147, 1962 (2000).

#### 研討會論文

1. K. T. Chan, A. Chin, J. T. Kuo, C. Y. Chang, D. S. Duh, W. J. Lin, C. X. Zhu, M. F. Li, and D. L. Kwong, "Microwave Coplanar Filters on Si Substrates," *IEEE MTT-S International Microwave Symp.*, June 2003.
2. K. T. Chan, A. Chin, S. P. McAlister, C. Y. Chang, C. Tseng, V. Liang, J. K. Chen, D. S. Duh, and W. J. Lin "Low RF loss and noise of transmission lines on Si substrates using an improved ion implantation process," *IEEE MTT-S International Microwave Symp.*, June 2003.
3. C. H. Huang, M. Y. Yang, A. Chin, C. X. Zhu, M. F. Li, and D. L. Kwong, "High Density RF MIM Capacitors Using High-k  $\text{AlTaO}_x$  Dielectrics," *IEEE MTT-S International Microwave Symp.*, June 2003.
4. C. H. Huang, K. T. Chan, C. Y. Chen, A. Chin, G. W. Huang, C. Tseng, V. Liang, and J. K. Chen, "The minimum noise figure and mechanism as scaling RF MOSFETs from 0.18 to 0.13 mm technology nodes," *IEEE RF-IC International Microwave Symp.*, June 2003.
5. C. H. Huang, C. H. Lai, A. Chin, V. Liang, and S. C. Chien "Optimized Noise and

- Consistent RF Model for 0.18 $\mu$ m MOSFETs,” *International Symp. on VLSI Technology, System, and Applications*, June 2003.
6. C. H. Huang, C.Y. Lin, H. Y. Li, W. J. Chen, A. Chin, and P. Mei "La<sub>2</sub>O<sub>3</sub>/Si<sub>0.3</sub>Ge<sub>0.7</sub> p-MOSFETs and Ni Germano-Silicide,” *International Symp. on VLSI Technology, System, and Applications*, June 2003.
  7. S. B. Chen, J. H. Chou, A. Chin, J. C. Hsieh, and J. Liu, “RF MIM Capacitors Using High-K Al<sub>2</sub>O<sub>3</sub> and AlTiO<sub>x</sub> Dielectrics,” *IEEE MTT-S International Microwave Symp.*, June 2002.
  8. K. T. Chan, C. Y. Chen, A. Chin, J. C. Hsieh, and J. Liu, T. S. Duh, and W. J. Lin, “High Performance 40-GHz Bandpass Filters on Si Using Proton Implantation,” *60<sup>th</sup> IEEE Device Research Conference (DRC)*, Santa Barbara, CA, pp., June 2002.
  9. C. H. Huang, C. H. Lai, J. C. Hsieh, and J. Liu, and A. Chin, “RF noise in deep sub- $\mu$ m MOSFETs and proposed solution,” *60<sup>th</sup> IEEE Device Research Conference (DRC)*, Santa Barbara, CA, pp., June 2002.
  10. C. Y. Lin, C. H. Lai, W. J. Chen,\* and A. Chin, “Formation of high quality silicide on SiGe with high Ge contents,” *44<sup>th</sup> Electronic Materials Conference (EMC)*, Santa Barbara, CA, June 2002.
  11. K. T. Chan, A. Chin, Y. B. Chen, Y.-D. Lin, D. T. S. Duh, and W. J. Lin, “Integrated Antennas on Si and Si-on-Quartz up to 20GHz,” *International Electron Devices Meeting (IEDM)*, Washington DC, USA, Dec., 2001.
  12. M. Y. Yang, S. B. Chen, A. Chin, C. L. Sun, B. C. Lan, and S. Y. Chen, “One-Transistor Stacked Gate Memory,” *International Electron Devices Meeting (IEDM)*, Washington DC, USA, Dec., 2001.
  13. A. Chin, C. S. Liang, C. Y. Lin, C. C. Wu, and J. Liu, “Strong and Efficient Light Emission in Si-based Superlattice Tunnel Diode,” *International Electron Devices Meeting (IEDM)*, Washington DC, USA, Dec., 2001.
  14. K. T. Chan, A. Chin, C. M. Kwei, D. T. Shien, and W. J. Lin, “Transmission Line Noise from Standard and Proton-Implanted Si,” *IEEE MTT-S International Microwave Symp.*, June 2001.
  15. A. Chin, S. B. Chen, K. T. Chan, J. Lin, J. P. Jou, K. C. Su, and J. Liu, “RF challenges for high-k gate dielectrics,” *High K dielectric workshop.*, Japan, Nov. 2001. (Invited)
  16. A. Chin, M. Y. Yang, S. B. Chen, C. L. Sun, and S. Y. Chen, “Fast Write Time and Long Retention 1T Memory,” *59th IEEE Device Research Conference (DRC)*, Notre Dame, IN, June 2001.
  17. A. Chin, “Gate oxide integrity of SiGe p-MOSFET with high current drive,” *International Semiconductor Technology Conference*, 2001. (Invited)
  18. Y. H. Lin, Y. C. Chen, F. M. Pan, I. J. Hsieh, and A. Chin, “The thickness dependent gate oxide integrity degradation by Cu contamination,” *43<sup>th</sup> Electronic Materials Conference*

(EMC), Notre Dame, IN, June 2000.

19. A. Chin, "Super MOSFET using high K gate dielectric and SiGe," *59<sup>th</sup> Symp. on Semiconductors & IC Technology*, Japan 2000. (Invited)
20. Y. H. Wu, A. Chin, K. H. Shih, C. C. Wu, S. C. Pai, C. C. Chi, and C. P. Liao, "RF loss and cross talk on extremely high resistivity (10K-1M  $\Omega$ -cm) Si fabricated by ion implantation," *IEEE MTT-S International Microwave Symp.*, June 2000.
21. Y. H. Wu, A. Chin, C. S. Liang, and C. C. Wu, "The performance limiting factors as RF MOSFETs scaling down," *IEEE MTT-S International RF-IC Symp.*, June 2000.
22. A. Chin, Y. H. Wu, S. B. Chen, C. C. Liao, and W. J. Chen, "High Quality La<sub>2</sub>O<sub>3</sub> and Al<sub>2</sub>O<sub>3</sub> Gate Dielectrics with Equivalent Oxide Thickness 5-10Å," *Symp. on VLSI Technology*, p. 19, US, June 2000. (Highlight Section Paper)
23. A. Chin "The possible materials and requirement of high-K gate dielectrics for VLSI," *MRS High-K Gate Dielectrics workshop*, US, June 2000. (Invited)
24. Y. H. Wu, K. T. Chan, S. B. Chen, W. J. Chen, and A. Chin, "Improved shallow junction integrity using single crystalline CoSi<sub>2</sub>," *42<sup>th</sup> Electronic Materials Conference (EMC)*, Boulder, CO, June 2000.
25. S. B. Chen, C. H. Huang, Y. H. Wu, W. J. Chen, and A. Chin, "High quality thermal ultra-thin gate oxide directly grown on high temperature formed Si<sub>0.3</sub>Ge<sub>0.7</sub>," *42<sup>th</sup> Electronic Materials Conference (EMC)*, Boulder, CO, June 2000.
26. Y. H. Wu, M. Y. Yang, S. B. Chen, W. J. Chen, A. Chin, and C. M. Kwei, "High frequency characterization of mega-ohm resistivity Si formed by high-energy ion implantation," *42<sup>th</sup> Electronic Materials Conference (EMC)*, Boulder, CO, June 2000.

### 雷添福教授 交通大學電子工程所

#### 期刊論文

1. Jiann Heng Chen, **Tan Fu Lei**, Tien Sheng Chao, Tien Pao Su, Jim Huang, Andy Tuan, and S. K. Chen, "Study on the Contact Resistance of Poly-plug Structure by In-Situ HF Vapor Clean," *IEE Electronics Letters*, Vol. 36, No. 8, pp. 756-757, 2000.
  2. Tung Ming Pan, **Tan Fu Lei**, Chao Chyi Chen, Tien Sheng Chao, Ming Chi Liaw, Wen Lu Yang, Ming Shih Tsai, C. P. Lu, and W. H. Chang, "Novel cleaning solutions for polysilicon film post chemical mechanical polishing," *IEEE Electron Devices lett.*, Vol. 21, No. 7, pp. 338-340, 2000. Tung Ming Pan, **Tan Fu Lei**, and Tien Sheng Chao, "Robust ultra-thin oxynitride dielectrics by NH<sub>3</sub> nitridation and N<sub>2</sub>O RTA treatment," *IEEE Electron Devices lett.*, Vol. 21, No. 8, pp. 378-380, 2000.
  3. **Tan Fu Lei**, Jiann Heng Chen, Ming Fang Wang, and Tien Sheng Chao, "Characteristics of Polysilicon Oxides Combining N<sub>2</sub>O Nitridation and CMP Processes," *IEEE Trans. on Electron Device*, Vol. 47, No. 8, pp. 1545-1552, 2000.
- Tung Ming Pan, **Tan Fu Lei**, Tien Sheng Chao, Kuo Lih Chang, and Kuang Chien Hsieh,

- "High quality ultra-thin  $\text{CoTiO}_3$  high-k gate dielectrics," *Electrochemical and Solid-State Lett.*, vol. 3, No. 9, pp. 433-434, 2000.
4. Tung Ming Pan, **Tan Fu Lei**, Tien Sheng Chao, Ming Chi Liaw, and Chih Peng Lu, "The Optimum Condition of Novel One-Step Cleaning Solutions for Pre-Gate Oxide Cleaning using the Robust Design Methodology," *J. J. Applied Phys.* Vol. 39, No.10, p. 5805, 2000.
  5. Chin-Yu Ku, Jia-Min Shieh, Tsann-Bim Chiou, Hwang-Kuen Lin, and **Tan Fu Lei**, "Postexposure delay effect on linewidth variation in base added chemically amplified resist", *J. Electrochem. Soc.*, Vol.147, No.10, pp.3833-3839, 2000.
  6. Jiann Heng Chen, **Tan Fu Lei**, Jian-Hong Chen, and Tien Sheng Chao, "Characteristics of TEOS Polysilicon Oxides: The Improvement by CMP Process and High Temperature RTA  $\text{N}_2/\text{N}_2\text{O}$  Annealing," *J. Electrochem. Soc.*, Vol.147, No.11, p.4282, 2000.
  7. Horng Chih Lin, C. M. Yu, C. Y. Lin, K. L. Yeh, Tiao Yuan Huang, and **Tan Fu Lei**, "A Novel Thin-Film Transistor with Self-Aligned Field Induced Drain," *IEEE Electron Devices Lett.*, Vol. 22, No. 1, pp. 26-28, 2001.
  8. Tung Ming Pan, **Tan Fu Lei**, Wen Luh Yang, Chun Ming Cheng, Tien Sheng Chao, "High Quality Interpoly-Oxynitride Grown by  $\text{NH}_3$  Nitridation and  $\text{N}_2\text{O}$  RTA Treatment," *IEEE Electron Devices Lett.*, Vol. 22, No. 2, pp. 68-71, 2001.
  9. Tung Ming Pan, **Tan Fu Lei** and Tien Sheng Chao, "High-k  $\text{CoTiO}_3$  dielectrics formed by oxidation of sputtered Co/Ti or Ti/Co films," *Applied Phys. Lett.*, vol. 78, pp.1439-1441, 2001.
  10. W. L. Yang, T. S. Chao, C. M. Cheng, T. M. Pan, and **T. F. Lei**, "High Quality Interpoly Dielectrics Deposited on the Nitride-Polysilicon for Nonvolatile Memory Devices," *IEEE Trans. On Electron Devices*, 48, pp. 1304-1309, July, 2001.
  11. Tung Ming Pan, **Tan Fu Lei** and Tien Sheng Chao, "Comparison of Ultrathin  $\text{CoTiO}_3$  and  $\text{NiTiO}_3$  High-k Gate Dielectrics," *J. Applied Phys.*, Vol. 89, March 15, 2001.
  12. Tung Ming Pan, **Tan Fu Lei**, Huang Chun Wen, and Tien Sheng Chao, "Characterization of Ultrathin Oxynitride (18-21 Å) Gate Dielectrics by  $\text{NH}_3$  Nitridation and  $\text{N}_2\text{O}$  RTA Treatment," *IEEE Trans. on Electron Devices*, Vol. 48, April., 2001.
  13. Tung Ming Pan; **Tan Fu Lei**; Fu Hsiang Ko; Tien Sheng Chao; Tzu Huan Chiu; Ying Hao Lee; Chih Peng Lu, "Comparison of novel cleaning solutions with various chelating agents for post-CMP cleaning on poly-Si film," *Semiconductor Manufacturing*, IEEE Transactions on , Volume: 14 Issue: 4 , Page(s): 365 –371, Nov. 2001.
  14. Jam Wem Lee; **Tan Fu Lei**; Chung-Len Lee, "Thin tunnel oxide grown on silicon substrate pretreated by  $\text{CF}_4$  plasma," *IEEE Electron Device Letters* , Volume: 22 Issue: 11 , Page(s): 513 –515, Nov, 2001.
  15. Tung Ming Pan, Chao Hsin Chien, **Tan Fu Lei**, Tien Sheng Chao, and Tiao Yuan Huang, "Electrical Characteristics of Thin Cerium Oxide Film on Silicon Substrate by Reactive DC Sputtering," *Electrochem. Solid-State Lett.* , Volume 4, Issue 9 pp. F15-F17, Sep.

2001.

16. Jam Wem Lee, Won-Der Chen, **Tan Fu Lei**, and Chung-Len Lee, "The Enhancement of Nitrogen Incorporation in RTN<sub>2</sub>O Annealed TEOS Oxide Fabricated on Disilane-Based Polysilicon Films," *Journal of The Electrochemical Society*, Volume 148, Issue 8 pp. F164-F169, Aug. 2001.
17. Tung Ming Pan, **Tan Fu Lei**, Tien Sheng Chao, Ming Chi Liaw, Fu Hsiang Ko, and Chih Peng Lu, "One-Step Cleaning Solution to Replace the Conventional RCA Two-Step Cleaning Recipe for Pregate Oxide Cleaning," *Journal of The Electrochemical Society*, Volume 148, Issue 6 pp. G315-G320, June 2001.
18. Chin Yu Ku, **Tan Fu Lei**, and Hwang Kuen Lin, "Focus measurement with a simple pattern design," *APPLIED OPTICS*, Volume 40, No.16 pp.2662-2669, June 2001.
19. Chin Yu Ku, Jia Min Shieh, Tsann Bim Chiou, Hwang Kuen Lin and **Tan Fu Lei**," Expanding the Process Window and Reducing the Optical Proximity Effect by Post-Exposure Delay," *Journal of The Electrochemical Society*, Volume 148, Issue 8 pp. G434-G438, June 2001.
20. Chin Yu Ku, Dong Shieh Cheng, and **Tan Fu Lei**, "Monitoring the Lithographic Focus and Tilting Performance by Off-line Overlay Measurement Tools", *J. Vac. Sci. Technol.B* Volume 19, Issue 5 pp. 1915-1924, September 2001.
21. M. N. Chang, T. Y. Chang, F. M. Pan, B. W. Wu, and **T. F. Lei**, "An Investigation of Scanning Capacitance Microscopy on Iron-Contaminated p-Type Silicon", *Electrochemical and Solid-State Letters*, Volume 4, Issue 9 G69-G71, 2001.
22. Yiming Li, Jam-Wem Lee, Ting-Wei Tang, T.-S. Chao, **Tan-Fu Lei**, and S. M. Sze, "Numerical Simulation of Quantum Effects in High-k Gate Dielectrics MOS Structures using Quantum Mechanical Models," *Computer Physics Communications* (accepted to appear in 2002).
23. J. H. Chen, **T. F. Lei**, C. L. Chen, T. S. Chao, W. Y. Wen, K. T. Chen, "Nitrogen implantation and in situ HF vapor clean for deep submicrometer n-MOSFETs," *J. Electrochem. Soc.*, 149 (1): G63-G69, Jan., 2002.
24. T. Y. Chang, **T. F. Lei**, T. S. Chao, S. W. Chen, L. M. Kao, S. K. Chen, A. Tuan, and T. P. Su, "Impact of Nitrogen and/or Fluorine Implantation on Deep-submicron Co-salicide Process," accepted by *Solid State Electronics*.
25. C. M. Yu, H. C. Lin, C. Y. Lin, K. L. Yeh, T. Y. Huang, and **T. F. Lei**, "Self-Aligned Fabrication of Thin-Film Transistors with Field-Induced Drain (FID)," accepted by *Solid State Electronics*.
28. Michael Yu, H. C. Lin, G. H. Chen, T. Y. Huang, and **T. F. Lei**, "Characteristics of Poly-Si Thin-Film Transistors with Electrical Source/Drain Extensions Induced by a Bottom Sub-Gate" accepted by *Jpn. J. Appl. Phys.*
- 27.J. H. Chen, **T. F. Lei**, C. L. Chen, T. S. Chao, W. Y. Wen, K. T. Chen, "Nitrogen

- implantation and in situ HF vapor clean for deep submicrometer n-MOSFETs,” J. Electrochem. Soc., 149 (1): G63-G69, Jan., 2002.
28. T. Y. Chang, **T. F. Lei**, T. S. Chao, S. W. Chen, L. M. Kao, S. K. Chen, A. Tuan, and T. P. Su, “Impact of Nitrogen and/or Fluorine Implantation on Deep-submicron Co-salicide Process,” Solid-State Electronics, v 46, n 8, August, p 1097-1101, 2002.
29. C. M. Yu, H. C. Lin, C. Y. Lin, K. L. Yeh, T. Y. Huang, and **T. F. Lei**, “Self-Aligned Fabrication of Thin-Film Transistors with Field-Induced Drain (FID),” Solid-State Electronics, v 46, n 8, August, p 1091-1095, 2002
30. Michael Yu, H. C. Lin, G. H. Chen, T. Y. Huang, and **T. F. Lei**, “Characteristics of Poly-Si Thin-Film Transistors with Electrical Source/Drain Extensions Induced by a Bottom Sub-Gate” Japanese Journal of Applied Physics, Part 1: Regular Papers and Short Notes and Review Papers, v 41, n 5 A, May, p 2815-2820, 2002.
31. J. W. Lee, **T. F. Lei** and C. L. Lee, “Thin oxides grown on disilane-based polysilicon” Japanese Journal of Applied Physics, v41, n 6A, June, p 3651-3654, 2002
32. T. M. Pan, **T. F. Lei**, F. H. Ko, T. S. Chao, M. C. Liaw, Y. H. Lee and C. P. Lu, “Performance evaluation of cleaning solutions enhanced with tetraalkylammonium hydroxide substituents for post-CMP cleaning on poly-Si film”, Journal of the Electrochemical Society, v 149, n 6, June, p G336-G342, 2002.
33. T. Y. Chang, **T. F. Lei**, T. S. Chao, H. C. Wen and H. W. Chen, “Improvement of low-temperature gate dielectric formed in N<sub>2</sub>O plasma by an additional CF<sub>4</sub> pretreatment process”, IEEE Electron Device Letters, v 23, n 7, July, p 389-391, 2002.
34. J. C. Wang, S. H. Lee and **T. F. Lei**, “A physical model for the hysteresis phenomenon of the ultrathin ZrO<sub>2</sub> Film”, Journal of Applied Physics 92(7) : p.3936-3940 OCT 2002.
35. W. Y. Yang, W. F. Wu, H. C. You, K. L. Ou and **T. F. Lei**, “Improving the Electrical Integrity of Cu-CoSi<sub>2</sub> Contacted n+p Junction Diodes Using Nitrogen-Incorporated Ta Films as a Diffusion Barrier” IEEE Trans. on Electron Devices, Vol. 49, No.11 November, p.1947-1953 2002.
36. T. Y. Chang, J. W. Lee, **T. F. Lei**, C. L. Lee, and H. C. Wen, “Growing High Performance Tunneling Oxide by CF<sub>4</sub> Plasma Pre-Treatment”, accepted for publication on Journal of Electrochemical Society 2002.
37. T. Y. Chang, H. W. Chen, Tan Fu Lei, and Tien Sheng Chao, “Metal Gate Transistors with Low Temperature Gate Dielectric and Additional CF<sub>4</sub> Pretreatment”, has been submitted to IEEE Transactions on Electron Devices 2002.
38. Tzu Yun Chang, Hsiao Wei Chen, **T. F. Lei**, and T. S. Chao, “Improvement of CF<sub>4</sub> Plasma Pretreatment on TiO<sub>2</sub> High-k Film”, has been submitted to Japanese Journal Applied Physics 2002.
39. T. Y. Chang, H. C. Wen, and **T. F. Lei**, “Defect Free Ultra Shallow Junction Formation by Implanting through Amorphous-Silicon/Oxide Stack Structure”, to be submitted to IEEE



Electron Device Letters 2002.

研討會論文

1. Chin-Yu Ku, **Tan Fu Lei**, Jia-Min Shieh, Tsann-Bim Chiou, and Yung-Cheng Chen, "New overlay pattern design for real-time focus and tilt monitor", Microelectronic Manufacturing, Proc. of SPIE Vol. 4182, 2000.
2. Chin-Yu Ku, **Tan Fu Lei**, Jia-Min Shieh, Tsann-Bim Chiou, and Hwang-Kuen Lin, "Real-time process control to prevent CD variation induced by post exposure delay", Microelectronic Manufacturing, Proc. of SPIE Vol. 4182, 2000.
3. Jiann Heng Chen, **Tan Fu Lei**, Chia Lin Chen, Tien Sheng Chao, Wen Ying Wen, and Kuag Ting Chen, "High Performance Deep-Submicron n-MOSFETs by Nitrogen Implantation and In-situ HF Vapor Clean," IRPS, 2000.
4. M. N. Chang, T. Y. Chang, C. Y. Chen, F. M. Pan, B. W. Wu, **T. F. Lei**, "A Study of Iron-Contaminated p-type Silicon by Scanning Probe Microscopy", AVS 48th International Symposium, IUUSTA 15th International Vacuum Congress, 11th International Congress on Solid Surfaces, San Francisco, CA, U.S.A, 2001.
5. H. W. Chen, H. C. Tzeng, T. Y. Chang, J. W. Lee, **T. F. Lei**, and C. L. Lee, "The Electrical Properties of the Gate Oxide with CF<sub>4</sub> Plasma Pretreatment," EDMS, 2001.
6. T. L. Lee, J. W. Lee, **T. F. Lei**, and C. L. Lee, "Improved Thin Gate Oxide Characteristics with Chlorine Plasma Pretreatment," EDMS, 2001.
- J. H. Chen, Yen-An Chang, M. Z. Lee, **T. F. Lei**, and C. L. Lee, "Electrical Properties of Vertical Polysilicon Oxide," EDMS, 2001.
9. Y. P. Hong, J. C. Wang, J. W. Lee, **T. F. Lei**, and C. L. Lee, "The Electrical Properties of Thin Oxynitride Dielectrics Using N<sub>2</sub>O Plasma Annealing," EDMS, 2001.
- 8.M. Z. Lee, C. L. Lee, and **T. F. Lei**, "Novel Vertical Polysilicon Thin-Film Transistor with Excimer-Laser Annealing," International Conference on Solid State Devices and Materials, 2002.
- 9.C. M. Yu, H. C. Lin, T. F. Lei, and T. Y. Huang, "Effects of Plasma Treatments on the Characteristics of Poly-Si Thin-Film Transistors Having Electrical Junctions Induced by a Bottom Sub-Gate," International Meeting of The Electrochemical Society, 2002.
- 10.J. C. Wang, Y. H. Lin, Y. P. Hung, **T. F. Lei**, and C. L. Lee "Characteristics of Ultra-Thin Cerium Dielectrics with Surface Nitridation Pretreatment and Post Furnace Annealing," IEDMS, 2002.
- 11.S. D. Wang, T. Y. Chang, and **T. F. Lei**, "Low Temperature Alumina Nitride Formed as Polyoxide by NH<sub>3</sub> Plasma Treatment," IEDMS, 2002.
- 12.C. M. Yu, H. C. Lin, **T. F. Lei**, and T. Y. Huang, "Effects of H<sub>2</sub> and NH<sub>3</sub> Plasma Treatments on Poly-Si Thin-Film Transistors with Electrical Source/Drain Extensions

Induced By a Bottom Sub-Gate,” IEDMS, 2002.

13.M. Z. Lee, S. H. Chiao, **T. F. Lei** and C. L. Lee, “Thermal Vertical Polysilicon Oxides deposited on the Sidewall of Polysilicon Films,” IEDMS, 2002.

14.J. H. Chen, T. Y. Chang, H. W. Chen, and **T. F. Lei**, “Low Temperature Polyoxide Formation by N<sub>2</sub>O Plasma with CF<sub>4</sub> Pre-Treatment,” IEDMS, 2002.

H. C. You, F. H. Ko, **T. F. Lei**, C. C. Hsu and T. C. Chu, “Chemical Shrink Techniques for Sub-100nm Contact Hole Fabrication in Electron Beam Lithography,” IEDMS, 2002.

**鄭冕忠教授 交通大學電子工程所**

期刊論文

1. H. C. Cheng, C. Y. Huang, F. S. Wang, K. H. Lin, and F. G. Tarntair, “Thin-film transistors with polycrystalline silicon films prepared by two-step rapid thermal annealing,” *Jpn. J. Appl. Phys.*, vol. 39, Part 2, no. 1A/B, pp. L 19-21, 2000.
2. F. G. Tarntair, C. Y. Wen, L. C. Chen, J. J. Wu, K. H. Chen, P. F. Kuo, S. W. Chang, Y. F. Chen, W. K. Hong, and H. C. Cheng, “Field emission from quasi-aligned SiCN nanorods,” *Appl. Phys. Lett.*, vol. 76, no. 18, pp. 2630-2632, 2000.
3. W. K. Hong, H. C. Shih, S. H. Tsai, C. T. Shu, F. G. Tarntair, and H. C. Cheng, “Field emission properties of aligned carbon nanotubes,” *Jpn. J. Appl. Phys.*, vol. 39, Part 2, no. 9A/B, pp. L 925-928, 2000.
4. C. C. Hwang, M. J. Lai, C. C. Jaing, J. S. Chen, S. Huang, M. H. Juang, and H. C. Cheng, “Low-temperature process to improve the leakage current of (Ba, Sr)TiO<sub>3</sub> films on Pt/TiN/Ti/Si substrates,” *Jpn. J. Appl. Phys.*, vol. 39, Part 2, no. 12B, pp. L 1314-1316, 2000.
5. C. C. Hwang, C. C. Jaing, M. J. Lai, J. S. Chen, S. Huang, M. H. Juang, and H. C. Cheng, “Effect of rapid thermal annealed TiN barrier layer on BST capacitors prepared by RF magnetron cosputter system at low substrate temperatures,” *Electrochemical and Solid-State Lett.*, vol. 3, no. 12, pp. 563-565, 2000.
6. F. G. Tarntair, L. C. Chen, S. L. Wei, W. K. Hong, K. H. Chen, and H. C. Cheng, “High current density field emission from arrays of carbon nanotubes and diamond-clad Si tips,” *J. Vac. Sci. & Technol. B.*, vol. 18, no. 3, pp. 1207-1211, 2000.
7. Fu-Gow Tarntair, Wei-Kai Hong, Tzu-Kun Ku, Nan-Jie She, Chia-Fu Chen and Huang-Chung Cheng, “Fabrication and characterization of various carbon-clad silicon microtips with ultra-small tips radii,” *Jpn. J. Appl. Phys.*, vol. 39, Part 1, no. 2A, pp. 432-437, 2000.
8. Chun-Yao Huang, Teh-Hung Teng, Jun-Wei Tsai and Huang-Chung Cheng, “The instability mechanisms of hydrogenated amorphous silicon thin film transistors under AC bias stress,” *Jpn. J. Appl. Phys.*, vol. 39, Part 1, no. 7A, pp. 3867-3871, 2000.
9. Chun-Yao Huang, Jun-Wei Tsai, Teh-Hung Teng, Cheng-Jer Yang and Huang-Chung Cheng, “Turnaround phenomenon of threshold voltage shifts in amorphous silicon thin film transistors under negative bias stress,” *Jpn. J. Appl. Phys.*, vol. 39, Part 1, no. 10, pp.

5763-5766, 2000.

10. Huang-Chung Cheng, Li-Jing Cheng, Ching-Wei Lin, Yin-Lung Lu, and Chi-Yuan Chen, "High performance low-temperature processed polysilicon TFTs fabricated by excimer laser crystallization with recessed-channel structure," *International workshop on AMLCDs 2000*, pp. 281-284. **(The Best Paper Award)**
11. C. W. Lin, M. Z. Yang, C. C. Yeh, L. J. Cheng, T. Y. Huang, H. C. Cheng, H. C. Lin, T. S. Chao, and C. Y. Chang, "Effects of plasma treatments, substrate types, and crystallization methods on performance and reliability of low temperature polysilicon TFTs," in *IEDM Tech. Dig.*, 1999, pp. 305-308.
12. Y. L. Lu, L. J. Chou, C. W. Lin, L. J. Cheng, and H. C. Cheng, "Dimensional effects on the performance of low temperature polycrystalline thin film transistor fabricated by nickel silicide mediated crystallization method," *2000 International Electron Devices and Materials Symposia (2000 IEDMS)*, pp. 100-103.
13. C. Y. Huang, T. K. Chang, C. W. Lin, L. J. Cheng, Y. L. Lu, and H. C. Cheng, "Degradation of passivated and non-passivated n-channel low-temperature polycrystalline silicon TFTs prepared by excimer laser processing," *2000 International Electron Devices and Materials Symposia (2000 IEDMS)*, pp. 257-260.
14. L. J. Cheng, Y. L. Lu, C. W. Lin, T. K. Chang, and H. C. Cheng, "Novel growth in channel region," *Photonics Taiwan, 2000, Proceeding of SPIE Vol. 4079-06*.
15. C. C. Hwang, M. H. Juang, M. J. Lai, C. C. Jaing, J. S. Chen, S. Huang, and H. C. Cheng, "Effect of rapid-thermal-annealed TiN barrier layer on the Pt/BST/Pt capacitor prepared by RF magnetron co-sputter technique at low substrate temperature," *Solid-State Electronics*, vol. 45, no. 1, pp. 121-125, 2001.
16. W. K. Hong, K. H. Chen, L. C. Chen, F. G. Tarntair, K. J. Chen, J. B. Lin, and H. C. Cheng, "Fabrication and characterization of carbon nanotube triodes," *Jpn. J. Appl. Phys.*, vol. 40, Part 1, no. 5A, pp. 3468-3473, 2001.
17. H. C. Cheng, W. K. Hong, F. G. Tarntair, K. J. Chen, J. B. Lin, K. H. Chen, and L. C. Chen, "Integration of thin-film-transistor-controlled carbon nanotubes for field emission devices," *Electrochemical and Solid-State Lett.*, vol. 4, no. 4, pp. H5-H7, 2001
18. Ching-Wei Lin, Li-Jing Cheng, Yin-Lung Lu, Yih-Shing Lee, and Huang-Chung Cheng, "High-performance low-temperature poly-Si TFTs crystallized by excimer laser irradiation with recessed-channel structure," *IEEE Electron Device Lett.*, vol. 22, pp. 269-271, 2001
19. Huang-Chung Cheng, Kuo-Ji Chen, Wei-Kai Hong, Fu-Gow Tantai, Chia-Pin Lin, Kuei-Hsien Chen, and Li-Chyong Chen, "Fabrication and characterization of low turn-on voltage carbon nanotube field emission triodes," *Electrochemical and Solid-State Lett.*, vol. 4, no.8, pp. H15-H17, 2001.
20. Chang-Ho Tseng, Ching-Wei Lin, Ting-Kuo Chang, Huang-Chung Cheng, and Albert Chin, "Effects of excimer laser dopant activation on low temperature polysilicon thin-film

transistors with lightly doped drains," *Electrochemical and Solid-State Lett.*, vol. 4, no.11, pp. G94-G97, 2001.

21. K. J. Chen, W. K. Hong, J. B. Lin, K. H. Chen, L. C. Chen, and H. C. Cheng, "Low turn-on voltage field emission triodes with selective growth of carbon nanotubes," *IEEE Electron Device Letters*, Vol. 22, No. 11, pp.516-518,2001

22. K. J. Chen, W. K. Hong, C. P. Lin, K. H. Chen, L. C. Chen, and H. C. Cheng, "Low turn-on voltage field emission triodes with selective growth of carbon nanotubes," *IEEE Electron Device Lett.*, vol. 22, pp. 516-518, 2001.

23. Ching-Wei Lin, Li-Jing Cheng, Yin-Lung Lu, Yih-Shing Lee, and Huang-Chung Cheng, "High-performance low-temperature poly-Si TFTs crystallized by excimer laser irradiation with recessed-channel structure," *IEEE Electron Device Lett.*, vol. 22, pp. 269-271, 2001.

24. Ching-Wei Lin, Li-Jing Cheng, Yin-Lung Lu, and Huang-Chung Cheng, "Characterization of low temperature polysilicon TFTs with self-aligned graded LDD structure," *Mat. Res. Soc. Symp. Proc.*, vol. 685E, D12.7.1 - D12.7.6, 2001.

25. Chang-Ho Tseng, Ting-Kuo Chang, Fang-Tsun Chu, Jia-Min Shieh, Bau-Tong Dai, Huang-Chung Cheng, and Albert Chin, " Investigation of Inductively Coupled Plasma Gate Oxide on Low Temperature Polycrystalline-Silicon Thin Film Transistors", *IEEE Electron Device Letter*, Vol. 23, No. 6, p. 333-335, 2002.

26. Ching-Wei Lin, Chang-Ho Tseng, Ting-Kuo Chang, Yuan-Hsun Chang, Fang-Tsun Chu, Chiung-Wei Lin, Wen-Tung Wang, and Huang-Chung Cheng, "An Investigation of Bias Temperature Instability in Hydrogenated Low-Temperature Polycrystalline Silicon Thin Film Transistors," *Jpn. J. Appl. Phys., Part 1*, vol. 41, pp. 2002.

27. Ching-Wei Lin, Chang-Ho Tseng, Ting-Kuo Chang, Chiung-Wei Lin, Wen-Tung Wang, and Huang-Chung Cheng, "A Novel Laser-Processed Self-Aligned Gate-Overlapped LDD Poly-Si TFT," *IEEE Electron Device Lett.*, vol. 23, pp. 133-135, 2002.

28. Huang-Chung Cheng, Ching-Wei Lin, Li-Jing Cheng, Chang-Ho Tseng, Ting-Kuo Chang, Yuan-Ching Peng, and Wen-Tung Wang, "Fabrication of low-temperature poly-Si thin film transistors with self-aligned graded lightly doped drain structure," *IEEE/ECS Electrochemical and Solid-State Lett.*, vol. 5, no.1, pp. G1-G3, 2002.

29. Huang-Chung Cheng, Ching-Wei Lin, Li-Jing Cheng, Chang-Ho Tseng, Ting-Kuo Chang, Yuan-Ching Peng, and Wen-Tung Wang, "Fabrication of low-temperature poly-Si thin film transistors with self-aligned graded lightly doped drain structure," *Electrochemical and Solid-State Lett.*, vol. 5, no.1, pp. G1-G3, 2002.

30. Chang-Ho Tseng, Ching-Wei Lin, Teh-Hung Teng, Ting-Kuo Chang, Huang-Chung Cheng, and A. Chin, " Study on dopant activation of phosphorous implanted polycrystalline silicon thin films by KrF excimer laser annealing", *Solid-State Electronics*, Vol. 46, Issue 8, August 2002, Pages 1085-1090

31. T.H.Teng, C.Y.Huang, T.K.Chang, C.W.Lin, L.J.Cheng, Y.L.Lu, H.C.Cheng,

“Degradation of passivated and non-passivated N-channel low-temperature polycrystalline silicon TFTs prepared by excimer laser processing,” *Solid State Electronics*, vol. 46, pp. 1079-1083, 2002

#### 研討會論文

1. Huang-Chung Cheng, Li-Jing Cheng, Ching-Wei Lin, Yin-Lung Lu and Chi-Yuan Chen, “High Performance Low-Temperature Processed Polysilicon TFTs Fabricated by Excimer Laser Crystallization with Recessed-Channel Structure, 2000 AMLCD. Chang-Ho Tseng, Ting-Kuo Chang, Huang-Chung Cheng, and A. Chin, “Dopant activation of phosphorous implanted poly-silicon film capped with silicon oxide film by KrF excimer laser annealing,” *2000 International Electron Devices and Materials Symposia (2000 IEDMS)*.
2. Cheng-Jer Yang, Gwo-Yann Lee, Jyh-Liang Wang, I-Feng Chang, Chih-Wei Tsai, Huang-Chung Cheng, Ting-Chang Chang, and Li-Jen Chou, “Low dielectric material formation by  $CF_4/SiH_4$  mixed gas in plasma enhanced chemical vapor deposition system,” *2000 International Electron Devices and Materials Symposia (2000 IEDMS)*.
3. Cheng-Jer Yang, I-Feng Chang, Gwo-Yann Lee, Huang-Chung Cheng, Ting-Chang Chang, Chih-Wei Tsai, and Li-Jen Chou, “The mechanism of copper ions formation in the low k film during the post metallization annealing,” *2000 International Electron Devices and Materials Symposia (2000 IEDMS)*.
4. Der-Chi Shye, Ming-Jiunn Lai, Chuan-Chou Hwang, Cheng-Chung Jaing, Jyh-Shin Chen, Bi-Shiou, and Huang-Chung Cheng, “The study of oxygen effect during RF sputtering BST films deposited on Pt/TiN/Ti/Si substrate at low temperature for DRAMs’ capacitors,” *2000 International Electron Devices and Materials Symposia (2000 IEDMS)*, pp. 339-342.
5. Y. L. Lu, L. J. Chou, C. W. Lin, L. J. Cheng, and H. C. Cheng, “Dimensional effects on the performance of low temperature polycrystalline thin film transistor fabricated by nickel silicide mediated crystallization method,” *2000 International Electron Devices and Materials Symposia (2000 IEDMS)*.
6. C. Y. Huang, T. K. Chang, C. W. Lin, L. J. Cheng, Y. L. Lu, and H. C. Cheng, “Degradation of passivated and non-passivated n-channel low-temperature polycrystalline silicon TFTs prepared by excimer laser processing,” *2000 International Electron Devices and Materials Symposia (2000 IEDMS)*. (The Best Paper Award)
7. L. J. Cheng, Y. L. Lu, C. W. Lin, T. K. Chang, and H. C. Cheng, “Novel device structure for low temperature polysilicon TFT with controlled grain growth in channel region,” *Photonics Taiwan, 2000, Proceeding of SPIE Vol. 4079-06*.
8. Huang-Chung Cheng, Chuan-Chou Hwang, Cheng-Chung Jaing, Der-Chi Shye, Hsien-Wen Hsu, Jyh-Shin Chen, and Miin-Horng Juang, “A novel excimer laser annealing to achieve thin BST films at low substrate temperatures,” *2000 International Electron Devices*

*and Materials Symposia (2000 IEDMS)*, pp. 343-345.

9. C. B. Lin, K. J. Chen, F. G. Tantai, W. K. Hong, and H. C. Cheng, "The Integrated Process of TFT-Controlled CNTs for Stabilized Emission Current" *Proceedings of the 8<sup>th</sup> International Display Workshops*, 2000, Kobe, Japan.
10. Trent Gwo-Yann Lee, Tseung-Yuan Tseng, Shyh-Chyi Wong, Cheng-Jer Yang, Mong-Song Liang, and Huang-Chung Cheng, "Interconnect optimization design with guaranteed performance methods," *International Symposium on Integrated Circuits, Devices and Systems (ISIC)*, 2001.
11. Trent Gwo-Yann Lee, Tseung-Yuan Tseng, Shyh-Chyi Wong, Cheng-Jer Yang, Mong-Song Liang, and Huang-Chung Cheng, "The generalized interconnect delay time and cross-talk models," *International Symposium on Integrated Circuits, Devices and Systems (ISIC)*, 2001.
12. Ching-Wei Lin, Li-Jing Cheng, Yin-Lung Lu, and Huang-Chung Cheng, "Characterization of low temperature polysilicon TFTs with self-aligned graded LDD structure," *Mat. Res. Soc. Symp. Proc.*, vol. 685E, D12.7.1 - D12.7.6, 2001.
13. W. K. Hong, K. J. Chen, J. B. Lin, H. C. Cheng, P. H. Lin, K. H. Chen, and L. C. Chen, "Carbon nanotube based triodes and TFT-controlled field emission displays," *International Conference on Material for Advanced Technologies*, Singapore, 2001.
14. K. J. Chen, F. G. Tantai, W. K. Hong, J. B. Lin, K. H. Chen, L. C. Chen and H.C. Cheng, "Fabrication and characterization of low turn-on voltage carbon nanotube field emission triode" *Material Research Society (MRS) 2001 spring meeting*, San Francisco, USA.2001.
15. K. J. Chen, W. K. Hong, C. P. Lin, K. H. Chen, L. C. Chen and H. C. Cheng, "Upgraded Field Emission Characteristics of Carbon Nanotubes by Excimer Laser Treatment" *Jpn. J. Appl. Phys* Vol.41, No.10, 2002.
16. K. J. Chen, W. K. Hong, C. P. Juan, K. H. Chen, L. C. Chen and H. C. Cheng, "Fabrication and Characterization of Carbon Nanotubes Field Emission Triodes for Field Emission Display" submitted to *Jpn. J. Appl. Phys*
17. W. K. Hong, K. H. Chen, L. C. Chen, F. G. Tantai, K. J. Chen, J. B. Lin, and H. C. Cheng, "Fabrication and characterization of carbon nanotube triodes," *Jpn. J. Appl. Phys.*, Vol. 40, Part 1, No. 5A, pp. 3468-3473, 2001.
18. W. K. Hong, K. J. Chen, J. B. Lin, P. H. Lin, K. H. Chen, L. C. Chen, and H. C. Cheng, "Fabrication of carbon nanotube triodes for field emission display," submitted to *J. Appl. Phys.*
19. K. J. Chen, W. K. Hong, L.C.Chen, K.H. Chen and H.C.Cheng, "Fabrication and characterization of lateral field emission device based on carbon nanotubes" *13<sup>th</sup> European Conference on Diamond, Diamond-like Materials, Nitrides and Silicon Carbide*, 2002, Granada, Spain.

曾俊元教授 交通大學電子工程所

## 期刊論文

1. M. S. Tsai and T. Y. Tseng, "Effect of Bottom Electrodes on Resistance Degradation of (Ba,Sr)TiO<sub>3</sub> Thin Films", IEEE Trans on CPMTA, Vol.23 pp.128-135, 2000.
2. M. S. Tsai and T. Y. Tseng, "The effect of oxygen-to-argon ratio on the electrical and reliability characteristics of sputtered Sr<sub>0.8</sub>Bi<sub>2.5</sub>Ta<sub>1.2</sub>Nb<sub>0.9</sub>O<sub>9+x</sub> thin films", Thin Solid Films, 382(2000) 190-199.
3. W. K. Chen, C.M, Chen, J.Y. Huang, W.F.Hsieh, T.Y.Tseng, "Study of linear and nonlinear optical properties of distorted Ti-O<sub>6</sub> perovskite structure in Ba<sub>x</sub>Sr<sub>x</sub>TiO<sub>3</sub>", Journal of Phys. And Chem, Of Solids, 61(2000) 969-977.
4. S. Ezbilvalavan, M. S. Tsai, T.Y. Tseng, "Dielectric relaxation and defect analysis of Ta<sub>2</sub>O<sub>5</sub> thin films", J. Phys. D. Appl. Phys.33, (2000) 1137-1142.
5. W. H. Lee, T. Y. Tseng, and D. F. K. Hennings, "Effects of calcinations temperature and A/B ratio on the dielectric properties of (Ba,Ca)(Ti, Zr, Mn)O<sub>3</sub> for multiplayer ceramic capacitors with nickel electrodes", J. Am Ceramic. Soc., 83(6) 1402-1406(2000).
6. W. H. Lee, T. Y. Tseng, and D. Hennings, "Effects of A/B cation ratio on the microstructure and lifetime of (Ba<sub>1-x</sub>Ca<sub>x</sub>)<sub>z</sub>(Ti<sub>1-y</sub>Zr<sub>y</sub>Mn<sub>0.01</sub>)O<sub>3</sub>(BCTZM) sintered in reducing atmosphere. J. Mater Sci. Materials in Electronics, 11(2000) 157-162.
7. C. M. Cheng, C. F. Yang and T. Y. Tseng "Sintering BaTi<sub>4</sub>O<sub>p</sub>/Ba<sub>2</sub>Ti<sub>p</sub>O<sub>20</sub>- based Ceramics by glass addition", J. Europe Ceram. Soc., 20(2000) 157-162.

## 研討會論文

1. S. Ezbilvalavan and T.Y. Tseng, "Properties and reliability of Ta<sub>2</sub>O<sub>5</sub> thin films deposited on Ta", 1999 IEEE 49<sup>th</sup> Electronic Components 8 Technology Conference (San Diego, CA), Paper # S29P5 (ISBN 0-7803-5234-3), P1042-46.
2. T. Y. Tseng, "(Ba, Sr)TiO<sub>3</sub> thin films : preparation, properties and reliability", 2<sup>nd</sup> Asian Meeting on Ferroelectrics International, Singapore, 7-11 December, 1998.
3. M. S. Tsai and T. Y. Tseng, "Electrical properties of Sr<sub>0.8</sub>Bi<sub>2.5</sub>Ta<sub>1.2</sub>Nb<sub>0.9</sub>O<sub>9+x</sub> ferroelectric thin films", Proceedings of the 1998 annual conference of the Chinese Society for Materials Science, 1998.
4. W. H. Lee, T. Y. Tseng, K.H. Ou, T.H. Hsieh and T.L. Tsai, "Effects of calcination temperature and Ba/Ti ratio on dispersion of aqueous (Ba,Ca)(Ti,Zr,Mu)O<sub>3</sub> suspension for Ni-based multilayer ceramic capacitors", 100<sup>th</sup> Acers Annual Meeting, Cincinnati, U.S.A., May 3-6, 1998.
5. S. Ezhilualavan and T.Y. Tseng, "Rapid Thermal Processed Ta<sub>2</sub>O<sub>5</sub> Thin Films", 100<sup>th</sup> Acers Annual Meeting, Cincinnati, U.S.A. May 3-6, 1998.

**葉清發教授 交通大學電子工程所**

期刊論文

1. C. F. Yeh, Y. C. Lee, K. H. Wu, Y. C. Su, S. C. Lee, "Comprehensive Investigation on Fluorosilicate Glass Prepared by Temperature-Difference Based Liquid-Phase Deposition", J. Electrochemical. Soc. Vol. 147 (1), p.330-334 (2000) 2000
2. C. F. Yeh, Y. C. Lee, Y. C. Su, K. H. Wu, C. H. Lin, "Novel Sidewall Capping for Degradation-Free Damascene Trenches of Low-Permittivity Methylsilsesquioxane", J. Appl. Phys. Vol. 39, p.354-356 (2000) 2000
3. C. F. Yeh, Y. C. Lee, and S. C. Lee, "Reliability of Fluorinated Silicon Oxide Film Prepared by Temperature Difference-Based Liquid Phase Deposition", J. Electrochemical Soc. Vol. 147, p. S-6-1~S-6-5 (2000) 2000
4. C. F. Yeh, T. J. Chen, and C. L. Jon T. Gudmundsson, Member, IEEE, and Michael A. Lieberman, Fellow, IEEE, "Hydrogenation of Polysilicon Thin-Film Transister in a Planar Inductive H<sub>2</sub>/Ar Discharge", IEEE Electron Device Lett. Vol.20, No. 5, P. 223, (1999). 1999
5. C. F. Yeh, P. S. Shih, C. Y. Chang, Fellow, IEEE, T. C. Chang, T. Y. Huang, Fellow, IEEE, and D. Z. Peng, "A Novel Lightly Doped Drain Polysilicon Thin-Film Transister with Oxide Sidewall Spacer Formed by One-Step Selective Liquid Phase Deposition", IEEE Electron Device Lett. Vol. 20, No. 8, P. 421. (1999) 1999

研討會論文

1. C. F. Yeh, C. H. Liu, S. C. Wang, and Y. J. Hsiao, "Applying Selective Liquid-Phase Deposition Instead of Reactive Ion Etching to The Contact Hole Formation of MOSFETs" accepted for the presentation to IEEE DRC, June 28-30, 1999. 1999
2. C. F. Yeh, C. H. Liu, S. C. Wang, and Y. J. Hsiao, accepted for the presentation in Advanced Workshop on frontiers in Electronics?(99 OFE), May31-June 4, 1999. 1999
3. C. F. Yeh, Y. C. Lee, K. H. Wu, Y. C. Su, "Properties of Silicon Oxide Prepared by Liquid-Phase Deposition", 1999 APS Centennial Meeting, Session VC23: Novel Dielectric Semiconductor System, March 20~26, 1999. 1999
4. C.F. Yeh, J.S. Liu, M.C. Chiang, "Characteristics of Novel Polysilicon Oxide by Anodic Oxidation", in Proc. on Insulating Film on Semiconductor (infos'99), 16-19, June, 1999 1999
5. C. F. Yeh, C. H. Liu, "Applying Selective Liquid-Phase Deposition to Create Contact Hole in Plasma Damage-Free Process" in Proc. on Plasma Process Induced Damage(98 2ID), pp223-226, 1998. 1998



## (七) 雙電子槍蒸鍍系統---校外論文

吳泰伯 清華大學材料工程所

## 期刊論文

1. T. B. Wu and H. J. Shy, 2000, "Deposition and Properties of Highly (100)-Oriented Barium Titanate Thin Films on LaNiO<sub>3</sub> Electrode", *Ceramics International* Vol. 26, pp. 599-603.
2. C. H. Lin, B. M. Yen, H. C. Kuo, H. Chen, T. B. Wu, G. E. Stillman, 2000, "Domain structure and Electrical Properties of Highly Textured Pb(Zr<sub>x</sub>Ti<sub>1-x</sub>)O<sub>3</sub> Thin Films Grown on LaNiO<sub>3</sub>-Electrode-Buffered Si by Metalorganic Chemical Vapor Deposition", *J. Mater. Res.*, Vol. 15, pp. 115-124.
3. C. H. Lin, P. A. Friddle, X. Lu, H. Chen, Y. Kim and T. B. Wu, 2000, "Electrical Characteristics of 25nm Pb(Zr Ti)O<sub>3</sub> Thin Films Grown on Si by Metalorganic Chemical Vapor Deposition", *J. Appl. Phys.* Vol. 88, pp. 2157-2159.
4. C. S. Chang, T. B. Wu, C. K. Huang, W. C. Shin and L. L. Chao, 2000, "Thermal Stability and Oxidation Resistance of W, TiW, W(N) and TiW(N) Thin Films Deposited on Si", *Jpn. J. Appl. Phys.* Vol. 39, pp. 6413-6421.
5. H. Y. Lee, K. S. Liang, C. H. Lee and T. B. Wu, 2000, "Real-time x-ray scattering study of growth behavior of sputter-deposited LaNiO<sub>3</sub> thin films on Si substrates", *J. Mat. Res.* Vol. 15, 2606-2611.
6. C. S. Chang, T. P. Liu and T. B. Wu, 2000, "Effect of Post-annealing on the Electrical Properties of Ta<sub>2</sub>O<sub>5</sub> Thin Films Deposited on TiN / Ti ", *J. Appl. Phys.*, Vol. 88, pp. 7242-7248.
7. J. H. Tseng and T. B. Wu, 2001, "Ferroelectric lead barium zirconate thin film of high fatigue resistance", *Appl. Phys. Lett.*, Vol. 78, pp. 1721-1723.
8. C. L. Liu and T. B. Wu, 2001, "Effects of Ca substitution on the structural and microwave dielectric characteristics of [( Pb<sub>1-x</sub> Ca<sub>x</sub> )<sub>1/2</sub> La<sub>1/2</sub> ] ( Mg<sub>1/2</sub> Nb<sub>1/2</sub> )O<sub>3</sub> ceramics", *J. Am. Ceram. Soc.*, Vol. 84, pp. 1291-1295.
9. T. B. Wu, C. L. Liu, and Y. W. Liu, 2002, "Interfacial Structural and Electrical Characteristics of LaNiO<sub>3</sub>/Si Contacts", accepted for publication by *J. Mater. Res.*
10. C. L. Liu, and T. B. Wu, 2002, "Polarization Switching Characteristics of Pb(Zr,Ti)O<sub>3</sub> thin films deposited on annealed PtOx-Pt electrode", accepted for publication by *Jpn. J. Appl. Phys.*
11. T. P. Liu and T. B. Wu, 2002, "Effects of N<sub>2</sub>O plasma annealing on the characteristics of Ta<sub>2</sub>O<sub>5</sub> thin films deposited on TaN/Ta Electrode", accepted by *Jpn. J. Appl. Phys.*
12. J. Zhai, M. H. Cheung, Z. K. Xu, X. Li, H. Chen, E. V. Colla, and T. B. Wu, 2002, "Dielectric and Ferroelectric Properties of Highly Oriented (Pb,Nb)(Zr,Sn,Ti)O<sub>3</sub> Thin Films Growth by Sol-Gel Process", accepted for publication by *Appl. Phys. Lett.*

13. J. Zhai, Y. Yao, X. Li, T. F. Hung, Z. K. Xu, H. Chen, E. V. Colla, and T. B. Wu, 2002, "Dielectric Properties of Oriented PbZrO<sub>3</sub> Thin Films Growth by Sol-Gel Process", accepted for publication by J. Appl. Phys.
14. S. L. Lung, S. S. Chen, C. W. Tsai, T. T. Sheng, S. C. Lia, C. L. Liu, T. B. Wu and R. Liu, 2002, "A Low Temperature LNO/PZT/LNO ferroelectric Capacitor-Over-Interconnect(COI) FeRAM Module for Advanced Modular SOC", accepted for publication by Integrated Ferroelectrics.

#### 研討會論文

1. C. H. Lin, B. M. Yen, H. Chen, T. B. Wu, H. C. Kuo and G. E. Stillman, 1998, "Characterization of Highly Textured PZT Thin Films Grown on LaNiO<sub>3</sub>-Coated Si Substrates by MOCVD", Mat. Res. Soc. Symp. Proc., Vol. 493, pp. 189-194.
2. H. Y. Lee, K. S. Liang, C. H. Lee and T. B. Wu, 1999, "Real-time x-ray scattering study of growth behavior of sputter-deposited LaNiO<sub>3</sub> thin films on Si substrates", Mat. Res. Soc. Symp. Proc., Vol 569, pp. 153-158.

#### 陳榮順 清華大學動力機械

##### 期刊論文

1. M. T. K. Hou and R. Chen, "Effect of Width on the Stress-induced Bending of Micromachined Bilayer Cantilevers," Journal of Micromechanics and Microengineering (Accepted on Nov. 21, 2002)
2. C. A. Hsuan, and R. Chen, "Intelligent Control of Exit Temperature in a Gas Fuel Can-Type Combustor," Engineering Applications of Artificial Intelligence. (Accepted on Oct. 27, 2002)
3. M. J. Lin and R. Chen, "Adhesion Criterion for Center-anchored Circular Plates in Microstructures," Sensors and Actuators, A: Physical, Vol. 101, No. 1-2, pp. 14 -23, Oct., 2002.
4. T. L. Yang and R. Chen, "The Semi-Empirical and Empirical Models for Predicting Sound Absorption Coefficients for a Novel Porous Laminated Composite Material," Journal of Vibration and Control (accepted).
5. M. J. Lin and R. Chen, "Sticking Effect on Center-anchored Circular Plates in Microstructures," IEEE Trans. On Components and Packaging Technologies, Vol. 24, No. 4, December 2001.
6. C. Y. Huang and R. Chen, "Fuzzy Control of Exit Temperature and Oxygen Concentration For a Combustion Chamber," International Journal of Fuzzy Systems, Vol. 3, No. 3, Sep. 2001. (EI only)
7. T. L. Yang, D. M. Chiang, and R. Chen, "Development of a Novel Porous Laminated Composite Material for High Sound Absorption," Journal of Vibration and Control, Vol. 7, No. 5, July 2001, pp. 675 - 698.
8. C. L. Chen, H. C. Chen, M. K. Wong, F. T. Tang, and R. Chen, "Temporal Stride and Physical Medicine & Rehabilitation, Vol. 82, Jan., 2001, pp. 43 - 48.

9. Y. J. Tsao and R. Chen, "Force Control for Active Suspension Design of a Half Car Model by Using Genetic Algorithms with Maximum Stroke Constraints," P. of Imech., Part D, Journal of Automobile Engineering, Vol. 215, Issue: D3, 2001, pp. 317 - 327).

研討會論文

1. M. T. K. Hou, K. M. Liao, H. Z. Yeh, P.Y. Hong, and R. Chen, 2003, "Fabrication of micromachined Focusing Mirrors with Seamless Reflective Surface," SPIE's Micromachining and Microfabrication, 27 -31, Jan., 2003, San Jose, California, USA. (EI)
2. 葉志賢、陳榮順，2002，"扭轉式微掃瞄鏡回授控制"，中國機械工程學會第十八屆學術研討會，雲林縣，2002年11月29-30日。
3. M. J. Lin and R. Chen, 2002, "Deformation of Center-anchored Circular Plate Caused by Residual Stress," 2002 奈米工程暨微系統技術研討會，台南市，2002年11月21-22日。
4. K. M. Liao, C. C. Chueh, and R. Chen, "A Novel Electro-Thermally Driven Bi-directional Microactuator," 2002 International Symposium on Micromechatronics and Human Science, October 20-23, 2002, Nagoya, Aichi, Japan. (EI)
5. M. T. K. Hou, K. M. Liao, H. Z. Yeh, P.Y. Hong, and R. Chen, "Design and Fabrication of Surface-micromachined Spherical Mirrors," IEEE/LEOS Optical MEMS 2002, International Conference on Optical MEMS and Their Applications, August 20 -23, 2002, Lugano, Switzerland.
6. T. K. Hou and R. Chen, 2001, "Shape Analysis of Cylindrical Micromirrors for Angular Focusing," SPIE 2001 International Symposium on Microelectronics and Micro-electro-mechanical Systems, Dec. 17-19, 2001, Adelaide, Australia. (EI)
7. H. Yen, C. Lee, R. Chen, and M. J. Lin, 2001, "Analysis and Fabrication of Deformable Focusing Micromirrors," Proceedings of 2001 ASME International Mechanical Engineering Congress Exposition, Nov. 11-16, 2001, New York, NY, U. S. A. (EI)
8. T. K. Hou and R. Chen, 2001, "On the Initial Stress-induced Bending in Bilayer Microcantilevers," 第25屆全國理論及應用力學學術研討會，台中市，2001年12月15、16日。
9. P. Y. Hong and R. Chen, 2001, "Design and Fabrication of Micro Cylindrical Mirrors"，中國機械工程學會第十八屆學術研討會，台北市，2001年12月7、8日。
10. M. J. Lin and R. Chen, 2000, "Sticking Effect on Circular Plates in Microstructures," Mechatronics 2000, Sep. 6 -9, Atlanta, U. S. A. (EI)

吳振名 清華大學材料工程所

發表論文

1. J.M. Wu and H.L. Huang\*, "The Effect of Crystallization on Microwave Dielectric Properties of Stoichiometric Cordierite Glasses Containing B<sub>2</sub>O<sub>3</sub> and P<sub>2</sub>O<sub>5</sub>" J. Mater. Research, 15 (2000) 222-227.

2. J.M. Wu and S.P. Hwang\*, "Effects of ( $B_2O_3$ ,  $P_2O_5$ ) Additives on Microstructural Development and Phase Transformation Kinetics of Stoichiometric Cordierite Glasses", *J. Amer. Ceram. Soc.*, 83 (2000) 1259-65.
3. M.C. Chang\*, J.M. Wu, S.Y. Cheng, and S.Y. Chen, "Reaction Kinetics and Mechanism of  $BaPbO_3$  Formation", *Mater. Chem. and Phys.*, 65 (2000) 57-62.
4. M.C. Chang\*, J.M. Wu, S.Y. Cheng, and S.Y. Chen, "The Effect of Ball-Milling Solvent on the Properties of  $Ba(Pb_{1-x}Bi_x)O_3$  and the Decomposition of  $BaPbO_3$ " *Mater. Chem. and Phys.*, 69 (2001) 226-229.
5. W. T. Liu\* and J. M. Wu, "The Effect of Vacuum Extraction and Fe/Ba ratio on the Phase Formation of Barium Ferrite Thin Film Synthesized by Sol-Gel Method", *Materials Chem. and Phys.*, 69 (2001) 148-153.
6. W. T. Liu\*, J. Lee, and J. M. Wu, "X-Ray Absorption Spectroscopic Study of Barium Ferrite Thin Films Synthesized by Sol-Gel Method", *Materials Chem. and Phys.*, 69 (2001) 89-94.
7. G. C. Chao\* and J. M. Wu, "Effect of  $LaNiO_3$  Electrode on Electrical Properties of RF-Magnetron Sputtered  $Pb(Zr,Ti)O_3$  Ferroelectric Thin Films" *Jpn. J. Appl. Phys.* 40 (2001) 1306-1309.
8. S. P. Hwang\* and J. M. Wu, "The Effect of Composition on Microstructural Development of  $MgO-Al_2O_3-SiO_2$  Glasses" *J. Amer. Ceram. Soc.*, 84 (2001) 1108-1112.
9. G. C. Chao\* and J. M. Wu, "Leakage Current and Fatigue Properties of  $Pb(Zr,Ti)O_3$  Ferroelectric Films Prepared by RF-Magnetron Sputtering on Textured  $LaNiO_3$  Electrode" *Jpn. J. Appl. Phys.* 40 (2001) 2417-2422.
10. G. C. Chao\* and J. M. Wu, "Reducing Atmosphere Treatment of Sol-Gel Derived  $Pb(Zr,Ti)O_3$  Ferroelectric Films on Textured  $LaNiO_3$  Electrode" *Jpn. J. Appl. Phys.* 40 (2001) 6045-48.
11. Y. R. Luo\* and J. M. Wu, " $BaPbO_3$  Perovskite Electrode for Lead Zirconate Titanate Ferroelectric Thin Films" *Appl. Phys. Lett.* 79 (2001) 3669-71.
12. C. S. Liang\*, J. M. Wu and M. C. Chang\* "Ferroelectric  $BaPbO_3/PZT/BaPbO_3$  Heterostructures" Accepted by *Appl. Phys. Lett. Sep.*, 2002.
13. Y. R. Luo\* and J. M. Wu "Magnetron sputtered conductive perovskite  $BaPbO_3$  films" Accepted by *Jpn. J. Appl. Phys. Oct.*, 2002.

#### 洪敏雄 成大材料工程所

##### 期刊論文：

1. Y. M. Hon, S. P. Lin, K. Z. Fung and M. H. Hon, Synthesis and characterization of nano- $LiMn_2O_4$  powder by tartaric acid gel process, *J. Euro. Ceram. Soc.*, 22 [5] (2002) 653.
2. S. P. Lin, K. Z. Fung, Y. M. Hon and M. H. Hon, Reaction Kinetics and Mechanism of  $Li_xNi_{2-x}O_2$  ( $0 < x < 1$ ) from  $LiCO_3$  and  $NiO$ , *J. Crystal Growth*, 234 [1] (2002) 176.
3. Y. M. Hon, K. Z. Fung, S. P. Lin and M. H. Hon, Effects of Metal Ion Sources on Synthesis and Electrochemical Performance of Spinel  $LiMn_2O_4$  using Tartaric Acid Gel Process, *J. Solid State Chem.*, 163 [1] (2002) 231.
4. J. Shieh and M. H. Hon, Plasma enhanced chemical vapor deposition of titanium aluminum carbonitride/amorphous-carbon nanocomposite thin films, *J. Vac. Sci. Technol.*

- A, 20 [1] (2002) 87.
5. S. P. Yu, H. C. Wang, M. C. Wang and M. H. Hon, Effect of composition and thermal cycling on the adhesion strength of Sn-Zn-Al solder hot-dipped on Cu substrate, *J. Mater. Sci.*, 37 [1] (2002) 185.
  6. Y. C. Wang, I. C. Leu and M. H. Hon, Preparation of Nanosized ZnO Arrays by Electrophoretic Deposition, *Electrochemical and Solid-State Letters*, (accepted), (2002).
  7. J. F. Chang, H. H. Kuo, I. C. Leu and M. H. Hon, The effect of thickness and operation temperature on ZnO:Al thin film CO gas sensor, *Sensors and Actuators B: Chemical*, (accepted), 2002.
  8. M. T. Wu, I. C. Leu and M. H. Hon, Effect of polishing pretreatment on the fabrication of ordered nanopore arrays on aluminum foils by anodization, *J. Vac. Sci. Technol. B*, 20 [3] (2002) 776.
  9. H. H. Huang, M. H. Hon and M. C. Wang, Effect of NH<sub>3</sub> on the growth characterization of TiN films at low temperature, *J. Crystal Growth*, 240 [3-4] (2002) 513.
  10. S. T. Chang, I. C. Leu and M. H. Hon, Preparation and characterization of tin oxide films by electrochemical deposition, *Electrochem. Solid-State Lett.*, accepted, (2002).
  11. Y. C. Wang, I. C. Leu, M. H. Hon, Effect of Colloid Characteristics on the Fabrication of ZnO Nanowire Arrays by Electrophoretic Deposition, *J. Mater. Chem.*, accepted, (2002).
  12. C. K. Chen, M. H. Hon, The Morphology and Mechanical Properties of TiN/Ni-P-SiC Hybrid Coatings, *SCT*, 155 (2002) 214.
  13. J. Shieh, F. M. Feng, M. H. Hon, WO<sub>3</sub> and W-Ti-O thin-film gas sensors prepared by sol-gel dip-coating, *Sensors and Actuators B*, accepted, (2002). I
  14. C. K. Chen, M. H. Hon, The Effect of Heat Treatment on the Microstructure of Electroless Ni-P Coatings Containing SiC Particles, *TSF*, accepted, (2002).
  15. H. H. Huang, M. H. Hon, Effect of N<sub>2</sub> Addition on Growth and Properties of Titanium Nitride Films Obtained by Atmosphere Pressure Chemical Vapor Deposition, *TSF*, accepted, (2002).
  16. S. P. Lin, K. Z. Fung, Y. M. Hon and M. H. Hon, Reaction Mechanism of LiNiO<sub>2</sub> Synthesized in Oxygen Atmosphere by Pechini Method, *J. of Solid State Chemistry*, in press, (2002).
  17. S. P. Lin, K. Z. Fung, Y. M. Hon and M. H. Hon, Effect of Al Addition of Formation on Layer-Structured LiNiO<sub>2</sub>, *J. of the Ceramic Society of Japan*, revised, (2002).

研討會論文：

1. M. H. Hon and W. S. Hwang, "Academic-university collaboration on manufacturing technology in Taiwan", The 5th International Conference on Manufacturing Technology, Nov. 31- Nov. 3, 1999, Beijing, Chin, Chiang Industrial Charity Foundation. (Invited Feature Seminar)
2. J. F. Chang, H. L. Wang and M. H. Hon, "Studying of Transparent conductive ZnO:Al

Thin Films by RF Reactive Magnetron Sputtering” Eleventh American Conference on crystal Growth and Epitaxy . August 1-6, 1999, America Association For Crystal Growth USA.

- 3.Y. M.Hon, K.Z.Fung and M.H.Hon, "High Specific Surface Area LiMn<sub>2</sub>O<sub>4</sub> Powder Prepared by Citric Acid Gel Process” 196th Meeting of The Electrochemical Society, Inc. Honolulu, Hawaii. October 19-22, 1999, Hilton Hawaiian Village.
- 4.S.P.Lin, K.Z Fung and M.H. Hon “Effect of temperate, atmosphere and pH value on LiNiO<sub>2</sub> powders synthesized by citric acid method“ 196th Meeting of The Electrochemical Society, Inc., Honolulu, Hawaii, October 19-22, 1999, Hilton Hawaiian Village.
5. M. J. Chiang and M.H. Hon, “X-ray photoelectron spectroscopy investigation of substrate surfacepretreatments for Diamond nucleation by microwave plasma chemical vapor deposition,” Eleventh American Conference on Crystal Growth & Epitaxy , August 1-6, 1999, America Association for Crystal Growth, Tucson , Arizona , USA .
- 6.M.J.Chiang, M.D.Wu, W.J. Wu, and M.H. Hon,“Deposition of Diamond-Like Carbon Films on Polymer by RF plasma enhanced Chemical vapor deposition,”Eleventh American Conference on Crystal Growth & Epitaxy , August 1-6, 1999America Association for Crystal Growth, Tucson , Arizona , USA.

楊長謀 清華大學材料工程所

期刊論文：

1. A.C.-M. Yang and T.W. Wu, 1997, "Wear and Friction in Glassy Polymers: Microscratch on Blends of Polystyrene and Poly(2,6-dimethyl-1,4-phenylene oxide) ", Journal of Polymer Science: Polymer Physics 35, p1295.
2. C.H. Lin and A. C.-M. Yang, 2000, “Superplastic Behavior of the Brittle Polymer Film in Multilayer Systems”, Journal of Materials Science 35(17), 4231-4242.
3. X.W. Liu, S.H. Tsai, L.H. Lee, M.X. Yang, A.C.-M. Yang, I.N. Lin, and H.C. Shih, 2000, “Electron Field Emission from Amorphous Carbon Nitride Synthesized by Electron Cyclotron Resonance Plasma”, Journal of Vacuum Science and Technology B 18(4), 1840.
4. C.H.Lin and A. C.-M. Yang, 2001, "The Craziing Micromechanism in Glassy Polymers by AFM", Macromolecules 2001, 34, 3698 –3705.
5. C.H. Lin and A. C.-M. Yang, 2001, "Stability of the Superplastic Behavior of Glassy Polystyrene Thin Films in Sandwiched Structures", Macromolecules 2001, 34, 4865-4873.
6. C.-Y. Chou and A. C.-M. Yang, 2002, "The Triboelectrical Behavior in Toner/Carrier Systems ", Journal of Imaging Science and Technology, 46(3) 208.
7. H.C.Lin, I.F.Tsai, A. C.-M. Yang, M.S. Hsu, and Y.C. Ling, 2002, "Polymer Diffusion and Microstructure at a Glassy-Rubbery Polymer Interface by SIMS", Macromolecules, accepted.

8. M.X.Yang and A. C.-M. Yang, 2002, "Generation of Topographic Bumps on Polymer Films Annealed above Glass Transition Temperature by AFM", to be submitted.
9. J.H. Lin and A. C.-M. Yang, 2002, "The Embrittlement Transition in Ductile Polymers Induced by Small Rigid Particle", to be submitted.
10. S.Y.Lee, M.H.Liu, W.T.Chen and A. C.-M. Yang, 2002, " The Microdeformation Behavior of Biodegradable PLLA(Poly-Lactic Acid) Thin Films", to be submitted.
11. K.H.Chen, E.C.Y.Jou and A. C.-M. Yang, 2002, "The Absorption of Small Solvent Molecules in the Adhered Polymer Film on a Substrate", to be submitted.
12. K.Y.Tsai and A. C.-M. Yang, 2002, "Polymer Polarization Using a Tip-Directed Localized Electric Field", to be submitted..

#### 研討會論文

1. H. C. Lin, Y. C. Ling<sup>†</sup> and A. C.-M. Yang, 2000, "Interdiffusion of Miscible Polymers PS/PPO in a Glassy/Rubbery interface", 第二十三屆高分子研討會論文專輯：高分子物理，p551.
2. 蔡光裕，楊長謀，2000，“探針電極在高分子表面局部極化現象之探討”，第二十三屆高分子研討會論文專輯：高分子物理，p619.
3. 楊明勳，楊長謀，2001，“奈米尺度高分子薄膜時效的變化”，第二十四屆高分子研討會論文專輯：高分子物理，p23.
4. J.-H. Lin and A.C.-M. Yang, 2001, "Crazing Micromechanism in Glassy Atactic polystyrene and its Blends with poly(2,6dimethyl,1,4-diphenyl oxides) by AFM", 第二十四屆高分子研討會論文專輯：高分子物理，p275.
5. H. C. Lin and A.C.-M. Yang, 2001, "Inter-diffusion at Rubbery-Glassy interface", 第二十四屆高分子研討會論文專輯：高分子物理，p278.
6. 蘇鴻濱，葉佩娟，陳文棋，楊明勳，楊長謀，2001，“玻璃態高分子薄膜奈米尺度表面形態研究”，第二十四屆高分子研討會論文專輯：高分子物理，p280.
7. 葉佩娟，林熙乾，楊長謀，2001，“利用 SIMS 及 AFM 觀察高分子在玻璃/橡膠態界面的擴散行為”，第二十四屆高分子研討會論文專輯：高分子物理，p282.
8. 李瑞淇，朱峰億，沈麟，何蓓蓓，楊長謀，2001，“微米級單一粒徑高分子顆粒的分散聚合機制探討與著色研究”，第二十四屆高分子研討會論文專輯：光電高分子材料，p371.
9. 陳文棋，劉美慧，楊長謀，2001，“生醫分解性聚乳酸薄膜因老化(aging)造成的微觀機械性質變化”，第二十四屆高分子研討會論文專輯：功能性及生醫高分子材料，p 421.
10. 林熙乾，楊長謀，2002“高分子在玻態與橡膠態界面之奈米結構與運動行為”，海峽兩岸清華大學材料科學研討會.
11. 楊明勳，楊長謀，2002“高分子薄膜奈米尺度之非均勻形變與鬆弛行為”，海峽兩岸清華大學材料科學研討會.
12. 朱峰億，李瑞淇，何蓓蓓和楊長謀，2001，“分散聚合機制與著色變因之研究”，公元 2001 年材料年會論文集：高分子材料，p225.

13. 林熙乾和楊長謀，2001，“Chain Diffusion and Microstructure at a Glassy-Rubbery polymer Interface”，第二十五屆高分子研討會論文專輯：高分子物理，p58.
14. 李瑞淇，朱峰億和楊長謀，2001，“分散聚合機制與著色變因之研究”，第二十五屆高分子研討會論文專輯：高分子化學，p147.
15. 黃俊誠，林熙乾，劉美慧和楊長謀，2001，“電漿聚合聚乳酸薄膜之研究”，第二十五屆高分子研討會論文專輯：功能性高分子，p171.
16. 蘇鴻濱和楊長謀，2001，“The Alignment Properties of Liquid Crystal Molecules between Rubbed Polymer Surfaces”，第二十五屆高分子研討會論文專輯：功能性高分子，p183.
17. 陳文棋和楊長謀，2001，“The Search on the Nano-Mechanical Properties of Glassy Polymer Films”，第二十五屆高分子研討會論文專輯：高分子物理，p212.
18. 葉佩娟，林熙乾和楊長謀，2001，“Studying the Nano-Scale Behavior of Diffusion between the Rubbery Polymer into the Glassy Interface”，第二十五屆高分子研討會論文專輯：高分子物理，p213.
19. H. C. Lin and A.C.-M. Yang, 2002, “Chain diffusion and microstructure at a glassy-rubbery polymer interface by SIMS”, American Physical Society, March Meeting.
20. H. C. Lin and A.C.-M. Yang, 2002, “The microstructure at asymmetric polymer interface”, Polymer Processing Society Asia/Australia Meeting.
21. J. C. Huang and A.C.-M. Yang, 2002, “A novel PLLA thin film prepared by RF-Plasma polymerization”, Polymer Processing Society Asia/Australia Meeting.
22. W.T. W; and A.C.-M. Yang, 2002 “Nano-mechanical properties of glassy polymer thin films “Polymer Processing Society Asia/Australia Meeting.



### 三、各儀器支援之研究成果——發表論文紀錄表

#### (十二)真空濺鍍系統

校內使用者期刊論文

吳耀銓教授 交通大學材料工程所

期刊論文

18. C. W. Chao, Yew-Chung Sermon Wu, Gau-Ren Hu and Ming-Shian Feng ,  
Selective growth of carbon nanotubes on pre-patterned amorphous silicon thin films by  
electroless plating Ni," J. Electrochem. Soc. submitted (SCI, NSC).
19. Chi-Wei Chao, Yew-Chung Sermon Wu, Gau-Ren Hu and Ming-Shian Feng,  
"Device characteristics of poly-silicon thin-film transistors fabricated by electroless plating  
Ni-induced crystallization of amorphous Si," J. J. Appl. Phys. accepted, to be published (SCI,  
NSC).
20. Pei-Yen Lin, Yew-Chung Sermon Wu, " The growth mechanism of micron-size V  
defects on the hydride vapor phase epitaxy grown undoped GaN films," Mater. Chem. Phys.  
accepted, to be published (SCI, NSC).
21. You-Da Lin, Yew-Chung Sermon Wu, Chi-Wei Chao and Guo-Ren Hu, " Effects  
of oxygen on the growth of Ni induced lateral crystallization of amorphous silicon films,"  
Mater. Chem. Phys. accepted, to be published (SCI, NSC).
22. Guo-Ren Hu, Yew-Chung Sermon Wu, Chi-Wei Chao, and Tian-Jiun Huang, "  
Electroless plating Pd induced crystallization of amorphous silicon thin films," J. J.  
Appl. Phys. 40(2001) PP.6356-7. (SCI, NSC)
23. Jia-Min Shieh, Kou-Chiang Tsai, Bau-Tong Dai, Yew-Chung Wu, Yu-Hen Wu, "  
Reduction of etching plasma damage on low dielectric constant fluorinated amorphous  
carbon films by multiple H<sub>2</sub> plasma treatment," J. Vac. Sci. & Technol. B 20(2002), 1476  
(SCI, NSC)
24. Y. S. Wu, G. Z. Hu, "Healing kinetics of interfacial voids in GaAs wafer  
bonding," Appl. Phys. Lett. 81(2002) PP1429-31. (SCI, NSC)
25. Y. S. Wu, P. C. Liu, R. S. Feigelson and R. K. Route, "High-temperature healing  
of interfacial voids in GaAs wafer bonding," J. Appl. Phys. 91(2002) PP1973-7. (SCI, NSC)
26. C.W. Chao, G.R. Hu, Y. S. Wu, Y.C Chen and Ming-Shiann Feng,  
"Electrochemically Deposited Pd Induced Crystallization of Parallel Needlelike  
Polycrystalline Silicon from Pre-Patterned Amorphous Silicon Thin Films" Electrochem.  
Solid-State. Lett. 5 (2002) C31-2. (SCI, NSC)
27. Y. C. Chen, Y. S. Wu, C. W. Chao and M. S. Feng, " Electroless Plating Ni  
Induced Crystallization of Amorphous Silicon Thin Films," J. J. Appl. Phys. 40(2001)  
PP.5244-46. (SCI, NSC)

28. Jia-Min Shieh, Shich-Chang Suen, Kou-Chiang Tsai, Bau-Tong Dai, Yew-Chung Wu, Yu-Hen Wu. " Characteristics of fluorinated amorphous carbon films and implementation of 0.15 um Cu/a-C:F damascene interconnection," J. Vac. Sci. & Technol. B 19(2001), PP. 780-7. (SCI,NSC)
29. Y. C. Chen, Y. S. Wu, I. C. Tung, C. W. Chao, M. S. Feng and H. C.Chen, " Characterization of excimer-laser-annealed polycrystalline silicon films grown by ultra-high-vacuum chemical vapor deposition," Appl. Phys. Lett. 77(2000) PP2521-3. (SCI, NSC)

研討會論文

12. Chi-Wei Chao, Y. S. Wu, Ying-Chia Chen, Guo-Ren Hu, and Ming-Shiang Feng "Metal induced crystallization of a-Si film by electroless Ni plating" AM-LCD (THE INTERNATIONAL WORKSHOP ON ACTIVE - MATRIX LIQUID - CRYSTAL DISPLAYS), Tokyo, Japan, July, 2002, AMLCD 01 p145
13. Chi-Wei Chao, YewChung Sermon Wu, Ying-Chia Chen, Guo-Ren Hu, and Ming-Shiang Feng "Metal induced crystallization of a-Si film by electroless Ni plating" AM-LCD (THE INTERNATIONAL WORKSHOP ON ACTIVE - MATRIX LIQUID - CRYSTAL DISPLAYS), Tokyo, Japan, July, 2001, AMLCD 01 p107 (NSC)
14. Guo-Ren Hu, YewChung Sermon Wu, Chi-Wei Chao, Ying-Chia Chen, and Ming-Shiang Feng "Crystallization of a- Si Thin Films by Electroless Pd Plating" AM-LCD (THE INTERNATIONAL WORKSHOP ON ACTIVE - MATRIX LIQUID - CRYSTAL DISPLAYS), Tokyo, Japan, July, 2001, AMLCD 01 p103 (NSC)
15. C.W. Chao, Y. S. Wu, Y. C. Chen, G. R. Hu, M. S. Feng ,Y. L. Shiu and G. H. Lin, "Metal-Induced-Lateral-Crystallization of Amorphous Silicon Thin Films by Electroless Ni Plating Method," 2nd International AVS Conference on Microelectronics and Interfaces, Feb.,2001. (NSC)
16. G. R. Hu, Y. S. Wu, Y.C. Chen, C. W. Chao , M. S. Feng ,Y. L. Shiu and G. H. Lin, "Electroless Plating Pd Induced Crystallization of Amorphous Silicon Thin Films, " 2<sup>nd</sup> International AVS Conference on Microelectronics and Interfaces, Feb., 2001. (NSC)
17. 劉柏均, 侯智元, 吳耀銓, 謝明勳, 劉文煌"利用氧化銻錫( Indium Tin Oxide )為媒介層執行光電元件之晶片接合"材料年會,11月, 2001年(NSC)
18. 胡國仁,吳耀銓,趙志偉,陳盈佳"Electroless Pd Plating Induced Crystallization of Amorphous Si Thin Films" 材料年會,11月, 2001年(NSC)
19. 林佑達,吳耀銓,趙志偉,胡國仁,黃添鈞"NiO induced lateral crystallization of amorphous Silicon thin film" 材料年會,11月, 2001年(NSC)
20. 黃添鈞,吳耀銓,胡國仁,陳盈佳,趙志偉,馮明憲"Electrical Characteristics of Polycrystalline Silicon TFTs Fabricated by Electroless Plating Pd Induced Crystallization" 材料年會,11月, 2001

年(NSC)

21. 趙志偉,吳耀銓,陳盈佳,胡國仁,馮明憲”Low temperature poly-Si TFT fabricated by Electroless
22. Plating Ni induced crystallization of amorphous Si” 材料年會,11月, 2001(NSC)
12. 施協志,趙志偉,吳耀銓,陳盈佳,胡國仁,馮明憲”Electroless Plating Ni Induced Crystallization of Amorphous Silicon Thin Films” 材料年會,11月, 2001年
30. 劉柏均, 侯智元, 吳耀銓, 謝明勳, 劉文煌”利用氧化銻錫薄膜為媒介層執高亮度發光二極體晶片接合之可行性” 電子元件暨材料研討會, 12月, 2001年(NSC)
31. 陳盈佳, 吳耀銓, 趙志偉, 馮明憲, 胡國仁, 許堯綸, “準分子雷射退火輔助超高真空化學氣相沉積矽薄膜電晶體特性研究” 九十年度國家科學委員會微電子學門專題計畫研究成果研討會(NSC)
32. 趙志偉, 胡國仁, 吳耀銓, 陳盈佳, 馮明憲, “Low temperature poly-Si TFT fabricated by Electroless Plating Ni Induced Crystallization of a-Si”, proc. Of the Electronics Devices and Materials Symposia Taiwan '01. p 317. (NSC)
33. T. J. Huang, 趙志偉, 胡國仁, 吳耀銓, 陳盈佳, 馮明憲, “Polycrystalline silicon TFT fabricated by Pd chemical displacement Induced Crystallization of a-Si”, proc. Of the Electronics Devices and Materials Symposia Taiwan '01. p 320. (NSC)
34. 趙志偉, 胡國仁, 吳耀銓, 陳盈佳, 馮明憲, “Low temperature poly-Si TFT fabricated by Electroless Plating Ni Induced Crystallization of a-Si”, Symposium on Nano Device Technology 2002, p181.(NSC)

### 崔秉鉞教授 交通大學電子工程所

#### A. 期刊論文

1. K. M. Chen, S. L. Cheng, L. J. Chen, and Bing-Yue Tsui, \*Effects of N<sup>+</sup> Implantation on CoSi<sub>2</sub> Contacts on Shallow Junctions\*, Material Chemistry and Physics, vol.54, pp.71, 1998.
2. S. L. Cheng, L. J. Chen, and Bing-Yue Tsui, \*Formation of C<sub>54</sub>-TiSi<sub>2</sub> Enhanced by a Thin Interposing Mo Layer on Nitrogen Ion Implanted (001)Si\*, Material Chemistry and Physics, vol.54, pp.346, 1998.
3. Y. F. Hsieh and Bing-Yue Tsui, \*Design Rule Related Defects Formation\*, Microelectronics Reliability, vol.38, pp.1880, 1998.
4. S. L. Cheng, L. J. Chen, and Bing-Yue Tsui, \*Formation of TiSi<sub>2</sub> on Nitrogen Ion Implanted (001)Si\*, J. Mater. Res. Vol.14, No.1, pp.213, 1999.
5. S. L. Cheng, J. J. Jou, L. J. Chen, and Bing-Yue Tsui, \*Formation of C<sub>54</sub>-TiSi<sub>2</sub> in titanium on nitrogen-ion-implanted (001)Si with a thin interposing Mo layer\*, J. Mater. Res., vol.14, No.5, pp.2061, 1999.
6. S. L. Cheng, H. Y. Huang, Y. C. Peng, L. J. Chen, Bing-Yue Tsui, C. J. Tsai, S. S. Guo, Y. R. Yang, and J. T. Lin, \*Formation of TiSi<sub>2</sub> thin films on stressed (001)Si substrates\*,

Applied Surface Science, vol.142, pp.295, 1999.

7. S. L. Cheng, H. Y. Huang, Y. C. Peng, L. J. Chen, Bing-Yue Tsui, C. J. Tsai, and S. S. Guo, \*Effects of stress on the growth of TiSi<sub>2</sub> thin films on (001)Si\*, Appl. Phys. Lett., vol.74, pp.1406, 1999. Bing-Yue Tsui, Shyue-Shyh Lin, Chia-Shone Tsai, and Chin C. Hsia, \*Plasma charging damage during contact hole etch in high density plasma etcher\*, to be published in Microelectronics Reliability.
8. Bing-Yue Tsui and Chih-Feng Huang, "Investigation of Cu/TaN<sub>x</sub> Metal Gate for Metal-Oxide-Silicon Devices", accepted by J. Electrochemical Soc.
9. Bing-Yue Tsui, Chih-Wei Chen, Shien-Ming Huang, and Shyue-Shyh Lin, "Process Sensitivity and Robustness Analysis of Via-First Dual-Damascene Process", accepted by the IEEE Trans. on Semiconductor Manufacturing.
10. Kuo-Lung Fang and Bing-Yue Tsui, "Metal Drift Induced Electrical Instability of Porous Low Dielectric Constant Film", accepted by the J. Appl. Phys.
11. Bing-Yue Tsui and Chih-Feng Huang, "Wide Range Work Function Modulation of Binary Alloys for MOSFETs Application", accepted by the IEEE Electron Device Lett.
12. Cheng-Li Lin, Peng-Sen Chen, Yu-Chin Lin, Bing-Yue Tsui, and Mao-Chieh Chen, "Via-Filling Capability of Cu Film by Chemical Vapor Deposition", submitted to J. Electrochemical Soc.
13. Wei-Yang Chou, Bing-Yue Tsui, and Ching-Hui Ma, "Optimization of Backside Clean Process to Eliminate Copper Contamination", submitted to the IEEE Trans. on Semiconductor Manufacturing.
14. Bing-Yue Tsui, Tian-Choy Gan, and Ming-Da Wu, "Current Distribution and Total Resistance of Small Silicided Diffusion Region", submitted to Solid-State Electrons.
15. Bing-Yue Tsui and Hsui-Wei Chang, "A Study on the Formation of Interfacial Layer during Reactive Sputtering of Hafnium Oxide", submitted to J. Appl. Phys.
16. Bing-Yue Tsui, Chen-Chi Yang, and Kuo-Lung Fang, "Anisotropic Thermal Conductivity of Nano-Porous Silica Film", submitted to the IEEE Trans. on Electron Devices.

#### B. 研討會論文

1. S. L. Cheng, H. Y. Huang, Y. C. Peng, L. J. Chen, Bing-Yue Tsui, C. J. Tsai, S. S. Guo, and K. H. Yu, \*The Effect of Stress on the Formation of Titanium Silicide\*, in Proceedings of International Interconnect Technology Conference, pp.190, 1998.
2. L. J. Chen, S. L. Cheng, H. M. Luo, H. Y. Huang, Y. C. Peng, Bing-Yue Tsui, C. J. Tsai, and S. S. Guo, \*The Influences of Stress on the Growth of Ti and Ni Silicide Thin Films on (001) Si\*, in Proceedings of the 5<sup>th</sup> International Conference on Solid-State and Integrated Circuit Technology, Beijing, China, pp.256, 1998.
3. S. L. Cheng, H. Y. Huang, Y. C. peng, L. J. Chen, Bing-Yue Tsui, C. J. Tsai, S. S. Guo, Y. R. Yang, and J. T. Lin, \*Effects of Stress on the Formation of Titanium Silicide Thin Films on (001)Si\*, Proc. 1998 Inter. Electron Device and Mater. Symp., Tainan, Taiwan,

pp.317, C4-7, 1998.

4. L. W. Chen, J. Y. Chen, J. C. Chen, S. L. Cheng, L. J. Chen, and Bing-Yue Tsui, \*Formation of Ni-silicides on Nitrogen Ion Implanted Silicon\*, Proc. 12<sup>th</sup> Inter. Conf. Ion Implantation Technology, Kyoto, Japan, 1999. S. L. Cheng, S. M. Chang, H. Y. Huang, Y. C. peng, L. J. Chen, Bing-Yue Tsui, C. J. Tsai, and S. S. Guo, \*The Influences of Stress on the Growth of Ti Silicide Thin Films on (001)Si Substrates\*, Mat. Res. Soc. Symp. Proc., 1999.
5. Tsung-Ju Yang, Tzu-Kun Ku, Tze-Liang Lee, Bing-Yue Tsui, Lai-Juh Chen, and Chin Hsia, \*A High Aspect Ratio Sub 0.2 Micron Al Plug Technology for 0.13um Generation\*, Proc. Of the Inter. Interconnect Tech. Conf., pp.209, 1999.
6. S. S. Lin, Bing-Yue Tsui, C. S. Tsai, and C. C. Hsia, \*Compounding Effects of UV Exposure, Ion Bombardment, Electron Shading, and Plasma Charging in a High Density Plasma Poly Etcher\*, Proc. 4th Inter. Symp. On Plasma Process-Induced Damage, pp.41, 1999.
7. Bing-Yue Tsui, S. S. Lin, C. S. Tsai, and C. C. Hsia, \*Plasma Damage During Dielectric Etch in High Density Plasma Etcher\*, Proc. 4th Inter. Symp. On Plasma Process-Induced Damage, pp.84, 1999.
8. C. S. Huang, Bing-Yue Tsui, H. H. Shieh, and Robert Mohondro, \*A Novel UV Baking Process to Improve UV Photoresist Hardness\*, Proc. Int. Symp. on VLSI Tech., Sys., and Appl., pp.135, 1999.
9. Z. Wu, Z. Shiung, C. Wang, K. Fang, R. Wu, Y. Liu, Bing-Yue Tsui and M. C. Chen, \*Electrical Reliability Issues of Integrating Low-K Dielectrics with Cu Metallization\*, Proc. of the Int. Interconnect Tech. Conf., pp.82, 2000.
10. Shyue-Shyh Lin, Chih-Wei Chen, Shien-Ming Huang, Tsung-Kuei Kang, Chen-Nan Yeh, Tsyrl-Lih Li, Bing-Yue Tsui, and Chin C. Hsia, \*An optimized integration scheme for 0.13 um technology node dual damascene Cu interconnect\*, Proc. of the Int. Interconnect Tech. Conf., pp.273, 2000.
11. Chih-Feng Huang and Bing-Yue Tsui, "Investigation of Tantalum Nitride and Tantalum Alloys Metal Gate for CMOS Devices", in Proc. of The 9th Symposium on Nano Device Technology, pp.24-27, 2002.
12. Kuo-Lung Fang, Bing-Yue Tsui, Chen-Chi Yang, Mao-Chieh Chen, and <sup>a</sup>Knut Beekmann, "Electrical Stability of Nano-Porous Low Dielectric Constant Film", in Proc. of The 9th Symposium on Nano Device Technology, pp.48-52, 2002.
13. Kuo-Lung Fang, Bing-Yue Tsui, Chen-Chi Yang, Mao-Chieh Chen, Shyh-Dar Lee, Knut Beekmann, Tony Wilby, Kath Giles, and Sajid Ishaq, "Electrical and Material Stability of Orion™ CVD Ultra Low-k Dielectric Film for Copper Interconnection", in Proc. of the Int. Interconnect Tech. Conf., pp.60, 2002.
14. Chih-Feng Huang and Bing-Yue Tsui, "Novel Binary Alloy Gate Electrodes for

Metal Gate MOS Devices”, in Proc. of the 2002 Int. Conf. on Solid State Devices and Materials, pp.184, 2002.

15. Bing-Yue Tsui, Chen-Chi Yang, and Kuo-Lung Fang, “Anisotropic Thermal Conductivity of Nano-Porous Silica Film”, to be presented in VLSI-TSA, 2003.

D. 技術報告及其它

1. 崔秉鉞、何昭煌、林耿立、劉順和，電漿系統中之輻射傷害研究，工研院電子所，85年1月。
2. 崔秉鉞，Sub-micron device measurement - methods and experiments，工研院電子所，85年1月。

邱碧秀教授 交通大學電子工程所

期刊論文

1. B. S. Chiou and I. H. Wang, "Effect of MgO addition on the electrical transport properties of highly Sb-doped BaTiO<sub>3</sub> ceramics," J. Mater. Sci.: Mater. In Electronics, 9, 145 (1998).
2. B. S. Chiou and K. L. Wu, "Effect of reactive-ion-etching and post-etching on the electrical characteristics of indium-tin oxide/silicon junctions," J. Mater. Sci.: Mater. In Electronics, 9, 151, (1998).
3. J. W. Liou and B. S. Chiou, "Dielectric tunability of barium strontium titanate/silicone-rubber composite," J. of Phys: condensed Matter, 10, 2773 (1998).
4. Y. H. Tseng, B. S. Chiou, C. C. Peng and L. Ozawa, "Spectral properties of Eu<sup>3+</sup>-activated yttrium oxysulfide red phosphor," Thin Solid Films, 330, 173 (1998).
5. H. W. Wang, B. S. Chiou, and J. S. Jiang, "Electromigration in sputtered copper films on polyimide," J. Mater. Sci. : Mater. In Electronics, 10, 267 (1999).
6. B. S. Chiou and J. H. Tsai, "Antireflection coating for ITO films deposited on glass substrate," J. Mater. Sci.: Mater. In Electronics, 10, 491(1999).

研討會論文

1. B.S. Chiou and J.H. Chang, "Electroless Cu Plated AlN Substrate" Proc. 43rd Electronic Components and Technology Conference, ISSN 0569-5503, pp. 1085-1089 (1993).
2. B. S. Chiou and G. J. Wang, "Stress simulation of solder joints subjected to thermal cycling and the effect o materials properties and Joint geometry on package reliability," Proc. Pan Pacific Microelectronics Symposium, 41 (1997).
3. Y. L. Chin, B. S. Chiou and W. F. Wu, "Characterization of the Cu/Alb bilayer structure for copper interconnects," Proc. 6th International VLSI Multilevel Interconnection Conference (VMIC), Library of Congress No.89-644090, 77(1999).

張立教授 交通大學材料工程所

期刊論文

1. Deposition of heteroepitaxial diamond on 6H-SiC single crystal by bias-enhanced microwave plasma chemical vapor deposition. L. Chang, J.E. Yan, F.R. Chen, J.J. Kai *Diamond and Related Materials*, 9 (2000) 283-289. NSC85-2216-E-007-030
2. Backside copper metallization of GaAs MESFETs C.Y. Chen, E.Y. Chang, L. Chang, S.H. Chen *Electronics Letter*, 36 (2000) 1317-1318.
3. Thermal stability of Cu/Ta/GaAs multilayers C.Y. Chen, L. Chang, E.Y. Chang, S.H. Chen, D.F. Chang *Applied Physics Letter*, 77 (2000) 3367-3369.
4. Oxidized Ni/Pt and Ni/Au ohmic contact to p-type GaN L.C. Chen, J.K. Ho, C.S. Song, C.C. Chiu, K.K. Shih, F.R. Chen, J.J. Kai, L. Chang *Applied Physics Letter*, 76 (2000) 3703-3705.
5. The effect of oxygen in the annealing ambient on interfacial reactions of Cu /Ta/ Si multilayers K.M. Yin, L. Chang, F.R. Chen, J.J. Kai, C.C. Chiang, P.J. Ding, B. Chin, H. Zhang, F.S. Chen *Thin Solid Films*, 388 (2001) 15-21.
6. Oxidation of Ta Diffusion barrier layer for Cu metallization in thermal annealing K.M. Yin, L. Chang, F.R. Chen, J.J. Kai, C.C. Chiang, P.J. Ding, B. Chin, H. Zhang, F.S. Chen *Thin Solid Films*, 388 (2001) 27-33. NSC88-2215-E-009-027
7. The effect of oxygen on the interfacial reactions of Cu/TaNx/Si multilayers K.M. Yin, L. Chang, F.R. Chen, J.J. Kai *Materials Chemistry and Physics*, 71 (2001) 1-6.
8. Diamond growth on CoSi<sub>2</sub>/Si by bias-enhanced microwave plasma chemical vapor deposition method M.R. Chen, L. Chang, D.F. Chang, H.G. Chen *Materials Chemistry and Physics*, 72 (2001) 172-175. NSC89-2216-009-006
9. Diamond nucleation on Cu by using MPCVD with a biasing pretreatment K.L. Chuang, L. Chang, C.A. Lu *Materials Chemistry and Physics*, 72 (2001) 176-180. NSC89-2216-009-006
10. Observations of Al segregation around dislocations in AlGaN L. Chang, S. K. Lai, F. R. Chen, and J. J. Kai *Applied Physics Letter*, 79 (2001) 928-930.
11. Observations of segregation of Al in AlGaN alloys. L. Chang, S.K. Lai, F.R. Chen, AND J.J. Kai *physica status solidi (a)*, 188 (2001) 811-814.
12. Backside copper metallization of GaAs MESFET's using TaN as the diffusion barrier C. Y. Chen, E. Y. Chang, L. Chang, S. H. Chen *IEEE Transactions Electron Devices*, 48 (2001) 1033-1036.
13. Highly oriented diamond growth on positively biased Si substrates D.F. Chang and L. Chang *Journal of Materials Research*, 16 (2001) 3351-3354. NSC89-2216-E-009-003
14. Extension of HRTEM resolution by semi-blind deconvolution method and Gerchberg-Saxton algorithm F.R. Chen, H. Ichinose, J. J. Kai, L. Chang *Journal of Electron Microscopy*, 50 (2001) 529-540.
15. Diamond deposition on Si (111) and carbon face 6H-SiC (0001) substrates by

- positively biased pretreatment Te-Fu Chang and Li Chang Diamond and Related Materials, 11 (2002) 509-512. NSC89-2216-E-009-003
16. Growth of diamond films with bias during microwave plasma chemical vapor deposition Chun-An Lu, Li Chang, Bohr-Ran Huang Diamond and Related Materials, 11 (2002) 523-526. NSC89-2216-E-009-003
17. Low-voltage-operation high-power-density AlGaAs/InGaAs enhancement-mode pseudomorphic high-electron-mobility transistor for personal handy-phone handset application Szu-Hung Chen, Li Chang, Edward Yi Chang, Chun-Yen Chang Jpn. J. Appl. Phys., 41 (2002) L20-L23.
18. The performance of GaAs power MESFET's using backside copper metallization Chang-You Chen, Li Chang, Edward Yi Chang, Szu-Houng Chen, Yueh-Chin, Lin Solid-State Electronics, 46 (2002) 2085-2088.
19. High power Al<sub>0.3</sub>Ga<sub>0.7</sub>As/In<sub>0.2</sub>Ga<sub>0.8</sub>As enhancement-mode PHEMT for low-voltage wireless communication systems S.H. Chen, Li Chang, E.Y. Chang, J.W. Wu, C.Y. Chang Electronics Letter, 38 (2002) 1063-1064.
20. The Effect of crystallographic orientations of Ni<sub>3</sub>Al substrate on diamond nucleation Hou Guang Chen and Li Chang Journal of crystal Growth, (2002) submitted. NSC 90-2216-E-009-028

#### 研討會論文

1. 探討 Ni<sub>3</sub>Al 基材表面晶面對鑽石成核的影響材料年會 2002 年，陳厚光\* 張立，no.PK20。NSC 90-2216-E-009-028
2. Electron microscopy studies of diamond nanosheets H.G. Chen, Li Chang NSC 90-2216-E-009-028 Proceedings of the 23th R.O.C. Symposium on Microscopy, Taipei, Taiwan, pp.M-O-7.
3. TEM characterization of Cu/Ta/GaAs multilayer microstructures C.Y. Chen, Li Chang Proceedings of the 23th R.O.C. Symposium on Microscopy, Taipei, Taiwan, pp.M-P-7.
4. Backside copper metallization of GaAs MESFET's using Ta or TaN as the diffusion barrier E.Y. Chang, C.Y. Chen, L. Chang, S.H. Chen Compound Semiconductor Power Transistor II and the State-of-the-Art Program on Compound semiconductors XXXII, edited by R.F. Kopf, A.G. Baca, S.N.G. Chu, Electrochemical Society Proceedings vol. 2000-1, pp. 282-291.
5. Energy-filtered TEM applications for materials science L. Chang, F.R. Chen, J.J. Kai, K.M. Yin, L.C. Chen, R.T. Huang Proceedings of the 21th R.O.C. Symposium on Microscopy, Hsinchu, June 10, 2000, pp MO13-14.
6. K.M. Yin, L.Chang, F.R. Chen, J.J. Kai, C.C. Chiang, G. Chuang, P. Ding, B. Chin, H. Zhang, and F. Chen (1999), "HRTEM and EFTEM Studies of the Evolution of Cu/Ta/SiO<sub>2</sub>/Si Interfaces in ULSI Devices", in the Proceedings



of the Sixth International Symposium on the Microscopy of Semiconductor Materials,  
Oxford, U.K., March 24-29,  
1999

張翼教授 交通大學材料工程所

期刊論文

1. "Power PHEMT with Compact Device Layout for Low Voltage CDMA Application", *IEEE Electronics Letters*, vol. 36, no. 6, 2000.
2. "A planar gate double beryllium implanted GaAs power MESFET for low voltage digital wireless communication application", *IEEE Transactions on Electron Devices*, Vol.47, No.6, June, pp.1134-1138, 2000.
3. "Backside copper metallisation of GaAs MESFET's", *IEE Electronics Letters*, Vol. 36, no.15, 2000.
4. "Highly selective GaAs/AlGaAs wet etch process for the gate recess of low-voltage-power pseudomorphic high-electron-mobility transistor", *Jpn. J. Appl. Phys.*, Vol. 39, Pt. 1, no. 8, pp.4699-4703, 2000.
5. "A 1.2-V Operation Power Pseudomorphic High Electron Mobility Transistor for Personal Handy Phone Handset Application", *Jpn. J. Appl. Phys. Lett.* Vol. 39, no. 10B, pp.L1019-1022, 2000.
6. "A GaAs/AlAs Wet Selective Etch Process for the Gate Recess of GaAs Power Metal-Semiconductor Field-Effect Transistors", *Journal of the Electrochemical Society*. Vol.148, No.1, pp. 4-9, 2001.
7. "Thermal Stability of Cu/Ta/GaAs Multilayers", *Applied Physics Lett.*, Vol.77, No. 21, pp.3367-3369, 2000.
8. "High-Efficiency AlGaAs/InGaAs/GaAs Pseudomorphic High-Electron-Mobility Transistors Using Sub-Micron Deep-UV T-shaped Gate Technology", *Jpn. J. Appl. Phys. Lett.* Vol. 39, pp. 361, 2000.
9. "Backside copper metallisation of GaAs MESFET's using TaN as the diffusion barrier", 91/01/18 修訂 accepted by *IEEE Transactions on Electron Devices*.
10. "Low-voltage-operation high-power-density AlGaAs/InGaAs enhancement-mode pseudomorphic high-electron-mobility transistor for personal handy-phone handset application", *Jpn. J. Appl. Phys.*, 2002, 41, pp. L20-L23.
11. "AlGaN/GaN HEMT sub-band study using low temperature photoluminescence", June, 2002, APL.
12. "The performance of the power MESFET with copper backside metallization", Vol 46, p.2085, Solid state electronics.
13. "New Nanometer T-Gate Fabricated by Thermally Reflowed Resist Technique", *Jpn. J. Appl. Phys.* Vol. 41 (2002) pp. L 1508-L 1510 Part 2, No. 12B, 15 December 2002

14. “High power Al<sub>0.3</sub>Ga<sub>0.7</sub>As/In<sub>0.2</sub>Ga<sub>0.8</sub>As enhancement-mode PHEMT for low-voltage wireless communication system”, IEE Electronics Letters, vol. 38, no. 18, 2002, pp. 1063-1064.
15. “Novel I-line phase shift mask technique for submicron T-shaped gate formation”, Jpn. J. Appl. Phys., vol. 41, 2002, pp. 4489-4492.
16. “Low-voltage-operation high-power-density AlGaAs/InGaAs enhancement-mode pseudomorphic high-electron-mobility transistor for personal handy-phone handset application”, Jpn. J. Appl. Phys., vol. 41, 2002, pp. L20-L23.
17. “The performance of GaAs power MEFET’s using backside copper metallization”, Solid-state electronics, 46, 2002, pp.2085-2088.
18. “Microstructure evolution of Cu/Ta/GaAs Multilayers with thermal annealing” submitted to JAP.10.“Use OF Ti/W/Cu, Ti/Co/Cu and Ti/Mo/Cu multi-layer metals as schottky metals for GaAs Schottky diode”, ,Submitted to JEMML .
19. “Characterization of surface damaging effect for hybrid inductively coupled plasma etch and photoenhanced chemical wet etch on AlGa<sub>N</sub>, Ga<sub>N</sub> and InGa<sub>N</sub> schottky diodes” accepted J JAP 2003.

#### 研討會論文

1. “Backside copper metallization of GaAs MESFET’s using Ta or TaN as the diffusion barrier” in *the meeting abstracts of the 197th Meeting of the Electrochemical Society*, abstract no. 436, Toronto, May 14-19, 2000.
2. “A 3.0-4.0 GHz fully matched high linearity GaAs MMIC power amplifier for wireless communications”, *IEEE RFIC Symp.*, 2000.
3. “A 1.2-Volt operation power PHEMT for personal handy phone handset application” *Asia-Pacific Microwave Conference*, Sydney, December , 2000.
4. “2.4-V Operated Enhancement-Mode Pseudomorphic HEMT’s for Wireless Communications” in *the meeting abstracts of the 199th Meeting of the Electrochemical Society*, Washington D.C., March 25-30, 2001.
5. “2.4 V-Operated Enhancement-Mode Power PHEMTs for Personal Handy-Phone System Application”, *International Microwave and Optoelectronics Conference*, Belem, August 6-10,2001.
6. “A novel I-line phase shift mask (PSM) technique for submicron T-gate formation”, *the 200<sup>th</sup> Meeting of The Electrochemical Society, and the 52nd Meeting of the International Society of Electrochemistry*, San Francisco, September 2-7, 2001.
7. “AlGa<sub>N</sub>/Ga<sub>N</sub> HEMT sub-bands study using Low-temperature Photoluminescence”, *the 200<sup>th</sup> Meeting of The Electrochemical Society, and the 52nd Meeting of the International Society of Electrochemistry*, San Francisco, September 2-7, 2001.
8. “AlGa<sub>N</sub> Schottky Characteristics after Hybrid Photo-enhanced Wet and Inductively

- Coupled Plasma Etch”, *the 200th Meeting of The Electrochemical Society, and the 52nd Meeting of the International Society of Electrochemistry*, San Francisco, September 2-7, 2001.
9. “Directly-ion-implanted GaAs power MESFETs for CDMA communication applications”, *International Symposium on Signals, Systems, and Electronics*, Japan, 2001.
  10. “Fully-matched GaAs power amplifier MMICs for L-band wireless communications”, *International Symposium on Signals, Systems, and Electronics*, Japan, 2001.
  11. “2.4 V-Operated Enhancement mode PHEMT with 32 dBm Output Power and 61 % power efficiency”, *Asia-Pacific Microwave Conference*, Taipei, December , 2001.
  12. “2.5 W-output power , 60 %-efficiency high power single-supply PHEMT for low voltage communication system”, invited by *the 11th international workshop on the physics of semiconductor devices*, New Delhi, December 11-15, 2001.
  13. “ AlGaN/GaN HEMT sub-bands study using low temperature photoluminescence”, ECS, San Francisco, USA, 2001.
  14. “ AlGaN Schottky Characteristics after Hybrid Photo-enhanced Wet and Inductively coupled Plasma Etch”, ECS, San Francisco, USA, 2001.
  15. Tsung-His Yang, Edward Yi Chang a) Kun-Ming Chen, Hsiang-Jen Huang, Chun-Yen Chang, Tsung- Yea Yang. ECS 2002 conference.
  16. ”The size effect on the boron diffusion behavior in selective epitaxial growth SiGe layer”, 91/01/18 修訂 EXMATC 2002 conference, Budapest.
  17. " 50-nm-T-gate fabricated by thermally reflowed resist technique", Conference to Metrology, Inspection, and Process Control for Microlithography XV2, part of SPIE's Microlithography 2003, 23-28 February 2003 Santa Clara, California, USA.
  18. "The Study of Oxygen Ion Implantation Isolation for GaN HEMTs" , Proceedings International Electron Devices and Materials Symposium, Taipei, 2002 section 14, P291-294
  19. " Study of Titanium Tungsten Nitride Schottky Contacts on n-GaN" , Proceedings International Electron Devices and Materials Symposium, Taipei, 2002 section 14, P295-298
  20. ”The Study of Boron Diffusion from Selective Epitaxial Grown Si<sub>1-x</sub>Ge<sub>x</sub> into Silicon after RTA “, the 201rd Meeting of The Electrochemical Society in Philadelphia, USA from May 12-May 17, 2002
  21. “Study of Titanium Tungsten Nitride and Tungsten Nitride Schottky contacts on n-GaN ”, European Micro Wave, Milan, Italy, 2002.
  22. “The size effect on the boron diffusion behavior in the selective epitaxial grown graded SiGe layer”, Symposium on Nano Device Technology 2002, Hsinchu, Taiwan.
  23. “Study on Ge/Si Ratio and Formation of Ni/ P+Si<sub>1-x</sub>Ge<sub>x</sub> and Ni/Si/P+Si<sub>1-x</sub>Ge<sub>x</sub> ”, the 203<sup>rd</sup> Meeting of The Electrochemical Society in Paris, France from April 27-May 2, 2003.
  24. “Layout Design of High-Quality SOI Varactor“, VLSI-TSA, Hsinchu, Taiwan 2003.
  25. “Study on formation of nickel germano-silicide on P+-Si<sub>1-x</sub>Ge<sub>x</sub> epitaxial layer”,

Symposium on

Nano Device Technology 2002, Hsinchu, Taiwan12. “Interconnect copper metallization of In GaP HBTs using WN<sub>x</sub> as the diffusion barrier”, 2003 ECS, Paris, France.

26. “Use OF Ti/W/Cu, Ti/Co/Cu and Ti/Mo/Cu multi-layer meta as schottky metals for GaAs Schottky diode”,ECS 2002 in Philadelphia, USA.

(十二) 真空濺鍍系統---校外論文

張鼎張 中山大學物理所

期刊論文

1. T. C. Chang, P. T. Liu, Y. L. Yang, J. C. Hu, S. M. Sze, "Enhancement of barrier properties in chemical vapor deposited TiN employing multi-stacked structure", Jpn. J. Appl. Phys., Part 2 39 (2A), p.L82 (2000).
2. P. T. Liu, T. C. Chang, Y. F. Cheng, L. Y. Yang, S. M. Sze, "Improvement on intrinsic electric properties of Low-k Hydrogen Silsesquioxane/ copper interconnections employing deuterium plasma treatment", Journal of Electrochemical Society, 147(3), p.1186 (2000).
3. W. C. Gau, T. C. Chang, Y. S. Lin, J. C. Hu, L. J. Chen, C. L. Cheng, "Copper electroplating for future ULSI interconnection", has been accepted by Journal of Vacuum Science & Technology A 18(2), p.656 (2000).
4. P. S. Shih, T. C. Chang, C. Y. Liang, T. Y. Huang, C. Y. Chang "Improvements of amorphous silicon inverted-staggered thin film transistors using high temperature deposited Al gate with chemical mechanical polishing", has been accepted by Electrochemical and Solid-State Letter, 3(5), p.235 (2000).
5. P. T. Liu, T. C. Chang, S. M. Sze, "Effects of NH<sub>3</sub>-plasma nitration on the electrical characterization of low-k Hydrogen Silsesquioxane with copper interconnections", IEEE Trans. on Electron Device, 47(9), p.1733 (2000).
6. J. S. Luo, W. T. Lin, C. Y. Chang, P. S. Shih, T. C. Chang, "Pulsed KrF laser annealing of Mo/SiGe", Nuclear Instruments and Methods in Physics Research B, 169, p.129 (2000).
7. P. S. Shih, H. W. Zan, T. C. Chang, T. Y. Huang, C. Y. Chang, "Dimensional Effects on the Drain Current of N- and P-Channel Polycrystalline Silicon Thin Film Transistors", Jpn. J. Appl. Phys, Part 1, 39(7A), p.3879 (2000).
8. J. C. Hu, T. C. Chang, C. W. Wu, C. J. Chen, "Effects of a new combination of additives in electroplating solution on the properties of Cu films in ULSI applications", Journal of Vacuum Science & Technology A, 18(4), p.1207 (2000).
9. P. T. Liu, T. C. Chang, J. C. Wu, Y.L. Yang, S. M. Sze, "Reliability of multi-stacked chemical vapor deposition Ti/TiN structure as a diffusion barrier in ULSI metallization", Journal of the Electrochemical Society, 147(1), p.368 (2000).
10. P. S. Shih, T. C. Chang, T. Y. Huang, C. F. Yeh, C. Y. Chang, "Characterization and reliability of lightly-doped-drain polysilicon thin-film transistors with oxide sidewall spacer formed by one-step selective liquid phase deposition, Jpn. J. Appl. Phys, 39(10) p.5758 (2000).
11. T. C. Chang, P. T. Liu, M. C. Huang, Y. L. Yang, M. S. Tsai, H. Chung, J. Hou, S. M. Sze, "Improvement of post-CMP characteristics on organic low-k methylsilsesquioxane as intermetal dielectric", Journal of Electrochemical Society 147(11) p.4313 (2000).
12. Y.W. Hsieh, J. S. Luo, W. T. Lin, T. C. Chang, "Improvement of the (111) texture and

microstructures of Cu films by pulsed laser annealing”, has been accepted by J. Mat. Sci.: material in Electronics (2000).

13. T. F. Yang, C. P. Chen, Y. L. Yang, T. C. Chang, “Study on the Si-Si vibrational-states of the near-surface region of porous silicon”, *Journal of Porous Materials*, 17 (1-3), p. 339 (2000).
14. H. J. Huang, K. M. Chen, C. Y. Chang, T. Y. Huang, T. C. Chang, “Study of boron effects on the reaction of Co and SiGe at various temperatures”, *Journal of Vacuum Science & Technology A*, 18(4), p.1448 (2000).
15. D. Z. Peng, P. S. Shih, T. C. Chang, C. Y. Chang, “Reliability of passivated P-type polycrystalline silicon thin film transistor”, *Microelectronics Reliability* 40 (2000), p.1491 (2000).
16. H. W. Zan, P. S. Shih, T. C. Chang, C. Y. Chang, “Reliability of passivated P-type polycrystalline silicon thin film transistor”, *Microelectronics Reliability* 40 (2000), p.1491 (2000).

#### 研討會論文

1. T. C. Chang, P. T. Liu, H. Su, C. F. Chang, Y. L. Yang, J. Hou, “Enhancement of organic low-k hybrid-organic-siloxane-polymer (HOSP) in resisting oxygen plasma process”, has been accepted by 197<sup>th</sup> meeting of The Electrochemical Society, Tronto, Ontario, Canada. (2000).
2. T. C. Chang, P. T. Liu, M. C. Huang, T. M. Tsai, C. F. Chang, Y. L. Yang, S. M. Sze, H. Chung, J. Hou, “Improvement in the characteristics of post-CMP low-k Methylsilsequioxane”, has been accepted by 197<sup>th</sup> meeting of The Electrochemical Society, Tronto, Ontario, Canada. (2000).
3. T. C. Chang, P. T. Liu, T. M. Tsai, C. F. Chang, Y. L. Yang, S. M. Sze, F. Y. Shih, E. Tsai, G. Chen, J. K. Lee, “Ammonia plasma passivation effects on properties of post-CMP low-k hydrogen silsequioxane (HSQ)”, has been accepted by 197<sup>th</sup> meeting of The Electrochemical Society, Tronto, Ontario, Canada. (2000).
4. J. C. Hu, T. C. Chang, L. J. Chen, M. S. Yeh, C. S. Hsiung, W. Y. Hsieh, W. Lur, T. R. Yew, “Investigation of leveling effect on electrodeposited Cu films for ULSI applications”, has been accepted by 197<sup>th</sup> meeting of The Electrochemical Society, Tronto, Ontario, Canada. (2000).

#### 王水進 成功大學電子工程所

##### 期刊論文

1. J. S. Luo, W. T. Lin, C. Y. Chang, W. C. Tsai, and S. J. Wang, "Interfacial Reactions of the Co/Si<sub>1-x</sub>Ge<sub>x</sub> System", *Materials Chemistry and Physics*, Vol. 48, pp. 140-144, 1997.
2. S. J. Wang, and S. L. Wu, “Observation of Negative Differential Resistance in a Si/Ge<sub>0.4</sub>Si<sub>0.6</sub>/Boron -doped Si Heterostructure”, *Proc. Natl. Sci. Counc. Vol. 22, No. 3*,

- ROC, part A, Physical Science and Engineering*, pp. 425-430, 1998.
3. S. J. Wang, H. Y. Tsai, and H. J. Lin, "Preparation and Analysis of Silicon Negative Differential Resistance diodes with Porous Superlattice Structure", *Proc. Natl. Sci. Council. Vol. 22, No. 2, ROC, part A, Physical Science and Engineering*, pp. 235-242, 1998.
  4. Hao Yi Tsai, S.C. Sun, and S.J. Wang, "Characterization of Sputter Tantalum Barrier Layer for Copper Metallization", *J. Electrochem. Soc.*, Vol.147, No. 7, pp. 2766-2772, 2000. (SCI impact factor:2.598)
  5. S. J. Wang, Hao Yi Tsai, and S. C. Sun, "Characterization of Tungsten Carbide as Diffusion Barrier for Cu Metallization", *Jpn. J. Appl. Phys*, Part 1, No. 4B, Vol. 40, pp. 2642-2649, 2001. (SCI impact factor:1.411)
  6. Shui-Jinn Wang, Hao-Ti Tsai, and S. C. Sun, "Characterization of Sputtered Titanium Carbide Film as Diffusion Barrier for Copper Metallization" to appear in *J. Electrochem. Soc.*, August 2001. (SCI impact factor:2.598)
  7. Shui-Jinn Wang, Hao-Yi Tsai, S. C. Sun, M. H. Shiao "Thermal Stability of Sputtered Tungsten Carbide as Diffusion Barrier for Copper Metallization" to appear in *J. Electrochem. Soc.*, Vol. 148, No. 9, September 2001. (SCI impact factor:2.598)
  8. Shui-Jinn Wang, Hao-Yi Tsai, S. C. Sun, and M. H. Shiao "Characterization of Sputter Ta-C-N Film in the Cu/barrier/Si Contact System" to appear in *J. Electronic. Material*, August 2001. (SCI impact factor:1.532)
  9. Shui-Jinn Wang, Hao-Yi Tsai, and S. C. Sun (2001), "A Comparative Study of Sputtered TaCx and WCx Films as Diffusion Barriers Between Cu and Si", *Thin Solid Films*, Vol 394/1-2, pp 179-187, August 2001. (SCI impact factor:1.101)
  10. Shui-Jinn Wang, Hao-Yi Tsai, and S.C. Sun, "Influence of Nitrogen Doping on the Barrier Properties of Sputter Tantalum Carbide Films for Copper Metallization" to appear in *Jpn. J. Appl. Phys*, Nov. 2001. (SCI impact factor:1.411)

#### 研討會論文

1. Shui Jinn Wang, Hao-Yi Tsai, and S. C. Sun, Characterization of Tungsten Carbide as diffusion barrier for Cu metallization, Proceedings of 2000 International Conference on Solid State Devices and Materials (SSDM'2000), pp. 96-98, Sendai, Japan., August 29-31, 2000
2. Hao-Yi Tsai and Shui Jinn Wang, "Characterization of Nitrogen doping in Sputtered Ta-C Barrier Layer for Cu Metallization", accepted by 2000 International Electron Devices and Materials Symposium (2000 IEDMS), Chung-Li, Taiwan, December 20-21, 2000
3. S. C. Sun, H. Y. Tsai, and S. J. Wang, "Refractory Metal Carbides Diffusion Barriers for Cu metallization" Proceeding of International Interconnect Technology Conference (IITC), San Francisco, June 2001
4. H. Y. Tsai, S. J. Wang, and S. C. Sun, "Investigation of Sputtered TaCx and WCx as diffusion barriers for Cu metallization", International Symposium on VLSI Technology,

System, and Applications, Hsinchu, April 18-20, 2001.

5. Hao Yi Tsai, Shui Jinn Wang, and Shi. Chung. Sun, "Properties of Sputtered Titanium Carbide Film as Diffusion Barrier for Copper Metallization", *Symposium on Nano Device Technology (SNDT)*, Hsinchu, April, 2001
6. 王淑如、張書誠、汪楷茗、王水進，"利用陽極氧化法進行MIS結構超薄SiO<sub>2</sub>與TiO<sub>2</sub>介電材料製備之研究"，電子元件暨材料研討會，800頁，2001年12月。
7. Shu-Cheng Chang, Yuan-Hsin Tzou, Kai-Ming Uang, Shu-Ru Wang, Shui-J inn Wang, Nie-Chuan Chen and Bor-Jen Wu, "Investigation of Electroplating Nickel Substrate for AlGaInP Light-Emitting Diodes", *Proceeding of Optics and Photonics Taiwan '01*, pp. 120-122, 2001.
8. Kai-Ming Uang, Zen-Gon Wen, Shu-Cheng Chang, Shu-Ru Wang, and Shui-J inn Wang, "On the Recrystallization of a-Si for Low-Temperature Poly-Si Thin Film Transistor", *Proceeding of Optics and Photonics Taiwan '01*, pp. 65-67,2001.

### 王天戈 清華大學工程系統所

#### 期刊論文

1. J.J.Peir and T.K.Wang(1999) "TRIGA Full enrichment verification gased on the measurement of short-lived fission products." *Appl. Radiat. Isot.* 50, 1085-1096
2. T.K.Wang, I. M.Hou and C.L.Tseng(1999) "Well-type HPGe-detector absolute-peak-efficiency calibration and true-coincidence correction," *Nucl. Instrum. Meth.A425*, 504-515
3. M.Y. Wang, F. H. Ko, T. K. Wang, C. C. Yang and T. Y. Huang (1999) "Characterization and Modeling of Out-diffusion of Manganese and Zinc Impurities from Deep Ultra-violet Photoresist" *J. Electrochem. Soci.* 146, 3455-3460.
4. F. H. Ko, M. Y. Wang and T. K. Wang(1999), "Evaluation of Metal Migration and Determination of Trace Metals after Microwave Digestion for Lithographic Materials" *Anal. Chem.*, 71, 5413
5. F. H. Ko, L. T. Hsiao, C. T. Chou, M. Y. Wang and T. K. Wang (1999) "Evaluation of Impurity Migration and Microwave Digestion Methods for Lithographic Materials," *Proc. SPIE*, 3677, 907-917.
6. T. K. Wang and J. J. Peir (2000) "An Iterative Approach for TRIGA fuel Burnup Determination using Nondestructive Gamma-ray Spectrometry." *Appl. Radiat. Isot.* 52, 105-118
7. T. K. Wang et. al., (2001) "Characterization and Modeling of the metal diffusion from deep ultraviolet photoresist and silicon-based substrate" *Appl. Radiat. Isot.* 54, 811-820

#### 研討會論文

1. F. H. Ko, L. T. Hsiao, C. T. Chou, M. Y. Wang, T. K. Wang (1999) "Evaluation of Impurity Migration and Microwave Digestion Methods for Lithographic Materials," *Proc.*



SPIE 3678-44, Santa Clara, CA.

2. C.C> Lin, T.K. Wang and K.S. Chang-Liao (2000) "Preparation of High-Quality Silicon Nitride Dielectric by LPCVD with Two-step RTP Annealing," The 7th Sym. On Nano Device Technology, NCTU, Taiwan.
3. Y.P. Lin, T.K. Wang and K.S. Chang-Liao (2000) "Suppression of Copper Penetration by Using SiO<sub>2</sub> and Amorphous Si," The 7th Sym. On Nano Device Technology, NCTU, Taiwan.

**楊長謀 清華大學材料工程所**

期刊論文：

1. A.C.-M. Yang and T.W. Wu, 1997, "Wear and Friction in Glassy Polymers: Microscratch on Blends of Polystyrene and Poly(2,6-dimethyl-1,4-phenylene oxide) ", Journal of Polymer Science: Polymer Physics 35, p1295.
2. C.H. Lin and A. C.-M. Yang, 2000, "Superplastic Behavior of the Brittle Polymer Film in Multilayer Systems", Journal of Materials Science 35(17), 4231-4242.
3. X.W. Liu, S.H. Tsai, L.H. Lee, M.X. Yang, A.C.-M. Yang, I.N. Lin, and H.C. Shih, 2000, "Electron Field Emission from Amorphous Carbon Nitride Synthesized by Electron Cyclotron Resonance Plasma", Journal of Vacuum Science and Technology B 18(4), 1840.
4. C.H.Lin and A. C.-M. Yang, 2001, "The Crazeing Micromechanism in Glassy Polymers by AFM", Macromolecules 2001, 34, 3698 –3705.
5. C.H. Lin and A. C.-M. Yang, 2001, "Stability of the Superplastic Behavior of Glassy Polystyrene Thin Films in Sandwiched Structures", Macromolecules 2001, 34, 4865-4873.
6. C.-Y. Chou and A. C.-M. Yang, 2002, "The Triboelectrical Behavior in Toner/Carrier Systems ", Journal of Imaging Science and Technology, 46(3) 208.
7. H.C.Lin, I.F.Tsai, A. C.-M. Yang, M.S. Hsu, and Y.C. Ling, 2002, "Polymer Diffusion and Microstructure at a Glassy-Rubbery Polymer Interface by SIMS", Macromolecules, accepted.
8. M.X.Yang and A. C.-M. Yang, 2002, "Generation of Topographic Bumps on Polymer Films Annealed above Glass Transition Temperature by AFM", to be submitted.
9. J.H. Lin and A. C.-M. Yang, 2002, "The Embrittlement Transition in Ductile Polymers Induced by Small Rigid Particle", to be submitted.
10. S.Y.Lee, M.H.Liu, W.T.Chen and A. C.-M. Yang, 2002, " The Microdeformation Behavior of Biodegradable PLLA(Poly-Lactic Acid) Thin Films", to be submitted.
11. K.H.Chen, E.C.Y.Jou and A. C.-M. Yang, 2002, "The Absorption of Small Solvent Molecules in the Adhered Polymer Film on a Substrate", to be submitted.
12. K.Y.Tsai and A. C.-M. Yang, 2002, "Polymer Polarization Using a Tip-Directed Localized Electric Field", to be submitted..

## 研討會論文

1. H. C. Lin, Y. C. Ling<sup>†</sup> and A. C.-M. Yang, 2000, “Interdiffusion of Miscible Polymers PS/PPO in a Glassy/Rubbery interface”, 第二十三屆高分子研討會論文專輯：高分子物理, p551.
2. 蔡光裕, 楊長謀, 2000, “探針電極在高分子表面局部極化現象之探討”, 第二十三屆高分子研討會論文專輯：高分子物理, p619.
3. 楊明勳, 楊長謀, 2001, “奈米尺度高分子薄膜時效的變化”, 第二十四屆高分子研討會論文專輯：高分子物理, p23.
4. J.-H. Lin and A.C.-M. Yang, 2001, “Crazing Micromechanism in Glassy Atactic polystyrene and its Blends with poly(2,6dimethyl,1,4-diphenyl oxides) by AFM”, 第二十四屆高分子研討會論文專輯：高分子物理, p275.
5. H. C. Lin and A.C.-M. Yang, 2001, “Inter-diffusion at Rubbery-Glassy interface”, 第二十四屆高分子研討會論文專輯：高分子物理, p278.
6. 蘇鴻濱, 葉佩娟, 陳文棋, 楊明勳, 楊長謀, 2001, “玻璃態高分子薄膜奈米尺度表面形態研究”, 第二十四屆高分子研討會論文專輯：高分子物理, p280.
7. 葉佩娟, 林熙乾, 楊長謀, 2001, “利用 SIMS 及 AFM 觀察高分子在玻璃/橡膠態界面的擴散行為”, 第二十四屆高分子研討會論文專輯：高分子物理, p282.
8. 李瑞淇, 朱峰億, 沈麟, 何蓓蓓, 楊長謀, 2001, “微米級單一粒徑高分子顆粒的分散聚合機制探討與著色研究”, 第二十四屆高分子研討會論文專輯：光電高分子材料, p371.
9. 陳文棋, 劉美慧, 楊長謀, 2001, “生醫分解性聚乳酸薄膜因老化(aging)造成的微觀機械性質變化”, 第二十四屆高分子研討會論文專輯：功能性及生醫高分子材料, p 421.
10. 林熙乾, 楊長謀, 2002 “高分子在玻態與橡膠態界面之奈米結構與運動行為”, 海峽兩岸清華大學材料科學研討會.
11. 楊明勳, 楊長謀, 2002 “高分子薄膜奈米尺度之非均勻形變與鬆弛行為”, 海峽兩岸清華大學材料科學研討會.
12. 朱峰億, 李瑞淇, 何蓓蓓和楊長謀, 2001, “分散聚合機制與著色變因之研究”, 公元 2001 年材料年會論文集：高分子材料, p225.
13. 林熙乾和楊長謀, 2001, “Chain Diffusion and Microstructure at a Glassy-Rubbery polymer Interface”, 第二十五屆高分子研討會論文專輯：高分子物理, p58.
14. 李瑞淇, 朱峰億和楊長謀, 2001, “分散聚合機制與著色變因之研究”, 第二十五屆高分子研討會論文專輯：高分子化學, p147.
15. 黃俊誠, 林熙乾, 劉美慧和楊長謀, 2001, “電漿聚合聚乳酸薄膜之研究”, 第二十五屆高分子研討會論文專輯：功能性高分子, p171.
16. 蘇鴻濱和楊長謀, 2001, “The Alignment Properties of Liquid Crystal Molecules between Rubbed Polymer Surfaces”, 第二十五屆高分子研討會論文專輯：功能性高分子, p183.
17. 陳文棋和楊長謀, 2001, “The Search on the Nano-Mechanical Properties of Glassy Polymer Films”, 第二十五屆高分子研討會論文專輯：高分子物理, p212.

18. 葉佩娟，林熙乾和楊長謀，2001，“Studying the Nano-Scale Behavior of Diffusion between the Rubbery Polymer into the Glassy Interface”，第二十五屆高分子研討會論文專輯：高分子物理，p213.
19. H. C. Lin and A.C.-M. Yang，2002，“Chain diffusion and microstructure at a glassy-rubbery polymer interface by SIMS”，American Physical Society, March Meeting.
20. H. C. Lin and A.C.-M. Yang，2002，“The microstructure at asymmetric polymer interface”，Polymer Processing Society Asia/Australia Meeting.
21. J. C. Huang and A.C.-M. Yang, 2002，“A novel PLLA thin film prepared by RF-Plasma polymerization”，Polymer Processing Society Asia/Australia Meeting.
22. W.T. W; and A.C.-M. Yang, 2002 “Nano-mechanical properties of glassy polymer thin films “Polymer Processing Society Asia/Australia Meeting.

### 蔡哲正 清華大學材料工程所

#### 期刊論文：

1. S.L. Cheng, H.Y. Huang, Y.C. Peng, L.J. Chen, B.Y. Tsui, C.J. Tsai, S.S. Guo, Y.R. Yang, and J.T. Lin, "Formation of TiSi<sub>2</sub> Thin Films on Stresses (001) Si Substrates", Applied Surface Science 142, 295 (1999).
2. J.Y. Shung, K.Y.-J. Hsu, Y.-L. Jiang, and C.J. Tsai, "Design Issues of Two-Dimensional Amorphous Silicon Position-Sensitive Detectors", Thin Solid Films, 337, 226 (1999).
3. 謝明雄、歐陽浩、蔡哲正、林宏彝、朱俊良，“矽晶片研磨損傷及磊晶層之研究”，機械工業雜誌，197, 154 (1999).
4. S.L. Cheng, H.Y. Huang, Y.C. Peng, L.J. Chen, B.Y. Tsui, C.J. Tsai, S.S. Guo, Y.R. Yang, and J.T. Lin, "Effects of Stress on the Growth of TiSi<sub>2</sub> Thin Films on (001) Si", Appl. Phys. Lett., 74, 1406 (1999).
5. C.J. Tsai and K.H. Yu, "Stress Evolution during Isochronal Annealing of Ni/Si System"; Thin Solid Films, 350, 91 (1999).
6. 蔡哲正、郭昇鑫、官振台、歐陽浩、林宏彝，“硬碟多層膜製程與分析技術”，機械工業雜誌，209, 129 (2000).
7. 郭昇鑫、蔡哲正，「在鈷/鈦/矽與鈷/鎳/矽系統不同中間層對鈷矽化物生成的影響」，興大工程學刊，第十一卷，第一期，53 頁，2000.
8. C.J. Tsai, P.L. Chung, and K.H. Yu, "Stress Evolution of Ni/Pd/Si Reaction System under Isochronal Annealing", Thin Solid Films 365, 72 (2000).
9. S.L. Cheng, S.M. Chang, H.L. Huang, L.J. Chen, and C.J. Tsai, "Transmission electron microscopy investigation of the formation of C54-TiSi<sub>2</sub> phase on stressed (001) Si", Micron 33, 543 (2002) SCI
10. S.S. Guo and C.J. Tsai, "Reaction sequence of Co/Ni/Si(001) System", submitted to Journal of Vacuum Science and Technology.

#### 研討會論文

1. T. Vreeland, Jr., A. Dommann, C.J. Tsai, and M.-A. Nicolet, “X-Ray Diffraction

- Determination of Stresses in Thin Film”, *Mat. Res. Soc. Symp. Proc.* V.130, 3-12 (1989).
2. C. J. Tsai, H.A. Atwater, and T. Vreeland, “Strain Modification and Thermal Stability of SiGe Film Grown by Ion-Assisted Molecular Beam Epitaxy”, V.201, 57-61 (1991).
  3. C.J. Tsai and H.A. Atwater, “Suppression of Island Formation During Initial Stages of Ge/Si(100) Grown by Ion-Assisted Molecular Beam Epitaxy”, V.268, 127-131 (1991).
  4. S.L. Cheng, H.Y. Huang, Y.C. Peng, L.J. Chen, B.Y. Tsui, C.J. Tsai, S.S. Guo and K.H. Yu, "The Effects of Stress on the Formation of Titanium Silicide", *Proc. IEEE 1998 Inter. Interconnection Technology Conf.*, San Francisco, CA, 190 (1998).
  5. L.J. Chen, S.L. Cheng, H.M. Luo, H.Y. Huang, Y.C. Peng, B.Y. Tsui, C.J. Tsai and S.S. Guo, " The Influences of Stress on the Growth of Ti and Ni Silicide Thin Films on (001)Si ", *Proc. 5th. Inter. Conf. on Solid-State and Integrated Circuit Technology*, Beijing, China, 256 (1998).
  6. S.L. Cheng, H.Y. Huang, Y.C. Peng, L.J. Chen, B.Y. Tsui, C.J. Tsai, S.S. Guo, Y.R. Yang and J.T. Lin, " Effects of Stress on the Formation of Titanium Silicide Thin Films on (001)Si ", *Proc. 1998 Inter. Electron Device and Mater. Symp.*, Tainan, Taiwan, C4-7, 317 (1998).
  7. 李文豪，謝明雄，歐陽浩，蔡哲正，林宏彝,1998, *Proceedings of the 2nd Nano Engineering and Micro System Technology Workshop ITRI-Taiwan*, 2, 177.
  8. S.S. Guo and C.J. Tsai, *Proceedings of the 1998 Annual Conference of the Chinese Society for Materials Science*, volume J, 163.
  9. 謝明雄，李文豪，歐陽浩，蔡哲正， *Proceedings of the 1998 Annual Conference of the Chinese Society for Materials Science*, volume J, 85.
  10. S.L. Cheng, S.M. Chang, H.Y. Huang, Y.C. Peng, L.J. Chen, B.Y. Tsui, C.J. Tsai, and S.S. Guo, “The influence of stress on the growth of Ti silicide thin films on (001) Si substrates”, *Mat. Res. Soc. Symp. Proc.* Vol. 564, 9 (1999).
  - 11.程立偉，羅惠敏，鄭紹良，陳力俊，蔡哲正， *Proceedings of the 1999 Annual Conference of the Chinese Society for Materials Science*, H-57.
  - 12.郭昇鑫，蔡哲正， *Proceedings of the 1999 Annual Conference of the Chinese Society for Materials Science*, H-59. (NSC88-2216-E-005-006)

## 三、各儀器支援之研究成果——發表論文紀錄表

## (十三)活性離子蝕刻機

校內使用者期刊論文

**鄭晃忠教授 交通大學電子工程所**

期刊論文

1. H. C. Cheng, C. Y. Huang, F. S. Wang, K. H. Lin, and F. G. Tarntair, "Thin-film transistors with polycrystalline silicon films prepared by two-step rapid thermal annealing," *Jpn. J. Appl. Phys.*, vol. 39, Part 2, no. 1A/B, pp. L 19-21, 2000.
2. F. G. Tarntair, C. Y. Wen, L. C. Chen, J. J. Wu, K. H. Chen, P. F. Kuo, S. W. Chang, Y. F. Chen, W. K. Hong, and H. C. Cheng, "Field emission from quasi-aligned SiCN nanorods," *Appl. Phys. Lett.*, vol. 76, no. 18, pp. 2630-2632, 2000.
3. W. K. Hong, H. C. Shih, S. H. Tsai, C. T. Shu, F. G. Tarntair, and H. C. Cheng, "Field emission properties of aligned carbon nanotubes," *Jpn. J. Appl. Phys.*, vol. 39, Part 2, no. 9A/B, pp. L 925-928, 2000.
4. C. C. Hwang, M. J. Lai, C. C. Jaing, J. S. Chen, S. Huang, M. H. Juang, and H. C. Cheng, "Low-temperature process to improve the leakage current of (Ba, Sr)TiO<sub>3</sub> films on Pt/TiN/Ti/Si substrates," *Jpn. J. Appl. Phys.*, vol. 39, Part 2, no. 12B, pp. L 1314-1316, 2000.
5. C. C. Hwang, C. C. Jaing, M. J. Lai, J. S. Chen, S. Huang, M. H. Juang, and H. C. Cheng, "Effect of rapid thermal annealed TiN barrier layer on BST capacitors prepared by RF magnetron cosputter system at low substrate temperatures," *Electrochemical and Solid-State Lett.*, vol. 3, no. 12, pp. 563-565, 2000.
6. F. G. Tarntair, L. C. Chen, S. L. Wei, W. K. Hong, K. H. Chen, and H. C. Cheng, "High current density field emission from arrays of carbon nanotubes and diamond-clad Si tips," *J. Vac. Sci. & Technol. B.*, vol. 18, no. 3, pp. 1207-1211, 2000.
7. Fu-Gow Tarntair, Wei-Kai Hong, Tzu-Kun Ku, Nan-Jie She, Chia-Fu Chen and Huang-Chung Cheng, "Fabrication and characterization of various carbon-clad silicon microtips with ultra-small tips radii," *Jpn. J. Appl. Phys.*, vol. 39, Part 1, no. 2A, pp. 432-437, 2000.
8. Chun-Yao Huang, Teh-Hung Teng, Jun-Wei Tsai and Huang-Chung Cheng, "The instability mechanisms of hydrogenated amorphous silicon thin film transistors under AC bias stress," *Jpn. J. Appl. Phys.*, vol. 39, Part 1, no. 7A, pp. 3867-3871, 2000.
9. Chun-Yao Huang, Jun-Wei Tsai, Teh-Hung Teng, Cheng-Jer Yang and Huang-Chung Cheng, "Turnaround phenomenon of threshold voltage shifts in amorphous silicon thin film transistors under negative bias stress," *Jpn. J. Appl. Phys.*, vol. 39, Part 1, no. 10, pp. 5763-5766, 2000.
10. Huang-Chung Cheng, Li-Jing Cheng, Ching-Wei Lin, Yin-Lung Lu, and Chi-Yuan Chen, "High performance low-temperature processed polysilicon TFTs fabricated by excimer

laser crystallization with recessed-channel structure,” *International workshop on AMLCDs 2000*, pp. 281-284. **(The Best Paper Award)**

11. C. W. Lin, M. Z. Yang, C. C. Yeh, L. J. Cheng, T. Y. Huang, H. C. Cheng, H. C. Lin, T. S. Chao, and C. Y. Chang, “Effects of plasma treatments, substrate types, and crystallization methods on performance and reliability of low temperature polysilicon TFTs,” in *IEDM Tech. Dig.*, 1999, pp. 305-308.

12. Y. L. Lu, L. J. Chou, C. W. Lin, L. J. Cheng, and H. C. Cheng, “Dimensional effects on the performance of low temperature polycrystalline thin film transistor fabricated by nickel silicide mediated crystallization method,” *2000 International Electron Devices and Materials Symposia (2000 IEDMS)*, pp. 100-103.

13. C. Y. Huang, T. K. Chang, C. W. Lin, L. J. Cheng, Y. L. Lu, and H. C. Cheng, “Degradation of passivated and non-passivated n-channel low-temperature polycrystalline silicon TFTs prepared by excimer laser processing,” *2000 International Electron Devices and Materials Symposia (2000 IEDMS)*, pp. 257-260.

14. L. J. Cheng, Y. L. Lu, C. W. Lin, T. K. Chang, and H. C. Cheng, “Novel growth in channel region,” *Photonics Taiwan, 2000, Proceeding of SPIE Vol. 4079-06*.

15. C. C. Hwang, M. H. Juang, M. J. Lai, C. C. Jaing, J. S. Chen, S. Huang, and H. C. Cheng, “Effect of rapid-thermal-annealed TiN barrier layer on the Pt/BST/Pt capacitor prepared by RF magnetron co-sputter technique at low substrate temperature,” *Solid-State Electronics*, vol. 45, no. 1, pp. 121-125, 2001.

16. W. K. Hong, K. H. Chen, L. C. Chen, F. G. Tarntair, K. J. Chen, J. B. Lin, and H. C. Cheng, “Fabrication and characterization of carbon nanotube triodes,” *Jpn. J. Appl. Phys.*, vol. 40, Part 1, no. 5A, pp. 3468-3473, 2001.

17. H. C. Cheng, W. K. Hong, F. G. Tarntair, K. J. Chen, J. B. Lin, K. H. Chen, and L. C. Chen, “Integration of thin-film-transistor-controlled carbon nanotubes for field emission devices,” *Electrochemical and Solid-State Lett.*, vol. 4, no. 4, pp. H5-H7, 2001

18. Ching-Wei Lin, Li-Jing Cheng, Yin-Lung Lu, Yih-Shing Lee, and Huang-Chung Cheng, “High-performance low-temperature poly-Si TFTs crystallized by excimer laser irradiation with recessed-channel structure,” *IEEE Electron Device Lett.*, vol. 22, pp. 269-271, 2001

19. Huang-Chung Cheng, Kuo-Ji Chen, Wei-Kai Hong, Fu-Gow Tantai, Chia-Pin Lin, Kuei-Hsien Chen, and Li-Chyong Chen, “Fabrication and characterization of low turn-on voltage carbon nanotube field emission triodes,” *Electrochemical and Solid-State Lett.*, vol. 4, no.8, pp. H15-H17, 2001.

20. Chang-Ho Tseng, Ching-Wei Lin, Ting-Kuo Chang, Huang-Chung Cheng, and Albert Chin, “Effects of excimer laser dopant activation on low temperature polysilicon thin-film transistors with lightly doped drains,” *Electrochemical and Solid-State Lett.*, vol. 4, no.11, pp. G94-G97, 2001.

21. K. J. Chen, W. K. Hong, J. B. Lin, K. H. Chen, L. C. Chen, and H. C. Cheng, “Low

- turn-on voltage field emission triodes with selective growth of carbon nanotubes," *IEEE Electron Device Letters*, Vol. 22, No. 11, pp.516-518,2001
22. K. J. Chen, W. K. Hong, C. P. Lin, K. H. Chen, L. C. Chen, and H. C. Cheng, "Low turn-on voltage field emission triodes with selective growth of carbon nanotubes," *IEEE Electron Device Lett.*, vol. 22, pp. 516-518, 2001.
23. Ching-Wei Lin, Li-Jing Cheng, Yin-Lung Lu, Yih-Shing Lee, and Huang-Chung Cheng, "High-performance low-temperature poly-Si TFTs crystallized by excimer laser irradiation with recessed-channel structure," *IEEE Electron Device Lett.*, vol. 22, pp. 269-271, 2001.
24. Ching-Wei Lin, Li-Jing Cheng, Yin-Lung Lu, and Huang-Chung Cheng, "Characterization of low temperature polysilicon TFTs with self-aligned graded LDD structure," *Mat. Res. Soc. Symp. Proc.*, vol. 685E, D12.7.1 - D12.7.6, 2001.
25. Chang-Ho Tseng, Ting-Kuo Chang, Fang-Tsun Chu, Jia-Min Shieh, Bau-Tong Dai, Huang-Chung Cheng, and Albert Chin, " Investigation of Inductively Coupled Plasma Gate Oxide on Low Temperature Polycrystalline-Silicon Thin Film Transistors", *IEEE Electron Device Letter*, Vol. 23, No. 6, p. 333-335, 2002.
26. Ching-Wei Lin, Chang-Ho Tseng, Ting-Kuo Chang, Yuan-Hsun Chang, Fang-Tsun Chu, Chiung-Wei Lin, Wen-Tung Wang, and Huang-Chung Cheng, "An Investigation of Bias Temperature Instability in Hydrogenated Low-Temperature Polycrystalline Silicon Thin Film Transistors," *Jpn. J. Appl. Phys., Part 1*, vol. 41, pp. 2002.
27. Ching-Wei Lin, Chang-Ho Tseng, Ting-Kuo Chang, Chiung-Wei Lin, Wen-Tung Wang, and Huang-Chung Cheng, "A Novel Laser-Processed Self-Aligned Gate-Overlapped LDD Poly-Si TFT," *IEEE Electron Device Lett.*, vol. 23, pp. 133-135, 2002.
28. Huang-Chung Cheng, Ching-Wei Lin, Li-Jing Cheng, Chang-Ho Tseng, Ting-Kuo Chang, Yuan-Ching Peng, and Wen-Tung Wang, "Fabrication of low-temperature poly-Si thin film transistors with self-aligned graded lightly doped drain structure," *IEEE/ECS Electrochemical and Solid-State Lett.*, vol. 5, no.1, pp. G1-G3, 2002.
29. Huang-Chung Cheng, Ching-Wei Lin, Li-Jing Cheng, Chang-Ho Tseng, Ting-Kuo Chang, Yuan-Ching Peng, and Wen-Tung Wang, "Fabrication of low-temperature poly-Si thin film transistors with self-aligned graded lightly doped drain structure," *Electrochemical and Solid-State Lett.*, vol. 5, no.1, pp. G1-G3, 2002.
30. Chang-Ho Tseng, Ching-Wei Lin, Teh-Hung Teng, Ting-Kuo Chang, Huang-Chung Cheng, and A. Chin, " Study on dopant activation of phosphorous implanted polycrystalline silicon thin films by KrF excimer laser annealing", *Solid-State Electronics*, Vol. 46, Issue 8, August 2002, Pages 1085-1090
31. T.H.Teng, C.Y.Huang, T.K.Chang, C.W.Lin, L.J.Cheng, Y.L.Lu, H.C.Cheng, "Degradation of passivated and non-passivated N-channel low-temperature polycrystalline silicon TFTs prepared by excimer laser processing," *Solid State Electronics*, vol. 46, pp. 1079-1083, 2002

研討會論文

1. Huang-Chung Cheng, Li-Jing Cheng, Ching-Wei Lin, Yin-Lung Lu and Chi-Yuan Chen, "High Performance Low-Temperature Processed Polysilicon TFTs Fabricated by Excimer Laser Crystallization with Recessed-Channel Structure, 2000 AMLCD. Chang-Ho Tseng, Ting-Kuo Chang, Huang-Chung Cheng, and A. Chin, "Dopant activation of phosphorous implanted poly-silicon film capped with silicon oxide film by KrF excimer laser annealing," *2000 International Electron Devices and Materials Symposia (2000 IEDMS)*.
2. Cheng-Jer Yang, Gwo-Yann Lee, Jyh-Liang Wang, I-Feng Chang, Chih-Wei Tsai, Huang-Chung Cheng, Ting-Chang Chang, and Li-Jen Chou, "Low dielectric material formation by CF<sub>4</sub>/SiH<sub>4</sub> mixed gas in plasma enhanced chemical vapor deposition system," *2000 International Electron Devices and Materials Symposia (2000 IEDMS)*.
3. Cheng-Jer Yang, I-Feng Chang, Gwo-Yann Lee, Huang-Chung Cheng, Ting-Chang Chang, Chih-Wei Tsai, and Li-Jen Chou, "The mechanism of copper ions formation in the low k film during the post metallization annealing," *2000 International Electron Devices and Materials Symposia (2000 IEDMS)*.
4. Der-Chi Shye, Ming-Jiunn Lai, Chuan-Chou Hwang, Cheng-Chung Jaing, Jyh-Shin Chen, Bi-Shiou, and Huang-Chung Cheng, "The study of oxygen effect during RF sputtering BST films deposited on Pt/TiN/Ti/Si substrate at low temperature for DRAMs' capacitors," *2000 International Electron Devices and Materials Symposia (2000 IEDMS)*, pp. 339-342.
5. Y. L. Lu, L. J. Chou, C. W. Lin, L. J. Cheng, and H. C. Cheng, "Dimensional effects on the performance of low temperature polycrystalline thin film transistor fabricated by nickel silicide mediated crystallization method," *2000 International Electron Devices and Materials Symposia (2000 IEDMS)*.
6. C. Y. Huang, T. K. Chang, C. W. Lin, L. J. Cheng, Y. L. Lu, and H. C. Cheng, "Degradation of passivated and non-passivated n-channel low-temperature polycrystalline silicon TFTs prepared by excimer laser processing," *2000 International Electron Devices and Materials Symposia (2000 IEDMS)*. (The Best Paper Award)
7. L. J. Cheng, Y. L. Lu, C. W. Lin, T. K. Chang, and H. C. Cheng, "Novel device structure for low temperature polysilicon TFT with controlled grain growth in channel region," *Photonics Taiwan, 2000, Proceeding of SPIE Vol. 4079-06*.
8. Huang-Chung Cheng, Chuan-Chou Hwang, Cheng-Chung Jaing, Der-Chi Shye, Hsien-Wen Hsu, Jyh-Shin Chen, and Miin-Horng Juang, "A novel excimer laser annealing to achieve thin BST films at low substrate temperatures," *2000 International Electron Devices and Materials Symposia (2000 IEDMS)*, pp. 343-345.
9. C. B. Lin, K. J. Chen, F. G. Tairair, W. K. Hong, and H. C. Cheng, "The Integrated Process of TFT-Controlled CNTs for Stabilized Emission Current" *Proceedings of the 8<sup>th</sup>*



*International Display Workshops*, 2000, Kobe, Japan.

10. Trent Gwo-Yann Lee, Tseung-Yuan Tseng, Shyh-Chyi Wong, Cheng-Jer Yang, Mong-Song Liang, and Huang-Chung Cheng, "Interconnect optimization design with guaranteed performance methods," *International Symposium on Integrated Circuits, Devices and Systems (ISIC)*, 2001.
11. Trent Gwo-Yann Lee, Tseung-Yuan Tseng, Shyh-Chyi Wong, Cheng-Jer Yang, Mong-Song Liang, and Huang-Chung Cheng, "The generalized interconnect delay time and cross-talk models," *International Symposium on Integrated Circuits, Devices and Systems (ISIC)*, 2001.
12. Ching-Wei Lin, Li-Jing Cheng, Yin-Lung Lu, and Huang-Chung Cheng, "Characterization of low temperature polysilicon TFTs with self-aligned graded LDD structure," *Mat. Res. Soc. Symp. Proc.*, vol. 685E, D12.7.1 - D12.7.6, 2001.
13. W. K. Hong, K. J. Chen, J. B. Lin, H. C. Cheng, P. H. Lin, K. H. Chen, and L. C. Chen, "Carbon nanotube based triodes and TFT-controlled field emission displays," *International Conference on Material for Advanced Technologies*, Singapore, 2001.
14. K. J. Chen, F. G. Tairair, W. K. Hong, J. B. Lin, K. H. Chen, L. C. Chen and H.C. Cheng, "Fabrication and characterization of low turn-on voltage carbon nanotube field emission triode" *Material Research Society (MRS) 2001 spring meeting*, San Francisco, USA.2001.
15. K. J. Chen, W. K. Hong, C. P. Lin, K. H. Chen, L. C. Chen and H. C. Cheng, "Upgraded Field Emission Characteristics of Carbon Nanotubes by Excimer Laser Treatment" *Jpn. J. Appl. Phys* Vol.41, No.10, 2002.
16. K. J. Chen, W. K. Hong, C. P. Juan, K. H. Chen, L. C. Chen and H. C. Cheng, "Fabrication and Characterization of Carbon Nanotubes Field Emission Triodes for Field Emission Display" submitted to *Jpn. J. Appl. Phys*
17. W. K. Hong, K. H. Chen, L. C. Chen, F. G. Tairair, K. J. Chen, J. B. Lin, and H. C. Cheng, "Fabrication and characterization of carbon nanotube triodes," *Jpn. J. Appl. Phys.*, Vol. 40, Part 1, No. 5A, pp. 3468-3473, 2001.
18. W. K. Hong, K. J. Chen, J. B. Lin, P. H. Lin, K. H. Chen, L. C. Chen, and H. C. Cheng, "Fabrication of carbon nanotube triodes for field emission display," submitted to *J. Appl. Phys.*
19. K. J. Chen, W. K. Hong, L.C.Chen, K.H. Chen and H.C.Cheng, "Fabrication and characterization of lateral field emission device based on carbon nanotubes" *13<sup>th</sup> European Conference on Diamond, Diamond-like Materials, Nitrides and Silicon Carbide*, 2002, Granada, Spain.

雷添福教授 交通大學電子工程所

期刊論文

1. Jiann Heng Chen, **Tan Fu Lei**, Tien Sheng Chao, Tien Pao Su, Jim Huang, Andy Tuan, and S. K. Chen, "Study on the Contact Resistance of Poly-plug Structure by In-Situ HF Vapor Clean," IEE Electronics Letters, Vol. 36, No. 8, pp. 756-757, 2000.
2. Tung Ming Pan, **Tan Fu Lei**, Chao Chyi Chen, Tien Sheng Chao, Ming Chi Liaw, Wen Lu Yang, Ming Shih Tsai, C. P. Lu, and W. H. Chang, "Novel cleaning solutions for polysilicon film post chemical mechanical polishing," IEEE Electron Devices lett., Vol. 21, No. 7, pp. 338-340, 2000. Tung Ming Pan, **Tan Fu Lei**, and Tien Sheng Chao, "Robust ultra-thin oxynitride dielectrics by  $\text{NH}_3$  nitridation and  $\text{N}_2\text{O}$  RTA treatment," IEEE Electron Devices lett., Vol. 21, No. 8, pp. 378-380, 2000.
3. **Tan Fu Lei**, Jiann Heng Chen, Ming Fang Wang, and Tien Sheng Chao, "Characteristics of Polysilicon Oxides Combining  $\text{N}_2\text{O}$  Nitridation and CMP Processes," IEEE Trans. on Electron Device, Vol. 47, No. 8, pp. 1545-1552, 2000. Tung Ming Pan, **Tan Fu Lei**, Tien Sheng Chao, Kuo Lih Chang, and Kuang Chien Hsieh, "High quality ultra-thin  $\text{CoTiO}_3$  high-k gate dielectrics," Electrochemical and Solid-State lett., vol. 3, No. 9, pp. 433-434, 2000.
4. Tung Ming Pan, **Tan Fu Lei**, Tien Sheng Chao, Ming Chi Liaw, and Chih Peng Lu, "The Optimum Condition of Novel One-Step Cleaning Solutions for Pre-Gate Oxide Cleaning using the Robust Design Methodology," J. J. Applied Phys. Vol. 39, No.10, p. 5805, 2000.
5. Chin-Yu Ku, Jia-Min Shieh, Tsann-Bim Chiou, Hwang-Kuen Lin, and **Tan Fu Lei**, "Postexposure delay effect on linewidth variation in base added chemically amplified resist", J. Electrochem. Soc., Vol.147, No.10, pp.3833-3839, 2000.
6. Jiann Heng Chen, **Tan Fu Lei**, Jian-Hong Chen, and Tien Sheng Chao, "Characteristics of TEOS Polysilicon Oxides: The Improvement by CMP Process and High Temperature RTA  $\text{N}_2/\text{N}_2\text{O}$  Annealing," J. Electrochem. Soc., Vol.147, No.11, p.4282, 2000.
7. Horng Chih Lin, C. M. Yu, C. Y. Lin, K. L. Yeh, Tiao Yuan Huang, and **Tan Fu Lei**, "A Novel Thin-Film Transistor with Self-Aligned Field Induced Drain," IEEE Electron Devices lett., Vol. 22, No. 1, pp. 26-28, 2001.
8. Tung Ming Pan, **Tan Fu Lei**, Wen Luh Yang, Chun Ming Cheng, Tien Sheng Chao, "High Quality Interpoly-Oxynitride Grown by  $\text{NH}_3$  Nitridation and  $\text{N}_2\text{O}$  RTA Treatment," IEEE Electron Devices lett., Vol. 22, No. 2, pp. 68-71, 2001.
9. Tung Ming Pan, **Tan Fu Lei** and Tien Sheng Chao, "High-k  $\text{CoTiO}_3$  dielectrics formed by oxidation of sputtered Co/Ti or Ti/Co films," Applied Phys. Lett., vol. 78, pp.1439-1441, 2001.
10. W. L. Yang, T. S. Chao, C. M. Cheng, T. M. Pan, and **T. F. Lei**, "High Quality Interpoly Dielectrics Deposited on the Nitride-Polysilicon for Nonvolatile Memory Devices," IEEE Trans. On Electron Devices, 48, pp. 1304-1309, July, 2001.
11. Tung Ming Pan, **Tan Fu Lei** and Tien Sheng Chao, "Comparison of Ultrathin  $\text{CoTiO}_3$  and  $\text{NiTiO}_3$  High-k Gate Dielectrics," J. Applied Phys., Vol. 89, March 15, 2001.

12. Tung Ming Pan, **Tan Fu Lei**, Huang Chun Wen, and Tien Sheng Chao, "Characterization of Ultrathin Oxynitride (18-21 Å) Gate Dielectrics by NH<sub>3</sub> Nitridation and N<sub>2</sub>O RTA Treatment," IEEE Trans. on Electron Devices, Vol. 48, April., 2001.
13. Tung Ming Pan; **Tan Fu Lei**; Fu Hsiang Ko; Tien Sheng Chao; Tzu Huan Chiu; Ying Hao Lee; Chih Peng Lu, "Comparison of novel cleaning solutions with various chelating agents for post-CMP cleaning on poly-Si film," Semiconductor Manufacturing, IEEE Transactions on , Volume: 14 Issue: 4 , Page(s): 365 –371, Nov. 2001.
14. Jam Wem Lee; **Tan Fu Lei**; Chung-Len Lee, "Thin tunnel oxide grown on silicon substrate pretreated by CF<sub>4</sub> plasma," IEEE Electron Device Letters , Volume: 22 Issue: 11 , Page(s): 513 –515, Nov, 2001.
15. Tung Ming Pan, Chao Hsin Chien, **Tan Fu Lei**, Tien Sheng Chao, and Tiao Yuan Huang, "Electrical Characteristics of Thin Cerium Oxide Film on Silicon Substrate by Reactive DC Sputtering," Electrochem. Solid-State Lett. , Volume 4, Issue 9 pp. F15-F17, Sep. 2001.
16. Jam Wem Lee, Won-Der Chen, **Tan Fu Lei**, and Chung-Len Lee, "The Enhancement of Nitrogen Incorporation in RTN<sub>2</sub>O Annealed TEOS Oxide Fabricated on Disilane-Based Polysilicon Films," Journal of The Electrochemical Society, Volume 148, Issue 8 pp. F164-F169, Aug. 2001.
17. Tung Ming Pan, **Tan Fu Lei**, Tien Sheng Chao, Ming Chi Liaw, Fu Hsiang Ko, and Chih Peng Lu, "One-Step Cleaning Solution to Replace the Conventional RCA Two-Step Cleaning Recipe for Pregate Oxide Cleaning," Journal of The Electrochemical Society, Volume 148, Issue 6 pp. G315-G320, June 2001.
18. Chin Yu Ku, **Tan Fu Lei**, and Hwang Kuen Lin, "Focus measurement with a simple pattern design," APPLIED OPTICS, Volume 40, No.16 pp.2662-2669, June 2001.
19. Chin Yu Ku, Jia Min Shieh, Tsann Bim Chiou, Hwang Kuen Lin and **Tan Fu Lei**," Expanding the Process Window and Reducing the Optical Proximity Effect by Post-Exposure Delay," Journal of The Electrochemical Society, Volume 148, Issue 8 pp. G434-G438, June 2001.
20. Chin Yu Ku, Dong Shieh Cheng, and **Tan Fu Lei**, "Monitoring the Lithographic Focus and Tilting Performance by Off-line Overlay Measurement Tools", J. Vac. Sci. Technol.B Volume 19, Issue 5 pp. 1915-1924, September 2001.
21. M. N. Chang, T. Y. Chang, F. M. Pan, B. W. Wu, and **T. F. Lei**, "An Investigation of Scanning Capacitance Microscopy on Iron-Contaminated p-Type Silicon", Electrochemical and Solid-State Letters, Volume 4, Issue 9 G69-G71, 2001.
22. Yiming Li, Jam-Wem Lee, Ting-Wei Tang, T.-S. Chao, **Tan-Fu Lei**, and S. M. Sze, "Numerical Simulation of Quantum Effects in High-k Gate Dielectrics MOS Structures using Quantum Mechanical Models," Computer Physics Communications (accepted to appear in 2002).

23. J. H. Chen, **T. F. Lei**, C. L. Chen, T. S. Chao, W. Y. Wen, K. T. Chen, “Nitrogen implantation and in situ HF vapor clean for deep submicrometer n-MOSFETs,” J. Electrochem. Soc., 149 (1): G63-G69, Jan., 2002.
24. T. Y. Chang, **T. F. Lei**, T. S. Chao, S. W. Chen, L. M. Kao, S. K. Chen, A. Tuan, and T. P. Su, “Impact of Nitrogen and/or Fluorine Implantation on Deep-submicron Co-salicide Process,” accepted by Solid State Electronics.
25. C. M. Yu, H. C. Lin, C. Y. Lin, K. L. Yeh, T. Y. Huang, and **T. F. Lei**, “Self-Aligned Fabrication of Thin-Film Transistors with Field-Induced Drain (FID),” accepted by Solid State Electronics.
29. Michael Yu, H. C. Lin, G. H. Chen, T. Y. Huang, and **T. F. Lei**, “Characteristics of Poly-Si Thin-Film Transistors with Electrical Source/Drain Extensions Induced by a Bottom Sub-Gate” accepted by Jpn. J. Appl. Phys.
27. J. H. Chen, **T. F. Lei**, C. L. Chen, T. S. Chao, W. Y. Wen, K. T. Chen, “Nitrogen implantation and in situ HF vapor clean for deep submicrometer n-MOSFETs,” J. Electrochem. Soc., 149 (1): G63-G69, Jan., 2002.
28. T. Y. Chang, **T. F. Lei**, T. S. Chao, S. W. Chen, L. M. Kao, S. K. Chen, A. Tuan, and T. P. Su, “Impact of Nitrogen and/or Fluorine Implantation on Deep-submicron Co-salicide Process,” Solid-State Electronics, v 46, n 8, August, p 1097-1101, 2002.
29. C. M. Yu, H. C. Lin, C. Y. Lin, K. L. Yeh, T. Y. Huang, and **T. F. Lei**, “Self-Aligned Fabrication of Thin-Film Transistors with Field-Induced Drain (FID),” Solid-State Electronics, v 46, n 8, August, p 1091-1095, 2002
30. Michael Yu, H. C. Lin, G. H. Chen, T. Y. Huang, and **T. F. Lei**, “Characteristics of Poly-Si Thin-Film Transistors with Electrical Source/Drain Extensions Induced by a Bottom Sub-Gate” Japanese Journal of Applied Physics, Part 1: Regular Papers and Short Notes and Review Papers, v 41, n 5 A, May, p 2815-2820, 2002.
31. J. W. Lee, **T. F. Lei** and C. L. Lee, “Thin oxides grown on disilane-based polysilicon” Japanese Journal of Applied Physics, v41, n 6A, June, p 3651-3654, 2002
32. T. M. Pan, **T. F. Lei**, F. H. Ko, T. S. Chao, M. C. Liaw, Y. H. Lee and C. P. Lu, “Performance evaluation of cleaning solutions enhanced with tetraalkylammonium hydroxide substituents for post-CMP cleaning on poly-Si film”, Journal of the Electrochemical Society, v 149, n 6, June, p G336-G342, 2002.
33. T. Y. Chang, **T. F. Lei**, T. S. Chao, H. C. Wen and H. W. Chen, “Improvement of low-temperature gate dielectric formed in N<sub>2</sub>O plasma by an additional CF<sub>4</sub> pretreatment process”, IEEE Electron Device Letters, v 23, n 7, July, p 389-391, 2002.
34. J. C. Wang, S. H. Lee and **T. F. Lei**, “A physical model for the hysteresis phenomenon of the ultrathin ZrO<sub>2</sub> Film”, Journal of Applied Physics 92(7) : p.3936-3940 OCT 2002.
35. W. Y. Yang, W. F. Wu, H. C. You, K. L. Ou and **T. F. Lei**, “Improving the Electrical Integrity of Cu-CoSi<sub>2</sub> Contacted n+p Junction Diodes Using Nitrogen-Incorporated Ta Films

as a Diffusion Barrier” IEEE Trans. on Electron Devices, Vol. 49, No.11 November, p.1947-1953 2002.

36. T. Y. Chang, J. W. Lee, **T. F. Lei**, C. L. Lee, and H. C. Wen, “Growing High Performance Tunneling Oxide by CF<sub>4</sub> Plasma Pre-Treatment”, accepted for publication on Journal of Electrochemical Society 2002.

37. T. Y. Chang, H. W. Chen, Tan Fu Lei, and Tien Sheng Chao, “Metal Gate Transistors with Low Temperature Gate Dielectric and Additional CF<sub>4</sub> Pretreatment”, has been submitted to IEEE Transactions on Electron Devices 2002.

38. Tzu Yun Chang, Hsiao Wei Chen, **T. F. Lei**, and T. S. Chao, “Improvement of CF<sub>4</sub> Plasma Pretreatment on TiO<sub>2</sub> High-k Film”, has been submitted to Japanese Journal Applied Physics 2002.

39. T. Y. Chang, H. C. Wen, and **T. F. Lei**, “Defect Free Ultra Shallow Junction Formation by Implanting through Amorphous-Silicon/Oxide Stack Structure”, to be submitted to IEEE Electron Device Letters 2002.

#### 研討會論文

1. Chin-Yu Ku, **Tan Fu Lei**, Jia-Min Shieh, Tsann-Bim Chiou, and Yung-Cheng Chen, “New overlay pattern design for real-time focus and tilt monitor”, Microelectronic Manufacturing, Proc. of SPIE Vol. 4182, 2000.

2. Chin-Yu Ku, **Tan Fu Lei**, Jia-Min Shieh, Tsann-Bim Chiou, and Hwang-Kuen Lin, “Real-time process control to prevent CD variation induced by post exposure delay”, Microelectronic Manufacturing, Proc. of SPIE Vol. 4182, 2000.

3. Jiann Heng Chen, **Tan Fu Lei**, Chia Lin Chen, Tien Sheng Chao, Wen Ying Wen, and Kuag Ting Chen, “High Performance Deep-Submicron n-MOSFETs by Nitrogen Implantation and In-situ HF Vapor Clean,” IRPS, 2000.

4. M. N. Chang, T. Y. Chang, C. Y. Chen, F. M. Pan, B. W. Wu, **T. F. Lei**, “A Study of Iron-Contaminated p-type Silicon by Scanning Probe Microscopy”, AVS 48th International Symposium, IUVSTA 15th International Vacuum Congress, 11th International Congress on Solid Surfaces, San Francisco, CA, U.S.A, 2001.

5. H. W. Chen, H. C. Tzeng, T. Y. Chang, J. W. Lee, **T. F. Lei**, and C. L. Lee, “The Electrical Properties of the Gate Oxide with CF<sub>4</sub> Plasma Pretreatment,” EDMS, 2001.

6. T. L. Lee, J. W. Lee, **T. F. Lei**, and C. L. Lee, “Improved Thin Gate Oxide Characteristics with Chlorine Plasma Pretreatment,” EDMS, 2001.

J. H. Chen, Yen-An Chang, M. Z. Lee, **T. F. Lei**, and C. L. Lee, “Electrical Properties of Vertical Polysilicon Oxide,” EDMS, 2001.

10. Y. P. Hong, J. C. Wang, J. W. Lee, **T. F. Lei**, and C. L. Lee, “The Electrical Properties of Thin Oxynitride Dielectrics Using N<sub>2</sub>O Plasma Annealing,” EDMS, 2001.

8. M. Z. Lee, C. L. Lee, and **T. F. Lei**, “Novel Vertical Polysilicon Thin-Film Transistor with

Excimer-Laser Annealing, "International Conference on Solid State Devices and Materials, 2002.

9.C. M. Yu, H. C. Lin, T. F. Lei, and T. Y. Huang,"Effects of Plasma Treatments on the Characteristics of Poly-Si Thin-Film Transistors Having Electrical Junctions Induced by a Bottom Sub-Gate," International Meeting of The Electrochemical Society, 2002.

10.J. C. Wang, Y. H. Lin, Y. P. Hung, **T. F. Lei**, and C. L. Lee "Characteristics of Ultra -Thin Cerium Dielectrics with Surface Nitridation Pretreatment and Post Furnace Annealing," IEDMS, 2002.

11.S. D. Wang, T. Y. Chang, and **T. F. Lei**, "Low Temperature Alumni Nitride Formed as Polyoxide by NH<sub>3</sub> Plasma Treatment," IEDMS, 2002.

12.C. M. Yu, H. C. Lin, **T. F. Lei**, and T. Y. Huang, "Effects of H<sub>2</sub> and NH<sub>3</sub> Plasma Treatments on Poly-Si Thin-Film Transistors with Electrical Source/Drain Extensions Induced By a Bottom Sub-Gate," IEDMS, 2002.

13.M. Z. Lee, S. H. Chiao, **T. F. Lei** and C. L. Lee, "Thermal Vertical Polysilicon Oxides deposited on the Sidewall of Polysilicon Films," IEDMS, 2002.

14.J. H. Chen, T. Y. Chang, H. W. Chen, and **T. F. Lei**, "Low Temperature Polyoxide Formation by N<sub>2</sub>O Plasma with CF<sub>4</sub> Pre-Treatment," IEDMS, 2002.

H. C. You, F. H. Ko, **T. F. Lei**, C. C. Hsu and T. C. Chu, "Chemical Shrink Techniques for Sub-100nm Contact Hole Fabrication in Electron Beam Lithography," IEDMS, 2002.

### 陸懋宏教授 交通大學機械工程所

#### 期刊論文

1. Hau-Wei Wang and Mao-Hong Lu," A two-stage up-converter made of AgGaSe<sub>2</sub> and BBO crystal", Appl. Phys. B 70,15 (2000)
2. Hau-Wei Wang and Mao-Hong Lu," The observation of the competition and suppression for stimulated Raman scattering near the potassium 4S-5P resonance", Journal of Physics B 33, 4973 (2000)
3. Hau-Wei Wang and Mao-Hong Lu,"The refractive index of extraordinary ray for crystal in 11-16 range", Opt. Commun. 192,357-363 (2001)
4. H. H. Lin, J. H. Huang, M. H. Lu et al., "Fabrication of binary microlens array by excimer laser micromachining", Proc. Of SPIE, 3511,67-72,1998
5. J. R. Sze, M. H. Lu, "Design and fabrication of the diffractive phase element that synthesizes three-color pseudo-nondiffracting beams", submitted to Opt. Eng.
6. Jyh-Rou Sze, Mao-Hong Lu, "Design and fabrication of the diffractive phase element that synthesize three color pseudo-nondiffracting beams", 2000, international photonics conference proceedings,F-T5-A003,pp.922-926
7. Hui-Hsiung Lin, Mao-Hong Lu, Jer-Wei Chang, Chii-rong Yang," Design of diffractive

optical elements with dual wavelength and long focal depth for optical pickup head", 2000, international photonics conference proceedings , Th-T5-p011, pp.734-736.

8. Jyh-Rou Sze, Mao-Hong Lu, "The design of the diffractive phase element for wavelength division de-multiplexing", 2001, optics and photonic Taiwan conference proceeding, TC-1, pp.191-194.

### 徐文祥教授 交通大學機械工程所

#### 期刊論文

1. Hsu, C.P. and Hsu, W., 2000, A Two-way Membrane-type Micro Actuator with Continuous Deflection, Journal of Micromechanics and Microengineering, Vol.10, pp.387-394.
2. Pan, C.S. and Hsu, W., 2001, Electro-thermally Driven Microgrippers with Bilateral Motion, Journal of Chinese Society of Mechanical Engineers, Vol. 22, No. 1.
8. Wu, C.T. and Hsu, W., 2001, An Electro-thermally Driven Microactuator with Two Dimensional Motion, Journal of Microsystem Technologies, accepted.
9. Hu, M.H. and Hsu, W., 1999, Investigation of Torsion Springs by Considering The Friction and the End Effect, ASME, J. of Mechanical Design, Vol. 121, pp.628-633
10. Wu, M.F. and Hsu, W., 1999, Thermally Driven Polysilicon Actuators for Lateral Displacement, J. of Intelligent Material Systems and Structures, Vol. 10, No.5, pp.402-409.

#### 研討會論文

1. Wu, C.T. and Hsu, W., 2001, An Electro-thermally Driven Microactuator with Two Dimensional Motion, Micro System Technologies, March 27-29, Dusseldorf, Germany.
  2. Lee, C.C. and Hsu, W., 2001, Optimization of an Electro-thermally and Laterally Driven Microactuator, Micro System Technologies, March 27-29, Dusseldorf, Germany.
  3. Lane, T. and Hsu, W., 2001, Fabrication of Sub-micron Optical Apertures by an Over-electroplating Method, International Symposium on Optical Memory, Oct. 16-19, Taipei, Taiwan.
  4. Hsu, C.P. and Hsu, W., 2001, Influence of initial curvature and heating ratio on micromachined thermal biomorph actuation, SPIE's International Symposium on Microelectronics and MEMS, Dec. 17-19, Adelaide, Australia.
  5. Lin, C.H., Lo, Y.C., and Hsu, W., 2001, Micro-fabrication of hemispherical poly-silicon shells standing on hemispherical cavities, SPIE's International Symposium on Microelectronics and MEMS, Dec. 17-19, Adelaide, Australia.
- Wu, C.T. and Hsu, W., 2001, Design and fabrication of a movable O-shape microclasper, SPIE's International Symposium on Microelectronics and MEMS, Dec. 17-19, Adelaide, Australia.
6. Liu, H.C., Lin, Y.H., Chou, C.S., Hsu, Y.Y., and Hsu, W., 2001, Sidewall roughness

control in advanced silicon etch process, SPIE's International Symposium on Microelectronics and MEMS, Dec. 17-19, Adelaide, Australia.

### 張國明教授 交通大學電子工程所

#### 期刊論文

1. K. M. Chang, J. Y. Yang and L. W. Chen, 1998, "A novel technology to form air gap for ULSI application," accepted to IEEE Electron Devices Letters.
2. K. M. Chang, T. C. Lee and Y. L. Sun, 1998, "The characteristics of N<sub>2</sub>O-grown polyoxide by the recrystallized-polysilicon method," December 1, Electrochemical and Solid State Letters.
3. K. M. Chang, C. H. Li, B. S. Sheih and J. Y. Yang, 1999, "The characteristics of tunnel oxides grown on textured silicon surface with a simple and reliable process," Vol.46, No.2, February, IEEE Transactions on Electron Devices Society.
4. K. M. Chang, J. Y. Yang and L. W. Chen, 1999, "A novel technology to form air gap for ULSI application," April Vol. 20, NO. 4., pp. 185-7, IEEE Electron Device Letters.
5. K. M. Chang, I-Chung Deng, and H. Y. Lin, 1999, "Chemical vapor deposited-tungsten film to suppress fluorine penetration and dopant redistribution," Journal of Chemical Vapor Deposition, Vol. 7, January, pp. 1-18.
6. K. M. Chang, T. C. I. C. Deng, and H. Y. Lin, 1999, "Suppression of fluorine penetration by use of In situ stacked chemical vapor deposited tungsten film," Vol. 146(8), J. Electrochem. Soc.: Solid-State Scie and Tech.

#### 研討會論文

1. K, M, Chang, I. C. Deng, T. H. Yeh and C. W. Shih, 1998, "The barrier characteristics of chemical vapor deposited amorphous tungsten with In situ nitrogen plasma treatment," 194th Meeting, The Electrochemical Society, Boston, November 1-6.
2. K. M. Chang and J. Y. Yang, 1998, "Air gap for ULSI application by bonding ultra thin HSQ layer to patterned metal lines," International Electron Device and Materials Symposium (1998 IEDMS), Taiwan.
3. K. M. Chang, and J. J. Luo, 1998, "Tungsten oxide as the temperature sensitive material for microbolometer," International Electron Devices and Materials Symposium (1998 IEDMS), Taiwan.
4. K. M. Chang, J. Y. Yang, Y. H. Chang and I. C. Deng, 1998, "The air gap and pretreatment for the future development of low dielectric material in ULSI," International Conference on Next Decades of High Technologies (ICHT'98), Nov. 14-15, Taipei, Taiwan.
5. K. M. Chang, J. Y. Yang, Y. H. Chang and I. C. Deng, 1998, "Pretreatment technique to improve the ashing resistance of low K Spin-on-Polymer (SOP)," International Conference MRS 1999 Spring Meeting, USA.



6. K. M. Chang, T. C. Lee and Y. L. Sun, 1999, "Exploration of the characteristics of polyoxides grown by thermal, rapid thermal oxidation, and TEOS deposition," The Sixth Symposium on Nano Device Technology, May.

### 荊鳳德教授 交通大學電子工程所

#### 期刊論文

1. K. T. Chan, A. Chin, J. T. Kuo, C. Y. Chang, D. S. Duh, W. J. Lin, C. X. Zhu, M. F. Li, and D. L. Kwong, "Microwave Coplanar Filters on Si Substrates," *IEEE MTT-S International Microwave Symp.*, June 2003.
2. K. T. Chan, A. Chin, S. P. McAlister, C. Y. Chang, C. Tseng, V. Liang, J. K. Chen, D. S. Duh, and W. J. Lin, "Low RF loss and noise of transmission lines on Si substrates using an improved ion implantation process," *IEEE MTT-S International Microwave Symp.*, June 2003.
3. C. H. Huang, M. Y. Yang, A. Chin, C. X. Zhu, M. F. Li, and D. L. Kwong, "High Density RF MIM Capacitors Using High-k AlTaO<sub>x</sub> Dielectrics," *IEEE MTT-S International Microwave Symp.*, June 2003.
4. C. H. Huang, K. T. Chan, C. Y. Chen, A. Chin, G. W. Huang, C. Tseng, V. Liang, and J. K. Chen, "The minimum noise figure and mechanism as scaling RF MOSFETs from 0.18 to 0.13 um technology nodes," *IEEE RF-IC International Microwave Symp. (RFIC)*, June 2003.
5. S. B. Chen, J. H. Chou, A. Chin, J. C. Hsieh, and J. Liu, "RF MIM Capacitors Using High-K Al<sub>2</sub>O<sub>3</sub> and AlTiO<sub>x</sub> Dielectrics," *IEEE MTT-S International Microwave Symp.*, June 2002.
6. K. T. Chan, A. Chin, Y. B. Chen, Y.-D. Lin, D. T. S. Duh, and W. J. Lin, "Integrated Antennas on Si and Si-on-Quartz up to 20GHz," *International Electron Devices Meeting (IEDM)*, Washington DC, USA, Dec., 2001.
7. M. Y. Yang, S. B. Chen, A. Chin, C. L. Sun, B. C. Lan, and S. Y. Chen, "One-Transistor Stacked Gate Memory," *International Electron Devices Meeting (IEDM)*, Washington DC, USA, Dec., 2001.
8. A. Chin, C. S. Liang, C. Y. Lin, C. C. Wu, and J. Liu, "Strong and Efficient Light Emission in Si-based Superlattice Tunnel Diode," *International Electron Devices Meeting (IEDM)*, Washington DC, USA, Dec., 2001.
9. K. T. Chan, A. Chin, C. M. Kwei, D. T. Shien, and W. J. Lin "Transmission Line Noise from Standard and Proton-Implanted Si," *IEEE MTT-S International Microwave Symp.*, June 2001.
10. K. T. Chan, A. Chin, S. P. McAlister, C. Y. Chang, J. Liu, S. C. Chien, D. S. Duh, and W. J. Lin, "Low RF noise and power loss for ion implanted Si having an improved implantation process," *IEEE Electron Device Lett.* 24, Jan. (2003).
11. H. Hu, C. Zhu, X. Yu, A. Chin, M. F. Li, B. J. Cho, and D. L. Kwong, "MIM Capacitors Using Atomic-Layer-Deposited High- $\kappa$  (HfO<sub>2</sub>)<sub>1-x</sub>(Al<sub>2</sub>O<sub>3</sub>)<sub>x</sub> dielectrics," *IEEE Electron Device Lett.* 24, (2003).
12. X. Yu, C. Zhu, H. Hu, A. Chin, M. F. Li, B. J. Cho, and D. L. Kwong, "A High Density MIM Capacitor (13 fF/ $\mu\text{m}^2$ ) Using ALD HfO<sub>2</sub> Dielectrics," *IEEE Electron Device Lett.* 24, (2003).
13. K. T. Chan, C. Y. Chen, A. Chin, J. C. Hsieh, J. Liu, T. S. Duh, and W. J. Lin, "40-GHz Coplanar Waveguide Bandpass Filters on Silicon Substrate," *IEEE Wireless & Microwave*

*Components Lett.* 23, Nov. (2002).

14. C. H. Huang, C. H. Lai, J. C. Hsieh and J. Liu and A. Chin, "RF noise in 0.18 $\mu$ m and 0.13 $\mu$ m MOSFETs," *IEEE Wireless & Microwave Components Lett.* 23, Dec. (2002).
15. C. H. Huang, S. B. Chen, and A. Chin "La<sub>2</sub>O<sub>3</sub>/Si<sub>0.3</sub>Ge<sub>0.7</sub> p-MOSFETs with high hole mobility and good device characteristics," *IEEE Electron Device Lett.* 23, Dec (2002).
16. C. Y. Lin, W. J. Chen, C. H. Lai, A. Chin, and J. Liu, "Formation of Ni Germano-Silicide on Single Crystalline Si<sub>0.3</sub>Ge<sub>0.7</sub>/Si," *IEEE Electron Device Lett.* 23, 464 (2002).
17. C. H. Tseng, T. K. Chang, F. T. Chu, J. M. Shieh, B. T. Dai, H. C. Cheng, and A. Chin, "Investigation of Inductively Coupled Plasma Gate Oxide on Low Temperature Polycrystalline-Silicon Thin Film Transistors," *IEEE Electron Device Lett.* 23, 333 (2002).
18. S. B. Chen, J. H. Chou, K. T. Chan, A. Chin, J. C. Hsieh, and J. Liu, "Frequency-dependent capacitance reduction in high-k AlTiO<sub>x</sub> and Al<sub>2</sub>O<sub>3</sub> gate dielectrics from IF to RF frequency range," *IEEE Electron Device Lett.* 23, 203 (2002).
19. S. B. Chen, J. H. Chou, A. Chin, J. C. Hsieh, and J. Liu, "High Density MIM Capacitors Using Al<sub>2</sub>O<sub>3</sub> and AlTiO<sub>x</sub> Dielectrics," *IEEE Electron Device Lett.* 23, 185 (2002).
20. C. L. Sun, S. Y. Chen, S. B. Chen and A. Chin, "Bi<sub>3.25</sub>La<sub>0.75</sub>Ti<sub>3</sub>O<sub>12</sub> Thin Films on Ultra-thin Al<sub>2</sub>O<sub>3</sub> Buffered Si for Ferroelectric Memory Application," *Appl. Phys. Lett.* 80, 3168 (2002).
21. C. L. Sun and S. Y. Chen, S. B. Chen, A. Chin, "Effect of annealing temperature on physical and electrical properties of Bi<sub>3.25</sub>La<sub>0.75</sub>Ti<sub>3</sub>O<sub>12</sub> thin films on Al<sub>2</sub>O<sub>3</sub>-buffered Si," *Appl. Phys. Lett.* 80, 1984 (2002).
22. S. B. Chen, C. H. Huang, A. Chin, J. Lin, J. P. Jou, K. C. Su, and J. Liu, "RF noise characteristics of high-k AlTiO<sub>x</sub> and Al<sub>2</sub>O<sub>3</sub> gate dielectrics," *J. Electrochem. Soc.* 149, F69 (2002).
23. C. Y. Lin, K. H. Shih, C. C. Wu, and A. Chin, "Poly-Si Thin-Film Transistors Crystallized by Electron-beam Annealing," *J. Electrochem. Soc.* 149, G391 (2002).
24. C. H. Huang, A. Chin, and W. J. Chen, "Characterization of Si/SiGe Heterostructures on Si Formed by Solid Phase Reaction," *J. Electrochem. Soc.*, 149, G209 (2002).
25. A. Chin, M. Y. Yang, C. L. Sun, and S. Y. Chen, "Stack gate one transistor ferroelectric memory," *IEEE Electron Device Lett.* 22, 336 (2001).
26. Y. H. Lin, F. M. Pan, Y. C. Liao, Y. C. Chen, I. J. Hsieh, and A. Chin, "The Cu contamination effect in oxynitride gate dielectrics," *J. Electrochem. Soc.*, G627 (2001).
27. C. L. Sun, S. Y. Chen, M. Y. Yang, and A. Chin, "Characteristics of Pb(Zr<sub>0.53</sub>Ti<sub>0.47</sub>)O<sub>3</sub> on Metal and Al<sub>2</sub>O<sub>3</sub>/Si Substrates," *J. Electrochem. Soc.* 148, F203 (2001).
28. C. H. Tseng, C. W. Lin, T. K. Chang, H. C. Cheng, and A. Chin, "Effects of Excimer Laser Dopant Activation on the Low Temperature Polysilicon Thin-Film Transistors with Lightly Doped Drains," *Electrochem. Solid-State Lett.* 4, G94 (2001).

29. Y. H. Lin, Y. C. Chen, K. T. Chan, F. M. Pan, I. J. Hsieh, and A. Chin, "The strong degradation on 30 A oxide integrity contaminated by copper," *J. Electrochem. Soc.* 148, F73 (2001).
30. Y. H. Wu, A. Chin, K. H. Shih, C. C. Wu, C. P. Liao, S. C. Pai, C. C. Chi, "The fabrication of very high resistivity Si with low loss and cross talk," *IEEE Electron Device Lett.* 21, 394 (2000).
31. Y. H. Lin, Y. H. Wu, A. Chin, and F. M. Pan, "The effect of copper on gate oxide integrity," *J. Electrochem. Soc.* 147, 4305 (2000).
32. Y. H. Wu, A. Chin, and W. J. Chen, "Thickness dependent gate oxide quality of thin thermal oxide grown on high temperature formed SiGe," *IEEE Electron Device Lett.* 21, 289 (2000).
33. Y. H. Wu and A. Chin, "High temperature formed SiGe p-MOSFETs with good device characteristics," *IEEE Electron Device Lett.* 21, 350 (2000).
34. Y. H. Wu, M. Y. Yang, A. Chin, and W. J. Chen, "Electrical characteristics of high quality  $\text{La}_2\text{O}_3$  dielectric with equivalent oxide thickness of 5A," *IEEE Electron Device Lett.* 21, 341 (2000).
35. Y. H. Wu and A. Chin, "Gate oxide integrity of thermal oxide grown on high temperature formed  $\text{Si}_{0.3}\text{Ge}_{0.7}$ ," *IEEE Electron Device Lett.* 21, 113 (2000).
36. Y. H. Wu, C. H. Huang, W. J. Chen, C. N. Lin, and A. Chin, "The buried oxide property in oxygen plasma enhanced low-temperature wafer bonding," *J. Electrochem. Soc.* 147, 2754 (2000).
37. Y. H. Wu, S. B. Chen, A. Chin, and W. J. Chen "High Quality Thermal Oxide Grown on High Temperature Formed SiGe," *J. Electrochem. Soc.* 147, 1962 (2000).

#### 研討會論文

1. K. T. Chan, A. Chin, J. T. Kuo, C. Y. Chang, D. S. Duh, W. J. Lin, C. X. Zhu, M. F. Li, and D. L. Kwong, "Microwave Coplanar Filters on Si Substrates," *IEEE MTT-S International Microwave Symp.*, June 2003.
2. K. T. Chan, A. Chin, S. P. McAlister, C. Y. Chang, C. Tseng, V. Liang, J. K. Chen, D. S. Duh, and W. J. Lin "Low RF loss and noise of transmission lines on Si substrates using an improved ion implantation process," *IEEE MTT-S International Microwave Symp.*, June 2003.
3. C. H. Huang, M. Y. Yang, A. Chin, C. X. Zhu, M. F. Li, and D. L. Kwong, "High Density RF MIM Capacitors Using High-k  $\text{AlTaO}_x$  Dielectrics," *IEEE MTT-S International Microwave Symp.*, June 2003.
4. C. H. Huang, K. T. Chan, C. Y. Chen, A. Chin, G. W. Huang, C. Tseng, V. Liang, and J. K. Chen, "The minimum noise figure and mechanism as scaling RF MOSFETs from 0.18 to 0.13  $\mu\text{m}$  technology nodes," *IEEE RF-IC International Microwave Symp.*, June 2003.
5. C. H. Huang, C. H. Lai, A. Chin, V. Liang, and S. C. Chien "Optimized Noise and

- Consistent RF Model for 0.18 $\mu$ m MOSFETs,” *International Symp. on VLSI Technology, System, and Applications*, June 2003.
6. C. H. Huang, C.Y. Lin, H. Y. Li, W. J. Chen, A. Chin, and P.MeI "La<sub>2</sub>O<sub>3</sub>/Si<sub>0.3</sub>Ge<sub>0.7</sub> p-MOSFETs and Ni Germano-Silicide,” *International Symp. on VLSI Technology, System, and Applications*, June 2003.
  7. S. B. Chen, J. H. Chou, A. Chin, J. C. Hsieh, and J. Liu, “RF MIM Capacitors Using High-K Al<sub>2</sub>O<sub>3</sub> and AlTiO<sub>x</sub> Dielectrics,” *IEEE MTT-S International Microwave Symp.*, June 2002.
  8. K. T. Chan, C. Y. Chen, A. Chin, J. C. Hsieh, and J. Liu, T. S. Duh, and W. J. Lin, “High Performance 40-GHz Bandpass Filters on Si Using Proton Implantation,” *60<sup>th</sup> IEEE Device Research Conference (DRC)*, Santa Barbara, CA, pp., June 2002.
  9. C. H. Huang, C. H. Lai, J. C. Hsieh, and J. Liu, and A. Chin, “RF noise in deep sub-  $\mu$ m MOSFETs and proposed solution,” *60<sup>th</sup> IEEE Device Research Conference (DRC)*, Santa Barbara, CA, pp., June 2002.
  10. C. Y. Lin, C. H. Lai, W. J. Chen, \* and A. Chin, “Formation of high quality silicide on SiGe with high Ge contents,” *44<sup>th</sup> Electronic Materials Conference (EMC)*, Santa Barbara, CA, June 2002.
  11. K. T. Chan, A. Chin, Y. B. Chen, Y.-D. Lin, D. T. S. Duh, and W. J. Lin, “Integrated Antennas on Si and Si-on-Quartz up to 20GHz,” *International Electron Devices Meeting (IEDM)*, Washington DC, USA, Dec., 2001.
  12. M. Y. Yang, S. B. Chen, A. Chin, C. L. Sun, B. C. Lan, and S. Y. Chen, “One-Transistor Stacked Gate Memory,” *International Electron Devices Meeting (IEDM)*, Washington DC, USA, Dec., 2001.
  13. A. Chin, C. S. Liang, C. Y. Lin, C. C. Wu, and J. Liu, “Strong and Efficient Light Emission in Si-based Superlattice Tunnel Diode,” *International Electron Devices Meeting (IEDM)*, Washington DC, USA, Dec., 2001.
  14. K. T. Chan, A. Chin, C. M. Kwei, D. T. Shien, and W. J. Lin, “Transmission Line Noise from Standard and Proton-Implanted Si,” *IEEE MTT-S International Microwave Symp.*, June 2001.
  15. A. Chin, S. B. Chen, K. T. Chan, J. Lin, J. P. Jou, K. C. Su, and J. Liu, “RF challenges for high-k gate dielectrics,” *High K dielectric workshop.*, Japan, Nov. 2001. (Invited)
  16. A. Chin, M. Y. Yang, S. B. Chen, C. L. Sun, and S. Y. Chen, “Fast Write Time and Long Retention 1T Memory,” *59<sup>th</sup> IEEE Device Research Conference (DRC)*, Notre Dame, IN, June 2001.
  17. A. Chin, “Gate oxide integrity of SiGe p-MOSFET with high current drive,” *International Semiconductor Technology Conference*, 2001. (Invited)
  18. Y. H. Lin, Y. C. Chen, F. M. Pan, I. J. Hsieh, and A. Chin, “The thickness dependent gate oxide integrity degradation by Cu contamination,” *43<sup>th</sup> Electronic Materials Conference*

(EMC), Notre Dame, IN, June 2000.

19. A. Chin, "Super MOSFET using high K gate dielectric and SiGe," *59<sup>th</sup> Symp. on Semiconductors & IC Technology*, Japan 2000. (Invited)
20. Y. H. Wu, A. Chin, K. H. Shih, C. C. Wu, S. C. Pai, C. C. Chi, and C. P. Liao, "RF loss and cross talk on extremely high resistivity (10K-1M  $\Omega$ -cm) Si fabricated by ion implantation," *IEEE MTT-S International Microwave Symp.*, June 2000.
21. Y. H. Wu, A. Chin, C. S. Liang, and C. C. Wu, "The performance limiting factors as RF MOSFETs scaling down," *IEEE MTT-S International RF-IC Symp.*, June 2000.
22. A. Chin, Y. H. Wu, S. B. Chen, C. C. Liao, and W. J. Chen, "High Quality  $\text{La}_2\text{O}_3$  and  $\text{Al}_2\text{O}_3$  Gate Dielectrics with Equivalent Oxide Thickness 5-10Å," *Symp. on VLSI Technology*, p. 19, US, June 2000. (Highlight Section Paper)
23. A. Chin "The possible materials and requirement of high-K gate dielectrics for VLSI," *MRS High-K Gate Dielectrics workshop*, US, June 2000. (Invited)
24. Y. H. Wu, K. T. Chan, S. B. Chen, W. J. Chen, and A. Chin, "Improved shallow junction integrity using single crystalline  $\text{CoSi}_2$ ," *42<sup>th</sup> Electronic Materials Conference (EMC)*, Boulder, CO, June 2000.
25. S. B. Chen, C. H. Huang, Y. H. Wu, W. J. Chen, and A. Chin, "High quality thermal ultra-thin gate oxide directly grown on high temperature formed  $\text{Si}_{0.3}\text{Ge}_{0.7}$ ," *42<sup>th</sup> Electronic Materials Conference (EMC)*, Boulder, CO, June 2000.
26. Y. H. Wu, M. Y. Yang, S. B. Chen, W. J. Chen, A. Chin, and C. M. Kwei, "High frequency characterization of mega-ohm resistivity Si formed by high-energy ion implantation," *42<sup>th</sup> Electronic Materials Conference (EMC)*, Boulder, CO, June 2000.

(十二) 活性離子蝕刻機---校外論文

方維倫 清華大學動力機械

期刊論文

9. W. Fang, H.-C., Tsai, and C.-Y. Lo, 1999, "Determining Thermal Expansion Coefficients of Thin Films Using Micromachined Cantilevers," *Sensors and Actuators A*, Vol. 77, pp. 21-27.
10. W. Fang, 1999, "Determining of Elastic Constants of Thin Film Materials Using Self-deformed Micromachined Cantilevers," *Journal of Micromechanics and Microengineering*, Vol. 9, pp. 230-235.
11. W. Fang, C.-H. Lee, and H.-H. Hu, 1999, "On the Buckling Behavior of Micromachined Beams," *Journal of Micromechanics and Microengineering*, Vol. 9, pp. 236-244.
12. J. Hsieh and W. Fang, 2000, "A Novel Microelectrostatic Torsional Actuator," *Sensors and Actuators A*, Vol. 79, pp. 64-70.
13. C. Tsou and W. Fang, 2000, "The Effect of Residual Stresses on the Deformation of Semi-circular Micromachined Beams," *Journal of Micromechanics and Microengineering*, Vol. 10, pp. 34-41.
14. H.-Y. Lin and W. Fang, 2000, "The Rib-Reinforced Micromachined Beam and Its Application," *Journal of Micromechanics and Microengineering*, Vol. 10, pp. 93-99.
15. S.-T. Hung, S.-C. Wong, and W. Fang, 2000, "The Development and Application of Micro Thermal Sensors with a Supporting Mesh-Membrane Structure," *Sensors and Actuators A* Vol. 84, pp. 70-75.
16. W. Fang, and C.-Y. Lo, 2000, "On the Thermal Expansion Coefficients of Thin Films," *Sensors and Actuators A*, Vol. 84, pp. 310-314.
9. C. Tsou, H. Yin, and W. Fang, 2000, "On the Out-of-plane Deformation of V-shaped Micromachined Beams," *Journal of Micromechanics and Microengineering*, (accepted).
10. H.-H. Hu and W. Fang, 2000, "Characteristics of the Micromachined Beams on the (111) Substrate," *Sensors and Actuators A*, (submitted).
11. W.-P. Lai and W. Fang, 2000, "A Novel Anti-Stiction Method Using Harmonic Excitation on the Microstructure," *Journal of Vacuum Science and Technology* (submitted).

研討會論文

21. J. Hsieh and W. Fang, 1999, "Fabrication and Measurement of an Improved Micro Electrostatic Torsional Actuator," *Transducer'99 - International Conference on Solid-State Sensors and Actuators*, Sendai, Japan.
22. 謝哲偉、方維倫、陳世洲, 1999, 鋁結構微扭轉致動器之研製, 第三屆奈米工程暨微系統技術研討會, 工研院, 新竹市.
23. 鄒慶福、方維倫, 1999, 平坦微機械結構之設計與製造, 第三屆奈米工程暨微系統技術研討會, 工研院, 新竹市.
24. T.-S. Lin and W. Fang, 1999, "Development of a Novel Piezoresistive Sensor," SPIE

- Micromachining and Microfabrication Conference, Santa Clara, CA, USA.
25. C. Tsou and W. Fang, 1999, "The Effect of Residual Stresses on the Deformation of Semi-circular Micromachined beams," the *ASME Proceedings of the 1999 International Mechanical Engineering Congress and Exhibition (IMECE)*, Nashville, TENN, USA.
  26. 羅俊彥、蔡欣昌、方維倫, 1999, 微懸臂樑於材料熱膨脹係數之量測, 中國機械工程學會第十六屆全國學術研討會, 國立清華大學, 新竹市.
  27. 李俊賢、胡馨華、方維倫, 1999, On the Buckling Behavior of Micromachined Beams, 中國機械工程學會第十六屆全國學術研討會, 國立清華大學, 新竹市.
  28. 洪仕達、王訓忠、方維倫, 1999, The develop and Application of Micro Thermal Sensors with a Mesh-membrane Supporting Structure, 中國機械工程學會第十六屆全國學術研討會, 國立清華大學, 新竹市.
  29. T.-J. Yao, S. Lee, W. Fang, and Y.-C. Tai, 2000, "Micromachined Rubber O-ring Micro-Fluidic Couplers," the *IEEE Proceedings of the 13<sup>th</sup> Annual International Conference on MEMS*, Miyazaki, Japan.
  30. H.-Y. Lin, M. Wu, and W. Fang, 2000, "The Improvement of Micro-torsional-mirror for High Frequency Scanning," SPIE Micromachining and Microfabrication Conference, Santa Clara, CA, USA.
  31. Y.-M. Chou and W. Fang, 2000, "On the Nonlinear Dynamic Behavior of Electrostatically Actuated Devices," SPIE Micromachining and Microfabrication Conference, Santa Clara, CA, USA.
  32. H.-Y. Lin and W. Fang, 2000, "Out-of-plane Comb-drive Lever Actuator," the *ASME Proceedings of the 2000 International Mechanical Engineering Congress and Exhibition (IMECE)*, Orlando, FL, USA.
  33. H.-Y. Lin and W. Fang, 2000, "The Improvement of the Micro Torsional Mirror by a Reinforced Folded Frame," the *ASME Proceedings of the 2000 International Mechanical Engineering Congress and Exhibition (IMECE)*, Orlando, FL, USA.
  34. W.-P. Lai and W. Fang, 2000, "A Novel Anti-Stiction Method Using the Harmonic Excitation on the Microstructure," the *American Vacuum Society 47<sup>th</sup> International Symposium*, Boston, MA, USA.
  35. H.-C. Tsai and W. Fang, 2000, "Characterizing the Thermal Behavior of Thin Films Using Micromachined Cantilevers," the *American Vacuum Society 47<sup>th</sup> International Symposium*, Boston, MA, USA.
  36. H.-Y. Lin and W. Fang, 2000, "Torsional Mirror with an Electrostatically Driven Lever-Mechanism," the *IEEE Optical MEMS 2000*, Kauai, Hawaii, USA.
  37. 鄒慶福、殷宏林、方維倫, 2000, V 型微機械結構挫曲行為之研究, 中國機械工程學會第十七屆全國學術研討會, 國立高雄第一科技大學, 高雄市.
  38. 蔡明霖、方維倫、周正三, 2000, VLSI 電容式感測電路設計及應用, 中國機械工程學會第十七屆全國學術研討會, 國立高雄第一科技大學, 高雄市.

39. 沈文銘、方維倫, 2000, 應用曲形拱結構設計簡易式離合器, 中華民國力學學會第二十四屆全國力學會議, 中原大學, 中壢市.
40. C. Lo, H.-Y. Lin and W Fang, 2001, "A Novel Out-of-plane Electrothermal Microactuator," *2001 Microsystem Technologies Conference*, Dusseldorf, Germany. (accepted)

### 劉承賢 清華大學動力機械

#### 期刊論文

1. Liu, C. H. and Kenny, T. W., "A High-precision ,Wide-Bandwidth Micromachined Tunneling Accelerometer ," *Journal of MicroElectroMechanical System*, Vol. 7, n. 3, September, pp. 425-433, September, 2001. **(SCI & EI)**
2. Liu, C. H., Gerdes, C. and Kenny, T. W., "Robust controller design via mu-synthesis for high-performance micromachined tunneling accelerometers, " *paper in review process for IEEE Transactions on Mechatronics*.
3. Yu-Sheng Yang, Zheng-San Zhou, and Cheng-Hsien Liu, "Tunable Optical-path-difference Grating using CMOS process," proceeding of ASME IMECE MEMS Symposium, MEMS-23811, 2001. **(one of five best student paper s)**
4. Ching-Chen Tu, Chen-Hsun Du, Jiunn-jye Tsaur, Chengkuo Lee, Cheng-Hsien Liu, "A Large-Angle and Large-Mirror Microscanner based on Thermal Actuators," proceeding of ASME IMECE MEMS Symposium, MEMS-23848, 2001.
5. Liu, C. H., "Research and applications for micro-electro-mechanical systems," *Proceeding of precision microfabrication workshop*, Taiwan, pp. 51-55, 2001.
6. Liu, C. H., Rockstad, H. K. and Kenny, T. W., "Robust controller design via mu-synthesis for high-performance micromachined tunneling accelerometers," *American Control Conference*, pp. 247-252, 1999a. **(one of five best student paper s)**
7. Liu, C. H., Barzilai, A. M., Ajakaiye, O., Rockstad, H. K., and Kenny, T. W., "Performance enhancements for the micromachined tunneling accelerometer," *Solid-State Sensors and Actuators (Transducers '99)*, pp. 1290-1293, 1999b.
8. da Silva, M. G., Greiner, K., . Gilbert, J. R., Liu, C. H., and Kenny, T. W., "Squeeze film damping effects in a micromachined tunneling accelerometer," *ASME winter conference-Symposium on Micro-Electron Mechanical Systems*, 1999c.
9. Liu, C. H., Barzilai, A. M., Reynolds, J. K., Partridge, A, Grade, J. D., Rockstad, H. K. and Kenny, T. W., "Characterization of a high-sensitivity micromachined accelerometer with micro-g resolution ," *Journal of MicroElectroMechanical System*, Vol. 7, n. 2, June, pp.235-244, 1998. **(SCI & EI)**
10. Liu, C. H., Grade, J. D., Barzilai, A. M., Reynolds, J. K., Partridge, A., Rockstad, H. K., and Kenny, T. W., "Characterization of a high-sensitivity micromachined tunneling accelerometer," *Solid-State Sensors and Actuators (Transducers '97)*, pp. 471-472, 1997a.



11. Liu, C. H., Reynolds, J. K., Partridge, A, Grade, J. D., Barzilai, A. M., Rockstad, H. K. and Kenny, T. W., "A high-sensitivity micromachined accelerometer based on electron tunneling transducers," *Proceedings of ASME winter conference- Symposium on Micro-Electron Mechanical Systems , Dallas*, pp. 13-20, 1997b

#### 專書及專書論文

1. Liu, Cheng-Hsien, "Design, Microfabrication and Control of High-Performance Micromachined Tunneling Accelerometers," *Ph.D. Thesis, Stanford University*, 2000.
2. Liu, Cheng-Hsien, "Simulation, Optimal Control and Identification of a Nonlinear Dynamic System," master thesis, Lehigh University, 1992

#### Invited Talks

1. Cheng-Hsien Liu, "Micro-electro Mechanical Systems for Optical/Biomedical Applications," Institute of Micro-Electro-Mechanical Systems, National Cheng-Kung University, Taiwan, Nov. 27, 2002.
2. Cheng-Hsien Liu, "Micro-electro Mechanical Systems R&D at MSCL Research Group," Institute of Micro-Electro-Mechanical Systems, National Tsing Hua University, Taiwan, Nov. 18, 2002.
3. Cheng-Hsien Liu, "MEMS for Bio-Medical Applications," Lunch Meeting at Life Science Department, National Tsing Hua University, Taiwan, Oct. 7, 2002.
4. Cheng-Hsien Liu, "MEMS for Optical and Bio Applications," Industry-Academic affiliate seminar, National Tsing Hua University, Taiwan, July 26, 2002.
5. Cheng-Hsien Liu, "BioMEMS," Central MEMS Center MEMS Workshop, Taiwan, July 18, 2002.
6. Cheng-Hsien Liu, "Optical MEMS," Electrical Engineering Department, Taiwan, April 12, 2002.
7. Cheng-Hsien Liu, "Micro Systems for Optical and Biomedical Applications," Dar-Yeh University, Taiwan, Dec. 20, 2001.
8. Cheng-Hsien Liu, "Micro-Electro-Mechanical Systems for Gene-Chip Applications," Tze-Chiang Foundation of Science and Technology, Taiwan, Dec. 15, 2001.
9. Cheng-Hsien Liu, "Fundamentals of MEMS Fabrication Technology," Tze-Chiang Foundation of Science and Technology, Taiwan, Dec. 7, 2001.
10. Cheng-Hsien Liu, "Micro-Sensors," Central MEMS Center MEMS Workshop, Taiwan, Aug. 22, 2001.
11. Cheng-Hsien Liu, "Micro-Electro-Mechanical Systems," Power Mechanical Engineering Department Seminar, National Tsing Hua University, Taiwan, May 3, 2001.
12. Cheng-Hsien Liu, "MEMS Research," Mechanical Engineering Department, National Cheng Kung University, Taiwan, April 24, 2001.
13. Cheng-Hsien Liu, "Research and Applications for Micro-Electro-Mechanical Systems,"

Sin Pou Technical Institute, Taiwan, April 12, 2001.

14. Cheng-Hsien Liu, "MEMS Research at Stanford and My Group," Department of Engineering and System Science, National Tsing Hua University, Taiwan, Jan., 2001.
15. Cheng-Hsien Liu, "Micro-Electro-Mechanical Systems," Mechanical Engineering Department Seminar, National Chiao Tung University, Taiwan, March 7, 2001.

### 陳榮順 清華大學動力機械

#### 期刊論文

1. M. T. K. Hou and R. Chen, "Effect of Width on the Stress-induced Bending of Micromachined Bilayer Cantilevers," Journal of Micromechanics and Microengineering (Accepted on Nov. 21, 2002)
2. C. A. Hsuan, and R. Chen, "Intelligent Control of Exit Temperature in a Gas Fuel Can-Type Combustor," Engineering Applications of Artificial Intelligence. (Accepted on Oct. 27, 2002)
3. M. J. Lin and R. Chen, "Adhesion Criterion for Center-anchored Circular Plates in Microstructures," Sensors and Actuators, A: Physical, Vol. 101, No. 1-2, pp. 14 -23, Oct., 2002.
4. T. L. Yang and R. Chen, "The Semi-Empirical and Empirical Models for Predicting Sound Absorption Coefficients for a Novel Porous Laminated Composite Material," Journal of Vibration and Control (accepted).
5. M. J. Lin and R. Chen, "Sticking Effect on Center-anchored Circular Plates in Microstructures," IEEE Trans. On Components and Packaging Technologies, Vol. 24, No. 4, December 2001.
6. C. Y. Huang and R. Chen, "Fuzzy Control of Exit Temperature and Oxygen Concentration For a Combustion Chamber," International Journal of Fuzzy Systems, Vol. 3, No. 3, Sep. 2001. (EI only)
7. T. L. Yang, D. M. Chiang, and R. Chen, "Development of a Novel Porous Laminated Composite Material for High Sound Absorption," Journal of Vibration and Control, Vol. 7, No. 5, July 2001, pp. 675 - 698.
8. C. L. Chen, H. C. Chen, M. K. Wong, F. T. Tang, and R. Chen, "Temporal Stride and Physical Medicine & Rehabilitation, Vol. 82, Jan., 2001, pp. 43 - 48.
9. Y. J. Tsao and R. Chen, "Force Control for Active Suspension Design of a Half Car Model by Using Genetic Algorithms with Maximum Stroke Constraints," P. of Imech., Part D, Journal of Automobile Engineering, Vol. 215, Issue: D3, 2001, pp. 317 - 327).

#### 研討會論文

1. M. T. K. Hou, K. M. Liao, H. Z. Yeh, P.Y. Hong, and R. Chen, 2003, "Fabrication of micromachined Focusing Mirrors with Seamless Reflective Surface," SPIE's Micromachining and Microfabrication, 27 -31, Jan., 2003, San Jose, California, USA. (EI)
2. 葉志賢、陳榮順，2002，"扭轉式微掃瞄鏡回授控制"，中國機械工程學會第十八屆學術研討會，雲林縣，2002年11月29-30日。
3. M. J. Lin and R. Chen, 2002, "Deformation of Center-anchored Circular Plate Caused by Residual Stress," 2002 奈米工程暨微系統技術研討會，台南市，2002年11月21-22日。

4. K. M. Liao, C. C. Chueh, and R. Chen, "A Novel Electro-Thermally Driven Bi-directional Microactuator," 2002 International Symposium on Micromechatronics and Human Science, October 20-23, 2002, Nagoya, Aichi, Japan. (EI)
5. M. T. K. Hou, K. M. Liao, H. Z. Yeh, P.Y. Hong, and R. Chen, "Design and Fabrication of Surface-micromachined Spherical Mirrors," IEEE/LEOS Optical MEMS 2002, International Conference on Optical MEMS and Their Applications, August 20 -23, 2002, Lugano, Switzerland.
6. T. K. Hou and R. Chen, 2001, "Shape Analysis of Cylindrical Micromirrors for Angular Focusing," SPIE 2001 International Symposium on Microelectronics and Micro-electro-mechanical Systems, Dec. 17-19, 2001, Adelaide, Australia. (EI)
7. H. Yen, C. Lee, R. Chen, and M. J. Lin, 2001, "Analysis and Fabrication of Deformable Focusing Micromirrors," Proceedings of 2001 ASME International Mechanical Engineering Congress Exposition, Nov. 11-16, 2001, New York, NY, U. S. A. (EI)
8. T. K. Hou and R. Chen, 2001, "On the Initial Stress-induced Bending in Bilayer Microcantilevers," 第 25 屆全國理論及應用力學學術研討會，台中市，2001 年 12 月 15、16 日。
9. P. Y. Hong and R. Chen, 2001, "Design and Fabrication of Micro Cylindrical Mirrors"，中國機械工程學會第十八屆學術研討會，台北市，2001 年 12 月 7、8 日。
10. M. J. Lin and R. Chen, 2000, "Sticking Effect on Circular Plates in Microstructures," Mechatronics 2000, Sep. 6 -9, Atlanta, U. S. A. (EI)

#### 蔣小偉 清華大學動力機械

##### 期刊論文：

1. Fleeter, S., Capece, V. R., and Chiang, H. D., June, 1990, "Unsteady Aerodynamic Gust Response Including Steady Flow Separation", *AIAA Journal*, Vol. 28(6), pp.1024-1031.
2. Chiang, H. D., and Fleeter, S., 1990, "Aerodynamically Forced Response of an Airfoil Including Profile and Incidence Effects", *International Journal of Turbo & Jet Engines*, No.7, pp.59-68.
3. Chiang, H. D., and Fleeter, S., 1990, "Cascade Aerodynamic Gust Response Including Steady Loading Effects", *International Journal for Numerical Methods in Fluids*, Vol. 10, pp.285-303.
4. Chiang, H. D., and Fleeter, S., March-April, 1990, "Cascade Aeroacoustics Including Steady Loading Effects", *Noise Control Engineering Journal*, Vol. 34(2), pp.61-72.
5. Chiang, H. D., and Fleeter, S., 1993, "Passive Control of Flow Induced Vibrations by Splitter Blades", *ASME Journal of Turbomachinery*, Vol. 115(4), pp.762-770.
6. Chiang, H. D., and Kielb, R. E., 1994, "Analysis System for Blade Forced Response", *ASME Journal of Turbomachinery*, Vol. 116(3), pp.489-500.
7. Chiang, H. D., and Turner, M. G., 1996, "Compressor Blade Forced Response Due to Downstream Vane-Strut Potential Interaction", *ASME Journal of Turbomachinery*, Vol. 116(3), pp.489-500.
8. 蔣小偉，1996，"國防軍品工業合作—現況簡介"，*航太工業通訊*，19 期，經濟部航太工業發展推動小組，中華民國。
9. 邱輝煌，蔣小偉，1996，"航空工程技術研究發展與推動—小型氣渦輪引擎之研發"，*航太學門發展規劃*，國科會工程處，中華民國。
10. 蔣小偉，1997，"小型渦輪引擎之研發〈一〉"，*航太工業通訊*，20 期，經濟部航太

工業發展推動小組，中華民國。

11. 蔣小偉，1997，“小型渦輪引擎之研發〈二〉”，*航太工業通訊*，21期，經濟部航太工業發展推動小組，中華民國。
12. Izsak, M. S. and Chiang, H. D., “Turbine and Compressor Wake Modeling for Blade Forced Response”, *ASME Journal*, in press.
13. Chiang, H. D., and Chung, M. H., “A Cyclic Symmetry Analysis for Turbomachine Blade Flutter”, *ASME Journal*, in press.
14. S. H. Tu, and Chiang, H. D., 1998, “Modal Analyses and Experiments for Engine Crankshafts”, *Journal of Sound and Vibration*, Vol. 214(3), pp.413-430.
15. Chiang, H. D., and Lin, Joyce, 1999, “A Micro-Turbojet Engine Development”, *ASME Journal*, in submittal.

研討會論文：

1. Chiang, H. D., and Fleeter, S., January, 1990, “Unsteady Incompressible Aerodynamic and Forced Response of Detuned Blade Rows”, AIAA Paper 90-0340, *28<sup>th</sup> Aerospace Science Meeting*, Reno, Nevada, USA.
2. Chiang, H. D., and Fleeter, S., June, 1991, “Flutter Control of Incompressible Flow Turbomachine Blade Rows by Splitter Blades”, AIAA Paper 91-1900, *AIAA/SAE/ASME/ASEE 27<sup>th</sup> Joint Propulsion Conference*, Sacramento, California, USA.
3. Chiang, H. D., and Fleeter, S., September, 1991, “Splitter Blades as an Aeroelastic Flutter Detuning Mechanism”, *6<sup>th</sup> International Symposium on Unsteady Aerodynamics, Aeroacoustics, and Aeroelasticity of Turbomachines and Propellers*, Notre Dame, Indiana, USA.
4. Kielb, R. E. and Chiang, H. D., January, 1992, “Recent Advancements in Turbomachinery Forced Response Analyses”, AIAA Paper 92-0012, *30<sup>th</sup> Aerospace Science Meeting*, Reno, Nevada, USA. (Invited Paper)
5. Chiang, H. D., and Kielb, R. E., June, 1992, “Analysis System for Blade Forced Response”, ASME Paper 92-GT-172, *37<sup>th</sup> ASME International Gas Turbine & Aeroengine Congress and Exposition*, Cologne, Germany.
6. Chiang, H. D., and Kielb, R. E., June, 1992, “Turbomachinery Forced Response System for Inlet Distortion and Wave Excitation”, AIAA Paper, *AIAA/SAE/ASME/ASEE 28<sup>th</sup> Joint Propulsion Conference*, Opryland, Tennessee, USA. (Invited Lecture)
7. Chiang, H. D., and Turner, M. G., June, 1993, “Compressor Blade Forced Response Due to Downstream Vane-Strut Potential Interaction”, ASME Paper, *38<sup>th</sup> ASME International Gas Turbine & Aeroengine Congress and Exposition*, Cincinnati, Ohio, USA.
8. Chiang, H. D., and Fleeter, S., June, 1993, “Passive Control of Flow Induced Vibrations by Splitter Blades”, ASME Paper, *38<sup>th</sup> ASME International Gas Turbine & Aeroengine Congress and Exposition*, Cincinnati, Ohio, USA.
9. Izsak, M. S. and Chiang, H. D., June, 1993, “Turbine and Compressor Wake Modeling for Blade Forced Response”, ASME Paper, *38<sup>th</sup> ASME International Gas Turbine & Aeroengine Congress and Exposition*, Cincinnati, Ohio, USA.
10. Ho, W. C., and Chiang, H. D., 1995, “超小型燃油氣渦輪引擎開發”，*第三十七屆中國航空太空學會學術研討會*，淡水。
11. 蔣小偉，1996，“小型渦輪引擎之研發現況”，*兩岸航空產學合作研討會*，台南。
12. 趙怡欽，熊道邦，何無忌，蔣小偉，1996，“小型渦輪引擎環狀燃燒室流場測試”，*第六*

屆全國燃燒會議, 桃園.

13. 蔣小偉, 鍾孟軒, 1997, “渦輪機葉片振動分析系統”, 中華民國振動與噪音工程學會第五屆學術研討會, 新竹.
14. 蔣小偉, 鍾孟軒, 1997, “渦輪引擎壓縮機與渦輪機葉片尾流分析”, 第三十九屆中國航空太空學會學術研討會, 台南.
15. Chiang, H. D., and Chung, M. H., June, 1998, “A Cyclic Symmetry Analysis for Turbomachine Blade Flutter”, ASME Paper, 43<sup>rd</sup> ASME International Gas Turbine & Aeroengine Congress and Exposition, Stockholm, Sweden.
16. 蔣小偉, 1998, “渦輪引擎之熱流設計”, 第四十屆中國航空太空學會學術研討會, 台中. (邀請專題演講)

### 張忠誠 海洋大學材料工程所

#### 期刊論文

1. C.C.Chang and P.C.Lu, 1999, “Annealing Effect on Improving the Quality of Lead Zirconate Titanate Thin Films on Pt/SiO<sub>2</sub>/Si Substrates” Journal of Materials processing technology, vol.95, pp.128-132 . (SCI)
2. C.C.Chang and C.H.Hwang ,1999, “XRD Analysis of PZT Thin Films on Si Substrates by Rapid Thermal Annealing Processes”, Chinese Journal of Materials Science, vol.31, no.4, pp.220-225 .
3. C.C.Chang and K.H.Chang, 1999, “Characterization of Lead Zirconate Titanate Thin Film Deposition onto Pt/Ti/SiO<sub>2</sub>/Si Substrate”, Journal of Material Science : Materials in Electronics, vol.10, pp.551-556 .(SCI)
4. C.C.Chang and K.T.Wu, 2000, “Fabrication of n-ZnSe / p-Si / n-Si Heterojunction Photo-transistors Using IR Furnace Chemical Vapor Deposition and its Optical Properties Analysis ” accepted by IEE proceedings, optoelectronics, vol 147, No.2, April 2000. (SCI)
5. C.C.Chang and W.J.Lin, 2000, “ Study and Fabrication of the PbTiO<sub>3</sub> Thin Film Acoustic Sensors “ultrasonics, vol 37, pp.585-588 (2000) (SCI).
6. C.C.Chang and S.K.Fang, 2000, “A Study on Designing ZnO Thin Film Pressure Sensors “ International Journal of Electronics, vol 87, No.8, pp 1013-1023 (2000). (SCI)
7. C.C.Chang and K.H.Chen, 2000, “Fabrication and Characterzation of PZT thin film Ularasonic Device “ Journal of the Chinese Institute of Engineers, vol 23, No. 2, pp 179-184. (SCI)
8. C.C. Chang. and C.H.Lee, “ Study and Fabrication of PIN photodiode by using ZnSe/Ps/Si structure”,IEEE Trans. on Electron Devices, vol 47, No.1, pp.50 –54 (2000) (SCI)
9. C.C.Chang and C.S.Tang, 2000, “Preparation and Properties of Lead Zirconate Titanate Ferroelectric Thin Film Using Ratio Frequency Planar Magnetron Sputtering”, Journal of Applied Physis , vol 87, No. 8, 15 April 2000 .
- 10.C.C.Chang, 2000, ”The Fabrication and characterization of PZT Thin Film Acoustic Devices For Application in Underwater Robotic Systems”, Proceedings of the Natural Science Control of R.O.C. vol. 24, No.4, pp.287-292, July 2000
11. C.C.Chang and C.H.Lee, “Characterization and Fabrication of ZnSe Epilayer on Porous

Silicon Substrate” will be published in Thin Solid Film.(SCI)

- 12.張忠誠，鄭募德，王榮華，林鎮洲，曾世和，2001，智慧型水下機械系統 術研習與實作，工程科技通訊，vol.56，45-50
- 13.C.C.Chang and C.H.Lee, “The Study of Highly Crystalline ZnSe Growth on Porous Silicon” accepted by Journal of Material Science.(SCI)

#### 研討會論文

1. C. C. Chang, K. T. Wu and M. H. Chien “Characterization of In doped ZnSe Epilayer on (111) Si Substrate Using IR Furnace Chemical Vapor Deposition” Proceeding of the 1999 annual conference of the Chinese society for material science, H-11, Hsinchu, Taiwan, 1999.
2. C. C. Chang, C. C. Lin, M. D. Jeng, J. H. Wang, S. K. Kau and U. C. Chen “The Study of Distance Measurement Using Ultrasonic Sensors” The 12th symposium of the Acoustical society of the Republic of China.pp. 153-161, Taipei, Taiwan, 1999.
3. C. C. Chang, H, Y, Chang and C. Y. Lin“The Study of ZnSe Metal-semiconductor-metal Photodetectors ”pp. 405-408, Taoyuan, Taiwan, 1999.
4. C.C.Chang and M.H.Chien, “Chemical Vapor Deposition Grown n-ZnSe/p-GaAs Heterojunction Metal-Semiconductor-Metal (MSM) Photodetector”, Optics and Photonics Taiwan’99, pp.143-146, Chungli, Taiwan, 1999
5. C.C.Chang, J.C.Liou and H.C.Wang,”An Integrated Infrared Sensor Using PZT Thin Film on Depletion NMOSFETs”,第一屆海峽兩岸微系統科技研討會，台南市，2000,5
6. C. C. Chang and H. C. Wang ,“The Fabrication of PbTiO<sub>3</sub> Thin Film IR Sensors Using Microelectro-Mechanical System (MEMS) Technique”,奈米技術研討會,工研院, 2000,11
7. Lin,C.C., C.C.Chang, M.D.Jeng, J.H.Wang, and S.H.Tseng, “Technology Development and Implementation of an Intelligent Underwater Robotic Manipulator System ”Proceedings of the Third conference on Under Sea Technology, Keelung, ppE-1~E-5, March, 2001. °
8. C. C. Chang and S.H.Tseng, “The Development and Implementation of Measurement Distance Sensor for an Intelligent Underwater Robotic Manipulator System ” Proceedings of the Third conference on Under Sea Technology, Keelung, ppE-6~E-9, March, 2001. °
9. 張忠誠，曾世和”超音波測距元件研究” 中華民國震動與噪音工程學會第九學術研討會，新竹， pp.46-48，April，2001。
10. C. C. Chang, M.H.Chier and W.C.Wang “Characterization of ZnSe Short-Wavelength Heterojunction Bipolar Phototransistor and Schottky Barrier Metal Semiconductor metal photodiode” International Photonic Conference 2000, Hsinchu,pp887-891, Dec.2000 °
11. C. C. Chang, R.C.Wu and M.S.Lo “Fabrication and Characterization of Integratedn pressure sensor” Electron Devices and Materials Symposia Tainan’01,p65-68 kaohsiung, Taiwan, 2001 °
12. C. C. Chang, W.C.Wang and M.Y.Chen “The Study of ZnSe/GaAs Heterojunction

- bipolar 91/01/18 修訂 transistor” Optics and Photonics Taiwan’01, pp.422-424, kaohsiung, Taiwan, 2001。
13. H.C.Chang,C.C.Lin , J.H.Wang ,M.D.Jeng and S.H.Tseng “The Study of Ultrasonic Distance Measurement Device for an Teleoperated Robotic Manipulator System” OCEANS 2001 MTS/IEEE conference, Hawaii, Nov. 5-8, 2001。

### 三、各儀器支援之研究成果——發表論文紀錄表

#### (十四)高解析度場射掃描電子顯微鏡暨能量散佈分析儀

校內使用者期刊論文

#### 曾俊元教授 交通大學電子工程所

期刊論文

1. M. S. Tsai and T. Y. Tseng, "Effect of Bottom Electrodes on Resistance Degradation of (Ba,Sr)TiO<sub>3</sub> Thin Films", IEEE Trans on CPMTA, Vol.23 pp.128-135, 2000.
2. M. S. Tsai and T. Y. Tseng, "The effect of oxygen-to-argon ratio on the electrical and reliability characteristics of sputtered Sr<sub>0.8</sub>Bi<sub>2.5</sub>Ta<sub>1.2</sub>Nb<sub>0.9</sub>O<sub>9+x</sub> thin films", Thin Solid Films, 382(2000) 190-199.
3. W. K. Chen, C.M, Chen, J.Y. Huang, W.F.Hsieh, T.Y.Tseng, "Study of linear and nonlinear optical properties of distorted Ti-O<sub>6</sub> perovskite structure in Ba<sub>x</sub>Sr<sub>x</sub>TiO<sub>3</sub>", Journal of Phys. And Chem, Of Solids, 61(2000) 969-977.
4. S. Ezbilvalavan, M. S. Tsai, T.Y. Tseng, "Dielectric relaxation and defect analysis of Ta<sub>2</sub>O<sub>5</sub> thin films", J. Phys. D. Appl. Phys.33, (2000) 1137-1142.
5. W. H. Lee, T. Y. Tseng, and D. F. K. Hennings, "Effects of calcinations temperature and A/B ratio on the dielectric properties of (Ba,Ca)(Ti, Zr, Mn)O<sub>3</sub> for multiplayer ceramic capacitors with nickel electrodes", J. Am Ceramic. Soc., 83(6) 1402-1406(2000).
6. W. H. Lee, T. Y. Tseng, and D. Hennings, "Effects of A/B cation ratio on the microstructure and lifetime of (Ba<sub>1-x</sub>Ca<sub>x</sub>)<sub>z</sub>(Ti<sub>1-y</sub>Zr<sub>y</sub>Mn<sub>0.01</sub>)O<sub>3</sub>(BCTZM) sintered in reducing atmosphere. J. Mater Sci. Materials in Electronics, 11(2000) 157-162.
7. C. M. Cheng, C. F. Yang and T. Y. Tseng "Sintering BaTi<sub>4</sub>O<sub>p</sub>/Ba<sub>2</sub>Ti<sub>p</sub>O<sub>20</sub>- based Ceramics by glass addition", J. Europe Ceram. Soc., 20(2000) 157-162.

研討會論文

1. S. Ezilvalavan and T.Y. Tseng, "Properties and reliability of Ta<sub>2</sub>O<sub>5</sub> thin films deposited on Ta", 1999 IEEE 49<sup>th</sup> Electronic Components 8 Technology Conference (San Diego, CA), Paper # S29P5 (ISBN 0-7803-5234-3), P1042-46.
2. T. Y. Tseng, "(Ba, Sr)TiO<sub>3</sub> thin films : preparation, properties and reliability", 2<sup>nd</sup> Asian Meeting on Ferroelectrics International, Singapore, 7-11 December, 1998.
3. M. S. Tsai and T. Y. Tseng, "Electrical properties of Sr<sub>0.8</sub>Bi<sub>2.5</sub>Ta<sub>1.2</sub>Nb<sub>0.9</sub>O<sub>9+x</sub> ferroelectric thin films", Proceedings of the 1998 annual conference of the Chinese Society for Materials Science, 1998.
4. W. H. Lee, T. Y. Tseng, K.H. Ou, T.H. Hsieh and T.L. Tsai, "Effects of calcination temperature and Ba/Ti ratio on dispersion of aqueous (Ba,Ca)(Ti,Zr,Mu)O<sub>3</sub> suspension for Ni-based multilayer ceramic capacitors", 100<sup>th</sup> Acers Annual Meeting, Cincinnati, U.S.A., May 3-6, 1998.



5. S. Ezhilualavan and T.Y. Tseng, "Rapid Thermal Processed Ta<sub>2</sub>O<sub>5</sub> Thin Films", 100<sup>th</sup> Acers Annual Meeting, Cincinnati, U.S.A. May 3-6, 1998.

### 鄭晃忠教授 交通大學電子工程所

#### 期刊論文

1. H. C. Cheng, C. Y. Huang, F. S. Wang, K. H. Lin, and F. G. Tarntair, "Thin-film transistors with polycrystalline silicon films prepared by two-step rapid thermal annealing," *Jpn. J. Appl. Phys.*, vol. 39, Part 2, no. 1A/B, pp. L 19-21, 2000.
2. F. G. Tarntair, C. Y. Wen, L. C. Chen, J. J. Wu, K. H. Chen, P. F. Kuo, S. W. Chang, Y. F. Chen, W. K. Hong, and H. C. Cheng, "Field emission from quasi-aligned SiCN nanorods," *Appl. Phys. Lett.*, vol. 76, no. 18, pp. 2630-2632, 2000.
3. W. K. Hong, H. C. Shih, S. H. Tsai, C. T. Shu, F. G. Tarntair, and H. C. Cheng, "Field emission properties of aligned carbon nanotubes," *Jpn. J. Appl. Phys.*, vol. 39, Part 2, no. 9A/B, pp. L 925-928, 2000.
4. C. C. Hwang, M. J. Lai, C. C. Jaing, J. S. Chen, S. Huang, M. H. Juang, and H. C. Cheng, "Low-temperature process to improve the leakage current of (Ba, Sr)TiO<sub>3</sub> films on Pt/TiN/Ti/Si substrates," *Jpn. J. Appl. Phys.*, vol. 39, Part 2, no. 12B, pp. L 1314-1316, 2000.
5. C. C. Hwang, C. C. Jaing, M. J. Lai, J. S. Chen, S. Huang, M. H. Juang, and H. C. Cheng, "Effect of rapid thermal annealed TiN barrier layer on BST capacitors prepared by RF magnetron cosputter system at low substrate temperatures," *Electrochemical and Solid-State Lett.*, vol. 3, no. 12, pp. 563-565, 2000.
6. F. G. Tarntair, L. C. Chen, S. L. Wei, W. K. Hong, K. H. Chen, and H. C. Cheng, "High current density field emission from arrays of carbon nanotubes and diamond-clad Si tips," *J. Vac. Sci. & Technol. B.*, vol. 18, no. 3, pp. 1207-1211, 2000.
7. Fu-Gow Tarntair, Wei-Kai Hong, Tzu-Kun Ku, Nan-Jie She, Chia-Fu Chen and Huang-Chung Cheng, "Fabrication and characterization of various carbon-clad silicon microtips with ultra-small tips radii," *Jpn. J. Appl. Phys.*, vol. 39, Part 1, no. 2A, pp. 432-437, 2000.
8. Chun-Yao Huang, Teh-Hung Teng, Jun-Wei Tsai and Huang-Chung Cheng, "The instability mechanisms of hydrogenated amorphous silicon thin film transistors under AC bias stress," *Jpn. J. Appl. Phys.*, vol. 39, Part 1, no. 7A, pp. 3867-3871, 2000.
9. Chun-Yao Huang, Jun-Wei Tsai, Teh-Hung Teng, Cheng-Jer Yang and Huang-Chung Cheng, "Turnaround phenomenon of threshold voltage shifts in amorphous silicon thin film transistors under negative bias stress", *Jpn. J. Appl. Phys.*, vol. 39, Part 1, no. 10, pp. 5763-5766, 2000.
10. Huang-Chung Cheng, Li-Jing Cheng, Ching-Wei Lin, Yin-Lung Lu, and Chi-Yuan Chen, "High performance low-temperature processed polysilicon TFTs fabricated by excimer laser crystallization with recessed-channel structure," *International workshop on AMLCDs*

2000, pp. 281-284. **(The Best Paper Award)**

11. C. W. Lin, M. Z. Yang, C. C. Yeh, L. J. Cheng, T. Y. Huang, H. C. Cheng, H. C. Lin, T. S. Chao, and C. Y. Chang, "Effects of plasma treatments, substrate types, and crystallization methods on performance and reliability of low temperature polysilicon TFTs," in *IEDM Tech. Dig.*, 1999, pp. 305-308.
12. Y. L. Lu, L. J. Chou, C. W. Lin, L. J. Cheng, and H. C. Cheng, "Dimensional effects on the performance of low temperature polycrystalline thin film transistor fabricated by nickel silicide mediated crystallization method," *2000 International Electron Devices and Materials Symposia (2000 IEDMS)*, pp. 100-103.
13. C. Y. Huang, T. K. Chang, C. W. Lin, L. J. Cheng, Y. L. Lu, and H. C. Cheng, "Degradation of passivated and non-passivated n-channel low-temperature polycrystalline silicon TFTs prepared by excimer laser processing," *2000 International Electron Devices and Materials Symposia (2000 IEDMS)*, pp. 257-260.
14. L. J. Cheng, Y. L. Lu, C. W. Lin, T. K. Chang, and H. C. Cheng, "Novel growth in channel region," *Photonics Taiwan, 2000, Proceeding of SPIE Vol. 4079-06*.
15. C. C. Hwang, M. H. Juang, M. J. Lai, C. C. Jaing, J. S. Chen, S. Huang, and H. C. Cheng, "Effect of rapid-thermal-annealed TiN barrier layer on the Pt/BST/Pt capacitor prepared by RF magnetron co-sputter technique at low substrate temperature," *Solid-State Electronics*, vol. 45, no. 1, pp. 121-125, 2001.
16. W. K. Hong, K. H. Chen, L. C. Chen, F. G. Tairair, K. J. Chen, J. B. Lin, and H. C. Cheng, "Fabrication and characterization of carbon nanotube triodes," *Jpn. J. Appl. Phys.*, vol. 40, Part 1, no. 5A, pp. 3468-3473, 2001.
17. H. C. Cheng, W. K. Hong, F. G. Tairair, K. J. Chen, J. B. Lin, K. H. Chen, and L. C. Chen, "Integration of thin-film-transistor-controlled carbon nanotubes for field emission devices," *Electrochemical and Solid-State Lett.*, vol. 4, no. 4, pp. H5-H7, 2001
18. Ching-Wei Lin, Li-Jing Cheng, Yin-Lung Lu, Yih-Shing Lee, and Huang-Chung Cheng, "High-performance low-temperature poly-Si TFTs crystallized by excimer laser irradiation with recessed-channel structure," *IEEE Electron Device Lett.*, vol. 22, pp. 269-271, 2001
19. Huang-Chung Cheng, Kuo-Ji Chen, Wei-Kai Hong, Fu-Gow Tairair, Chia-Pin Lin, Kuei-Hsien Chen, and Li-Chyong Chen, "Fabrication and characterization of low turn-on voltage carbon nanotube field emission triodes," *Electrochemical and Solid-State Lett.*, vol. 4, no.8, pp. H15-H17, 2001.
20. Chang-Ho Tseng, Ching-Wei Lin, Ting-Kuo Chang, Huang-Chung Cheng, and Albert Chin, "Effects of excimer laser dopant activation on low temperature polysilicon thin-film transistors with lightly doped drains," *Electrochemical and Solid-State Lett.*, vol. 4, no.11, pp. G94-G97, 2001.
21. K. J. Chen, W. K. Hong, J. B. Lin, K. H. Chen, L. C. Chen, and H. C. Cheng, "Low turn-on voltage field emission triodes with selective growth of carbon nanotubes," *IEEE*

*Electron Device Letters* , Vol. 22, No. 11 , pp.516-518,2001

22. K. J. Chen, W. K. Hong, C. P. Lin, K. H. Chen, L. C. Chen, and H. C. Cheng, "Low turn-on voltage field emission triodes with selective growth of carbon nanotubes," *IEEE Electron Device Lett.*, vol. 22, pp. 516-518, 2001.
23. Ching-Wei Lin, Li-Jing Cheng, Yin-Lung Lu, Yih-Shing Lee, and Huang-Chung Cheng, "High-performance low-temperature poly-Si TFTs crystallized by excimer laser irradiation with recessed-channel structure," *IEEE Electron Device Lett.*, vol. 22, pp. 269-271, 2001.
24. Ching-Wei Lin, Li-Jing Cheng, Yin-Lung Lu, and Huang-Chung Cheng, "Characterization of low temperature polysilicon TFTs with self-aligned graded LDD structure," *Mat. Res. Soc. Symp. Proc.*, vol. 685E, D12.7.1 - D12.7.6, 2001.
25. Chang-Ho Tseng, Ting-Kuo Chang, Fang-Tsun Chu, Jia-Min Shieh, Bau-Tong Dai, Huang-Chung Cheng, and Albert Chin, " Investigation of Inductively Coupled Plasma Gate Oxide on Low Temperature Polycrystalline-Silicon Thin Film Transistors", *IEEE Electron Device Letter*, Vol. 23, No. 6, p. 333-335, 2002.
26. Ching-Wei Lin, Chang-Ho Tseng, Ting-Kuo Chang, Yuan-Hsun Chang, Fang-Tsun Chu, Chiung-Wei Lin, Wen-Tung Wang, and Huang-Chung Cheng, "An Investigation of Bias Temperature Instability in Hydrogenated Low-Temperature Polycrystalline Silicon Thin Film Transistors," *Jpn. J. Appl. Phys., Part 1*, vol. 41, pp. 2002.
27. Ching-Wei Lin, Chang-Ho Tseng, Ting-Kuo Chang, Chiung-Wei Lin, Wen-Tung Wang, and Huang-Chung Cheng, "A Novel Laser-Processed Self-Aligned Gate-Overlapped LDD Poly-Si TFT," *IEEE Electron Device Lett.*, vol. 23, pp. 133-135, 2002.
28. Huang-Chung Cheng, Ching-Wei Lin, Li-Jing Cheng, Chang-Ho Tseng, Ting-Kuo Chang, Yuan-Ching Peng, and Wen-Tung Wang, "Fabrication of low-temperature poly-Si thin film transistors with self-aligned graded lightly doped drain structure," *IEEE/ECS Electrochemical and Solid-State Lett.*, vol. 5, no.1, pp. G1-G3, 2002.
29. Huang-Chung Cheng, Ching-Wei Lin, Li-Jing Cheng, Chang-Ho Tseng, Ting-Kuo Chang, Yuan-Ching Peng, and Wen-Tung Wang, "Fabrication of low-temperature poly-Si thin film transistors with self-aligned graded lightly doped drain structure," *Electrochemical and Solid-State Lett.*, vol. 5, no.1, pp. G1-G3, 2002.
30. Chang-Ho Tseng, Ching-Wei Lin, Teh-Hung Teng, Ting-Kuo Chang, Huang-Chung Cheng, and A. Chin, " Study on dopant activation of phosphorous implanted polycrystalline silicon thin films by KrF excimer laser annealing", *Solid-State Electronics*, Vol. 46, Issue 8, August 2002, Pages 1085-1090
31. T.H.Teng, C.Y.Huang, T.K.Chang, C.W.Lin, L.J.Cheng, Y.L.Lu, H.C.Cheng, "Degradation of passivated and non-passivated N-channel low-temperature polycrystalline silicon TFTs prepared by excimer laser processing," *Solid State Electronics*, vol. 46, pp. 1079-1083, 2002

研討會論文

1. Huang-Chung Cheng, Li-Jing Cheng, Ching-Wei Lin, Yin-Lung Lu and Chi-Yuan Chen, "High Performance Low-Temperature Processed Polysilicon TFTs Fabricated by Excimer Laser Crystallization with Recessed-Channel Structure, 2000 AMLCD. Chang-Ho Tseng, Ting-Kuo Chang, Huang-Chung Cheng, and A. Chin, "Dopant activation of phosphorous implanted poly-silicon film capped with silicon oxide film by KrF excimer laser annealing," *2000 International Electron Devices and Materials Symposia (2000 IEDMS)*.
2. Cheng-Jer Yang, Gwo-Yann Lee, Jyh-Liang Wang, I-Feng Chang, Chih-Wei Tsai, Huang-Chung Cheng, Ting-Chang Chang, and Li-Jen Chou, "Low dielectric material formation by CF<sub>4</sub>/SiH<sub>4</sub> mixed gas in plasma enhanced chemical vapor deposition system," *2000 International Electron Devices and Materials Symposia (2000 IEDMS)*.
3. Cheng-Jer Yang, I-Feng Chang, Gwo-Yann Lee, Huang-Chung Cheng, Ting-Chang Chang, Chih-Wei Tsai, and Li-Jen Chou, "The mechanism of copper ions formation in the low k film during the post metallization annealing," *2000 International Electron Devices and Materials Symposia (2000 IEDMS)*.
4. Der-Chi Shye, Ming-Jiunn Lai, Chuan-Chou Hwang, Cheng-Chung Jaing, Jyh-Shin Chen, Bi-Shiou, and Huang-Chung Cheng, "The study of oxygen effect during RF sputtering BST films deposited on Pt/TiN/Ti/Si substrate at low temperature for DRAMs' capacitors," *2000 International Electron Devices and Materials Symposia (2000 IEDMS)*, pp. 339-342.
5. Y. L. Lu, L. J. Chou, C. W. Lin, L. J. Cheng, and H. C. Cheng, "Dimensional effects on the performance of low temperature polycrystalline thin film transistor fabricated by nickel silicide mediated crystallization method," *2000 International Electron Devices and Materials Symposia (2000 IEDMS)*.
6. C. Y. Huang, T. K. Chang, C. W. Lin, L. J. Cheng, Y. L. Lu, and H. C. Cheng, "Degradation of passivated and non-passivated n-channel low-temperature polycrystalline silicon TFTs prepared by excimer laser processing," *2000 International Electron Devices and Materials Symposia (2000 IEDMS)*. (The Best Paper Award)
7. L. J. Cheng, Y. L. Lu, C. W. Lin, T. K. Chang, and H. C. Cheng, "Novel device structure for low temperature polysilicon TFT with controlled grain growth in channel region," *Photonics Taiwan, 2000, Proceeding of SPIE Vol. 4079-06*.
8. Huang-Chung Cheng, Chuan-Chou Hwang, Cheng-Chung Jaing, Der-Chi Shye, Hsien-Wen Hsu, Jyh-Shin Chen, and Miin-Horng Juang, "A novel excimer laser annealing to achieve thin BST films at low substrate temperatures," *2000 International Electron Devices and Materials Symposia (2000 IEDMS)*, pp. 343-345.
9. C. B. Lin, K. J. Chen, F. G. Tantair, W. K. Hong, and H. C. Cheng, "The Integrated Process of TFT-Controlled CNTs for Stabilized Emission Current" *Proceedings of the 8<sup>th</sup> International Display Workshops, 2000, Kobe, Japan*.

10. Trent Gwo-Yann Lee, Tseung-Yuan Tseng, Shyh-Chyi Wong, Cheng-Jer Yang, Mong-Song Liang, and Huang-Chung Cheng, "Interconnect optimization design with guaranteed performance methods," *International Symposium on Integrated Circuits, Devices and Systems (ISIC)*, 2001.
11. Trent Gwo-Yann Lee, Tseung-Yuan Tseng, Shyh-Chyi Wong, Cheng-Jer Yang, Mong-Song Liang, and Huang-Chung Cheng, "The generalized interconnect delay time and cross-talk models," *International Symposium on Integrated Circuits, Devices and Systems (ISIC)*, 2001.
12. Ching-Wei Lin, Li-Jing Cheng, Yin-Lung Lu, and Huang-Chung Cheng, "Characterization of low temperature polysilicon TFTs with self-aligned graded LDD structure," *Mat. Res. Soc. Symp. Proc.*, vol. 685E, D12.7.1 - D12.7.6, 2001.
13. W. K. Hong, K. J. Chen, J. B. Lin, H. C. Cheng, P. H. Lin, K. H. Chen, and L. C. Chen, "Carbon nanotube based triodes and TFT-controlled field emission displays," *International Conference on Material for Advanced Technologies*, Singapore, 2001.
14. K. J. Chen, F. G. Tairair, W. K. Hong, J. B. Lin, K. H. Chen, L. C. Chen and H.C. Cheng, "Fabrication and characterization of low turn-on voltage carbon nanotube field emission triode" *Material Research Society (MRS) 2001 spring meeting*, San Francisco, USA.2001.
15. K. J. Chen, W. K. Hong, C. P. Lin, K. H. Chen, L. C. Chen and H. C. Cheng," Upgraded Field Emission Characteristics of Carbon Nanotubes by Excimer Laser Treatment" *Jpn. J. Appl. Phys* Vol.41, No.10, 2002.
16. K. J. Chen, W. K. Hong, C. P. Juan, K. H. Chen, L. C. Chen and H. C. Cheng," Fabrication and Characterization of Carbon Nanotubes Field Emission Triodes for Field Emission Display" submitted to *Jpn. J. Appl. Phys*
17. W. K. Hong, K. H. Chen, L. C. Chen, F. G. Tarntair, K. J. Chen, J. B. Lin, and H. C. Cheng, "Fabrication and characterization of carbon nanotube triodes," *Jpn. J. Appl. Phys.*, Vol. 40, Part 1, No. 5A, pp. 3468-3473, 2001.
18. W. K. Hong, K. J. Chen, J. B. Lin, P. H. Lin, K. H. Chen, L. C. Chen, and H. C. Cheng, "Fabrication of carbon nanotube triodes for field emission display," submitted to *J. Appl. Phys.*
19. K. J. Chen, W. K. Hong, L.C.Chen, K.H. Chen and H.C.Cheng, "Fabrication and characterization of lateral field emission device based on carbon nanotubes" *13<sup>th</sup> European Conference on Diamond, Diamond-like Materials, Nitrides and Silicon Carbide*, 2002, Granada, Spain.

### 涂肇嘉教授 交通大學材料工程所

#### 期刊論文

1. C. A. Huang, G. C. Tu , R. Liao and Y. L. Kao, "Hard Chromium Plating on

- Cold Swaged Cr-Mo Steel Using Rotating Cylinder Electrode" J.Materials Sci. Letters, Vol.19, 2000, pp1357-1359.
2. C. A. Hung, S. J. Chen, G. C. Tu, and Y. L. Kao, "AC Impedance Measurement in Transpassive Potential Region of Austenitic Stainless Steel with Different Degree of Sensitization " Chinese J. of Materials Science, Vol.32, 2000, No.1, pp.1-7.
  3. K.M.Shu and G.C.Tu, "Fabrication and Characterization of Cu/SiCp Composite for Electrical Discharge Machining Application" Materials and Manufacturing Processes, Vol.16, No.4, 2001, pp483-502.
  4. 王文昇, 涂肇嘉, 黃清安, "ITO 膜在不同pH 溶液之循環電位掃描研究" 防蝕工程, Vol.16 No.4, 2002, pp.235-243.
  5. 李公正, 涂肇嘉, 黃清安, 高玉玲, "氧化鈦薄膜之電化學特性與結構分析研究" 防蝕工程, Vol.16, No.4, 2002.
  6. Kuen Ming Shu and G. C. Tu, "The microstructure and the thermal Expansion Characteristics of Cu/SiCp Composites", Materials Science and Engineering A, 2003, in press.
  7. Kuen Ming Shu and G. C. Tu, "Study of Electrical Discharge Grinding Using Metal Matrix Composite Electrodes", International Journal of Machine tools and Manufacture, in revision.
  8. C. A. Huang, G. C. Tu, H. T. Yao and H. H. Kuo, "The Characteristics of the Rough-Cut Surface of Martensitic Stainless Steel by Using Wire Electrical Discharge Machining" Trans.Metall. A, in revision.
  9. C.P.Hou, G. C. Tu and M.S.Tsai, "Synthesis of Ultrafine Al<sub>2</sub>O<sub>3</sub> Powder and Its Function in Chemical Mechanical Polishing of Dielectrics" submit to Materials in Electronics.
  10. Yih-Min Yeh, G. C. Tu and M. N. Fu "Simulation Analysis and Experimental Verification of LIGA Process for High Aspect Ratio Ni-Fe Micro-mold Insert" submit to Japan Journal of Applied Physics.
  11. Yih-Min Yeh, G. C. Tu, Te-Hua Fang, "Nanomechanical Properties of Nanocrystalline Ni-Fe Mold Insert", submit to Journal of Alloys and Compounds.
  12. G. C. Tu, R. T. Zheng, and Y. M. Yeh, "The Electrochemical Characteristics and Composition Gradient of Electroplated Ni-Fe High Aspect Ratio Micro-pattern Fabricated by UV-LIGA Process Using Thick SU-8 Photoresist" submit to Surface and Coating Technology
  13. K. C. Li, C. A. Huang, G. C. Tu and W. S. Wang, "The Behavior of Cyclic Voltammetry Stripping with Tin-Doped Indium Oxide in 0.3M Hydrochloric Acid" , submit to Electrochimica Acta.

14. Y. L. Kao, G. C. Tu, C. A. Huang and j. H. Chang, "The Annealing Behavior of Copper Deposit Electroplated in a Sulfuric Acid Bath with Different Concentration of Thiourea" submit to Japan Insititute of Materials.
15. Y. L. Kao, G. C. Tu, C. A. Huang, "Electrochemical Behavior of As-electroplated and 180°C-Annealing Nanothin Zinc-Electroplated Coppers in Different pH-Value Electrolytes" submit to Corrosion Science.
16. Y. L. Kao, G. C. Tu and K. C. Li, "The effect of chloride Ion on Electrocrystallization of Copper Electroplated in Cupric Sulfate/Sulfuric Acid Bath" submit to Journal of Applied Electrochemistry.

#### 研討會論文

1. 陳世忠, 吳偉庭, 黃清安, 涂肇嘉, "沃斯田鐵系不銹鋼敏化程度交流阻抗分析", 2000 海峽兩岸材料腐蝕與防護研討會論文集.
2. 黃清安, 陳世忠, 廖孟傑, 涂肇嘉, "光澤鉻鍍層在 1M H<sub>2</sub>SO<sub>4</sub> 中之電化學行為", 2000 海峽兩岸材料腐蝕與防護研討會論文集.
3. G. C. Tu, M. S. Tsai, M. H. Huang and W. S. Su, "Synthesis of Y<sub>x</sub>Zr<sub>1-x</sub>O<sub>2-x/2</sub> Nanopowders by Sol-gel Method for CMP Application", Symposium on Nano Device Technology 2001, National Science Council, Hsinchu, Taiwan, pp. 337-340.
4. W. S. Su, G. C. Tu, M. S. Tsai and M. H. Huang, "Sol-gel Synthesis and Characterization of Y<sub>x</sub>Zr<sub>1-x</sub>O<sub>2-x/2</sub> Nanopowders for CMP Application", The 2001 annual conference of the Chinese Society for Materials Science, Taichung, Taiwan, pp.12-17.
5. S. Su, G. C. Tu and M. S. Tsai, "Study on Y<sub>x</sub>Zr<sub>1-x</sub>O<sub>2-x/2</sub> abrasives slurry for copper chemical mechanical polishing", 2001 Electronics Devices and Materials Symposium, Kaohsiung, Taiwan, pp.512-517.
6. K. M. Shu, G. C. Tu, and C. S. Huaug, 2001, "Metal Matrix Composite Electrodes for EDM Grinding" 13th Int. Symp. for Electromachining, Bilbao, Spain, pp.869-880.
7. 葉翳民, 涂肇嘉, "微系統類 LIGA 光刻及電鑄微結構製程" 第 18 屆(2001) 中國機械工程學會學術研討會論文集.
8. 葉翳民, 鄭瑞庭, 涂肇嘉 "UV-LIGA 電鑄高深寬比鎳鐵合金微構件製程研究" 2001 年全國材料研討會。台灣台中, pp.13-28, 2001.
9. 葉翳民何佩蓉涂肇嘉 "脈衝電鑄奈米級鎳鐵合金特性與微結構研究" 2001 年全國材料研討會。台灣台中, pp.12-47, 2001.
10. Kuen Ming Shu and G. C. Tu, "Investigation on thermal Expansion Characteris of the Cu/SiCp Composites", in Proc. 2001 Annual Convention of Chinese Society For Material Science, Taichung, 2001.

11. 葉翳民，涂肇嘉“微系統類 LIGA 光刻及電鑄微結構製程”第 18 屆中國機械工程師學會全國學術研討會，台灣台北。pp.63-70，2001.
12. 葉翳民，涂肇嘉，“(次)微米鎳鐵合金模仁奈米機械性質與微結構研究”，2002 奈米科技學術研討會，台灣台北，pp.27-28，6，2002.
13. 葉翳民，涂肇嘉，方得華“UV-LIGA 製作鎳鐵微型模仁機械性質與微結構研究”2002 年模具技術與論文發表會，台灣台北，pp.26-27，7，2002.
14. 葉翳民，黃敬任，涂肇嘉，“TiO<sub>2</sub> 奈米粉末在 UV-LIGA 複合電鑄製程上之研究”2002 年全國材料研討會。台灣台北，OI-05，2002
15. 王則眾，葉翳民，涂肇嘉“脈衝電鑄於鎳鐵合金模仁之脈衝電鑄參數最佳化研究”2002 年全國材料研討會。台灣台北，PK-34，2002.
16. 葉翳民，涂肇嘉，方得華，“Laser-LIGA 製作 3D 微陣列坡莫合金模仁製程及表面特性研究”2002 年全國材料研討會。台灣台北，PK-26，2002.
17. 傅明南，葉翳民，楊柏泓，涂肇嘉，“導角型態對深孔微模版電鑄效應之流場分析與製程研究”91 年度 SME 精密機械製造學術研討會，台灣台北。pp.105-111，11，2002
18. 葉翳民，涂肇嘉，鄭瑞廷，“UV-LIGA 高強度模仁製程與材料性質研究”91 年度 SME 精密機械製造學術研討會，台灣台北。pp.112-119，11，2002.
19. 葉翳民，涂肇嘉，“以 SJR-5740 正光阻光刻術結合微電鑄法研製微模仁”第 19 屆中國機械工程師學會全國學術研討會，台灣虎尾。E1-15, 11，2002.
20. 傅明南，葉翳民，涂肇嘉，楊柏泓，“高深寬比微模仁電鑄流場分析與製程研究”第 19 屆中國機械工程師學會全國學術研討會，台灣虎尾。E7-006, pp.109-115，11，2002.
21. K. C. Li, C. A. Huang, G. C. Tu and W. S. Wang, “The Behavior of Cyclic Voltammetry Stripping (CVs) with Tin-Doped Indium Oxide in 0.3M Hydrochloric Acid”, 2002 Material Research Society Fall meeting, Boston, U.S.A.

### 陳茂傑教授 交通大學電子工程所

#### 期刊論文

1. Zhen-Cheng Wu, Yu-Lin Liu, and Mao-Chieh Chen, “Passivation of copper films with magnesium doping using recoil ion implantation”.  
Thin Solid Films, 358 (1-2), 180-186 (January, 2000).
2. M.T.Wang, M.H.Chuang, L.J.Chen, and M.C.Chen, “Effects of composition and N<sub>2</sub> plasma treatment on the barrier effectiveness of chemically vapor deposited WSi<sub>x</sub> films”.  
Journal of Vacuum Science and Technology B18(4), 1929-1936 (July/August, 2000).
3. Wei-Cheng Hsu, Mao-Chieh Chen and Mong-Song Liang, “Detection of the defects induced by boron high-energy ion implantation of silicon”.  
Journal of Electrochemical Society, 147(8), 3111-3116 (August, 2000).



4. Zhen-Cheng Wu, Zhi-Wen Shiung, Ren-Guay Wu, Yu-Lin Liu, Wei-Hao Wu, Bing-Yue Tsui, Mao-Chieh Chen, Weng Chang, Pei-Fen Chou, Syun-Ming Jang, Chen-Hua Yu, and Mong-Song Liang, "Dielectric and barrier properties of spin-on organic aromatic low dielectric constant polymers FLARE™ and SiLK™." *Journal of Electrochemical Society*, 148 (6), F109-F114 (June, 2001).
5. Zhen-Cheng Wu, Zhi-Wen Shiung, Chiu-Chih Chiang, Wei-Hao Wu, Mao-Chieh Chen, Shwang-Ming Jeng, Weng Chang, Pei-Fen Chou, Syun-Ming Jang, Chen-Hua Yu, and Mong-Song Liang, "Physical and electrical characteristics of F- and C-doped low dielectric constant chemical vapor deposited oxides". *Journal of Electrochemical Society*, 148 (6), F115-F119 (June, 2001).
6. Zhen-Cheng Wu, Zhi-Wen Shiung, Chiu-Chih Chiang, Wei-Hao Wu, Mao-Chieh Chen, Shwang-Ming Jeng, Weng Chang, Pei-Fen Chou, Syun-Ming Jang, Chen-Hua Yu, and Mong-Song Liang, "Physical and electrical characteristics of methylsilane- and trimethylsilane-doped low dielectric constant chemical vapor deposited oxides". *Journal of Electrochemical Society*, 148 (6), F127-F132 (June, 2001).
7. Z.C.Wu, C.C.Chiang, W.H.Wu, M.C.Chen, S.M.Jeng, L.J.Li, S.M.Jang, C.H.Yu , and M.S.Liang, "Leakage mechanism in Cu damascene structure with methylsilane-doped low-k CVD oxide as intermetal dielectric". *IEEE Electron Device Letters*, EDL-22 (6), 263-265 (June, 2001).
8. Cheng-Li Lin and Mao-Chieh Chen, "Reactively sputtered amorphous TaSi<sub>x</sub>N<sub>y</sub> films serving as barrier layer against copper diffusion". *Japanese Journal of Applied Physics*, 40 (part1, No.6A), 4181-4186 (June, 2001).
9. Wen-Kuan Yeh, Chiutsung Huang, and Mao-Chieh Chen, "Temperature dependency of 0.1 um partially depleted SOI CMOSFET". *IEEE Electron Device Letters*, EDL-22(7), 339 -341 (July, 2001).
10. Cheng-Li Lin, Peng-Sen Chen, and Mao-Chieh Chen, "Chemically vapor deposited Cu films on Ar-plasma-treated TiN substrate". *Japanese Journal of Applied Physics*, 41(part1, No.1), 280-286 (January, 2002).
11. Wei-Cheng Hsu, Mong-Song Liang, and Mao-Chieh Chen, "Implantation induced defects in the retrograde well with a buried layer". *Journal of Electrochemical Society*, 149(3), G184-G188 (March, 2002).
12. Ching-Lin Fan and Mao-Chieh Chen, "Fabrication of high performance low-temperature poly-Si thin-film transistors using a modulated process". *Journal of Electrochemical Society*, 149(4), H93-H97 (April, 2002).
13. Wei-Cheng Hsu, Mong-Song Liang, Cheng-Tang Lin, and Mao-Chieh Chen, "Post-implantation thermal annealing effect on the gate oxide of triple well-structure". *Japanese Journal of Applied Physics*, 41(part1, No.5A), 2878-2880 (May, 2002).
14. Cheng-Li Lin, Peng-Sen Chen, and Mao-Chieh Chen, "Effects of TaN substrate

- pretreatment by Ar plasma on copper chemical vapor deposition". Accepted; to appear in Journal of Electrochemical Society (2002).
15. Cheng-Li Lin, Peng-Sen Chen, and Mao-Chieh Chen, "Effect of the underlayer substrates on copper chemical vapor deposition". Accepted; to appear in Journal of Vacuum Science and Technology B (2002).
  16. Ching-Lin Fan and Mao-Chieh Chen, "Performance improvement of excimer laser annealed poly-Si TFTs using fluorine ion implantation". Accepted; to appear in Electrochemical and Solid-State Letters (2002).
  17. Ching-Lin Fan and Mao-Chieh Chen, "Correlation between electrical characteristics and oxide/polysilicon interface morphology for excimer laser annealed poly-Si TFTs". Accepted; to appear in Journal of Electrochemical Society (2002).
  18. Ching-Lin Fan and Mao-Chieh Chen, "Effects of N<sub>2</sub>O-plasma treatment on the performance of excimer-laser-annealed polycrystal silicon thin-film-transistors". Accepted; to appear in Japanese Journal of Applied Physics (2002).
  19. Cheng-Li Lin, Peng-Sen Chen, Chun-Li Chang, and Mao-Chieh Chen, "Characteristics of copper films deposited on H<sub>2</sub>-plasma-treated TaN substrate by chemical vapor deposition". Accepted; to appear in Journal of Vacuum Science and Technology B (2002).

#### 研討會論文

1. Z.C.Wu, Z.W.Shiung, C.C.Chiang, W.H.Wu, M.C.Chen, S.M.Jeng, W.Chang, S.M.Jang, C.H.Yu and M.S.Liang, "Comparative study of physical and electrical characteristics of F- and C-doped low-k CVD oxides". Advanced Metallization Conference (AMC) 2000, San Diego, California, U.S.A., October 3-5, 2000.
2. Cheng-Li Lin and Mao-Chieh Chen, "Effects of nitrogen plasma treatment on amorphous TaSiN films as a diffusion barrier between copper and silicon". Proceedings, Second Asia-Pacific International Symposium on the Basis and Application of Plasma Technology, Kaohsiung, Taiwan, April 19-20, 2001.
3. Z.C.Wu, C.C.Chiang, W.H.Wu, M.C.Chen, S.M.Jeng, L.J.Li, S.M.Jang, C.H.Yu, and M.S.Liang, "Leakage current mechanisms for damascene process of Cu/methylsilane-doped low-k chemical vapor deposited oxide". 2001 IEEE International Interconnect Technology Conference (IITC), Burlingame, California, U.S.A., June 4-6, 2001.
4. Chiu-Chih Chiang, Zhen-Cheng Wu, Wei-Hao Wu, Mao-Chieh Chen, Chung-Chi Ko, His-Peng Chen, Shwang-Ming Jeng, Syun-Ming Jang, Chen-Hua Yu and Mong-Song Liang, "Barrier characteristics of PECVD -SiC:H dielectrics". Advanced Metallization Conference (AMC) 2001, Montreal, Quebec, Canada, October 9-11, 2001.
5. K.L.Fang, B.Y.Tsui, C.C.Yang, M.C.Chen, S.D.Lee, K.Beekmann, T.Wilby, K.Giles, and

- S.Ishaq, "Electrical and Material Stability of Orion™ CVD ultra low-k dielectric film for copper interconnection". 2002 IEEE International Interconnect Technology Conference (IITC), Burlingame, California, U.S.A., June 3-5, 2002.
6. C.C.Chiang, M.C.Chen, Z.C.Wu, L.J.Li, S.M.Jang, C.H.Yu, and M.S.Liang, "TDDB reliability improvement in Cu damascene by using a bilayer-structured PECVD SiC dielectric barrier". 2002 IEEE International Interconnect Technology Conference (IITC), Burlingame, California, U.S.A., June 3-5, 2002.
7. Z.C.Wu, Y.L.Lu, C.C.Chiang, M.C.Chen, B.T.Chen, G.J.Wang, S.M.Jang, C.H.Yu, and M.S.Liang, "Advanced Metal Barrier Free Cu damascene interconnects with PECVD silicon carbide barriers for 90/65-nm BEOL technology". 2002 IEEE International Electron Devices Meeting (IEDM), San Francisco, California, U.S.A., December 9-11, 2002.

(十四) 高解析度場掃描電子顯微鏡---校外論文

賴君義 中原大學化學工程所

1. C. C. Hu, R. C. Ruaan, J. Y. Lai, "Effect of Free Volume on Gas Sorption and Permeation in PMMA Membranes", J. Chin. Inst. Chem. Engrd., Accepted (2002). (sci.)
2. D. M. Wang, C. Y. Chu, S. T. Wu, and J. Y. Lai, "Effect of Medium on Partition and Diffusion of Drugs in Polymeric Membranes", J. Chin. Inst. Chem. Engrs., Accepted (2002). (sci.)
3. S. C. Fan, Y. C. Wang, C. L. Li, K. R. Lee, D. J. Liaw, and J. Y. Lai, "Permsselectivites of Bis[4-(4-aminophenoxy) phenyl] Diphenyl Methane Based Aromatic Polyamide Membranes for Aqueous Alcohol Mixtures in Pervaporation and Evaporomeation", J. Appl. Polym. Sci., Accepted (2002). (sci.)
4. D. M. Wang, C. Y. Chang, C. Y. Wang, T. T. Wu, and J. Y. Lai, "Preparation and Application of Microporous TPX Membranes", Macromol. Symp., Accepted (2002). (sci.)
5. C. S. Hsu, S. H. Chen, R. M. Liou, M. Y. Hung, H. A. Tsai, and J. Y. Lai, "Pervaporation Separation of Water/Ethanol Mixture by PSf/PEG Blending Membrane", J. Appl. Polym. Sci., 87, 2158-2164 (2003) (sci.)
6. C. L. Li, Y. C. Wang, S. T. Kao, S. C. Fan, K. R. Lee, and J. Y. Lai, "Selective Separation of Water from Aqueous Alcohol Mixtures through Functionalized Syndiotactic Poly(strene-co-4-methylstyrene) Membranes by Pervaporation", J. Appl. Polym. Sci., 86, 2247-2254 (2002). (sci.)
7. H. A. Tsai, M. J. Hong, G. S. Huang, Y. C. Wang, C. L. Li, K. R. Lee, and J. Y. Lai, "Effect of DGDE Additive on Morphology and Pervaporation Performances of Asymmetric PSf Hollow Fiber Membranes", J. Membrane Sci., 208 (1-2), 233-245 (2002). (sci.)
8. Y. C. Wang, C. L. Li, P. F. Chang, S. C. Fan, K. R. Lee and J. Y. Lai, "Separation of Water-Acetic Acid Mixture by Pervaporation through Plasma-Treated Asymmetric Poly (4-methy-1-pentene) Membrane and Dip-coated with Polyacrylic Acid", J. Membrane Sci., 208 (1-2), 3-12 (2002). (sci.)
9. K. Y. Lin, D. M. Wang, and J. Y. Lai, "Nonsolvent Induced Gelation and Its Effect on Membrane Morphology", Macromolecules, 35, 6697-6706 (2002). (sci.)
10. C. C. Hu, Y. C. Wang, C. L. Li, K. R. Lee, Y. C. Chen, and J. Y. Lai, "Relationship Between Polymer Structure and Gas Transport Properties in a Series of Fluorine-containing Aromatic Polyamide Membranes for Oxygen Enrichment", Desalination, 144, 103-108 (2002). (sci.)
11. S. C. Fan, C. L. Li, Y. C. Wang, K. R. Lee, D. J. Liaw, J. Y. Lai, "Application of Aromatic Polyamide Membranes for Pervaporation and Vapor Permeation", Desalination, 148, 43-48 (2002). (sci.)
12. Y. C. Wang, C. L. Li, S. T. Kao, S. C. Fan, K. R. Lee, J. Y. Lai, "Pervaporation of

- Aqueous Alcohol Mixtures Through Functionalized Syndiotactic Poly(styrene-co-4-methylstyrene) Membrane”, *Desalination*, 149, 41-47 (2002). (sci.)
13. F. L. Mi, S. S. Shyu, C. T. Chen, and J. Y. Lai, “Adsorption of Indomethacin onto Chemically Modified Chitosan Beads”, *Polymer*, 43, 757-765 (2002). (sci.)
  14. H. A. Tsai, R. C. Ruaan, D. M. Wang, J. Y. Lai, “Effect of Temperature and Span Series Surfactant on the Structure of Polysulfone Membranes”, *J. Appl. Polym. Sci.*, 86, 166-173 (2002). (sci.)
  15. H. A. Tsai, D. H. Huang, S. C. Fan, Y. C. Wang, C. L. Li, , K. R. Lee, J. Y. Lai, ”Investigation of Surfactant Addition Effect on the Vapor Permeation of Aqueous Ethanol Mixtures through Polysulfone Hollow Fiber Membranes”, *J. Membrane Sci.*, 198, 245-258 (2002). (sci.)
  16. S. C. Fan, K. R. Lee, D. J. Liaw, H. P. Huang, and J. Y. Lai, “Effect of Coagulation Media on Membrane Formation and Vapor Permeation Performance of Novel Aromatic Polyamide Membrane”, *J. Membr. Sci.*, 204, 67-79 (2002). (sci.)
  17. J. Huang, Y. C. Wang, C. L. Li, K. R. Lee, S. C. Fan, T. T. Wu, and J. Y. Lai, "Dehydration of Water-Alcohol Mixtures by Pervaporation and Vapor Permeation through Surface Resintering Expanded Poly(tetrafluoroethylene) Membranes", *Eur. Polym. J.*, 38, 179-186 (2002). (sci.)
  18. H. A. Tsai, D. H. Huang, R. C. Ruaan, J. Y. Lai, "Mechanical Properties of Asymmetric Polysulfone Membranes Containing Surfactant as Additives", *Ind. Eng. Chem. Res.*, 40, 5917-5922 (2001). (sci.)
  19. R. C. Ruaan, W. C. Ma, S. H. Chen, J. Y. Lai, "Microstructure of HTPB-Based Polyurethane Membranes and an Explanation to Their Low O<sub>2</sub>/N<sub>2</sub> Selectivity", *J. Appl. Polym. Sci.*, 82 (6), 1307-1314 (2001). (sci.)
  20. D. M. Wang, T. H. Young, T. T. Wu, J. Y. Lai, "Effect of Sputter Coating on the Observation of Polymeric Membrane Structure", *J. Chin. Inst. Chem. Engrs.*, 32, 13-22 (2001). (sci.)
  21. Y. C. Wang, C. L. Li, J. Huang, C. Lin, K. R. Lee, D. J. Liaw, and J. Y. Lai, "Pervaporation of Benzene/Cyclohexane Mixtures Through Aromatic Polyamide Membranes", *J. Membrane Sci.*, 185 (2), 193-200 (2001). (sci.)
  22. Y. M. Sun, S. C. Hsu, and J. Y. Lai, "Transport Properties of Ionic Drugs in the Ammonio Methacrylate Copolymer Membranes", *Parm. Res.*, 18 (3), 304-310 (2001). (sci.)
  23. J. Huang, C. L. Li, Y. C. Wang, K. R. Lee, and J. Y. Lai, "Effect of Surface Resintering on The Surface Morphology and Vapor Permeation Properties of Skived Poly(tetrafluoroethylene) Membranes", *Separ. Sci. Technol.*, 36 (12), 2677-2691 (2001). (sci.)
  24. R. C. Ruaan, H. L. Chou, H. A. Tsai, D. M. Wang, and J. Y. Lai, "Factors Affecting The

- Nodule Size of Asymmetric PMMA Membranes", *J. Membrane Sci.*, 190 (2), 135-145 (2001). (sci.)
25. J. S. Lin, C. C. Hwang, C. M. Lin, and J. Y. Lai, "Solvent Transport in Spherical Polymer-penetrant Systems", *Chem. Eng. Sci.*, 56, 151-156 (2001). (sci.)
26. J. Huang, M. L. Tu, Y. C. Wang, C. L. Li, K. R. Lee, and J. Y. Lai, "Dehydration of Acetic Acid by Pervaporation through an Asymmetric Polycarbonate Membrane", *Eur. Polym. J.*, 37 (3), 527-534 (2001). (sci.)

### 魏大欽 中原大學化學工程所

1. Plasma Treatment and Dry Etch Characteristics of Organic Low-k Dielectrics." *Jpn. J. Appl. Phys.* **39**,7015(2000).
2. "Global Model of Plasma Chemistry in a High Density Argon/Hydrogen Discharge." *J. Chin. Inst. Chem. Engr.* **31**, 477(2000).
3. "Dry Etching of Platinum Films with TiN Masks in Ar/O<sub>2</sub> Helicon Wave Plasma." *J. Vac. Sci. Technol. A* **18**, 181(2000).
4. "Modeling the Discharge Region of a Microwave Generated Hydrogen Plasma." *J. Phy. D: Appl. Phys.* **32**, 688(1999).
5. "Selective Plasma Etching for High-Aspect-Ratio Oxide Contact Holes." *Jpn. J. Appl. Phys.* **37**, 327(1998).

### 黃國柱 清華大學化學所

1. D. Samuel, T. K. S. Kumar, G. Ganesh, G. Jayaraman, P. W. Yang, V. Trivedi, S. L. Wang, K. C. Hwang, D. K. Chang, C. Yu, "Proline Inhibits Aggregation during Protein Refolding", *Protein Science*, **2000**, 9(2), 344-352. (SCI 3.87)
2. Lin Ai Tai, Kuo Chu Hwang\*, "Control of Xanthine Oxidase Activity by Light", *Angew. Chem. Int. Ed. Engl.*, **2000**, 39 (21), 3886-3888. (SCI 8.6)
3. D. Samuel, T. K. S. Kumar, G. Ganesh, G. Jayaraman, P. W. Yang, V. Trivedi, S.L. Wang, K. C. Hwang, D. K. Chang, C. Yu, "Proline Inhibits Aggregation during Protein Refolding", *Protein Science*, **2000**, 9(8), 1604-1604. (SCI 3.87)
4. Kuo Chu Hwang, "Development and Applications of Carbon Nanotubes" (invited paper, in Chinese), *Natural Sciences Newsletter, NSC2000*, 12(2), 60-62.
5. Lin Ai Tai, Kuo Chu Hwang\*, "Photo Reactivation of Alloxanthine Inhibited Xanthine Oxidase", *Photochem. Photobiol.*, **2001**, 73, 439-446. (SCI 2.3)
6. Gan Lin Hwang, Kuo Chu Hwang,\* "Carbon Nanotubes Reinforced Ceramics", *J. Mater. Chem.* **2001**, 11, 1722-1725. (SCI 2.4)
7. Y. L. Hsin, K. C. Hwang\*, Fu-Rong Chen, J. J. Kai, "Production and in situ metal filling

- of carbon nanotubes in water”, *Adv. Mater.*, **2001**, 13, 830-833. (SCI 5.5)
8. Gan Lin Hwang, Kuo Chu Hwang,\* “Breakage, Fusion, and Healing of Carbon Nanotubes”, *Nano Lett.* **2001**, 1, 435-438. (SCI )
  9. Ing Che Kao, Yu Lin Hwang, Cheu-Pyeng Cheng, Wen-Jwu Wang, Bo-Cheng Wang, Kuo Chu Hwang\*, “Production of Carbon Nanotubes in Air”, *Fullerene Science & Technology*, **2001**, 9 (3), 321-328. (SCI 0.85)
  10. Che-Hao Chang, Kuo Chu Hwang, Chao-Shiuan Liu, Yun Chi, Arthur J. Carty, Ludmila Scoles, Shie-Ming Peng, Gene-Hsiang Lee, and Jan Reedijk, “Unique formation and stabilization of a decanuclear Cu(II) wheel linked by chloride and O<sup>1/4</sup>H-N Hydrogen bonds”, *Angew. Chem. Int. Ed. Engl.* **2001**, 40, 4651-4653. (SCI 8.55)
  11. Kuo Chu Hwang, “Carbon nanotubes as field emitters for flat panel displays”, *Chemical Engineering*, **2002**, 49(1), 43-52. (Invited review).
  12. Sen Chin Kung, Kuo Chu Hwang\*, I. N. Lin, “O<sub>2</sub> and O<sub>3</sub> Oxidation Enhanced Field Emission of Carbon Nanotubes”, *Appl. Phys. Lett.* **2002**, 80, 4819-4821. (SCI 3.9)
  13. S. F. Tzeng, J. L. Lee , J. S. Kuo, C. S. Yang, P. Murugan, L. A. Tai, K. C. Hwang, “Effects of malonate C-60 derivatives on activated microglia”, *Brain Research*, **2002**, 940 (1-2): 61-68. (SCI 2.5)
  14. Y.-L. Lai, P. Murugan, K.C. Hwang, “Fullerene derivative attenuates ischemia-reperfusion-induced lung injury”, *Life Sci.* 72: 1271-1278, **2002**
  15. Sudhir Ranjan, Shen Yi Lin, Kuo Chu Hwang\*, Yun Chi\*, Wei-Li Ching, Chao-Shiuan Liu, Yu-Tai Tao\*, Chin-Hsiung Chien, Shie-Ming Peng and Gene-Hsiang Lee, “Realizing Green Phosphorescent Light-Emitting Materials from Rhenium(I) Pyrazolato Diimine Complexes”, *Inorg. Chem.*, in press, **2002**.
  16. Kuo Chu Hwang\*, Y. Lin. Hsin, Gan Lin Hwang, “Carbon Nanotubes Reinforcement of Composite Materials”, *Encyclopedia of Nanoscience and Nanotechnology*, in press **2002** (invited review).
  17. Q. H. Song\* & K. C. Hwang\*, “Reaction Mechanism of Photoenzymes”, *Chemistry* (in Chinese, invited review), **2002**.
  18. Gan Lin Hwang, Kuo Chu Hwang\*, Yeong-Tarnng Shieh\*, S. J. Lin “ Preparation of carbon nanotubes encapsulated copper nanowires and their use as a reinforcement for Y-Ba-Cu-O superconductors”, *Chem. Mater.*, in press, **2003**.
  19. Aminul Islam, Periyasamy Murugan, Kuo Chu Hwang\*, Chien-Hong Cheng\*, “Blue light-emitting devices based on 1,8-acridinedione derivatives”, submitted to *Synthetic Metals*, Nov. 23, 2002.
  20. Lin Ai Tai, Shen Yi Lin, Kuo Chu Hwang\*, “Cooperative Inhibition in Xanthine Oxidase Homodimer Units”, submitted to *J. Biol. Chem.*, 2003.
  21. Gan Lin Hwang, Yeong-Tarnng Shieh, Kuo Chu Hwang\*, “Complete load transfer to carbon nanotubes in composite polymers”, submitted to *Adv. Functional Mater.*, 2003.

22. P. Murugan, Kuo Chu Hwang,\* V. T. Ramakrishnan , S. Balasubramanian, "Microwave and ultrasonication accelerated synthesis of acridinediones", to be submitted to *Synthesis*. 2003.
23. Lin Ai Tai, Kuo Chu Hwang\*, "Substrate-Regulated Enzyme Activities", to be submitted to *Science* 2003.

### 凌永健 清華大學化學所

1. Ling-YC Wang-JP Yeh-MH Liu-KS Lin-IN , Secondary-Ion Mass-Spectrometric Studies of SrTiO<sub>3</sub>, Buffering Effect on (Pb<sub>1-X</sub>La<sub>X</sub>)(Zr<sub>1-Y</sub>Ti<sub>Y</sub>)<sub>1-X/4</sub>O<sub>3</sub> Thin-Films Prepared by Pulsed-Laser Deposition , APPLIED PHYSICS LETTERS , January 1995, Vol 66, Iss 2, pp 156-158 .
2. Kuo-WK Wang-JP Ling-YC , Structural Characterization of BaTiO<sub>3</sub> Films by Sol-Gel Method Using Mono-Substituting Chelating Agent , APPLIED SURFACE SCIENCE , January 1996, Vol 92, Iss FEB, pp 155-158 .
3. Soong-DK Ling-YC , Reassessment of PCDD/Dfs and Co-PCBs Toxicity in Contaminated Rice-Bran Oil Responsible for the Disease Yu-Cheng , CHEMOSPHERE , March 1997, Vol 34, Iss 5-7, pp 1579-1586 .
4. Ling-YC Hou-PCC , A Taiwanese Study of 2,3,7,8-substituted PCDD/DFs and Coplanar PCBs in Fly ashes from Incinerators , JOURNAL OF HAZARDOUS MATERIALS , February 1998 Vol 58, 83-91 .
5. Ling-YC Teng-HC Cartwright-C , Supercritical fluid extraction and clean-up of organochlorine pesticides in Chinese herbal medicine , JOURNAL OF CHROMATOGRAPHY A , March 1999, Vol 835/1-2, pp 145-157 .

### 呂世源 清華大學化學工程所

#### 發表論文

1. **Shih-Yuan Lu**, Hway-Show Tong, Wen-Chang Chen, and Ta-Jo Liu, 2001, "Reduction of Ultra-pure Water Usage in Wafer Rinsing Process via Sequential Compensatory Strategies," *J. Chin. Inst. Chem. Engrs.*, **32**(2), 117-124. (SCI,EI)
2. **Shih-Yuan Lu** and Cheng Tsung Lee, 2001, "Boundary Effects on Creeping Motion of an Aerosol Particle in a Non-concentric Pore," *Chem. Eng. Sci.*, **56**(17), 5207-5216. (SCI,EI) (89-2214-E-007-028)
3. **Shih-Yuan Lu** and Yi-Ming Yen, 2001, "Minimum Coating Thickness in Pore Size Reduction of Inorganic Substrates through Particle Deposition," *Jpn. J. Appl. Phys.*, **40**(7), 4652-4656. (SCI,EI) (86-2214-E-007-010)
4. **Shih-Yuan Lu**, Hsiang-Yuan Huang, and Kwen-Hua Wu, 2001, "Silicalite/Poly-Dimethyl-Siloxane Nano-Composite Pervaporation Membranes for Acetic Acid/Water Separation," *J. Mater. Res.*, **16**(11), 3053-3059. (SCI,EI) (89-2214-E-007-003)



5. **Shih-Yuan Lu** and Cheng-Tsung Lee, 2001, " Thermophoretic Motion of an Aerosol Particle in a Non-concentric Pore," *J. Aerosol Sci.*, **32**(11), 1341-1358. (SCI,EI) (89-2214-E-007-028)
6. **Shih-Yuan Lu**, Yu-Ping Lin, and Ta-Jo Liu, 2001,"Coating Window for Double Layer Extrusion Slot Coating of Poly(Vinyl-Alcohol) Solutions," *Polymer Engng. & Sci.*, **41**(10), 1823-1829. (SCI,EI)
7. Heng-Kwong Tsao, **Shih-Yuan Lu**, and Chin-Yao Tseng, 2001, "Rate of Diffusion-Limited Reactions in a Cluster of Spherical Sinks," *J. Chem. Phys.*, **115**(8), 3827-3833. (SCI,EI)
8. **Shih-Yuan Lu** and Yi-Ming Yen, 2002, "A First-Passage Scheme for Determination of Overall Rate Constants for Non-diffusion Limited Suspensions," *J. Chem. Phys.*, **116**(7), 3128-3133. (SCI, EI) (90-2214-E-007-015)
9. **Shih-Yuan Lu** and Chih-Ying Lin, 2002, "Simulating Percolating Behavior of Conductive Particles in Anisotropic Conductive Composite Films," *Appl. Phys.- A*, **74**(5), 675-681. (SCI,EI) (89-2214-E-007-028)
10. **Shih-Yuan Lu** and Cheng-Tsung Lee, 2002, "Creeping Motion of a Spherical Aerosol Particle in a Cylindrical Pore," *Chem. Eng. Sci.*, **57**(8), 1479-1484. (SCI,EI) (89-2214-E-007-028)
11. **Shih-Yuan Lu**, Yi-Ming Yen, Chin-Yao Tseng, and Heng-Kwong Tsao, 2002, "Overall Rate Constants for Diffusion and Incorporation in Clusters of Spheres," *J. Chem. Phys.*, **117**(7), 3431-3439. (SCI,EI) (90-2214-E-007-015)
12. Fang-Lan Hsu, Pei-Ming Wang, **Shih-Yuan Lu**, and Wen-Teng Wu, 2002, "A Combined Solid-State and Submerged Cultivation Integrated with Adsorptive Product Extraction for Production of *Monascus* Red Pigments," *Bioprocess & Biosystems Engr.*, **25**(3), 165-168. (SCI,EI)
13. Shen-Wei Wu, David Shan Hill Wong, and **Shih-Yuan Lu**, 2002, "Size Effects on Silica Polymorphism," *J. Am. Ceram. Soc.*, **85**(10), 2590-2592. (SCI,EI)
14. **Shih-Yuan Lu**, 2003, "Heat Conduction in Composites with Superconducting Matrix-Inclusion Interfaces ," *J. Chin. Inst. Chem. Engrs.*, **invited paper**, in press (to be published in a special issue honoring Prof. Wei-Ming Lu). (SCI,EI) (89-2214-E-007-028)
15. **Shih-Yuan Lu** and Cheng-Tsung Lee, 2003, "Thermophoretic Motion of a Spherical Aerosol Particle in a Cylindrical Pore," *Aerosol Sci. & Technol.*, **37**(5), 455-459. (SCI,EI) (89-2214-E-007-028)
16. **Shih-Yuan Lu** and Chih-Ying Lin, "Computation of Effective Conductivities of Composites containing Inclusions possessive of Interfacial Contact Resistances with a First-Passage Simulation," submitted for publication.
17. Chun-Chong Fu, **Shih-Yuan Lu**, Yung-Jung Hsu, Gia-Chi Chen, Yi-Ren Lin, and Wen-Teng Wu, "Superior Mixing Performance for Airlift Reactor with a Net Draft Tube,"

submitted for publication.

18. **Shih-Yuan Lu**, Mei-Ling Wu, and Hsin-Lung Chen, “Polymer Nanocomposite containing CdS-ZnS Core Shell Particles: Optical Property and Morphology,” submitted to *J. Appl. Phys.* (revision under review).
19. **Shih-Yuan Lu** and I-Hsin Lin, “Characterization of Polypyrrole-CdSe/CdTe Nanocomposite Films prepared with an all Electrochemical Deposition Process,” submitted for publication.
20. Yung-Jung Hsu and **Shih-Yuan Lu**, “A Novel Approach to Prepare Thin Films of Nano-sized Core Shell CdS-ZnS Particles via an MOCVD Process with Co-fed Single Source Precursors of CdS and ZnS,” submitted for publication.
21. Chun-Chong Fu, Wen-Teng Wu, **Shih-Yuan Lu**, “Performance of Airlift Bioreactors with Net Draft Tube,” **invited mini-review**, submitted for publication.

三、各儀器支援之研究成果——發表論文紀錄表

(十五)展阻量測分析儀

校內使用者期刊論文

崔秉鉞教授 交通大學電子工程所

A. 期刊論文

17. K. M. Chen, S. L. Cheng, L. J. Chen, and Bing-Yue Tsui, \*Effects of N<sup>+</sup> Implantation on CoSi<sub>2</sub> Contacts on Shallow Junctions\*, Material Chemistry and Physics, vol.54, pp.71, 1998.
18. S. L. Cheng, L. J. Chen, and Bing-Yue Tsui, \*Formation of C54-TiSi<sub>2</sub> Enhanced by a Thin Interposing Mo Layer on Nitrogen Ion Implanted (001)Si\*, Material Chemistry and Physics, vol.54, pp.346, 1998.
19. Y. F. Hsieh and Bing-Yue Tsui, \*Design Rule Related Defects Formation\*, Microelectronics Reliability, vol.38, pp.1880, 1998.
20. S. L. Cheng, L. J. Chen, and Bing-Yue Tsui, \*Formation of TiSi<sub>2</sub> on Nitrogen Ion Implanted (001)Si\*, J. Mater. Res. Vol.14, No.1, pp.213, 1999.
21. S. L. Cheng, J. J. Jou, L. J. Chen, and Bing-Yue Tsui, \*Formation of C54-TiSi<sub>2</sub> in titanium on nitrogen-ion-implanted (001)Si with a thin interposing Mo layer\*, J. Mater. Res., vol.14, No.5, pp.2061, 1999.
22. S. L. Cheng, H. Y. Huang, Y. C. Peng, L. J. Chen, Bing-Yue Tsui, C. J. Tsai, S. S. Guo, Y. R. Yang, and J. T. Lin, \*Formation of TiSi<sub>2</sub> thin films on stressed (001)Si substrates\*, Applied Surface Science, vol.142, pp.295, 1999.
23. S. L. Cheng, H. Y. Huang, Y. C. Peng, L. J. Chen, Bing-Yue Tsui, C. J. Tsai, and S. S. Guo, \*Effects of stress on the growth of TiSi<sub>2</sub> thin films on (001)Si\*, Appl. Phys. Lett., vol.74, pp.1406, 1999. Bing-Yue Tsui, Shyue-Shyh Lin, Chia-Shone Tsai, and Chin C. Hsia, \*Plasma charging damage during contact hole etch in high density plasma etcher\*, to be published in Microelectronics Reliability.
24. Bing-Yue Tsui and Chih-Feng Huang, "Investigation of Cu/TaN<sub>x</sub> Metal Gate for Metal-Oxide-Silicon Devices", accepted by J. Electrochemical Soc.
25. Bing-Yue Tsui, Chih-Wei Chen, Shien-Ming Huang, and Shyue-Shyh Lin, "Process Sensitivity and Robustness Analysis of Via-First Dual-Damascene Process", accepted by the IEEE Trans. on Semiconductor Manufacturing.
26. Kuo-Lung Fang and Bing-Yue Tsui, "Metal Drift Induced Electrical Instability of Porous Low Dielectric Constant Film", accepted by the J. Appl. Phys.
27. Bing-Yue Tsui and Chih-Feng Huang, "Wide Range Work Function Modulation of Binary Alloys for MOSFETs Application", accepted by the IEEE Electron Device Lett.
28. Cheng-Li Lin, Peng-Sen Chen, Yu-Chin Lin, Bing-Yue Tsui, and Mao-Chieh Chen, "Via-Filling Capability of Cu Film by Chemical Vapor Deposition", submitted to J.

Electrochemical Soc.

29. Wei-Yang Chou, Bing-Yue Tsui, and Ching-Hui Ma, "Optimization of Backside Clean Process to Eliminate Copper Contamination", submitted to the IEEE Trans. on Semiconductor Manufacturing.
30. Bing-Yue Tsui, Tian-Choy Gan, and Ming-Da Wu, "Current Distribution and Total Resistance of Small Silicided Diffusion Region", submitted to Solid-State Electrons.
31. Bing-Yue Tsui and Hsui-Wei Chang, "A Study on the Formation of Interfacial Layer during Reactive Sputtering of Hafnium Oxide", submitted to J. Appl. Phys.
32. Bing-Yue Tsui, Chen-Chi Yang, and Kuo-Lung Fang, "Anisotropic Thermal Conductivity of Nano-Porous Silica Film", submitted to the IEEE Trans. on Electron Devices.

B. 研討會論文

16. S. L. Cheng, H. Y. Huang, Y. C. Peng, L. J. Chen, Bing-Yue Tsui, C. J. Tsai, S. S. Guo, and K. H. Yu, \*The Effect of Stress on the Formation of Titanium Silicide\*, in Proceedings of International Interconnect Technology Conference, pp.190, 1998.
17. ] L. J. Chen, S. L. Cheng, H. M. Luo, H. Y. Huang, Y. C. Peng, Bing-Yue Tsui, C. J. Tsai, and S. S. Guo, \*The Influences of Stress on the Growth of Ti and Ni Silicide Thin Films on (001) Si\*, in Proceedings of the 5<sup>th</sup> International Conference on Solid-State and Integrated Circuit Technology, Beijing, China, pp.256, 1998.
18. S. L. Cheng, H. Y. Huang, Y. C. peng, L. J. Chen, Bing-Yue Tsui, C. J. Tsai, S. S. Guo, Y. R. Yang, and J. T. Lin, \*Effects of Stress on the Formation of Titanium Silicide Thin Films on (001)Si\*, Proc. 1998 Inter. Electron Device and Mater. Symp., Tainan, Taiwan, pp.317, C4-7, 1998.
19. L. W. Chen, J. Y. Chen, J. C. Chen, S. L. Cheng, L. J. Chen, and Bing-Yue Tsui, \*For mation of Ni-silicides on Nitrogen Ion Implanted Silicon\*, Proc. 12<sup>th</sup> Inter. Conf. Ion Implantation Technology, Kyoto, Japan, 1999.S. L. Cheng, S. M. Chang, H. Y. Huang, Y. C. peng, L. J. Chen, Bing-Yue Tsui, C. J. Tsai, and S. S. Guo, \*The Influences of Stress on the Growth of Ti Silicide Thin Films on (001)Si Substrates\*, Mat. Res. Soc. Symp. Proc., 1999.
20. Tsung-Ju Yang, Tzu-Kun Ku, Tze-Liang Lee, Bing-Yue Tsui, Lai-Juh Chen, and Chin Hsia, \*A High Aspect Ratio Sub 0.2 Micron Al Plug Technology for 0.13um Generation\*, Proc. Of the Inter. Interconnect Tech. Conf., pp.209, 1999.
21. S. S. Lin, Bing-Yue Tsui, C. S. Tsai, and C. C. Hsia, \*Compounding Effects of UV Exposure, Ion Bombardment, Electron Shading, and Plasma Charging in a High Density Plasma Poly Etcher\*, Proc. 4th Inter. Symp. On Plasma Process-Induced Damage, pp.41, 1999.

22. Bing-Yue Tsui, S. S. Lin, C. S. Tsai, and C. C. Hsia, \*Plasma Damage During Dielectric Etch in High Density Plasma Etcher\*, Proc. 4th Inter. Symp. On Plasma Process-Induced Damage, pp.84, 1999.
23. C. S. Huang, Bing-Yue Tsui, H. H. Shieh, and Robert Mohondro, \*A Novel UV Baking Process to Improve UV Photoresist Hardness\*, Proc. Int. Symp. on VLSI Tech., Sys., and Appl., pp.135, 1999.
24. Z. Wu, Z. Shiung, C. Wang, K. Fang, R. Wu, Y. Liu, Bing-Yue Tsui and M. C. Chen, \*Electrical Reliability Issues of Integrating Low-K Dielectrics with Cu Metallization\*, Proc. of the Int. Interconnect Tech. Conf., pp.82, 2000.
25. Shyue-Shyh Lin, Chih-Wei Chen, Shien-Ming Huang, Tsung-Kuei Kang, Chen-Nan Yeh, Tsy-Lih Li, Bing-Yue Tsui, and Chin C. Hsia, \*An optimized integration scheme for 0.13 um technology node dual damascene Cu interconnect\*, Proc. of the Int. Interconnect Tech. Conf., pp.273, 2000.
26. Chih-Feng Huang and Bing-Yue Tsui, "Investigation of Tantalum Nitride and Tantalum Alloys Metal Gate for CMOS Devices", in Proc. of The 9th Symposium on Nano Device Technology, pp.24-27, 2002.
27. Kuo-Lung Fang, Bing-Yue Tsui, Chen-Chi Yang, Mao-Chieh Chen, and <sup>a</sup>Knut Beekmann, "Electrical Stability of Nano-Porous Low Dielectric Constant Film", in Proc. of The 9th Symposium on Nano Device Technology, pp.48-52, 2002.
28. Kuo-Lung Fang, Bing-Yue Tsui, Chen-Chi Yang, Mao-Chieh Chen, Shyh-Dar Lee, Knut Beekmann, Tony Wilby, Kath Giles, and Sajid Ishaq, "Electrical and Material Stability of Orion™ CVD Ultra Low-k Dielectric Film for Copper Interconnection", in Proc. of the Int. Interconnect Tech. Conf., pp.60, 2002.
29. Chih-Feng Huang and Bing-Yue Tsui, "Novel Binary Alloy Gate Electrodes for Metal Gate MOS Devices", in Proc. of the 2002 Int. Conf. on Solid State Devices and Materials, pp.184, 2002.
30. Bing-Yue Tsui, Chen-Chi Yang, and Kuo-Lung Fang, "Anisotropic Thermal Conductivity of Nano-Porous Silica Film", to be presented in VLSI-TSA, 2003.

#### D. 技術報告及其它

1. 崔秉鉞、何昭煌、林耿立、劉順和，電漿系統中之輻射傷害研究，工研院電子所，85年1月。
2. 崔秉鉞，Sub-micron device measurement - methods and experiments，工研院電子所，85年1月。

#### 陳茂傑教授 交通大學電子工程所

##### 期刊論文

1. Zhen-Cheng Wu, Yu-Lin Liu, and Mao-Chieh Chen, "Passivation of copper films with

magnesium doping using recoil ion implantation”.

Thin Solid Films, 358 (1-2), 180-186 (January, 2000).

2. M.T.Wang, M.H.Chuang, L.J.Chen, and M.C.Chen, “Effects of composition and N<sub>2</sub> plasma treatment on the barrier effectiveness of chemically vapor deposited WSi<sub>x</sub> films”. Journal of Vacuum Science and Technology B18(4), 1929-1936 (July/August, 2000).
3. Wei-Cheng Hsu, Mao-Chieh Chen and Mong-Song Liang, “Detection of the defects induced by boron high-energy ion implantation of silicon”. Journal of Electrochemical Society, 147(8), 3111-3116 (August, 2000).
4. Zhen-Cheng Wu, Zhi-Wen Shiung, Ren-Guay Wu, Yu-Lin Liu, Wei-Hao Wu, Bing-Yue Tsui, Mao-Chieh Chen, Weng Chang, Pei-Fen Chou, Syun-Ming Jang, Chen-Hua Yu, and Mong-Song Liang, “Dielectric and barrier properties of spin-on organic aromatic low dielectric constant polymers FLARE™ and SiLK™.” Journal of Electrochemical Society, 148 (6), F109-F114 (June, 2001).
5. Zhen-Cheng Wu, Zhi-Wen Shiung, Chiu-Chih Chiang, Wei-Hao Wu, Mao-Chieh Chen, Shwang-Ming Jeng, Weng Chang, Pei-Fen Chou, Syun-Ming Jang, Chen-Hua Yu, and Mong-Song Liang, “Physical and electrical characteristics of F- and C-doped low dielectric constant chemical vapor deposited oxides”. Journal of Electrochemical Society, 148 (6), F115-F119 (June, 2001).
6. Zhen-Cheng Wu, Zhi-Wen Shiung, Chiu-Chih Chiang, Wei-Hao Wu, Mao-Chieh Chen, Shwang-Ming Jeng, Weng Chang, Pei-Fen Chou, Syun-Ming Jang, Chen-Hua Yu, and Mong-Song Liang, “Physical and electrical characteristics of methylsilane- and trimethylsilane-doped low dielectric constant chemical vapor deposited oxides”. Journal of Electrochemical Society, 148 (6), F127-F132 (June, 2001).
7. Z.C.Wu, C.C.Chiang, W.H.Wu, M.C.Chen, S.M.Jeng, L.J.Li, S.M.Jang, C.H.Yu , and M.S.Liang, “Leakage mechanism in Cu damascene structure with methylsilane-doped low-k CVD oxide as intermetal dielectric”. IEEE Electron Device Letters, EDL-22 (6), 263-265 (June, 2001).
8. Cheng-Li Lin and Mao-Chieh Chen, “Reactively sputtered amorphous TaSi<sub>x</sub>N<sub>y</sub> films serving as barrier layer against copper diffusion”. Japanese Journal of Applied Physics, 40 (part1, No.6A), 4181-4186 (June, 2001).
9. Wen-Kuan Yeh, Chiutsung Huang, and Mao-Chieh Chen, “Temperature dependency of 0.1 um partially depleted SOI CMOSFET”. IEEE Electron Device Letters, EDL-22(7), 339 -341 (July, 2001).
10. Cheng-Li Lin, Peng-Sen Chen, and Mao-Chieh Chen, “Chemically vapor deposited Cu films on Ar-plasma-treated TiN substrate”. Japanese Journal of Applied Physics, 41(part1, No.1), 280-286 (January, 2002).
11. Wei-Cheng Hsu, Mong-Song Liang, and Mao-Chieh Chen, “Implantation induced defects in the retrograde well with a buried layer”.

Journal of Electrochemical Society, 149(3), G184-G188 (March, 2002).

12. Ching-Lin Fan and Mao-Chieh Chen, "Fabrication of high performance low-temperature poly-Si thin-film transistors using a modulated process".

Journal of Electrochemical Society, 149(4), H93-H97 (April, 2002).

13. Wei-Cheng Hsu, Mong-Song Liang, Cheng-Tang Lin, and Mao-Chieh Chen, "Post-implantation thermal annealing effect on the gate oxide of triple well-structure".

Japanese Journal of Applied Physics, 41(part1, No.5A), 2878-2880 (May, 2002).

14. Cheng-Li Lin, Peng-Sen Chen, and Mao-Chieh Chen, "Effects of TaN substrate pretreatment by Ar plasma on copper chemical vapor deposition". Accepted; to appear in Journal of Electrochemical Society (2002).

15. Cheng-Li Lin, Peng-Sen Chen, and Mao-Chieh Chen, "Effect of the underlayer substrates on copper chemical vapor deposition". Accepted; to appear in Journal of Vacuum Science and Technology B (2002).

16. Ching-Lin Fan and Mao-Chieh Chen, "Performance improvement of excimer laser annealed poly-Si TFTs using fluorine ion implantation". Accepted; to appear in Electrochemical and Solid-State Letters (2002).

17. Ching-Lin Fan and Mao-Chieh Chen, "Correlation between electrical characteristics and oxide/polysilicon interface morphology for excimer laser annealed poly-Si TFTs". Accepted; to appear in Journal of Electrochemical Society (2002).

18. Ching-Lin Fan and Mao-Chieh Chen, "Effects of N<sub>2</sub>O-plasma treatment on the performance of excimer-laser-annealed polycrystal silicon thin-film-transistors". Accepted; to appear in Japanese Journal of Applied Physics (2002).

19. Cheng-Li Lin, Peng-Sen Chen, Chun-Li Chang, and Mao-Chieh Chen, "Characteristics of copper films deposited on H<sub>2</sub>-plasma-treated TaN substrate by chemical vapor deposition". Accepted; to appear in Journal of Vacuum Science and Technology B (2002).

#### 研討會論文

1. Z.C.Wu, Z.W.Shiung, C.C.Chiang, W.H.Wu, M.C.Chen, S.M.Jeng, W.Chang, S.M.Jang, C.H.Yu and M.S.Liang, "Comparative study of physical and electrical characteristics of F- and C-doped low-k CVD oxides". Advanced Metallization Conference (AMC) 2000, San Diego, California, U.S.A., October 3-5, 2000.

2. Cheng-Li Lin and Mao-Chieh Chen, "Effects of nitrogen plasma treatment on amorphous TaSiN films as a diffusion barrier between copper and silicon". Proceedings, Second Asia-Pacific International Symposium on the Basis and Application of Plasma Technology, Kaohsiung, Taiwan, April 19-20, 2001.

3. Z.C.Wu, C.C.Chiang, W.H.Wu, M.C.Chen, S.M.Jeng, L.J.Li, S.M.Jang, C.H.Yu, and M.S.Liang, "Leakage current mechanisms for damascene process of Cu/methylsilane-doped low-k chemical vapor deposited oxide".

2001 IEEE International Interconnect Technology Conference (IITC), Burlingame, California, U.S.A., June 4-6, 2001.

4. Chiu-Chih Chiang, Zhen-Cheng Wu, Wei-Hao Wu, Mao-Chieh Chen, Chung-Chi Ko, His-Peng Chen, Shwang-Ming Jeng, Syun-Ming Jang, Chen-Hua Yu and Mong-Song Liang, "Barrier characteristics of PECVD  $\text{-SiC:H}$  dielectrics".

Advanced Metallization Conference (AMC) 2001, Montreal, Quebec, Canada, October 9-11, 2001.

5. K.L.Fang, B.Y.Tsui, C.C.Yang, M.C.Chen, S.D.Lee, K.Beekmann, T.Wilby, K.Giles, and S.Ishaq, "Electrical and Material Stability of Orion<sup>TM</sup> CVD ultra low-k dielectric film for copper interconnection". 2002 IEEE International Interconnect Technology Conference (IITC), Burlingame, California, U.S.A., June 3-5, 2002.

6. C.C.Chiang, M.C.Chen, Z.C.Wu, L.J.Li, S.M.Jang, C.H.Yu, and M.S.Liang, "TDDB reliability improvement in Cu damascene by using a bilayer-structured PECVD SiC dielectric barrier". 2002 IEEE International Interconnect Technology Conference (IITC), Burlingame, California, U.S.A., June 3-5, 2002.

7. Z.C.Wu, Y.L.Lu, C.C.Chiang, M.C.Chen, B.T.Chen, G.J.Wang, S.M.Jang, C.H.Yu, and M.S.Liang, "Advanced Metal Barrier Free Cu damascene interconnects with PECVD silicon carbide barriers for 90/65-nm BEOL technology".

2002 IEEE International Electron Devices Meeting (IEDM), San Francisco, California, U.S.A., December 9-11, 2002.

### 張俊彥教授 交通大學電子工程所

#### 期刊論文

1. Mark Lin, Chun Yen Chang, Tiao Yuan Huang and Uin Jack Kuo, " Rugged surface polycrystalline silicon film formed by rapid thermal chemical vapor deposition for dynamics random access memory stacked capacitor application," Jpn. J. Appl. Phys, Vol. 37(1998) pp. 3214-3219, Part 1, No. 6A, June 1998.

2. Yen- Ann Chen, Yung-Hung Wu, Wen-Chin Tsay, Li-Hong Lai, Jyh-Wong Hong and Chun-Yen Chang, "Optoelectronic characteristics of SiC-based pin thin film LEDs having a thin Mo buffer layer in contact with P-type a-Si:H," Electron Electronics Letter 9th July 1998 Vol.34 no. 14.

3. Yeong-Shyang Lee, Hsiao-Yi Lin, Tan-Fu Lei, Tiao-Yuan, T. C. Chang and Chun-Yen Chang, " Comparison of N<sub>2</sub> and NH<sub>3</sub> plasma passivation effects on polycrystalline silicon thin-film transistors," Jpn. J. Appl. Pphys. Vol. 37 (1998) pp3900-3903, Part 12, No. No. 7, July 1998.

4. Jian-Shing Luo, Wen-Tai Lin, C. Y. Chang, W. C. Tsai, " Interfacial reactions of Ni on Si<sub>0.76</sub>Ge<sub>0.24</sub> and Si by pulsed laser annealing," Materials Chemistry and Physics 54(1998) 160-163.



5. Da-Ren Chen, Jian-Shing Luo, Wen-Tau Lin, C. Y. Chang, and P. S. Shih, " Interfacial reaction of Pd/Si<sub>0.76</sub>Ge<sub>0.24</sub> by pulsed KrF laser annealing," Applied Physics Letters, Vol.73, No. 10, 7 September (1998) pp.1355-1357.
6. P. S. Shih, T. C. Chang, S. M. Chen, M. S. Feng, D. Z. Peng, C. Y. Chang, " Application of high temperature deposited aluminum gate electrode to the fabrication of a-Si:H TFT," Surface and Coatings Technology 108-109 (1998) pp.588-593.

研討會論文

1. G.W. Huang, L. P. Chen, C. T. Chou, K. M. Chen, H. C. Tseng, W. C. Tasi and C.Y. Chang "Low temperature epitaxy of Si and Si<sub>1-x</sub>Ge<sub>x</sub> by utrahigh vacuum-chemical molecular epitaxy" J.Appl. Phys. 81(1), 1997
2. Tsyr-Shyang Liou, Tahui Wang, and Chun-Yen Chang "Analysis of high-field hole transport characteristics in Si<sub>1-x</sub>Ge<sub>x</sub> alloys with a bond orbital band structure" J.Appl.Phys.Vol.79,No.1, 1996
3. L.P.Chen and T.C.Chou, C.H.Chien and C.Y.Chang "Studies on damage removing efficiency of B<sub>11</sub> and BF<sub>2</sub> implanted Si<sub>0.84</sub>Ge<sub>0.16</sub> epilayers by rapid thermal annealing" Appl.Phys.Lett.Vol.68,No.2,pp.232-234, 1996
4. Chun-Yen Chang, Hsiao-Yi Lin, Tan Fu Lei, Juing-Yi Cheng, Liang-Po Chen, and Bau-Tong Dai "Fabrication of Thin Film Transistors by Chemical Mechanical Polished Polycrystalline Silicon Films" IEEE ELECTRON DEVICE LETTERS, VOL.17, NO.3, 1996
5. Yeong-Lin Lai, Edward Y. Chang, Chun-Yen Chang, T.K.Chen, T.H.Liu, S.P.Wang, T.H.Chen, and C.T.Lee "5 mm High-Power-Density Dual-Delta-Doped Power HEMT's for 3 V L-Band Applications IEEE ELECTRON DEVICE LETTERS, VOL.17, NO.5, 1996

雷添福教授 交通大學電子工程所

期刊論文

1. Jiann Heng Chen, **Tan Fu Lei**, Tien Sheng Chao, Tien Pao Su, Jim Huang, Andy Tuan, and S. K. Chen, "Study on the Contact Resistance of Poly-plug Structure by In-Situ HF Vapor Clean," IEE Electronics Letters, Vol. 36, No. 8, pp. 756-757, 2000.
2. Tung Ming Pan, **Tan Fu Lei**, Chao Chyi Chen, Tien Sheng Chao, Ming Chi Liaw, Wen Lu Yang, Ming Shih Tsai, C. P. Lu, and W. H. Chang, "Novel cleaning solutions for polysilicon film post chemical mechanical polishing," IEEE Electron Devices lett., Vol. 21, No. 7, pp. 338-340, 2000. Tung Ming Pan, **Tan Fu Lei**, and Tien Sheng Chao, "Robust ultra-thin oxynitride dielectrics by NH<sub>3</sub> nitridation and N<sub>2</sub>O RTA treatment," IEEE Electron Devices lett., Vol. 21, No. 8, pp. 378-380, 2000.
3. **Tan Fu Lei**, Jiann Heng Chen, Ming Fang Wang, and Tien Sheng Chao, "Characteristics of Polysilicon Oxides Combining N<sub>2</sub>O Nitridation and CMP Processes," IEEE Trans. on Electron Device, Vol. 47, No. 8, pp. 1545-1552, 2000.

- Tung Ming Pan, **Tan Fu Lei**, Tien Sheng Chao, Kuo Lih Chang, and Kuang Chien Hsieh, "High quality ultra-thin CoTiO<sub>3</sub> high-k gate dielectrics," *Electrochemical and Solid-State Lett.*, vol. 3, No. 9, pp. 433-434, 2000.
4. Tung Ming Pan, **Tan Fu Lei**, Tien Sheng Chao, Ming Chi Liaw, and Chih Peng Lu, "The Optimum Condition of Novel One-Step Cleaning Solutions for Pre-Gate Oxide Cleaning using the Robust Design Methodology," *J. J. Applied Phys.* Vol. 39, No.10, p. 5805, 2000.
  5. Chin-Yu Ku, Jia-Min Shieh, Tsann-Bim Chiou, Hwang-Kuen Lin, and **Tan Fu Lei**, "Postexposure delay effect on linewidth variation in base added chemically amplified resist", *J. Electrochem. Soc.*, Vol.147, No.10, pp.3833-3839, 2000.
  6. Jiann Heng Chen, **Tan Fu Lei**, Jian-Hong Chen, and Tien Sheng Chao, "Characteristics of TEOS Polysilicon Oxides: The Improvement by CMP Process and High Temperature RTA N<sub>2</sub>/N<sub>2</sub>O Annealing," *J. Electrochem. Soc.*, Vol.147, No.11, p.4282, 2000.
  7. Horng Chih Lin, C. M. Yu, C. Y. Lin, K. L. Yeh, Tiao Yuan Huang, and **Tan Fu Lei**, "A Novel Thin-Film Transistor with Self-Aligned Field Induced Drain," *IEEE Electron Devices Lett.*, Vol. 22, No. 1, pp. 26-28, 2001.
  8. Tung Ming Pan, **Tan Fu Lei**, Wen Luh Yang, Chun Ming Cheng, Tien Sheng Chao, "High Quality Interpoly-Oxynitride Grown by NH<sub>3</sub> Nitridation and N<sub>2</sub>O RTA Treatment," *IEEE Electron Devices Lett.*, Vol. 22, No. 2, pp. 68-71, 2001.
  9. Tung Ming Pan, **Tan Fu Lei** and Tien Sheng Chao, "High-k CoTiO<sub>3</sub> dielectrics formed by oxidation of sputtered Co/Ti or Ti/Co films," *Applied Phys. Lett.*, vol. 78, pp.1439-1441, 2001.
  10. W. L. Yang, T. S. Chao, C. M. Cheng, T. M. Pan, and **T. F. Lei**, "High Quality Interpoly Dielectrics Deposited on the Nitride-Polysilicon for Nonvolatile Memory Devices," *IEEE Trans. On Electron Devices*, 48, pp. 1304-1309, July, 2001.
  11. Tung Ming Pan, **Tan Fu Lei** and Tien Sheng Chao, "Comparison of Ultrathin CoTiO<sub>3</sub> and NiTiO<sub>3</sub> High-k Gate Dielectrics," *J. Applied Phys.*, Vol. 89, March 15, 2001.
  12. Tung Ming Pan, **Tan Fu Lei**, Huang Chun Wen, and Tien Sheng Chao, "Characterization of Ultrathin Oxynitride (18-21 Å) Gate Dielectrics by NH<sub>3</sub> Nitridation and N<sub>2</sub>O RTA Treatment," *IEEE Trans. on Electron Devices*, Vol. 48, April., 2001.
  13. Tung Ming Pan; **Tan Fu Lei**; Fu Hsiang Ko; Tien Sheng Chao; Tzu Huan Chiu; Ying Hao Lee; Chih Peng Lu, "Comparison of novel cleaning solutions with various chelating agents for post-CMP cleaning on poly-Si film," *Semiconductor Manufacturing*, *IEEE Transactions on*, Volume: 14 Issue: 4, Page(s): 365–371, Nov. 2001.
  14. Jam Wem Lee; **Tan Fu Lei**; Chung-Len Lee, "Thin tunnel oxide grown on silicon substrate pretreated by CF<sub>4</sub> plasma," *IEEE Electron Device Letters*, Volume: 22 Issue: 11, Page(s): 513–515, Nov, 2001.
  15. Tung Ming Pan, Chao Hsin Chien, **Tan Fu Lei**, Tien Sheng Chao, and Tiao Yuan Huang, "Electrical Characteristics of Thin Cerium Oxide Film on Silicon Substrate by

- Reactive DC Sputtering," *Electrochem. Solid-State Lett.*, Volume 4, Issue 9 pp. F15-F17, Sep. 2001.
16. Jam Wem Lee, Won-Der Chen, **Tan Fu Lei**, and Chung-Len Lee, "The Enhancement of Nitrogen Incorporation in RTN<sub>2</sub>O Annealed TEOS Oxide Fabricated on Disilane-Based Polysilicon Films," *Journal of The Electrochemical Society*, Volume 148, Issue 8 pp. F164-F169, Aug. 2001.
  17. Tung Ming Pan, **Tan Fu Lei**, Tien Sheng Chao, Ming Chi Liaw, Fu Hsiang Ko, and Chih Peng Lu, "One-Step Cleaning Solution to Replace the Conventional RCA Two-Step Cleaning Recipe for Pregate Oxide Cleaning," *Journal of The Electrochemical Society*, Volume 148, Issue 6 pp. G315-G320, June 2001.
  18. Chin Yu Ku, **Tan Fu Lei**, and Hwang Kuen Lin, "Focus measurement with a simple pattern design," *APPLIED OPTICS*, Volume 40, No.16 pp.2662-2669, June 2001.
  19. Chin Yu Ku, Jia Min Shieh, Tsann Bim Chiou, Hwang Kuen Lin and **Tan Fu Lei**," Expanding the Process Window and Reducing the Optical Proximity Effect by Post-Exposure Delay," *Journal of The Electrochemical Society*, Volume 148, Issue 8 pp. G434-G438, June 2001.
  20. Chin Yu Ku, Dong Shieh Cheng, and **Tan Fu Lei**, "Monitoring the Lithographic Focus and Tilting Performance by Off-line Overlay Measurement Tools", *J. Vac. Sci. Technol.B* Volume 19, Issue 5 pp. 1915-1924, September 2001.
  21. M. N. Chang, T. Y. Chang, F. M. Pan, B. W. Wu, and **T. F. Lei**, "An Investigation of Scanning Capacitance Microscopy on Iron-Contaminated p-Type Silicon", *Electrochemical and Solid-State Letters*, Volume 4, Issue 9 G69-G71, 2001.
  22. Yiming Li, Jam-Wem Lee, Ting-Wei Tang, T.-S. Chao, **Tan-Fu Lei**, and S. M. Sze, "Numerical Simulation of Quantum Effects in High-k Gate Dielectrics MOS Structures using Quantum Mechanical Models," *Computer Physics Communications* (accepted to appear in 2002).
  23. J. H. Chen, **T. F. Lei**, C. L. Chen, T. S. Chao, W. Y. Wen, K. T. Chen, "Nitrogen implantation and in situ HF vapor clean for deep submicrometer n-MOSFETs," *J. Electrochem. Soc.*, 149 (1): G63-G69, Jan., 2002.
  24. T. Y. Chang, **T. F. Lei**, T. S. Chao, S. W. Chen, L. M. Kao, S. K. Chen, A. Tuan, and T. P. Su, "Impact of Nitrogen and/or Fluorine Implantation on Deep-submicron Co-salicide Process," accepted by *Solid State Electronics*.
  25. C. M. Yu, H. C. Lin, C. Y. Lin, K. L. Yeh, T. Y. Huang, and **T. F. Lei**, "Self-Aligned Fabrication of Thin-Film Transistors with Field-Induced Drain (FID)," accepted by *Solid State Electronics*.
  26. Michael Yu, H. C. Lin, G. H. Chen, T. Y. Huang, and **T. F. Lei**, "Characteristics of Poly-Si Thin-Film Transistors with Electrical Source/Drain Extensions Induced by a Bottom Sub-Gate" accepted by *Jpn. J. Appl. Phys.*

研討會論文

1. Chin-Yu Ku, **Tan Fu Lei**, Jia-Min Shieh, Tsann-Bim Chiou, and Yung-Cheng Chen, "New overlay pattern design for real-time focus and tilt monitor", Microelectronic Manufacturing, Proc. of SPIE Vol. 4182, 2000.
2. Chin-Yu Ku, **Tan Fu Lei**, Jia-Min Shieh, Tsann-Bim Chiou, and Hwang-Kuen Lin, "Real-time process control to prevent CD variation induced by post exposure delay", Microelectronic Manufacturing, Proc. of SPIE Vol. 4182, 2000.
3. Jiann Heng Chen, **Tan Fu Lei**, Chia Lin Chen, Tien Sheng Chao, Wen Ying Wen, and Kuag Ting Chen, "High Performance Deep-Submicron n-MOSFETs by Nitrogen Implantation and In-situ HF Vapor Clean," IRPS, 2000.
4. M. N. Chang, T. Y. Chang, C. Y. Chen, F. M. Pan, B. W. Wu, **T. F. Lei**, "A Study of Iron-Contaminated p-type Silicon by Scanning Probe Microscopy", AVS 48th International Symposium, IUVSTA 15th International Vacuum Congress, 11th International Congress on Solid Surfaces, San Francisco, CA, U.S.A, 2001.
5. H. W. Chen, H. C. Tzeng, T. Y. Chang, J. W. Lee, **T. F. Lei**, and C. L. Lee, "The Electrical Properties of the Gate Oxide with CF<sub>4</sub> Plasma Pretreatment," EDMS, 2001.
6. T. L. Lee, J. W. Lee, **T. F. Lei**, and C. L. Lee, "Improved Thin Gate Oxide Characteristics with Chlorine Plasma Pretreatment," EDMS, 2001.
- J. H. Chen, Yen-An Chang, M. Z. Lee, **T. F. Lei**, and C. L. Lee, "Electrical Properties of Vertical Polysilicon Oxide," EDMS, 2001.
7. Y. P. Hong, J. C. Wang, J. W. Lee, **T. F. Lei**, and C. L. Lee, "The Electrical Properties of Thin Oxynitride Dielectrics Using N<sub>2</sub>O Plasma Annealing," EDMS, 2001.

徐文祥教授 交通大學機械工程所

期刊論文

1. Hsu, C.P. and Hsu, W., 2000, A Two-way Membrane-type Micro Actuator with Continuous Deflection, Journal of Micromechanics and Microengineering, Vol.10, pp.387-394.
2. Pan, C.S. and Hsu, W, 2001, Electro-thermally Driven Microgrippers with Bilateral Motion, Journal of Chinese Society of Mechanical Engineers, Vol. 22, No. 1.
11. Wu, C.T. and Hsu, W., 2001, An Electro-thermally Driven Microactuator with Two Dimensional Motion, Journal of Microsystem Technologies, accepted.
12. Hu, M.H. and Hsu, W., 1999, Investigation of Torsion Springs by Considering The Friction and the End Effect, ASME, J. of Mechanical Design, Vol. 121, pp.628-633
5. Wu, M.F. and Hsu, W., 1999, Thermally Driven Polysilicon Actuators for Lateral Displacement, J. of Intelligent Material Systems and Structures, Vol. 10, No.5, pp.402-409.

研討會論文

1. Wu, C.T. and Hsu, W., 2001, An Electro-thermally Driven Microactuator with Two Dimensional Motion, Micro System Technologies, March 27-29, Dusseldorf, Germany.

2. Lee, C.C. and Hsu, W., 2001, Optimization of an Electro-thermally and Laterally Driven Microactuator, Micro System Technologies, March 27-29, Dusseldorf, Germany.
3. Lane, T. and Hsu, W., 2001, Fabrication of Sub-micron Optical Apertures by an Over-electroplating Method, International Symposium on Optical Memory, Oct. 16-19, Taipei, Taiwan.
4. Hsu, C.P. and Hsu, W., 2001, Influence of initial curvature and heating ratio on micromachined thermal biomorph actuation, SPIE's International Symposium on Microelectronics and MEMS, Dec. 17-19, Adelaide, Australia.
5. Lin, C.H., Lo, Y.C., and Hsu, W., 2001, Micro-fabrication of hemispherical poly-silicon shells standing on hemispherical cavities, SPIE's International Symposium on Microelectronics and MEMS, Dec. 17-19, Adelaide, Australia.
6. Wu, C.T. and Hsu, W., 2001, Design and fabrication of a movable O-shape microclasper, SPIE's International Symposium on Microelectronics and MEMS, Dec. 17-19, Adelaide, Australia.
7. Liu, H.C., Lin, Y.H., Chou, C.S., Hsu, Y.Y., and Hsu, W., 2001, Sidewall roughness control in advanced silicon etch process, SPIE's International Symposium on Microelectronics and MEMS, Dec. 17-19, Adelaide, Australia.

(十五) 展阻量測分析儀---校外論文

黃惠良 清華大學電子工程所

1. "Comprehensive Study on A Novel Bi-directional Tunneling Program/Erase NOR-type (BiNOR) 3-D Flash Memory Cell" To appear in IEEE Trans. Electron Devices, 2001
2. "Photoelectrochemical Etching of  $\text{In}_x\text{Ga}_{1-x}\text{N}$ ", Appl. Phys. Lett. 76(26)(2000)3917.
3. "Photoluminescence Study on Threading Dislocations in GaN Revealed by Selective Photoelectrochemical Etching", Electrochemical and Solid State Electronics Letters, 3(8) 2000.
4. "Adjustable Emissions from Silicon-Rich Oxide Films Prepared by Plasma-enhanced Chemical-Vapor-Deposition", Appl. Phys. Lett. Vol. 74, No. 16 (1999) 2316.
5. "The White Electroluminescence from a-SiNx:H Thin Films" Appl. Phys. Lett. (to appear).
6. "Origin of Photoluminescence in Hydrogenated Amorphous Silicon-rich Nitride and Oxynitride Thin Films", Physical Rev. B (to appear)
7. "The Method to Optimize Gate Oxide Integrity, Hot Carrier Effect and Electro-Static Discharge Without Sacrificing the Performance in Dual Gate Oxide Process", Jpn. J. Appl. Phys. 38 (1999) L1287
8. "Improvement on Properties and Reliability of Ultra-thin Silicon Oxide (3- 5nm) Grown by Microwave Plasma Afterglow at the Low Temperature Using Mixtures of O<sub>2</sub> and N<sub>2</sub>O", Appl. Surf. Sci. 142 (1999) 322.
9. "Properties and Reliability of ultra-thin Oxides Grown on Four Inch Diameter Silicon Wafers by Microwave Plasma Afterglow Oxidation", J. Vac. Sci. Tech. 16(5) (1998) 2712
10. "Modification of Surface and Bandgap on Sb-incorporated CuInSe<sub>2</sub> Thin Films by (NH<sub>4</sub>)<sub>2</sub>S<sub>x</sub> Sulfurization", Appl. Surf. Sci. 123/124(1998)603

梁正宏 清華大學工程與系統科學系

期刊論文

1. J.H. Liang and D.S. Chao, "Formation of tungsten silicide film by ion beam synthesis," *Surface and Coating Technology*, 140 (2001) 116-121. (SCI)
2. J.H. Liang, "Three-dimensional depth profiles of boron ions implanted in SiO<sub>2</sub>," *Nuclear Instruments and Methods*, B180 (2001) 216-221. (SCI)
3. H. Niu, L.G. Yuan, W.T. Chou, J.H. Liang, and S.-C. Wu, "A fast automatic RBS/w channeling system for damage depth profiling," *Applied Radiation and Isotopes*, 56 (2002) 627-631. (SCI)
4. J.H. Liang, S.L. Chiang, C.T. Chen, H. Niu, and M.S. Tseng, "Depth profiles of cluster-ion-implanted BSi in silicon," *Nuclear Instruments and Methods*, B190 (2002) 767-771. (SCI)

5. H. Niu, J.Y. Hsu, J.H. Liang, and L.G. Yuan, "A new configuration of Moxon-Rae detectors based on silicon detector," *Radiation Measurement*, in press (2002). (SCI)
6. J.H. Liang, M. Mayer, J. Roth, and W. Eckstein, "Computer simulation of chemical erosion of graphite due to hydrogen ion bombardment," *Nuclear Instruments and Methods*, in press (2002) (SCI)
7. J.H. Liang and S.L. Chiang, "Characterization of BSi molecule ion implantation," *Nuclear Instruments and Methods*, in press (2002). (SCI)
8. C.H. Lee, C.Z. Qiu, J.H. Liang, C.T. Tsai, and K.L. Yu, "Grazing incidence small angle X-ray scattering and diffraction study the resistance of Mo implanted Si wafer after annealing," *Journal Applied Crystallography*, to be published (2002). (SCI)
9. J.H. Liang, S.H. Jiang, J.T. Chou, R.D. Sheu, and G.K. Yeh, "Parametric study of Moxon-Rae detectors," *Applied Radiation and Isotopes*, to be published (2002). (SCI)
10. H. Niu, J.Y. Hsu, Y.C. Yu, J.H. Liang, and S.-C. Wu, "Stopping power and energy straggling measurement using a partial coated Si detector," *Nuclear Instruments and Methods*, reviewing (2002). (SCI)
11. H. Niu, C.Y. Lai, J.H. Liang, and L.G. Yuan, "Si self-implantation study by ion channeling," *Nuclear Instruments and Methods*, reviewing (2002). (SCI)
12. W.F. Tsai, J.H. Liang, and J.J. Kai, "A study of high-temperature implantation of 72 keV copper ions into nickel," *Journal of Nuclear Materials*, reviewing (2002). (SCI)
13. H. Niu and J.H. Liang, "Fabrication of embedded radioactive source by ion implantation," *Patent of R.O.C.*, reviewing (2002).
14. M.N. Chang, J.H. Lai, C.Y. Chen, and J.H. Liang, "The influence of annealing sequence on electrically activated boron distribution in silicon wafers," *Applied Physics Letters*, to be submitted (2002). (SCI)
15. H. Niu, J.Y. Hsu, and J.H. Liang, "A new configuration of Moxon-Rae detectors based on silicon detector," *Patent of U.S.A. and R.O.C.*, to be submitted (2002).
16. J.H. Liang and W.M. Ruan, "Characterization of tungsten silicide films prepared by MEVVA ion implantation," *Thin Solid Films*, to be submitted (2002). (SCI)
17. W.F. Tsai, J.H. Liang, and J.J. Kai, "Implantation of 72 keV nickel ions into copper at elevated temperatures," *Applied Physics*, to be submitted (2002). (SCI)

#### 研討會論文

1. J.H. Liang, "Three-dimensional depth profiles of boron ions implanted in SiO<sub>2</sub>," *Proceedings of the 5th International Conference on Computer Simulation of Radiation Effects in Solids (COSIRES'00)*, University Park, Penn. State, U.S.A., July 24-28, 2000.
2. J.H. Liang and D.S. Chao, "A study of ion beam synthesis of tungsten silicide films," *Proceedings of the 13th International Conference on Ion Implantation Technology (IIT 2000)*, Alpbach, Austria, September 17-22, 2000.
3. C.T. Tsai and J.H. Liang, "Effects of RTA on the ion-beam-synthesized molybdenum

- silicide films," *Proceedings of the 13th Annual Conference of Chinese Society for Materials Science*, Kaohsiung County, Taiwan, R.O.C., November 25-26, 2000.
4. W.F. Tsai, J.H. Liang, and J.J. Kai, "A study of high-temperature implantation of 72 keV copper ions into nickel," *Proceedings of the 1st Sino-Japanese Seminar on Application of Accelerator Radiation*, Hsinchu, Taiwan, R.O.C., December 26-27, 2000.
  5. J.H. Liang, S.L. Chiang, C.T. Chen, H. Niu, and M.S. Tseng, "Depth profiles of cluster-ion-implanted BSi in silicon," *Proceedings of the 15th International Conference on Ion Beam Analysis (IBA 2001)*, Cairns, Australia, July 15-20, 2001.
  6. H. Niu, C.Y. Lai, J.H. Liang, and L.G. Yuan, "Si self-implantation study by ion channeling," *Proceedings of the 15th International Conference on Ion Beam Analysis (IBA 2001)*, Cairns, Australia, July 15-20, 2001.
  7. C.Z. Qiu, C.H. Lee, C.T. Tsai, and J.H. Liang, "The application of the grazing incidence X-ray small angle scattering on an ion implanted Mo on Si wafer," *Proceeding of the Year 2001 SRRC (Synchrotron Radiation Research Center) Users' Meeting*, Longtan, Taoyuan, Taiwan, R.O.C., October 31-November 2, 2001.
  8. C.T. Tsai, J.H. Liang, and W.M. Ruan "Characterization of ion-beam-synthesized molybdenum silicide films on silicon," *Proceedings of the 14th Annual Conference of Chinese Society for Materials Science*, Taichung, Taiwan, R.O.C., November 23-24, 2001.
  9. W.M. Ruan and J.H. Liang, "Formation of tantalum silicide films by ion beam synthesis," *Proceedings of the 14th Annual Conference of Chinese Society for Materials Science*, Taichung, Taiwan, R.O.C., November 23-24, 2001.
  10. J.Y. Hsu and J.H. Liang, "Computer simulation of plasma immersion ion implantation," *Proceedings of the 14th Annual Conference of Chinese Society for Materials Science*, Taichung, Taiwan, R.O.C., November 23-24, 2001.
  11. D.H. Deng, C.Y. Chen, M.N. Chang, J.H. Liang, and F.M. Pan, "Application of SCM for detecting 2-dimensional impurity depth profiles," *Proceedings of the Annual Conference of Electronic Devices and Materials, Kaohsiung (EDMS)*, Taiwan, R.O.C., December 12-13, 2001.
  12. J.H. Liang and W.M. Ruan, "Characterization of the tungsten silicide thin films prepared by MEVVA ion implantation," *Proceedings of the Annual Conference of Electronic Devices and Materials (EDMS)*, Kaohsiung, Taiwan, R.O.C., December 12-13, 2001.
  13. S.L. Chiang and J.H. Liang, "A study of BSi cluster ion implantation in silicon," *Proceedings of the Annual Conference of Electronic Devices and Materials (EDM)*, Kaohsiung, Taiwan, R.O.C., December 12-13, 2001.
  14. D.H. Deng, M.N. Chang, C.Y. Chen, J.H. Liang, and F.M. Pan, "Observation of plane view image on ultra shallow p+ junction by scanning capacitance microscopy," *Proceedings of the Symposium on Nano Device Technology 2002 (SNDT 2002)*, Hsinchu, Taiwan, R.O.C., May 2-3, 2002.



15. J.H. Liang, M. Mayer, J. Roth, and W. Eckstein, "Computer simulation of chemical erosion of graphite due to hydrogen ion bombardment," *Proceedings of the 6th International Conference on Computer Simulation of Radiation Effects in Solids (COSIRES2002)*, Dresden, Germany, June 23-27, 2002.
16. C.H. Lee, C.Z. Qiu, J.H. Liang, C.T. Tsai, and K.L. Yu, "Grazing incidence small angle X-ray scattering and diffraction study the resistance of Mo implanted Si wafer after annealing," *Proceedings of the XII International Conference on Small-Angle Scattering (SAS2002)*, Venezia, Italy, August 25-29, 2002..
17. W.M. Ruan and J.H. Liang, "Properties of TaSi<sub>2</sub> thin films prepared by MEVVA ion implantation," *Proceedings of the 2002 Annual Conference of Coating Technology*, Yungkuang, Tainan City, Taiwan, R.O.C., August 30-31, 2002.
18. J.H. Liang and S.L. Chiang, "Characterization of BSi cluster ion implantation," *Proceedings of the 13th International Conference on Ion Beam Modification of materials (IBMM 2002)*, Kobe, Japan, September 1-6, 2002..
19. D.H. Deng, M.N. Chang, C.Y. Chen, J.H. Liang, and F.M. Pan, "Observation of boron activation behavior on the ultra-shallow p<sup>+</sup> junction by scanning capacitance microscopy," *Proceedings of the American Vacuum Society (AVS) 49th International Symposium*, Denver, C.O., U.S.A., November 4-8, 2002.
20. H. Niu, J.Y. Hsu, Y.C. Yu, J.H. Liang, and S.-C. Wu, "Stopping power and energy straggling measurement using a partial coated Si detector," *Proceedings of the 17th International Conference on the Application of Accelerators in Research and Industry (CAARI 2002)*, Denton, Texas, U.S.A., November 12-16, 2002.
21. J.H. Lai, M.N. Chang, C.Y. Chang, J.H. Liang, and F.M. Pan, "Scanning capacitance microscopy study on low energy boron implanted silicon wafers," *Proceedings of the 2002 International Electron Devices and Materials Symposia (2002 IEDMS)*, Taipei, Taiwan, R.O.C., December 20-21, 2002.
22. M.N. Chang, J.H. Lai, C.Y. Chen, J.H. Liang, and F.M. Pan, "The influence of annealing sequence on electrically activated boron distribution in silicon wafers," to be published in the *Proceedings of the 203rd Meeting of the Electrochemical Society (ECS 2003)*, Paris, France, April 27 - May 3, 2003.
23. M.N. Chang, J.H. Lai, C.Y. Chen, W.W. Wan, F.M. Pan, and J.H. Liang, "An Investigation of Photovoltaic Effect on Differential Capacitance Images of Shallow P<sup>+</sup> Junction Profiles," to be published in the *Proceedings of the 2<sup>nd</sup> National Conference of the German Vacuum Society and 8th European Vacuum Conference*, Berlin, Germany, June 23 - 36, 2003.

吳威德 中興大學材料工程所

期刊論文

1. W. Wu and C.H. Tsai, 1999, Hot Cracking Susceptibility of Fillers 52 and 82 in Alloy 690 Welding, Metallurgical and Materials Transactions A, Vol.30, No.2, pp.417-426.
2. W. Wu, D.Y. Lin, and S.H. Chen, 1999, Mechanical Properties of Weldment Affected by Various Vibration Frequencies, J. of Materials Science Letters, Vol.18, pp.1829-1831.
3. W. Wu, 1999, Mechanical Behavior of Vibration-Arc-Welded Alloy 690, Materials Transactions, JIM, Vol.40, No.12, pp.1456-1460.
4. W. Wu, P.T. Cheng, and W.H. Hsu, 2000, Stress corrosion Behaviour of Nickel Superalloy Weldments, Science and Technology of Welding and Joining, Vol.5, No.1, pp.45-48.
5. 郭哲瑋、賴銘祥、范傑、吳威德，2000，同步震盪技術改善鐸接品質研究，鐸接與切割，Vol.10, No.5, pp.46-56. (此篇論文獲得中華民國鐸接協會九十年度學術論文獎，以及獲得經濟日報產業新知專輯的特別報導)
6. Weite Wu, 2000, Influence of Vibration Frequency on Solidification of Weldments, Scripta Materialia, Vol.42, No.7, pp.661-665.
7. W. Wu, L.Y. Hwu, D.Y. Lin, and J.L. Lee, 2000, The Relationship between Alloying Elements and Retained Austenite in Martensitic Stainless Steel Welds, Scripta Materialia, Vol.42, No.11, pp.1071-1076.
8. D.Y. Lin, W. Wu, C.H. Lin, and H.H. Hsieh, 2001, The Effect of Aging on the Intergranular Corrosion of a 24Cr-14Ni-0.7Si Stainless Steel for Welding in Architecture, Steel Research, Vol.72, No.7, pp.277-280.
9. D.Y. Lin and W. Wu, 2002, Steel-Foundation Stone for the Industrial Development, Steel Research, Vol.73, No.1, pp.3-4.
10. Y.Y. Chang, D.Y. Wang, W. Wu, 2002, Catalysis Effect of Metal Doping on Wear Properties of Diamond-Like Carbon Films Deposited by a Cathodic-Arc Activated Deposition Process, Thin Solid Films, Vol.420-421C, pp.241-247.
11. 夏生明、吳威德，2002，304 不銹鋼鍛造接合研究，鐸接與切割，Vol.12, No.6, pp.43-49.
12. J.H. Hsieh, W.Wu, C. Li, C.H. Yu, and B.H. Tan, 2003, Deposition and Characterization of Ti(C,N,O) Coatings by Unbalanced Magnetron Sputtering, Surface and Coatings Technology, Vol.163-164, pp.233-237.
13. J.H. Hsieh, C. Li, W.Wu, and R.F. Hochman, 2003, Effects of Energetic Particle Bombardment on Residual Stress, Microstrain and Grain Size of Plasma-assisted PVD Cr Thin Films, Thin Solid Films, Vol.424, pp.103-106.
14. D.Y. Wang, Y.Y. Chang, and W. Wu, 2003, Characterization of Metal-Doped CN<sub>x</sub> Films Deposited by Cathodic Arc Evaporation, Diamond and Related Materials; in press.
15. Weite Wu and Ming-Xiang Lai, 2003, Hardfacing Crack Evaluation Under Simultaneous Vibration, J. of Materials Science Letters; submitted.

#### 研討會論文

1. 范傑、吳威德, 1999, 振動應力消除機構, 中華民國銲接協會, 88 Annual Meeting, 台灣台北, June 5, pp.C75-80.
2. 黃發德、吳威德、吳隆佃, “鐵、鈷與鎳基超合金的磨耗行為之研究”, 中華民國銲接協會 88 年度年會論文, 台灣台北, June, 1999, pp.C81-86.
3. 郭哲璋、賴銘祥、吳威德, “同步震盪對不銹鋼銲接之研究” 1999 材料年會論文集第一冊, 台灣新竹, November, 1999, A17.
4. 黃梧哲、吳威德, “420 不銹鋼粉末噴覆在 S45C 基材上之火焰噴銲技術研究” 1999 材料年會論文集第一冊, 台灣新竹, November, 1999, A48P.
5. 陳榕庭、吳威德, “複合金屬積層板之高溫鍛打性質分析” 1999 材料年會論文集第一冊, 台灣新竹, November, 1999, pp.E05.
6. 夏生明、陳榕庭、吳威德, “高溫鍛造接合之微結構研究” 2000 材料年會論文集鋼鐵材料組, 台灣高雄, November, 2000, pp.A-43P.(此發表獲得海報論文獎第二名)
7. 郭哲璋、賴銘祥、吳威德, “同步振盪技術改善熱龜裂研究” 2000 材料年會論文集其他類組, 台灣高雄, November, 2000, pp.J-12P.(此發表獲得海報論文獎佳作)
8. 許秀菁、吳威德, “AISI 309 不銹鋼銲材熱龜裂敏感性評估” 中華民國銲接協會 90 年度年會論文, 台灣台北, November, 2001, pp.A26-31.
9. 郭哲璋、蔡志杰、吳威德, “同步振盪銲接之微觀組織研究” 2001 材料年會論文集其他類組, 台灣台中, November, 2001, pp.P13-08.(此發表獲得海報論文獎佳作)
10. 夏生明、吳威德, “沃斯田鐵系 304 不銹鋼塑性複合研究” 2001 材料年會論文集鋼鐵材料類組, 台灣台中, November, 2001, pp.P01-24.
11. 張呈嘉、陳志銘、魏伯州、吳威德, “420 不銹鋼覆層之磨耗研究” 2001 材料年會論文集鋼鐵材料類組, 台灣台中, November, 2001, pp.P01-08.(此發表獲得海報論文獎第二名)
12. D.Y. Wang, Y.Y. Chang, and W. Wu, 2002, Characterization of Metal-Doped CN<sub>x</sub> Films Deposited by Cathodic Arc Evaporation, 8<sup>th</sup> International Conference New Diamond Science and Technology 2002, Victoria, Australia, July, 2002.
13. Y.Y. Chang, D.Y. Wang, W. Wu, 2002, Catalysis Effect of Metal Doping on Wear Properties of Diamond-Like Carbon Films Deposited by Cathodic Arc Evaporation, The International Conference on Metallurgical Coatings and Thin Films, San Diego, California, April, 2002.
14. 夏生明、吳威德, “不銹鋼鍛造接合研究” 中華民國銲接協會 91 年度年會論文, 台灣台中, October, 2002, pp.C25-30.
15. 夏生明、吳威德, “沃斯田鐵系 304 不銹鋼與軟鋼鍛造接合研究” 2002 材料年會論文集鋼鐵材料類組, 台灣台北, November, 2002, pp.PA09.
16. 林志謀、歐陽浩、吳威德、林明仁, “碳離子植入對不銹鋼(420J2)表面微結構之影響” 2002 材料年會論文集鋼鐵材料類組, 台灣台北, November, 2002, pp.PA24.(此發表獲得海報論文獎第三名)
17. Hsiu-Ching Hsu and Weite Wu, “Hot Cracking Susceptibility of 309 Filler Metal with

Trace Elements” American Welding Society, Detroit, Michigan, April, 2003.

汪大永 明道管理學院應用科技研究中心

期刊論文

1. **D. Y. Wang**, K. W. Weng, C. L. Chang, and X. J. Guo, “Tribological Performance of Metal Doped Diamond-Like Carbon Films Deposited by Cathodic Arc Evaporation”, *Diamond and Related Materials*, V. 9 (3-6), 2000, 831.
2. **D. Y. Wang**, C. L. Chang, C. H. Hsu, and H. N. Lin, “Synthesis of (Ti, Zr)N Hard Coatings by Pulsed Magnetron Sputtering”, *Surface & Coatings Technology*, V. 130, 2000, 64.
3. **D. Y. Wang**, K. W. Weng, ”Study on Metal-Doped Diamond Like Carbon Films Synthesized by Cathodic Arc Evaporation”, *Diamond and Related Materials*, V. 9 (9-10), 2000, 1762.
4. S. Han, J.H. Lin, S.H. Tsai, S.C. Chung, **D.Y. Wang**, F.H. Lu, H.C. Shih, "Corrosion and tribological studies of chromium nitride coated on steel with an interlayer of electroplated chromium", *Surface & Coatings Technology*, V133-134, 460-465, (2000).  
91/01/18 修訂
5. C.L. Chang, **D.Y. Wang**, ”Microstructure and Adhesion Characteristics of Diamond-like Carbon Films Deposited on Steel Substrates”, *Diamond and Related Materials*, 10 (8) (2001) 1528.
6. **D.Y. Wang**, M.C. Chiu, “Characterization of Duplex Cr<sub>2</sub>O<sub>3</sub>/CrN Coatings for Wear Applications”, *Surface & Coatings Technology*, V137, 164-169, (2001).
7. **D.Y. Wang**, K.W. Wong, “Deposition of CrN coatings by current-modulating cathodic arc evaporation”, *Surface & Coatings Technology*, V137, 31-37, (2001).
8. **D.Y. Wang**, C.L. Chang, ” Influences of OEM Settings on Wear Performance of Metal-doped Diamond-like Carbon Films Deposited by Unbalanced Magnetron Sputtering”, *Thin Solid Films*, 392 (1) (2001) 11.
9. C.L. Chang, **D.Y. Wang**, “Characterization of Surface Enhancement of Carbon Ion Implanted TiN Coatings by Metal Vapor Vacuum Arc Ion Implantation Process”, submitted to *Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms*, on Aug 2001.
10. C.L. Chang, **D.Y. Wang**, “Influence of ion energy on degradation of diamond-like carbon films exposed to high energy bombardment from ion implanter”, submitted to *Diamond and Related Materials* on July 2001.

研討會論文

1. **D. Y. Wang**, K.W. Weng, and S.Y. Hwang, “Study on Metal-doped Diamondlike Carbon Films Synthesized by Cathodic Arc Evaporation”, *The Fifth IUMRS International Conference on Advanced Materials (IUMRS-ICAM'99)*, Beijing, China, June 13-18, (1999). Submitted to *Journal of Diamond and Related Materials*.
2. **D. Y. Wang**, C.L. Chang, C.H. Hsu, and H.N. Lin, “Synthesis of (Ti, Zr)N Hard Coatings

- by Pulsed Magnetron Sputtering”, The Fifth IUMRS International Conference on Advanced Materials (IUMRS-ICAM’99), Beijing, China, June 13-18, (1999). Submitted to Surface & Coatings Technology.
3. **D. Y. Wang**, K.W. Weng, and W.Y. Ho, ”Study on Tribological Performance of Diamondlike Carbon Films Synthesized by Cathodic Arc Evaporation”, DIAMOND 1999, Submitted to Journal of Diamond and Related Materials.
  4. **D. Y. Wang**, C. L. Chang, K. W. Weng, “Characteristics of Diamond-Like Carbon Films Deposited by Unbalanced Magnetron Sputtering”, Submitted to Taiwan Diamond 2000 Conference, Taipei, Taiwan, 2000.
  5. **D. Y. Wang**, C. L. Chang, “Plasma Diagnostics of Diamond-Like Carbon Films Deposited by Unbalanced Magnetron Sputtering”, Submitted to AVS 2000, Boston, October 2 - 6, 2000.
  6. **D. Y. Wang**, K. W. Weng, “Characterization of Chromium Nitride Coatings Deposited by A Hybrid PVD and Metal Plasma Ion Implantation Process”, Submitted to AVS 2000, Boston, October 2 - 6, 2000.