※大學學術追求卓越發展延續計畫執行報告格式

Explanation for the Form of the Annual/Midterm/Final Report "Program for Promoting Academic Excellence of Universities（Phase II）"

※ The Annual/Midterm/Final Report contains the following sections:

(Add extra lines or columns if needed.)

I.COVER

Program for Promoting Academic Excellence of Universities（Phase II）

Final Report

建構兆位元紀元的光電科技(II)

Photonic Science and Technology for the Tera-Era (II)

NSC 93-2752-E-009-007-PAE
NSC 94-2752-E-009-008-PAE
NSC 95-2752-E-009-008-PAE
NSC 96-2752-E-009-008-PAE

Overall Duration: Month 4 Year 2004 - Month 3 Year 2008
Report Duration: Month 4 Year 2004 - Month 3 Year 2008

National Chiao Tung University

2008.05.02

II. BASIC INFORMATION OF THE PROGRAM (FORM 1)

Program Title: Photonic Science and Technology for the Tera II
建構兆位元紀元的光電科技 II

Serial No.: NSC93-2752-E-009-007-PAE			Affiliation		國立交通大學（National Chiao-Tung University）
Principal Investigator	Name	潘犀靈 （Ci-Ling Pan）	Program Coordinator	Name	黃中垚（Jung Y. John Huang）
	Tel:	03-5731921		Tel:	03-5731975
	Fax:	03-5716631		Fax:	03-5716631
	E-mail	clpan@faculty.nctu.edu.tw		E-mail	jyhuang@cc.nctu.edu.tw

	Expenditures[1] (in NT$1,000)		Manpower[2]	
	Anticipation	Reality	Anticipation	Reality
FY93	2,840	2,840	50	47.7
FY94	3,126	3,126	50	48
FY95	3,120	3,120	50	48.5
FY96	3,240	2,640	50	48.5
Overall	12,326	11,726	200	192.7

Serial No.	Project Title	Principal Investigator	Title	Affiliation
Sub-Project 1	兆位元時代光電科技之基礎研究（Fundamental Studies on Photonic Science and Technology for the Tera Era）	潘犀靈（Ci-Ling Pan）	Professor	National Chiao-Tung University
Sub-Project 2	下世代光通訊與光儲存技術（Next Generation Optical Communication and Optical Storage Technologies）	賴暎杰（Yin-Chieh Lai）	Professor	National Chiao-Tung University
Sub-Project 3	Integrated Micro-Optoelectronic Devices and Systems 積體化微光電元件與系統	詹益仁 (Y.J.Chan)	Professor	National Central University
Sub-Project 4	Optical Probing, Manipulation, and Sensing of Biosystems at the Nano-scale 奈米尺度之光電感測操控於生醫領域之研究及應用	邱爾德 (Arthur Chiou)	Professor	National Yang Ming University

Program Director's Signature:

III. (FORM 2) LIST OF WORKS, EXPENDITURES, MANPOWER, AND MATCHING SUPPORTS FROM THE PARTICIPATING INSTITUTES（REALITY）.

96 年度

Serial No.: **NSC (93~96)-2752-E-009-008-PAE**	Program Title: Photonic Science and Technology for the Tera-Era (II) **建構兆位元紀元的光電科技(II)**

Research Item (Include sub projects)	Major tasks and objectives	Expenditures (in NT$1,000)					Manpower (person-month)					Matching Supports from the Participating Institutes (in English & Chinese)
		Salary	Seminar/ Conference-related expenses	Project-related expenses	Cost for Hardware & Software	Total	Principal Investigators	Consultants	Research/ Teaching Personnel	Supporting Staff	Total	
	Coordination of the subprojects	1,300	200	100	175	1,775	24	1		102	127	
	Administrative support of the whole project	2,602	200	1,192	275	4,269	18	1		74	93	
	Promoting local and international collaboration	1,551.959	200	512	175	2,438.959	16	1		74	91	
	Organization of seminars and workshops	1,170	200	98.606	175	1,643.606	16			74	90	
SUM		6623.959,	800	1902.606	800	10,126,565	74	3		324	401	

Serial No.: NSC(93~96)-2752-E009-007-PAE	Program Title: Fundamental Studies on Photonic Science and Technology for the Tera Era 兆位元時代光電科技之基礎研究

Research Item (Include sub projects)	Major tasks and objectives	Expenditures (in NT$1,000)					Manpower (person-month)					Matching Supports from the Institutes (in English & Chinese)
		Salary	Seminar/ Conference-related expenses	Project-related expenses	Cost for Hardware & Software	Total	Principal Investigators	Consultants	Research/ Teaching Personnel	Supporting Staff	Total	
Fundamental Studies on Photonic Science and Technology for the Tera Era	Generation of coherent infrared radiation	**1802**	**396**	**1572**	**583**	4353	4				4	
	Population-split genetic algorithm	**1925**	**380**	**2008**	**561**	4874	4			16	20	
	Near-infrared fs laser crystallized polycrystalline silicon TFT	**1969**	**423**	**1157.6**	589.3	4138.9	8			28	36	
	A powerful THz emitter in the 800nm wavelength regime	**1824**	**350**	**1550**	**498**	4222	8			20	28	
	All-Optical Nework Components	**1699**	**380**	**1410.2**	**563**	4052.2	4			12	16	
	High-Speed Optical Receivers	**2000**	**372**	**10010**	**568**	12950	4			24	28	
	GaN-based a Light Emitting Diodes	**1903**	**408**	**1291.2**	**569**	4171.2	4			16	20	
	GaN-based VCSEL	**1703**	**411.7**	**940**	**521**	3575.7	4			16	20	
	Photonic Crystal Microcavity Lasers	2045.9	**402.3**	**1664**	**601**	4713.2	4			14	20	
	the optimization of our doped PMMA photopolymers	**1826.7**	**446**	**912.4**	**583**	3768.1	8				8	
SUM		18,697.6	3,969	22,515.4	5,636.3	508,18.3	52			146	198	4

Serial No.: NSC(93~96)-2752-E-009-009-PAE	Program Title: Next Generation Optical Communication and Optical Storage Technologies 下世代光通訊與儲存技術

Research Item (Include sub projects)	Major tasks and objectives	Expenditures (in NT$1,000)					Manpower (person-month)					Matching Supports from the Participating Institutes (in English & Chinese)
		Salary	Seminar/ Conference-related expenses	Project-related expenses	Cost for Hardware & Software	Total	Principal Investigators	Consultants	Research/ Teaching Personnel	Supporting Staff	Total	
Optical Communca-tion	Develop Optical Communi-cation Technolog-ies	7,600	1,655	6,628.5	10,000	25,883.5	16	0	0	52	68	
Optical Storage	Develop Optical Storage Technolog-ies	7,601.5	825	6,618.5	0.0	15,045	12	0	0	38.5	50.5	
SUM (不含管理費)		15,201.5	2,480	13,247	10,000	40,928.5	28	0	0	90.5	118.5	

Serial No.: (93-2752-E-008-001-PAE)	Program Title: (in both English & Chinese) Integrated Micro-Optoelectronic Devices and Systems 分項三-積體化微光電元件與系統

Research Item (Include sub projects)	Major tasks and objectives	Expenditures (in NT$1,000)					Manpower (person-month)					Matching Supports from the Institutes (in English & Chinese)
		Salary	Seminar/ Conference -related expenses	Project-related expenses	Cost for Hardware & Software	Total	Principal Investigators	Consultants	Research/ Teaching Personnel	Supporting Staff	Total	
Integrated Micro-Optoelectronic Devices and Systems	AlGaN/GaN HEMT and InGaAs/ InAlAs mHEMT	244.2	0	397.03	0	641.23	1	0	8	3	12	National Central University 中央大學
	1.33 μm quantum dot lasers on GaAs substrate	244.2	0	255.91	0	500.11	1	0	8	3	12	National Central University 中央大學
	Ge QDs and Ge SETs	244.2	0	397.03	0	641.23	1	0	8	3	12	National Central University 中央大學
	GaAs and InP HBTs	244.2	0	255.91	0	500.11	1	0	8	3	12	National Central University 中央大學
	High-speed PD and EAM	244.2	0	350.17	3500	4094.37	1	0	8	3	12	National Central University 中央大學
	GMR Device and its applications in Biosensor	305.25	0	302.91	0	608.16	1	0	8	3	12	National Central University 中央大學
	Photonic Crystals Device Au-Si Bonding	427.35	0	397.11	0	824.46	2	0	12	3	17	National Central University 中央大學
SUM		1953.6	0	2356.076	3500	7909.7	8	0	60	24	89	

Serial No:(94-2752-E-008-001-PAE)	Program Title: (in both English & Chinese) Integrated Micro-Optoelectronic Devices and Systems 分項三-積體化微光電元件與系統

Research Item (Include sub projects)	Major tasks and objectives	Expenditures (in NT$1,000)					Manpower (person-month)					Matching Supports from the Participating Institutes (in English & Chinese)
		Salary	Seminar/ Conference -related expenses	Project-related expenses	Cost for Hardware & Software	Total	Principal Investigators	Consultants	Research/ Teaching Personnel	Supporting Staff	Total	
Integrated Micro-Optelectronic Devices and Systems	AlGaN/GaN HEMT and InGaAs/InAlAsmHEMT	296.8	0	499.5	0	796.3	1	0	6	3	9	National Central University 中央大學
	1.33 μm quantum dot lasers on GaAs substrate	296.8	0	499.5	0	796.3	1	0	6	3	9	National Central University 中央大學
	Ge QDs and Ge SETs	296.8	0	499.5	0	796.3	1	0	6	3	9	National Central University 中央大學
	GaAs and InP HBTs	296.8	0	499.5	3000	3796.3	1	0	6	3	9	National Central University 中央大學
	High-speed PD and EAM	296.8	0	499.5	0	796.3	1	0	6	3	9	National Central University 中央大學
	Micro-optics Biosensor structures	523.5	0	999	0	1522.5	2	0	6	3	9	National Central University 中央大學
SUM		2007.5	0	3496.5	3000	8574	7	0	36	18	54	

SerialNo.: 95-2752-E-008-001-PAE	Program Title: (in both English & Chinese): Integrated Micro-Optoelectronic Devices and Systems 分項三-積體化微光電元件與系統

Research Item (Include sub projects)	Major tasks and objectives	Expenditures (in NT$1,000)					Manpower (person-month)					Matching Supports from the Participating Institutes (in English & Chinese)
		Salary	Seminar/ Conference -related expenses	Project-related expenses	Cost for Hardware & Software	Total	Principal Investigators	Consultants	Research/ Teaching Personnel	Supporting Staff	Total	
Integrated Micro-Optelectronic Devices and Systems	AlGaN/GaN HEMT and InGaAs/InAlAsmHEMT	318.8	0	611.2	0	930	1	0	2	3	6	National Central University 中央大學
	1.33 μm quantum dot lasers on GaAs substrate	318.8	0	611.2	3000	3930	1	0	2	3	6	National Central University 中央大學
	Ge QDs and Ge SETs	318.8	0	611.2	0	930	1	0	2	3	6	National Central University 中央大學
	GaAs and InP HBTs	318.8	0	611.2	0	930	1	0	2	3	6	National Central University 中央大學
	High-speed PD and EAM	318.8	0	611.2	0	930	1	0	2	3	6	National Central University 中央大學
	Micro-optics Biosensor structures	637.6	0	1222.4	0	1860	2	0	2	3	6	National Central University 中央大學
SUM		1912.8	0	3667.2	3000	8580	7	0	12	18	36	

Serial No.: 96-2752-E-008-001-PAE	Program Title: (in both English & Chinese) Integrated Micro-Optoelectronic Devices and Systems 分項三-積體化微光電元件與系統

Research Item (Include sub projects)	Major tasks and objectives	Expenditures (in NT$1,000)					Manpower (person-month)					Matching Supports from the Participating Institutes (in English & Chinese)
		Salary	Seminar/ Conference-related expenses	Project-related expenses	Cost for Hardware & Software	Total	Principal Investigators	Consultants	Research/ Teaching Personnel	Supporting Staff	Total	
Integrated Micro-Optelectronic Devices and Systems	AlGaN/GaN HEMT and InGaAs/InAlAsmHEMT	307.157	0	537.128	0	844.285	1	0	2	3	6	National Central University 中央大學
	1.33 μm quantum dot lasers on GaAs substrate	307.157	0	537.128	450	1294.285	1	0	2	3	6	National Central University 中央大學
	Ge QDs and Ge SETs	307.157	0	537.128	2550	3394.285	1	0	2	3	6	National Central University 中央大學
	GaAs and InP HBTs	307.157	0	537.128	0	844.285	1	0	2	3	6	National Central University 中央大學
	High-speed PD and EAM	307.157	0	537.128	0	844.285	1	0	2	3	6	National Central University 中央大學
	Micro-optics Biosensor structures	614.314	0	1074.26	0	1689.575	2	0	2	3	6	National Central University 中央大學
SUM		2150.1	0	375.99	3000	8910	7	0	12	18	36	

Serial No.: **NSC (93~96)-2752-E-010-001-PAE**	Program Title: Optical Probing, Manipulation, and Sensing of Biosystems at the Nano-scale 建構照位元紀元的光電科技－子計畫四: 光探測、操控、和感測奈米級生物系統

Research Item (Include sub projects)	Major tasks and objectives	Expenditures (in NT$1,000)					Manpower (person-month)					Matching Supports from the Participating Institutes (in English & Chinese)
		Salary	Seminar/ Conference-related expenses	Project-related expenses	Cost for Hardware & Software	Total	Principal Investigators	Consultants	Research/ Teaching Personnel	Supporting Staff	Total	
Sub-Proj. 4: Biophotonics	**Optical manipulation**	2575.4	640	1291.58	2589	7095.98	2	0	1	2	5	1. one post-doctoral research fellow 2. two master-degree assistant
	Cell Culture System	496.5	0	40.6	403.5	940.6	0.75	0	0	0	0.75	
	Time-resolving Fluorescence spectro-microscopy	1028	0	365.1	0	1393.1	1.5	0	1	2	4.5	
	Surface-enhanced & Nanoparticle-enhanced Raman specotro-microscopy	853	0	355.32	50	1258.32	1	0	0	2	3	
SUM		4952.9	640	2052.6	3042.5	10688	5.25	0	2	5	13.25	3

IV. (FORM 3) STATISTICS ON RESEARCH OUTCOME OF THIS PROGRAM

96 年度

LISTING		TOTAL	DOMESTIC	INTERNATIONAL	SIGNIFICANT[1]	CITATIONS[2]	TECHNOLOGY TRANSFER
PUBLISHED ARTICLES	JOURNALS	975	4	606	162	203	
	CONFERENCES	792	283	461	48		
	TECHNOLOGY REPORTS						
PATENTS	PENDING	9	6	3	-		
	GRANTED	90	53	37	0-		
COPYRIGHTED INVENTIONS	ITEM						
WORKSHOPS/CONFERENCES[3]	ITEM	43	16	27	0		
	PARTICIPANTS	506	396	110	0		
TRAINING COURSES (WORKSHOPS/CONFERENCES)	HOURS	36	36	0	0		
	PARTICIPANTS	70	70	0	0		
PERSONAL ACHIEVEMENTS	HONORS/ AWARDS[4]	37	24	13	0		
	KEYNOTES GIVEN BY PIS	4	2	2	0		
	EDITOR FOR JOURNALS	11	2	9	0		
TECHNOLOGY TRANSFERS	ITEM	3	3	0	0		
	LICENSING FEE	1,000,000+	1,000,000+	0			
	ROYALTY	0	0	0			
INDUSTRY STANDARDS[5]	ITEM	0	0	0	0	0	
TECHNOLOGICAL SERVICES[6]	ITEM	0	0	0	-	-	-
	SERVICE FEE	0	0	0	-	-	-

[1] Indicate the number of items that are significant. The criterion for "significant" is defined by the PIs of the program. For example, it may refer to Top journals (i.e., those with impact factors in the upper 15%) in the area of research, or conferences that are very selective in accepting submitted papers (i.e., at an acceptance rate no greater than 30%). Please specify the criteria in Appendix IV.

[2] Indicate the number of citations. The criterion for "citations" refers to citations by other research teams, i.e., exclude self-citations.

[3] Refers to the workshop and conferences hosted by the program.

[4] Includes Laureate of Nobel Prize, Member of Academia Sinica or equivalent, fellow of major international academic societies, etc.

[5] Refers to industry standards approved by national or international standardization parties that are proposed by PIs of the program.
[6] Refers to research outcomes used to provide technological services, including research and educational programs, to other ministries of the government or professional societies.

V. (FORM4) EXECUTIVE SUMMARY ON RESEARCH OUTCOMES OF THIS PROGRAM

1. GENERAL DESCRIPTION OF THE PROJECT: INCLUDING OBJECTIVES OF THE PROJECT (MAXIMUM 3 PAGES)

The 21st century has been dubbed the "Tera-Era" as communication networks with bandwidths on the order of Tb/s, computation with bandwidths in the Tflop/s range, instrumentation with measurement capabilities in the THz range, and storage media which can store Tbytes/in^2 of data will be necessary. Photonics will play a key role in providing the enabling technology to meet this challenge. The multitude of bio-medical applications of photonics, on the other hand, indicates the emergence of biophotonics in the new millennium. In recognition of these challenges and opportunities, we propose to conduct cutting-edge research to selected areas of photonic science and technology crucial for the Tera-Era. This is a continuation of the phase (I) project supported by the Program for the Pursuit of Academic Excellence of University (PPAEU). The scope of the phase (II) project ranges from fundamental studies in light-matter interaction to novel materials, devices, circuits and modules with application to a new generation of optical communication systems, high-density optical storage. In recognition of the growing importance of photonics in biomedicine, a new sub-project focusing on biophotonics is added.

SUB-I :

The main goals of this project are to design, construct and characterize new optical and optoelectronic functional devices and modules to meet the challenge of the tera-bit information era. To achieve these goals, we focus our research on the following fundamental research topics:

(I) Coherent and THz Photonics;
(II) Quantum (Photonic Crystal) structures and Enabling devices;
(III) Volume Holographic Materials, Technology and Enabling devices

(I) Coherent and THz Photonics

One of the current trends in photonics is the development of a technology based with better control of the light-matter interaction. Employing advanced laser-based techniques, novel design concept, and fabrication technologies of novel photonic structures from potential photonic materials, we shall be able to steer photon energies into specific degrees of freedom of complex systems or materials, to create new materials, to generate new functionality from a device. One of the goals of the present project is thus the development and employment of advanced laser technology, in particular, ultrafast-laser-based techniques such as coherent control, spatially, temporally, and spectrally resolved real-time imaging, and laser-assisted fabrication and properties modification for fundamental studies of photonic properties of various novel photonic materials, structures and devices.

In view of the emerging applications of electromagnetic waves at millimeter-wave or THz frequencies in remote sensing, imaging, and communication, we will conduct studies on various aspects of THz photonics and applications, employing the coherent photonic tools developed in our laboratories over the years.

One of our main objectives is the building a technology base of photonics-based ultra-wideband (THz) wireless communication and frequency measuring technologies for the next generation. The advances in THz applications would also require concurrent progress in THz photonic

elements, such as generators, detectors, polarizers, attenuators, modulators and phase shifters. Novel materials and structures need be explored to address this requirement. Topics include (1) highly efficient THz emitters and detectors, (2) exploration of the possibility of combining liquid crystals with photonic crystals and meta-materials for tunable THz optics. With the structured material or meta-material and highly birefringent materials such as liquid crystals for added functionality, new possibilities arise for novel optical elements because of the strong coupling of these novel materials with the electromagnetic wave. Starting from the theoretical analysis, we will work on design and fabrication of various THz optical components. Our long-range goal would be highly directional and intense THz sources, taking advantage of the unique properties of photonic crystals or meta-materials. The technologies developed in this project would also make possible advances in other important applications of THz science and technology, e.g., biomedical sensing and imaging.

(II) Quantum (Photonic Crystal) structures and Enabling devices

The main objectives of this research project will be focused on 3 parts. First, Development and study of novel blue and UV-LED and surface emitting laser, the specific objectives of this proposal include (1) to development nitride-based blue and UV material and optoeletronic device; (2) to development novel process for obtaining high performance of blue and UV LED and LD. Second, to investigate nanotechnology and nano-photonics. This part of the object will focus on investigating the optical properties of mesoscopic GaN-based quantum confined structures and to achieve controlled photon emission from the GaN-based quantum confined structures. The specific objectives of this proposal include (1) establishment of the fabrication technology of GaN quantum confined structures such as quantum dots and nanostructures; (2) simulation and modeling of the op;tical properties of microcavity quantum confined structures and development of device design guidelines for fabrication of microcavity quantum confined structures; (3) fabrication of devices that incorporate the quantum confined structures into a microcavity such as vertical cavity surface emitting laser (VCSEL) structures; (4) investigation of the optical properties of the fabricated quantum confined structures and microcavity structures; and (5) investigation and demonstration of the controlled photon emission from the microcavity quantum confined structures or devices. Third, for the fabrication of long wavelength VCSEL (LW-VCSEL) and high speed VCSEL for communication, the specific objectives of this proposal include (1) fabrication single mode high speed GaAs or InP -based VCSEL; fabrication of InP based 1300 nm or 1500nm Long Wavelength VCSEL; (2) VCSEL Arrays Chip and Multiple-Wavelength or tunable Source.
- The GaN-based UV LD have applicatics to the high density storge in the storge project..
- The Long Wavelength VCSEL will be useful to the optical communication project.

(III) Volume Holographic Materials, Technology and Enabling devices

Volume holographic technology and applications have been explored for past 50 years but still have not yet achieved significant breakthrough. The development of the proper recording material is a fundamental key to the success for the holographic systems. Therefore, in this sub-project, we plan to develop novel volume holographic materials and explore its applications on novel information processing with ultrahigh density (1 Tbits/in2) and ultrafast fast (Tbps). Through the innovative researches and international collaborative efforts, we anticipate becoming a world class

leader in the field of parallel information photonic system.

SUB-II :

This sub-subject is focused on two important applications of photonic technologies: optical communication and optical storage. The project descriptions and research objectives are given below.

A. Next generation optical communication technologies

The aim of this research area is to develop new optical transmission and photonic signal processing techniques and the required device, module, and networking technologies which may play the key roles in next generation optical communication systems. The conducted researches are mainly along the following four directions: (1) Novel Optical Transmission & Processing; (2) Novel Optical Network Architectures & Technologies; (3) Novel Fiber Devices and Laser Sources; (4) Novel Theories & Applications. In this project year the research scopes and objectives for each research direction are summarized below:

(1) Novel Optical Transmission & Processing: (Main investigators: J. Chen, S. Chi)

High efficiency optical transmission through the use of new modulation formats is expected to become more and more important in future optical communication systems. We focus on the efficient generation and high-performance transmission of duo-binary, DPSK, DQPSK, and baseband/radio signals. The established fiber circulating loop testbed is utilized to experimentally verify the developed idea and techniques. For next generation "intelligent" optical networks, optical layer needs to provide the much needed new functionalities with lower cost, smaller power consumption, or less occupied space. New photonic signal processing techniques are thus needed to be developed for implementing this ambitious vision. We also continue to develop optical 2R schemes based on the self-seeded Fabry-Perot laser diodes, and the optical add/drop schemes based on the planar-lightwave-circuit (PLC) reconfigurable optical add/drop (ROADM) module. More photonic signal processing modules and techniques will be investigated in the future.

(2) Novel Optical Network Architectures & Technologies: (Main investigators: J. Chen, W.-P. Lin, S. Chi)

Recently we have developed a novel bidirectional fiber transmission system based on a new designed four-port interleaver. By rerouting bidirectional transmission to unidirectional amplification, backscattering noises are blocked and high optical signal-to-noise-ratio is achieved. We have also continued to develop novel light sources and architectures for optical code-division multiple-access (OCDMA) schemes, and have also developed a reliable architecture for high-capacity fiber-radio system. The developed new scheme for simultaneous generation of baseband and radio signals by using only one single-electrode MZM with enhanced radio performance is also utilized to develop new hybrid optical transmission network architectures.

(3) Novel Fiber Devices and Laser Sources: (Main investigators: Y. Lai, S. Chi)

We continue to develop the advanced design and fabrication techniques for novel all-fiber devices including fiber gratings, photonic crystal fibers, and side-polished/fusion-tapered fiber devices. These all-fiber devices are utilized to build new types of fiber amplifiers and fiber lasers (CW and modelocked). Interesting new bound soliton phenomena have been

firstly observed in the developed modelocked fiber soliton laser system.

(4) Novel Theories & Applications: (Main investigators: Y. Lai, S. Chi)

By cooperating with other researchers, we have investigated the tunable slow light devices based on quantum dot VCSELs (with subproject 1), and the cost-effective optoelectronic packages using powder metallurgy. We have also continued to investigate the advanced optical soliton theories (on both the classical and quantum levels) for exploring new possible applications.

B. Next generation optical storage technologies:

High spatial resolution beyond the diffraction limit can be realized in the optical near-field of a nano-sized metallic aperture, which draws more attention for optical storage systems. In order to keep adequate throughput within a sub-wavelength spot, re-forming aperture shapes has been proposed to allow a high power throughput without expanding the spot size. Single-ridged (C-shaped), double-ridged (H-shaped), bow-tie shaped aperture, or single silt have been claimed. The proposed structures have a common characteristic, i.e., a ridge, or say, a slit. By the waveguide theory, the ridge width of aperture forms an essential parameter of the cut-off wavelength to excite the fundamental propagating mode. Meanwhile, when the size of aperture continuously shrinks, the propagation mode no longer exists. Under the frame of dimensions much smaller than incident wavelengths, the depth of ridge plays a dominant role in the mechanism of surface plasmon polariton (SPP).

In this study, a numerical analysis based on 3D FDTD (finite difference in time domain) method was carried out to compare the power throughput and the spot of two different configurations: single slit and C-aperture, respectively. Furthermore, we proposed a brand new structure of aperture which adopted both advantages of slit and C-aperture. The composite structure has shown higher power throughput and smaller spot size compared with the C-shaped and slit- aperture, respectively.

For near-field recording, the distance between the slider and optical disk surface, i.e. the flying height must maintain stable. As a flying height actuator, a piezoelectric bender is used to implement the flying height control in near-field optical disk drives. Firstly, this study designs a flying pickup head including a piezoelectric bender to complement VCM to control both focusing and track-seeking/track-following motions simultaneously. The pickup head structure differs from traditional CD-ROM and DVD-ROM pickup heads. Secondly, the pickup head is very close to an optical disk whose surface contains numerous grooves. Thus the dynamics between the optical disk and the pickup head must be investigated. Different from laser Doppler interferometers, an optical lever method using two quadrant photodetectors is developed to measure the flying height variation of a pickup head above a rotating disk. Finally, the adaptive inverse control and PID control are used to implement the focusing and track-following respectively. Coupling between the focusing and track-following is incorporated in derivation and computer simulation.

SUB-III :

This sub-project is to develop the new micro/nano optoelectronic systems and related elements and devices. The core technologies include: (1) system integration technology; (2) key nano/micro-optical elements and devices; (3) advanced package technology. These are the keys to the next generation of nano/micro optoelectronic system. In the high-data rate and high-speed (> 40 Gb/s and 30 GHz applications) photonics and electronics, we (including 5 professors from EE department) have developed and demonstrated the high-speed electronics (pHEMTs, HBTs, SETs and circuits) and photonics (photo-diodes, QD laser, and PD-TIA). Most of the achievements have been accepted and published on IEEE major journals and IEDM, OFC conferences.In addition, we (4 professors from IOS) have developed several nano-optical elements including subwavelength grating and photonic crystal structures. The subwavelength structures are applying to optical filter with flexible properties and can be used in optical communication (bandwidth>20nm for 1550nm and extinction ration over 40dB between 1310nm and 1550nm). They are also used to be a high-sensitivity biosensor to detect the reaction of DNA hybridization. The photonic crystal structures developed include: (1) photonic crystal lens; (2) photonic crystal couplers; (3) modulators; (4) isolators. With these photonic crystal components and techniques, the bi-directional optical fiber communication system will be the carrier of the research to develop the photonic crystal waveguide engineering technology. Most of the achievements about nano optical elements have been accepted and published on IEEE, OSA related journals and SPIE conferences. The objectives are continuing to pursue the novel electronics/photonics and thus integration of both for ultra-high speed optical and wireless communication applications using the well established MOE Lab in phase I.

SUB-IV:

The main objective of this subproject (i.e., Subproject 4: Optical Probing, Manipulation, and Sensing of Biosystem at the Nano-scale) is to establish a series of biophotonic experimental platforms for the study of a wide range of biomedical problems at the nano-scale, and to pursue some selected research problems (focusing on cellular and biomolecular dynamics) in the frontiers of biophotonics (and nano-biophotonics) via local and international collaborations.

In the establishment of the biophotonics experimental platforms, the key achievements during this reporting period are the addition of a 1-dimensional acoustic optics modulator (AOM) in one of optical manipulation platforms for the applications of oscillatory optical tweezers to DNA mechanics, cellular mechanics, and protein-protein interaction. A 2-dimensional AOM has also been ordered and will be incorporated into our system in the near future.

In the promotion of biophotonics R&D and related infrastructure via international and local collaboration, the 9th International Conference on Optics Within Life Sciences (OWLS9), held at NYMU from 11/26/2006 through 11/29/2006 was attended by more than 60 foreign participants and about 200 local participants. In addition to the three plenary lectures by Prof. Jim Fujimoto (MIT, a pioneer in Optical Coherence Tomography), Prof. Briton Chance, U. Penn, (the Father of Biophotonics), and Prof. P. N. Prasad, (Chair Professor, SUNY, USA; a pioneer in nano-biophotonics), about 30 invited papers were presented by pioneers in Biophotonics from all over the world, including 10 from Taiwan. The conference was a great success, and the high technical quality of the papers was unanimously praised by all the participants.

Since the budget for subproject IV (~ NT$2.2M per year) is relative low, we have used this

limited amount of budget to leverage on the biophotonics core facility and the current strength of several biophotonics research programs at NYMU by expanding the functional capability of our existing biophotonics platforms and by supporting several graduate students working under the guidance of the PI and the Co-PIs, as well as to partially support the conference activities described above.

2. Breakthroughs and Major Achievements

Utilizing a custom-made liquid crystal spatial light modulator (LC-SLM) designed by fabricated by Profs. Ru-Pin Pan and Ci-Ling Pan's group, Prof. Andy H. Kung and co-workers successfully synthesized periodic waveforms consiting of a train of pulses that are 0.83 cycles long and have an electric field pulse width of 0. 44 fs (1 fs = 10^{-15} sec) using 7 Raman sidebands generated by molecular modulation in H_2. [Phys. Rev. Lett. 100:163906, 2008, selected by Virtual J. Ultrafast Sciences, may 2008]. We verify by optical cross-correlation that the carrier-envelope phase or CEP is constant in these waveforms when they are synthesized from commensurate sidebands. The estimated overall shift of the CEP phase is less than 0.18 cycles from the first to the last pulse of nearly 10^6 pulses in the pulse train. The current approach is unique in that the central frequency of the pulse lies in the visible and UV region and the peak power generated is already as high as 1 MW.

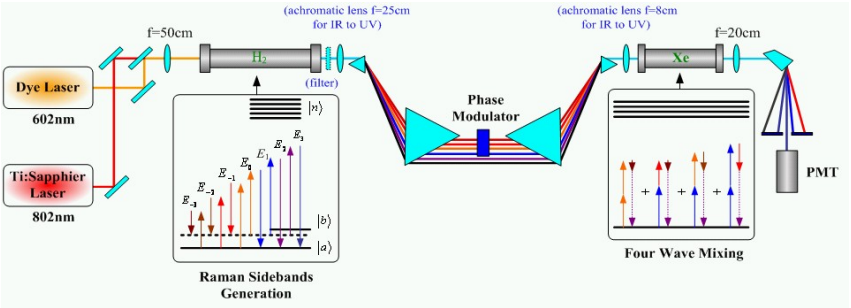
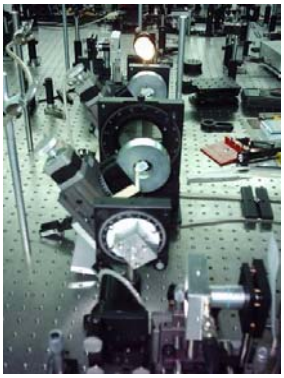
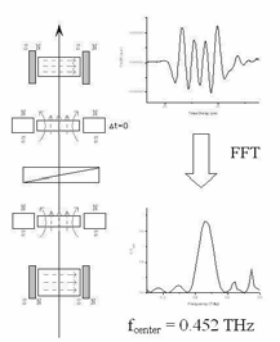


Fig. 1 Experimental setup for generating and diagnostics of sub-single-cycle optical pulses.

We have developed a novel low-temperature process, femtosecond laser annealing, or FLA), for recrystallization of amorphous silicon, or a-Si into poly silicon[reported at CLEO2003 as a news story; APL **85**(7):1232, 2004, *selected by the Virtual Journal of Ultrafast Science, September 2004*, ROC patent I245321]. FLA can also been used for Shallow junction activation, a new tool for dopant profile engineering [APL **88**:1311104, 2006, selected by V*irtual J. of Nanoscale Sci. and Technol.,* and *Virtual J. of Ultrafast Sci.*]. Using FLA-process poly-Si, we show that thin film transitors (TFTs') with excellent characteristics can be fabricated [*Opt. Exp.*, **15**: 6981, 2007, selected by *Virtual J. of Ultrafast Sci.*].

The group of Profs. Ru-Pin Pan and Ci-Ling Pan has pioneered the field of liquid crystal THz Photonics. Numerous THz photonics elements with liquid-crystal-enabled functionalities were demonstrated. For example, a THz Lyot filter can be tuned from 0.388 to 0.564 THz (a fractional tuning range of 40%）using magnetic field controlled birefringence. [APL 88:101107, March 6, 2006, highlighted by SPIE News Room http://spie.org/x14608.xml]. We have also demonstrated electrically controlled liquid crystal THz wave plate[OL 31(8):1112, April 15, 2006, collected by the Virtual Journal of THz Science and Technology and Virtual Journal of Biomedical Optics] and phase shifter [IEEE PTL 18(14): 1488, July 15, 2006]. The phase shift at 1 THz exceeds 360°. To date, this is the only room-temperature, electrically controllable THz shifter capable of phase shift exceeding 2π. It is important milestone for phase shifter, indicating potential applications of liquid-crystal-based THz phase shifters for sub-millimeter wave phase-arrayed radars.





(a) **(b)**

Fig. 2 (a) Configuration of THz Lyot filter; (b) Working principle of the liquid-crystal-based THz Lyot filter.

The world's first current injection GaN-based blue vertical cavity surface emitting laser (VCSEL) was successfully demonstrated by the research team led by Prof. S. C. Wang, H. C. Kuo, and T. C. Lu. The results were highlighted by Compound Semiconductor and Laser Focus Worlds magazines as breaking news. The VCSEL grown by MOCVD has a hybrid DBR microcavity consisting of high reflectivity AlN/GaN DBR and Ta_2O_5/SiO_2 DBRs and a 10-pair InGaN/GaN multiple quantum well active layer. The successful demonstration of CW lasing relies on the superlattice technique to obtain a high reflectivity DBR as well as the implement of ITO to uniformly spread the current within the emission aperture. Since GaN VCSEL can emit a single mode with a circular symmetry beam and a small beam divergence that are more superior to the edge emitting lasers, it is desirable for many practical applications in high density optical storage, laser printing, etc. This result was published in Appl. Phys. Lett. 92, 141102 (2008) and was soon ranked number one most downloaded paper on APL website. In addition, this paper was highlighted in CLEO 2008 as hot topics.

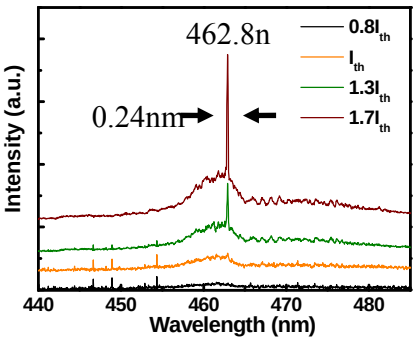


Fig. 3(a) The laser emission spectrum at different injection current levels measured at 77K. The laser wavelength is 462.8 nm with a FWHM of 0.24 nm.

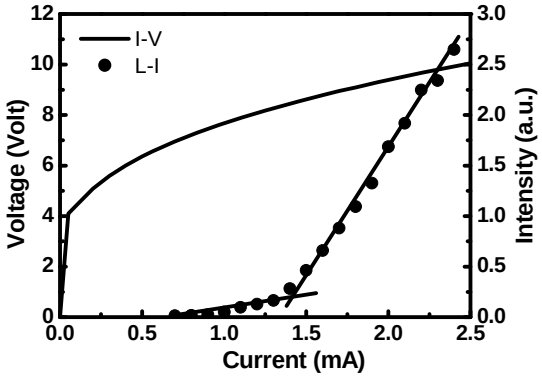


Fig. 3(b) The light output intensity versus injection current and current-voltage characteristics of GaN VCSEL measured under the CW condition at 77K.

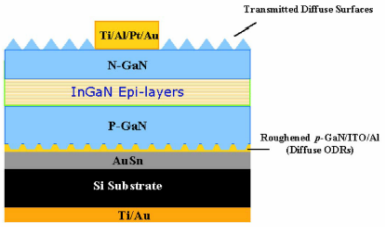


Fig. 3(c) High brightness GaN-based LED with two roughened surfaces.

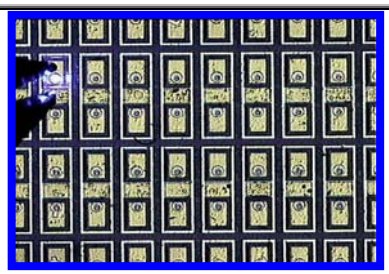
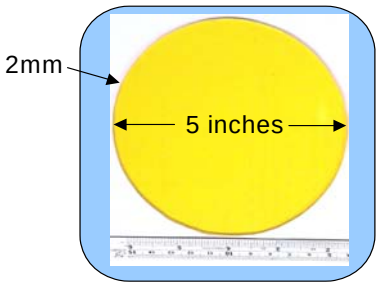


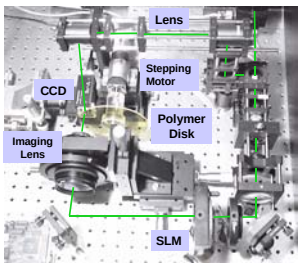
Fig. 3(d) Microcavity GaN-based LED with a density of 1480 pcs/cm^2.

On the other hand, our research team has demonstrated a high brightness GaN-basedLED with two roughened surfaces showing external quantum efficiency as high as 40%, which is three times higher than conventional LEDs. By applying the photonic crystal structure in LED, the emission efficiency can be further increased and the emission pattern can also be modified. Since the next generation of lighting will evolve to be adopting compact and efficient solid state devices, these techniques could have great potential in developing energy saving solid state lighting devices. We have transferred parts of the key technology to Epistar, Taiwan's largest LED manufacture. Other industrial cooperation includes Lite-on, Sino-American, and Mcom, etc.

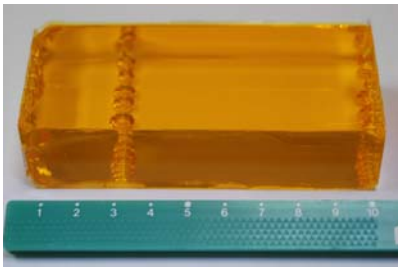
Tera-byte data storage technology is also one of the focus topics of this project. The research team is lead by Prof. Ken Y. Hsu and Prof. Shiuan-Huei Lin of NCTU. They have developed a series of dye doped-PMMA (phenanthrenequinone doped poly(methyl methacrylate or PQ:PMMA) photopolymer materials. A novel technique for fabricating photopolymer bulk has been developed. The photopolymer shrinkage coefficient is smaller than10^{-5}. This is about two orders of magnitude smaller than conventional photopolymers. A holographic disk with 5-in diameter and thickness of 2 mm has been fabricated. With the disk, they have constructed a holographic storage system. The data storage density was estimated to be 190 bits/μm^2, and the disk capacity is estimated to be 150 GB. The material sensitivity can support data recording rate of 117Mb/sec. These characteristics are about an order of magnitude superior to that of DVD. The technique for fabricating PQ:PMMA has been transferred to the CMC Company, a giant disk manufacturer in Taiwan, for further development。

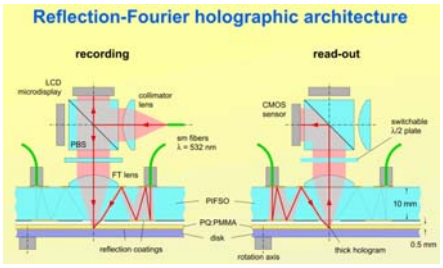


(a)



(b)





(c) **(d)**

Fig. 4 (a) Holographic disk；(b) Holographic data storage experiment setup；(c) Photopolymer bulk；(d) A new design of Holographic read/write head (collaborate with Fern University of Germany)。

Dr. Jian-Shung Fan, a former Ph D student supervised by Prof. Ken Y. Hsu, visited Duke University for an academic exchange. With the idea of computational imaging and a specially designed space-sampling windows integrated with a Fresnel lens array and discrete pyroelectric thermal detectors, they have developed a novel bio-sensing system that can identify walking persons in real-time. The achievement has been published in Optics Express and reported in SPIE Newsroom (http://spie.org/x8421.xml)。

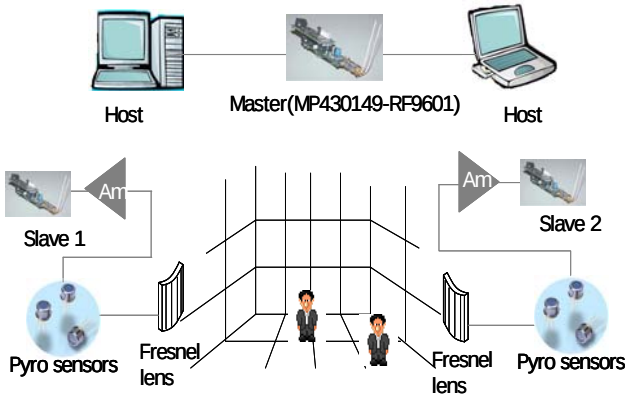


Fig. 5 A bio-sensing system for identification of walking persons

In the research area of optical communication and fiber optics, the group lead by Prof. Y. Lai and J. Chen have reported a bi-directional fiber transmission system that utilizes unique 4-port DWDM interleavers to reduce the crosstalk noises caused by bi-directional optical amplifiers. They have performed transmission experiments under a fiber circulating loop and demonstrated that the transmission distance can be longer than 500km at the 10Gb/s per channel transmission rate. Such results should be helpful for developing practical bi-directional fiber transmission systems. By cooperating with the device group and the ITRI, the group has also developed tunable slow light devices based on the quantum dot VSCEL devices The slow light devices can achieve 42ps time delay at 10GHz, with a delay-bandwidth 0.42, which is the largest one among the reported slow light devices based on semiconductor lasers.

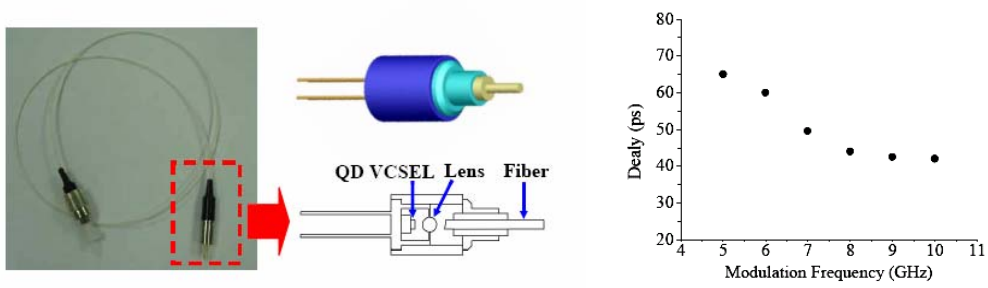


Figure 6：QD VCSEL slow light devices and the time delay measurement

Such slow light devices should have the great potential to be used as the tunable optical delay line for future optical communication systems and optical signal processing applications.

The group has also developed a new 10Gb/s all-optical 2R regeneration module based on a self-seeded FP-LD with an embedded fiber Bragg grating, several self-healing fiber/wireless network architectures, several new fiber lasers, fiber amplifiers, and fiber grating devices. In particular, for the hybrid fiber/wireless networking techniques, we have reported a novel 20GHz dual-service Radio-over-Fiber (ROF) system which employs a unique signal generation scheme. We have also explored the 60GHz ROF signal generation by using the frequency doubling/quadrupling techniques, which enables us to generate complicated modulation formats (DPSK, QAM, ..) at 60GHz or even higher frequencies.

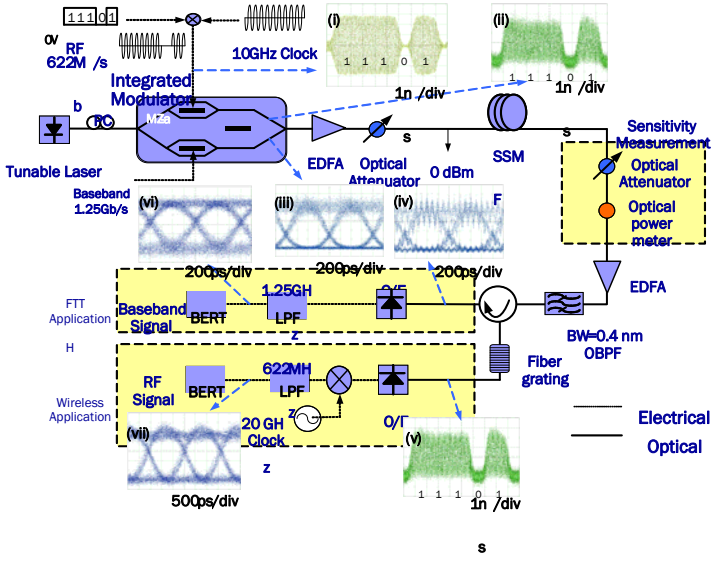


Figure 7：New20GHz dual-service Radio-over-Fiber system.

The subproject coordinated by Professors Chang and Chan has achieved pronounced results. Among the excellent results, Professor Hsin's group has demonstrated the world-record high data rate Si CMOS photodiode (Fig. 8). Prof. Shi's ultra-high spedd optoelectronics including tera-herz photodetector and ultra-wide-band LED (Fig. 9). The nano-structured photonic micro-chip, as shown in figure 10, was combined with tranditional waveguide、photonic crystal waveguide、photonc crystal DWDM, and photo-detector on a single chip. This chip, with workong wavelength 1.55μm and 20GHz operating speed, was designed by Prof. Chen, and fabricated by using with photo lithography and e-beam lithography. It could be used as a photonic micro-chip for high speed computing.

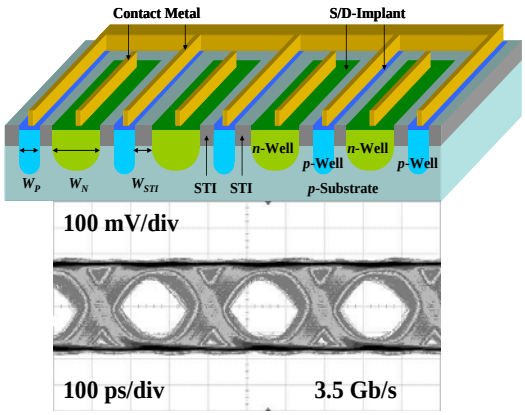


Figure 8：A Si photodiode by standard CMOS process

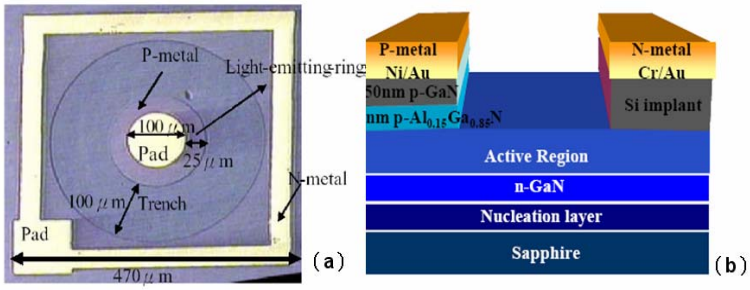


Figure 9： Ultra-wideband (~580nm) White-liht LED

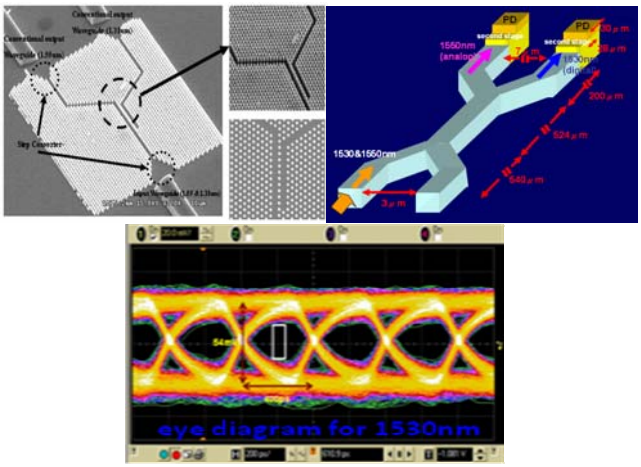


Figure 10：Nano structured photonic micro-chip

At the National Yang-Ming University (NYMU), the Biophotonics Research and Development Team led by Prof. Arthur Chiou have developed several optical manipulation platforms to probe a wide variety of biomolecular interactions including: lectin-glycoprotein interaction at the cellular membrane of a Chinese hamster ovary cell, lipopolysaccharide membrane receptors with those on macrophages pretreated with extract of Reishi polysaccharides, Hu - Lon proteins interactions, and RecA protein – DNA interactions. Other major accomplishments include: the measurements of the stepped changes of monovalent ligand-binding force during ligand-induced clustering of integrin αIIBβ3, and calcium oscillation and phosphatidylinositol 3-kinase positively- regulate integrin αIIbβ3-mediated outside-in signaling by Prof. Chi-Hung Lin. The mechanisms involving lipid microdomains which are difficult or impossible to detect by biochemical approached have been studied by advanced optical techniques such as FLIM-FRET (developed by Prof. Fu-Jen Kao).

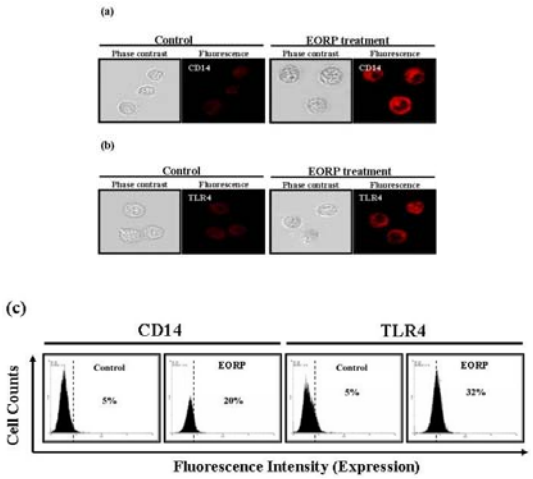


Fig. 11. The enhancement of surface expression of CD14 and TLR4 on the cellular membrane of macrophage after EORP treatment; (a) CD14 expression analyzed by confocal microscopy; (b) TLR4 expression analyzed by confocal microscopy; (c) CD14 and TLR4 expression analyzed by flow cytometry. The values represent the percentage of cells with fluorescence intensity (of CD14 or TLR4 expression) higher than the reference fluorescence intensity (indicated by the dotted line). These data are representative of three independent experiments.

For details, please refer to the reports of each sub-projects.

Listed in the following is a comparison of publication numbers of the major journals of photonic research with the top 5 universities of Asia and outstanding Universities in USA. It can be seen that the performance of the team (NCTU+NCU) is comparable with those top rank universities either in Asia or in USA.

			Top 5 Universities in Asia				
Code	**Title**	**NCTU+NCU**	**Tokyo Univ**	**Kyoto Univ**	**Australian Natl Univ**	**Osaka Univ**	**Tohoku Univ**
1	**OPT LETT**	**59**	**35**	**13**	**44**	**23**	**38**
2	**J OPT SOC AM B**	**4**	**17**	**4**	**11**	**7**	**6**
3	**OPT EXPRESS**	**111**	**52**	**28**	**78**	**60**	**13**
4	**J LIGHTWAVE**	**24**	**19**	**6**	**3**	**23**	**6**
5	**IEEE PHOTONIC TECH L**	**104**	**48**	**2**	**6**	**24**	**21**
6	**IEEE J SEL TOP QUANT**	**8**	**12**	**2**	**3**	**15**	**4**
7	**APPL PHYS B-LASERS O**	**14**	**19**	**10**	**12**	**9**	**0**
8	**J OPT SOC AM A**	**8**	**2**	**0**	**6**	**2**	**4**
9	**APPL OPTICS**	**60**	**19**	**6**	**11**	**20**	**17**
	小　　計	**392**	**223**	**71**	**174**	**183**	**109**
10	**J OPT B-QUANTUM S O**	**2**	**3**	**0**	**9**	**2**	**2**
11	**OPT COMMUN**	**57**	**19**	**7**	**10**	**13**	**11**
12	**J MOD OPTIC**	**2**	**2**	**2**	**5**	**0**	**2**
	總　　計	**453**	**247**	**80**	**198**	**198**	**124**

			USA				
Code	Title	NCTU+NCU	Stanford Univ	UC Berkeley	MIT	Cornell Univ	UCLA
1	OPT LETT	59	83	24	111	35	4
2	J OPT SOC AM B	4	12	6	12	11	2
3	OPT EXPRESS	111	54	35	102	55	19
4	J LIGHTWAVE	24	53	9	22	10	14
5	IEEE PHOTONIC TECH L	104	31	20	31	12	15
6	IEEE J SEL TOP QUANT	8	24	9	16	7	13
7	APPL PHYS B-LASERS	14	21	8	3	3	3
8	J OPT SOC AM A	8	9	11	14	6	6
9	APPL OPTICS	60	20	16	34	8	15
	小　　計	392	307	138	345	147	91
10	J OPT B-QUANTUM S O	2	1	0	10	4	2
11	OPT COMMUN	57	5	0	9	0	0
12	J MOD OPTIC	2	2	8	2	1	0
	總　　計	453	315	146	366	152	93

3. Categorized Summary of Research Outcomes. The criteria for top conferences and journals should be given and introduced briefly in the beginning of this section. In each research area, please give a brief summary on the research outcomes associated with the area. Note that the summaries should be consistent with the statistics given in Form3. Please list and number each research outcomes in sorted order in Appendix II, and list all the publications in top conferences and journals in Appendix III.

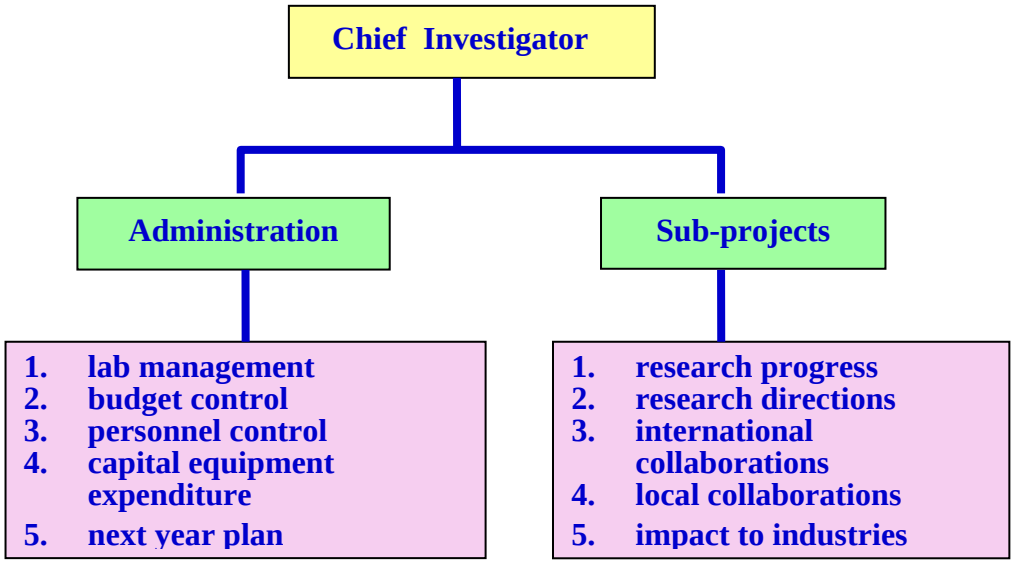
Please refer to the reports of each sub-projects.

4. PROGRAM MANAGEMENT:

In addition to monthly technical meetings held for each of the subprojects, the operation of the research groups and the progress of the programs will be reviewed in a regular basis. Proposals for new research directions, programs and management adjustment will also be reviewed from time to time.

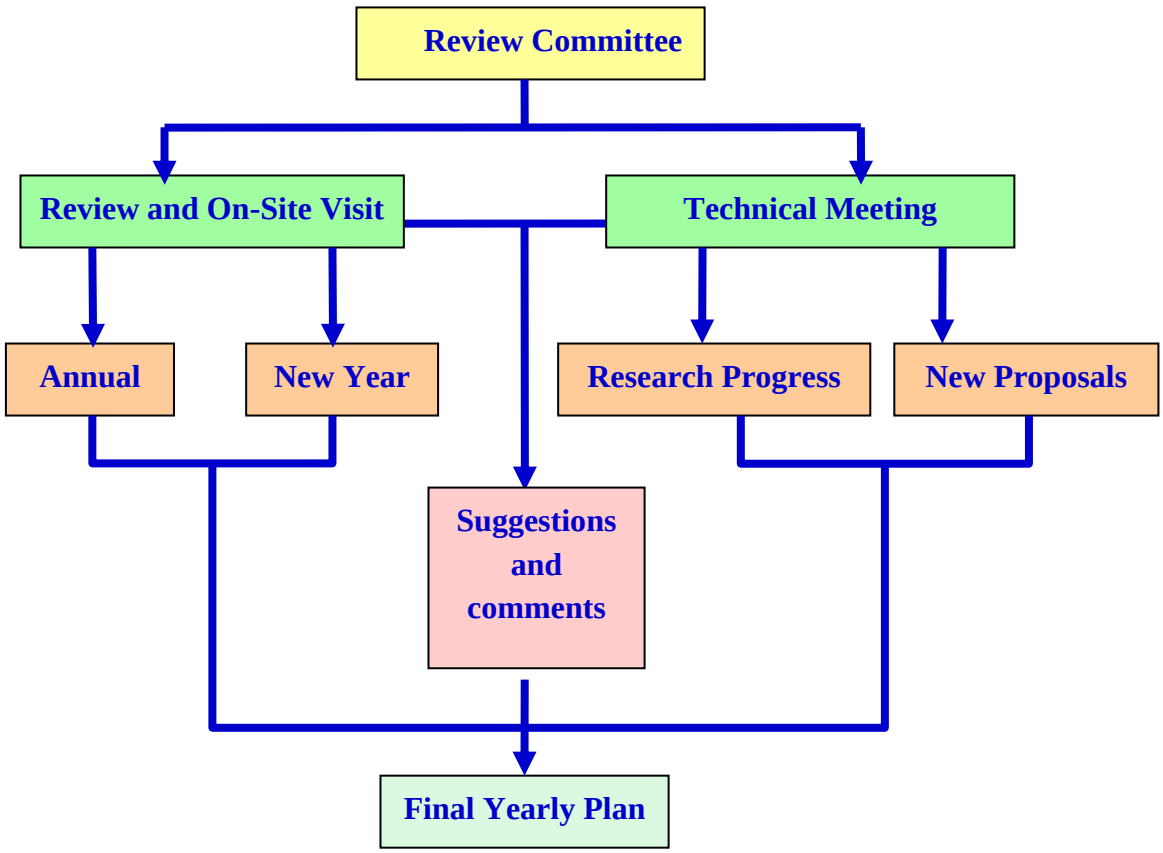
A review committee consisting of members from the technical advisors and principal investigators will be formed to conduct the yearly review. The review will consist of two parts: the administration and the research sub-projects. The function of the program review is shown in Figure 1. For the administration operation, the lab management, budget control, personnel control, and capital equipment expenditure will be reviewed. The chief investigator and the principal investigator will prepare an annual report with detailed descriptions of the main and sub-projects research for the review meeting. The executive PI will also submit the next year plan for the PI to review. The review meeting committee will put the suggestions and comments in writing and send it back to the PI. The PI will then prepare the revised plan for final review and approval. The whole review committee process should be conducted and finished within a month before the start of each fiscal year.

The monitoring of the administration operation and the sub-projects will be conducted by the review committee, also consists of members from technical advisors from inside or outside of university. The members of the review committee will call meeting at least twice a year. The mission of the review committee, besides monitoring, is to help the chief investigators in project management and fine tuning the research directions.



The progress of the research programs will be reviewed yearly by the review committee. The principal investigator of each sub-project will prepare a progress report with detailed description on the achievement and progress attained. The review of the research projects will be based on (1) scientific significance, (2) technological impact, (3) qualification of the research members.

The review process is shown in the flow chart of Figure 2. It consists of (1) review of the reports, on-site visit, and (2) review meetings including technical presentations by the PIs. The suggestions, comments and any decisions on the research projects from the review committee will be compiled and given to the chief investigator to formulate the final yearly plan.


Review Committee
Review and On-Site Visit
Technical Meeting
Annual
New Year
Research Progress
New Proposals
Suggestions and comments
Final Yearly Plan

5. A Summary of the Post-Project Plan (If there are any plan or budget adjustment for FY 2009, please provide detailed description and association with the project in Appendix I)

Sub-I:

THz communication is one of the holy grails for researchers in THz science and technology. While tremendous progress has been made in THz sensing and imaging, novel concepts and devices are needed for making such services commercially viable. Recently we have made significant advances in both areas, e.g., the demonstration of directly modulated THz audio and burst communication link and integrated THz biosensing chip. At the same time, we note that commercialization of 60 GHz Radio-over-fiber technology has caught the attention of global leaders in high-tech industries. In this project, we propose to leverage expertise of leading Taiwanese groups in THz science and technology, optoelectronics and optical fiber communication to demonstrate certain milestones of multi-service THz Radio-over-fiber communication and sensing network for future ultra-broadband media, data and biomedical applications. These include:

1. Demonstration of efficient sub-THz (100- to 500 GHz) photonic THz transmitter and receiver.
2. Demonstration of data encoding on THz signals in the 10s of Mb/s range
3. Design and development of GaN-based room-temperature GaN-based Quantum Cascade Lasers for THz communication and sensing.
4. Conception demonstration of low-cost 60GHz radio-over-fiber communication system.
5. Development of fiber-compatible integrated THz biosensing biochips.

Realizing these tasks should catch eyes and ears of the world and help the local electronic, optoelectronic and wireless communication industries leapfrog over international competitors. This holds the future of a new multi-billion vertically integrated high-tech industry. The proposal submitted to Foresight Taiwan was unfortunately not approved. Nonetheless, we will push ahead with the idea. The first phase of this work will be supported by the Academic Top University Program of NCTU. It involves key PIs of SP-I and SP-II of the current PPAEU-II project, e.g., Profs. Ci-Ling Pan, Yin-Chieh Lai and Hao-Chung Kuo. Prof. Pan has also submitted a personal proposal, entitled "towards THz communication technologies (I)," to the NSC.

In collaboration with Prof. C. T. Lee (NCKU), several of us (Profs. Jung Y. Huang, Ci-Ling Pan, Hao-Chung Kuo, and Dr. Jia-Min Shieh) have submitted a proposal to the National Nanoscience Program, entitled, "Photovoltaic technology with self-assembled nanostructures of silicon quantum-dots in mesoporous silica". As outlined above, enhanced UV-to-NIR photoresponse has been reported for a photodiode with dense silicon quantum-dots embedded in MS. Phototransistor-like operation due to enhanced exciton resonant tunneling and injection was observed. We thus propose a related solar cell structure made of a superlattice of silicon quantum dots with gradually varying sizes inserted between p- and n-type tailored mesoporous materials. To enhance the PV efficiency, various approaches involving cost-effective methods for transmission enhancement of solar energy will be investigated. For example, a double-layer anti-reflective structure consisting of a dielectric film and a mesoporous layer of low refractive index will render the front surface of the device more effective in capturing photons. Preliminary results confirm the validity of this approach. Further, Indium-Tin Oxide (ITO) nanostructures not only offer broad

angular and spectral anti-reflective characteristics, but also improve the electric properties of the cell, reducing the screen ratio of metal contacts. Works are ongoing at NCTU and laboratories of our collaborator, Prof. Shawn Y. Lin of RPI. Moreover, surface plasmonic effects using periodic and random metal nano-particles can be designed to enhance the transmission in the vicinity of bandgap energy. A recent report in Science magazine suggests that silicon nano-pillar structures can significantly alter the thermoelectric properties of bulk material. Hence, we will explore nanostructures with a high thermoelectric coefficient in order to harvest the waste heat from p-n junctions. In addition, a surface plasmonic coupling layer or even an optical antenna structure can be employed to offer free-space-to-device photon-capturing functionality without coupling loss. Finally, a wavelength up-conversion layer can be realized with appropriate nanocrystals embedded in MS to convert solar radiation from near IR to the visible region, promising efficient use of photons over the entire range of AM1 solar spectrum.

SUB-II :

A. Next generation optical communication technologies

I. Novel Optical Transmission & Processing :

We will continue to investigate the new modulation format techniques for achieving high transmission efficiency and/or high networking efficiency. The established fiber circulating loop testbed will be continuingly upgraded to serve as the platform for experimentally verifying the newly developed idea and techniques. System applications of the new newly developed tunable slow light devices based on quantum dot VCSELs will be investigated. Possible applications of the new modulation format techniques to hybrid (baseband digital+radio) optical transmission and quantum key distribution systems will continue to be investigated.

II. Novel Optical Networking Architectures & Technologies :

We will intensively develop the hybrid wireless/fiber access networking systems based on our unique frequency multiplication schemes. In particular, the 60GHz wireless systems have been intensively investigated by the researchers from the wireless side. We are hoping that our optical schemes can contribute to real advances by cooperating with these electronics techniques.

III. Novel Fiber Devices and Laser Sources :

Advanced design and fabrication techniques of all-fiber devices will be continuingly investigated. Existing platforms for fiber grating exposure, fiber side-polishing, fiber fusion tapering, …, will be continuously upgraded for fabricating new fiber devices. The performance of the modelocked fiber soliton laser will be further studied and improved. Possible applications of modelocked fiber lasers on classical/quantum communication will be investigated.

IV. Novel Theories & Applications :

Quantum theory of soliton entanglement generation will be developed further to take into account the possible applications on quantum communication and quantum information. Different types of optical soliton phenomena will be investigated to explore new possibilities for classical/quantum communication applications.

B. Next generation optical storage technologies

In the next phase, we will setup an experimental bench to study the surface plasmon polariton (SPP) effects and to ensure the interaction between the incident optical waves and the nanostructure

in the near-field optical region. In addition, fluid dynamic analyses in flying will be further carried out to investigate what geometry of sliders with optical fiber and waveguide is optimal when considering dust removal, since the dust between solid immersion lens and disks may cause friction and damage to the lens. Finally, MEMS-based devices combining solid immersion lens and nanoapertures will continue to be investigated.

SUB-IV :

This 4-year project officially ended by the end of March 2008. Although the budget allocated for Subject Project #4 is definitely way below (by almost an order of magnitude) the critical value needed to bring our biophotonics research and development program to become competitive internationally, we have used the budget from this program along with those from other related programs as the seed to bring in more funding to reach the critical mass to work synergistically on various complimentary research programs in biophotonics. Recently, we have received some additional funding from NYMU through the Ministration of Education Top University Program. Funding from these complementary programs is expected to synergistically scale up our biophotonics R&D capability to become one of the leaders in Asia.

6. International Cooperation Activities (Optional)

SUB-I :

Prof. Pan and other faculty of NCTU have successfully initiated the joint Ph.D. program in Photonics between NCTU and University of Maryland, Baltimore County. A joint M.S. and Engineer degree program between NCTU and University of Paris XI in photonics (Optronics) have also been signed.

Following is a partial list of activities:

1. Industrial Research Limted (IRL), Auckland, New Zealand
   IRL is an independent research organization sponsored mainly by the government of New Zealand. Its mission is similar to that of ITRI. The topic is THz acouostic spectroscopy. The objective of this program is to conduct research on a novel THz-acoustic spectroscopy technique that extends conventional 2D THz spectroscopy beyond the surface boundary. The ultimate goal is to create a 3D material composition image by capturing the spectroscopic information of objects embedded inside a complex medium. Dr. K. L. Chan of IRL visited NCTU for 10 days in December 2006 and conduct preliminary experiments in our laboratories. Inititial results are promising. A joint proposal has been submitted to New Zealand authorities.
2. Osaka University
   Profs. Ci-Ling Pan and Ru-Pin Pan has initiated collaboration with Profs. Hangyo and Tani of the Institute of Laser Engineering on a variety of subjects, include broadband THz antennas, THz photonic crystals and THz emission studies of ferroelectric liquid crystals. A Ph.D. student, Mr. Cho-Fan Hsieh will spend a year at Osaka University to conduct research starting in July 2008.
3. Ph.D. students were accepted to conduct research up to a year at esteemed institutions such as UC Berkeley, Georgia Tech, RPI, and University of Maryland.
4. Chinese University Hong Kong
   Mr. K. C. Chen, a Ph.D. student of CUHK, visited the lab of Prof. Ci-Ling Pan for about a month and conducted joint experiment. A conference paper resulted from this visit. The first topic is CW THz generation using oxygen-implanted GaAs. Later on, Prof. Pan took his sabbatical leave at CUHK and initiated collaboration activities.
5. Institute of Radio Engineering an Electronics, Russian Academy of Science
   The groups of Profs. Ru-Pin Chan Pan and Ci-Ling Pan are collaborating with the group of Prof. Dr. V. Meriakri and his collaborators. The general aim of this project is to pursue the dielectric properties of a homologous serious of nematic liquid crystals in the millimeter and sub-millimeter (THz) wavelength range. NCTU is responsible for studies in the sub-millimeter wavelength range, while the Russian team is responsible for similar studies in the longer wavelengths (microwave and millimeter wave).
6. IFIPS Optronique, Université Paris XI
   Prof. Ci-Ling Pan hosted three French intern students, Sébastien Avila, Génel Farcy, and Arnaud Lacronix, from the Institut de Formation d/Ingenierus, Universite Paris-Sud XI. They stayed for five months and each finished a term project.

7. Many international scholars visit our team and the scholar exchange have been very useful. These include Profs. K. T. Chan (CUHK), Tsing Hua Her (UNC), Chi H. Lee (Maryland), and Hideo Takezoe (Tokyo Inst. Of Technol.).
8. Our GaN nanophotonics group has been collaborating with Professor Yamamoto of Stanford University during past several years, and will collaborate on the microcavity QD GaN-based VCSEL device development and controlled photon emission experiment. We believe a room temperature operating GaN-based mesoscopic GaN quantum confined structures with controllable photon emission can be realized under this project.

Prof. S. C. Wang visited TIT Prof. K. Iga for collaboration of GaN materials
Prof. C.L. Lin form CUHK (Hong Kong) visit us for discussion on QDs Laser
Prof. S. L. Chuang from UIUC for QD VCSEL slow light
Prof. M. Feng from UIUC for LW – Photo detector and Transistor Laser
Prof. Connie Chang from UC Berkley – injection locking on VCSEL
Prof. H.C. Kuo visited Hong Kong University of Science and Technology for collaboration of GaN nanotechnology

Prof. S.C. Wang, H.C. Kuo and T. C. Lu visited Professor Yamamoto of Stanford Jan. 2006 during Photonics West 2006 (San Jose) to discuss collaboration of GaN based nanostructures in high Q micro-cavity.

SUB-II :

Optical Communication:

- Prof. J. Chen cooperated with Prof. Y.R. (Ray) Chen in the Department of Electrical Engineering at University of Maryland Baltimore County (UMBC) on the development of PLC OADM module.
- Prof. J. Chen and Prof. S. Chi cooperated with Prof. G.K. Chang in the Department of Electrical Engineering at Georgia Institute of Technology (GIT) on the development of bi-directional fiber transmission and other new optical transmission/networking techniques.

Optical Storage:

- Prof. C. H. Tien cooperated with Prof. Ed. Schlesinger in the Department of Electrical Engineering at Carnegie Mellon University on the demonstration of the proposed dual fiber-based near-field optical head in the spin stand.

- Prof. W. Hsu cooperated with the Laser Micromachining group at Canada NRC Integrated Manufacture Technology Institute on the development of the micro actuators.

SUB-III :

1. Prof. C. C. Chen (陳啟昌) is invited by Friedrich-Schiller-Universität Jena(Germany) as a visiting reseracher (June-Sep 2005) (support by NSC) to photonic crystal waveguides.
2. Prof. C. C. Chen (陳啟昌) is invited by Université Paris 13 (France) as a visiting professor during July 2006 (support by Université Paris 13) to develop organic blue laser.
3. S. S. Lo (羅仕守), post-doctoral fellow of Prof. Chii-Chang Chen (陳啟昌, NCU), received the grant from NSC (PPP 計畫) as a visiting researcher in Friedrich-Schiller-Universitaet Jena (Germany) to study the novel solar cell structures using photonic crstyal. (2006/3-2006/6). The result from this collaboration has been accepted to be published in J. Phys. D.
4. Dual-diploma program(國際合作雙學位): F. L. Hsiao (蕭輔力), Ph. D. student of Prof. Chii-Chang Chen (陳啟昌, NCU) received the scholarships from National Science Council and France Scholarship for dual-diploma program with Université de Franche-Comté(國科會菁英留學獎學金與法國政府獎學金). The two results about phononic crystals have been poblished in J. Appl. Phys. and Physical Review E.
5. Friedrich-Schiller-Universitaet Jena (Germany) send a diploma student (Reinhard Geiss) to National Central University on 8 Jan 2007 for 2 months, under the group of Prof. Chii-Chang Chen (陳啟昌, NCU), to study the photonic crsytal $LiNbO_3$ laser.
6. Prof. C. C. Chen (陳啟昌) is invited by Université Paris 13 (France) as a visiting professor during July 2007 (support by Université Paris 13) to develop organic blue laser.
7. Prof. C. C. Chen (陳啟昌) is invited by Friedrich-Schiller-Universitaet Jena(Germany) as a visiting reseracher (Aug. 2007) (support by NSC) to study photonic crystal waveguides.
8. Friedrich-Schiller-Universitaet Jena (Germany) send two diploma students (Matthias Schneemann and Anna Heidt) to National Central University on 1 Jan 2008 for 2 months, under the group of Prof. Chii-Chang Chen (陳啟昌, NCU), to study the photonic crsytal solar cells.

SUB-IV :

1. The 9th International Conference on Optics Within Life Sciences (OWLS9), held at NYMU from 11/26/2006 through 11/29/2006 was attended by more than 60 foreign participants and about 200 local participants. In addition to the three plenary lectures by Prof. Jim Fujimoto (MIT, a pioneer in Optical Coherence Tomography), Prof. Briton Chance, (U. Penn, the Father of Biophotonics), and Prof. P. N. Prasad, (Chair Professor, SUNY, USA; a pioneer in nano-biophotonics), about 30 invited papers were presented by pioneers in Biophotonics from all over the world, including 10 from Taiwan. The conference was a great success, and the high technical quality of the papers was unanimously praised by all the participants. Because of the tremendous success of OWLS9, we are invited to host the International Conference on Laser Applications in Life Sciences in Dec. 2008 (www.LALS2008.tw).
2. Prof. Yunlong Shen (Physics Department, Laval University, Quebec, Canada) and Paul Beriel, his graduate student visited us for 2 weeks (12/09 through 12/22 2006) and 4 weeks (11/02

through 11/30 2006), respectively, to work on the theoretical modeling of cellular morphological deformation in an optical stretcher. Two conference papers and three journal papers have been published through this collaborative project. Prof. Sheng was here visiting NYMU again from 02/18 through 03/14, 2008, to further develop the mathematical model for optical trapping and stretching.

3. Min Tzo Wei, a student from Arthur Chiou's Lab spent 3 months at Lehigh University in 2005 to work under the supervision of Prof. Danniel Ouyang, Physics Department, Lehigh University. A joint publication entitled "A comparative study of living cell micromechanical properties by oscillatory optical tweezers" has been submitted to Optics Express.
4. Our Proposal (PI: Arthur Chiou, Taiwan; and Chailakhyan Levon Mikhailovich, Head of Laboratory in the Institute of the Theoretical and Experimental Biophysics, Russian of Academy of Sciences, Russia) to NSC for a three-year Taiwan/Russian Collaborative Research Project entitled "Novel techniques for mammalian embryos reconstruction via noninvasive laser manipulation to obtain embryonic stem cells with a particular genome for the purpose of substituting cell therapy" has been funded for 10/2006 through 09/2008.
5. Arthur Chiou, the PI of Subproject IV, has been invited to the following international activities.
    a. One of the 10 invited lecturers in the Winter School of Biophotonics (02/24/2007 through 03/02/2007) to give a 3-hour lecture on Optical Trapping and Manipulation for Biomedical Applications.
    b. Member of the Editorial Board, "Handbook of Biophotonics" to be published by WILEY-VCH Verlag GmbH & Co in 2008.
    c. Member of the Editorial Board, "Journal of Biophotonics" launched by WILEY-VCH Verlag GmbH & Co in January 2008.
6. Miss Yu-Shang Huang, a graduate student from A. Chiou's lab has spent 30 days to work with Prof. Amy Sung, (Bio-Engineering department, UCSD, California) on the molecular basis of red blood cells in the summer of 2007.
7. Arthur Chiou attended The International Congress on Biophotonics (ICOB), organized by the NSF's CBST (Center of Biophotonics Science and Technology), held at the Hyatt Regency Hotel in Sacramento, California from 02/04 through 02/07 2008. The major objective of this event is to connect scientists developing biophotonics technology with end-users in the fields of biosciences and medicine in order to create a strategic road map for the future of biophotonics. He was invited to serve as a member of the International Organizing Committee during the planning of this meeting and also participate as one of the panel members in a panel discussion session on Biomedical Sensing, and a Chair of one of the writing groups on Advanced Micro-imaging.

These international activities will definitely help not only to promote the local biophotonics R&D knowledgebase, human resources, and infrastructures in Taiwan, but also to put Taiwan on the map in the world of Biophotonics Science and Technology.

VI. APPENDIX I: MINUTES FROM PROGRAM DISCUSSION MEETINGS

VII. APPENDIX II:

1. PUBLICATION LIST (CONFERENCES, JOURNALS, BOOKS, BOOK CHAPTERS, etc.)

Sub-Project1:

Total Publication lists (sorted according to published year):

International Journal papers:

A. Coherent and THz Photonics

1. Ru-Pin Pan, Chao-Yuan Chen, Tsong-Ru Tsai, and Ci-Ling Pan, "Terahertz Phase Shifter With Nematic Liquid Crystal In A Magnetic Field," Mol. Cryst. Liq. Cryst., Vol. 421, pp. 157–164, 2004.
2. Ci-Ling Pan, Minjay Huang And Ru-Pin Pan, "Liquid-Crystal-Based Tunable Filter For WDM (λ = 1550 nm)," Mol. Cryst. Liq. Crystl., Vol. 413, pp. 561-568, 2004.
3. Ru-Pin Pan, Yu-Pin Lan, Chao-Yuan Chen, and Ci-Ling Pan, "A Novel Tunable Diode Laser with Liquid Crystal Intracavity Tuning Element," Mol. Cryst. Liq. Cryst., Vol. 413, pp. 499-506, 2004.
4. Ru-Pin Pan, Tsong-Ru Tsai, Chiunghan Wang, Chao-Yuan Chen, And Ci-Ling Pan, "The Refractive Indices of Nematic Liquid Crystal 4, 4'-n-pentylcyanobiphenyl in the THz Frequency Range," Mol. Cryst. Liq. Crystl., Vol. 409, pp. 137-144, 2004.
5. Wen-Tse Shih, Jung Y. Huang, and Jing Y. Zhang, Field-induced re-orientation dynamics of surface stabilized ferroelectric liquid crystal mixture, Liquid Crystals 31, 1-9, 2004.
6. Gong-Ru Lin, Yu-Sheng Liao, and Guang-Qun Xia, "Dynamics of optical backward injection induced gain-depletion modulation and mode-locking in semiconductor optical amplifier fiber laser," Optics Express, Vol. 12, No. 10, pp. 2018-2026, May 2004.
7. Hsiao-Hua Wu, Tzer-Liang Liu, and Yi-Chyun Chen, Ci-Ling Pan "Photoconductive generation of duration-variable short electrical pulses on coplanar waveguides with long carrier life time substrate," Rev. Sci. Instrum., Volume 75, Issue 5, pp. 1369-1371, May 2004.
8. L.-H. Laih, H.-C. Kuo, Gong-Ru Lin, L.-W. Laih, and S. C. Wang, "As+-implanted AlGaAs oxide-confined VCSEL with enhanced oxidation rate and high performance uniformity", IEEE Photonics Technology Letters, Vol. 16, No. 6, pp. 1423-1425, June 2004.
9. Gong-Ru Lin and Chun-Jung Lin, "Improving the Blue-Green Electroluminescence of a Metal-Oxide-Semiconductor Diode on SiO2/Si by Multi-Recipe Si-Ion-Implantation and Long-Term Annealing", Journal of Applied Physics, Vol. 95, No. 12, pp. 8482-8486, June 2004
10. Chao-Yuan Chen, Cho-Fan Hsieh, Yea-Feng Lin, Ru-Pin Pan, and Ci-Ling Pan, "Magnetically Tunable Room-Temperature 2π Liquid Crystal Terahertz Phase Shifter," Opt. Express, Vol. 12, No. 12, pp. 2625-2630 June 14, 2004, selected by the Virtual Journal of Ultrafast Science, Vol. 3, No. 9, September 2004.
11. Tze-An Liu, Masahiko Tani, Makoto Nakajima, Masanori Hangyo, Kiyomi Sakai, Shin-ichi Nakashima, and Ci-Ling Pan, "Ultrabroadband terahertz field detection by photoconductive antennas based on proton-bombarded InP," Opt. Express, Vol. 12, No.13, pp. 2954-2959, June 28, 2004, selected by the Virtual Journal of Ultrafast Science, Vol. 3, No. 8, August 2004.
12. Gong-Ru Lin, Yu-Huang Lin, and Yung-Cheng Chang, "Theory and Experiments of a Mode Beating Noise Suppressed and Mutually Injection-Locked Fabry-Perot Laser Diode and Erbium-Doped Fiber Amplifier Link", IEEE Journal of Quantum Electronics, Vol. 40, No. 8, pp. 1014-1022, August 2004..
13. Yu-Huang Lin and Gong-Ru Lin, "Reduction of Mode Beating Noise in Erbium-Doped Fiber Laser by Mutual Injection-Locking with a Laser Diode at below Threshold Condition", IEEE Photonics Technology Letters, Vol. 16, No. 8, pp. 1819-1821, August 2004.
14. Gong-Ru Lin, Chun-Jung Lin, and Chi-Kuan Lin, "The Defect Enhanced Photoconductive Response of Silicon-Implanted Borosilicate Glass", Applied Physics Letters, Vol. 85, No. 6, pp. 935-937, August 2004.

15. Gong-Ru Lin, Kuo-Cheng Yu, Chun-Jung Lin, Hao-Chung Kuo, and M.-J. Ou-yang, "Pumping Intensity Dependent Surface Charge Accumulation and Red-Shifted Micro-Photoluminescence of Si-Implanted Quartz," Applied Physics Letters, Vol. 85, No. 6, pp. 1000-1002, August 2004.
16. Gong-Ru Lin, Yu-Sheng Liao, and Jung-Rung Wu, "Harmonic Injection-Locking Behavior of Frequency-Detuned Optical Pulse in Erbium-Doped Fiber Laser," Japanese Journal of Applied Physics, Pt. 1, Vol. 43, No. 8A, pp. 5204-5208, August 2004.
17. Gong-Ru Lin, Gong-Cheng Lin, and Jung-Rung Wu, "Optical-Pulse-Injection-Induced 40GHz Photonic Frequency Multiplication in Erbium-Doped Fiber Laser," Japanese Journal of Applied Physics, Pt. 1, Vol. 43, No. 8A, pp. 5285-5288, August 2004.
18. Gong-Ru Lin, Jung-Rung Wu, and Yung-Cheng Chang, "Photonic millimeter-wave generation from frequency-multiplied Erbium-doped fiber laser pulse-train using purely sinusoidal-wave modulated laser diode," Optics Express, Vol. 12, No. 17, pp. 4166-4171, August 2004.
19. Jia-Min Shieh, Zun-Hao Chen, Bau-Tong Dai, Yi-Chao Wang, Alexei Zaitsev, and Ci-Ling Pan, "Near-Infrared Femtosecond Laser-induced Crystallization of Amorphous Silicon," Appl. Phys. Lett., Volume 85, Issue 7, pp. 1232-1234, August 16, 2004, selected by the Virtual Journal of Ultrafast Science, Vol. 3, No. 9, September 2004.
20. Yung-Cheng Chang, Yu-Huang Lin, J. H. Chen, and Gong-Ru Lin, "All-optical NRZ-to-PRZ format transformer with an injection-locked Fabry-Perot laser diode at unlasing condition", Optics Express, Vol. 12, No. 19, pp. 4449-4456, September 2004.
21. Chao-Kuei Lee, Jin-Yuan Zhang, J. Y. Huang and Ci-Ling Pan, "Theoretical and Experimental Studies of tunable UV/Blue Femtosecond Pulses in a 405nm-pumped Type-I β-BBO Non-collinear Optical Parametric Amplifier," J. Opt. Soc. Am. B, Volume 21, Issue 8, pp. 1494-1499, August 2004, selected by the Virtual Journal of Ultrafast Science, Vol. 3, No. 9, September 2004.
22. Gong-Ru Lin, Chun-Jung Lin, and Kuo-Cheng Yu, "Time-Resolved Photoluminescence and Capacitance-Voltage Analysis of the Neutral Vacancy Defect in Silicon Implanted SiO_2 on Silicon Substrate," Journal of Applied Physics, Vol. 96, No. 5, pp. 3025-3027, September 2004, selected by Virtual Journal of Ultrafast Science, Vol. 3, No. 10, October 2004.
23. Ming-Jay Huang, Ru-Pin Pan, Chia-Rong Sheu, Yu-Ping Lan, Yi-Fan Lai and Ci-Ling Pan, "Multimode Optical Demultiplexer for DWDM with Liquid Crystal Enabled Functionalities," IEEE Photon. Technol. Lett., Vol. 40, No. 10, pp. 2254-2256, October 2004, reported by Lightwave Europe, November 2004.
24. Gong-Ru Lin, J.-R. Wu, and Y.-C. Chang, "Rational Harmonic Mode-Locking of Erbium-Doped Fiber Laser at 40 GHz Using a Loss-Modulated Fabry Perot Laser Diode", IEEE Photonics Technology Letters, Vol. 16, No. 8, pp. 1810-1812, August 2004, reported by Jeff Hecht in Laser Focus World, p. 81, December 2004
25. Tsung-Sheng Shih, Yu-Ping Lan, Yea-Feng Lin, Ru-Pin Pan, and Ci-Ling Pan, "A single-longitudinal-mode semiconductor laser with digital and mode-hop-free fine-tuning mechanisms," Optics Express, Vol. 12, No. 26, pp. 6434-6439, December 27, 2004.
26. Ming C. Chen, Jung Y. Huang, Qiantso Yang, C. L. Pan, and Jen-Inn Chyi: "Freezing phase scheme for fast adaptive control and its application to characterization of femtosecond coherent optical pulses reflected from semiconductor saturable absorber mirrors" J. Opt. Soc. Am. B 22, 1134-1142, 2005.
27. Gong-Ru Lin and I-hsiang Chiu, "Femtosecond Compression and Wavelength Tuning of Backward-Optical-Injection Harmonic-Mode-Locked SOA Fiber Laser at 10 GHz," Optics Express, Vol. 13, No. 20, pp. 8772-8780, 3 October 2005, selected by the Virtual Journal of Ultrafast Sciences, Vol. 5, No. 1, January 2005.
28. Gong-Ru Lin, Pai-Shen Hsueh, and Hsiao-Hua Wu, "The detuning characteristics of rational harmonic mode-locked semiconductor optical amplifier fiber-ring laser using backward optical sinusoidal-wave injection modulation", IEEE/OSA Journal of Lightwave Technology, Vol. 23, No. 3, pp. 1325-1333, March 2005.
29. Chun-Jung Lin and Gong-Ru Lin, "White-Light Electro-luminescence of Multi-energy Si-ion-Implanted SiO2 based MOS diode", IEEE Journal of Quantum Electronics, Vol. 41, No. 3, pp. 441-447, March 2005.
30. M. C. Chen, J. Y. Huang, L. J. Chen, "Coherent control multiphoton processes in semiconductor saturable Bragg

reflector with freezing phase algorithm," Applied Physics B-Lasers and Optics Vol. 80 No. 3, pp. 333-340, March 2005

31. Gong-Ru Lin, Chun-Jung Lin, Chi-Kuan Lin, Li-Jen Chou and Yu-Lun Chueh, "Oxygen defect and Si nanocrystal dependent white-light and near-infrared electroluminescence of Si-implanted and plasma-enhanced chemical-vapor deposition-grown Si-rich SiO2." Journal of Applied Physics, Vol. 97, art. 094306, April 2005
32. Gong-Ru Lin and Yu-Sheng Liao, "Sensitivity evaluation of fiber optic OC-48 p-i-n transimpedance amplifier receivers using sweep-frequency modulation and intermixing diagnostics", Optical Engineering, Vol. 44, art. 044002, April 2005.
33. Gong-Ru Lin and J.-R. Wu, "Tenth-Order Rational Harmonic Frequency Multiplication of Optical Pulse-Train in a Regenerative Erbium-Doped Fiber Amplifier", Applied Optics, Vol. 44, No. 12, pp. 2416-2420, April 2005
34. Bor-Yuan Shew, Han-Chieh Li, Ci-Ling Pan and Cheng-Hao Ko, " X-ray micromachining SU-8 resist for a terahertz photonic filter," Journal Of Physics D-Applied Physics Vol. 38, No. 7, pp. 1097-1103, Apr 7 2005
35. Yung-Cheng Chang, Yu-Huang Lin, Yu-Sheng Liao, and Gong-Ru Lin, "Switchable dual-wavelength NRZ-to-RZ data-format transformer using non-DC-biased and synchronously modulated laser diode", IEICE Transactions on Electronics, Vol. E88-C, No. 5, pp. 981-983, May 2005
36. Gong-Ru Lin and Yung-Cheng Chang, "10 Gbit/s tunable dual-wavelength nonreturn-to-zero -to- return-to-zero data-format transformer based on a non-direct-current-biased Fabry-Perot laser diode", Applied Optics, Vol. 44, No. 15, pp. 3058-3062, May 2005.
37. Gong-Ru Lin, Chun-Jung Lin, Chi-Kuan Lin, Li-Jen Chou, and Yu-Lun Chueh, "Oxygen defect and Si nanocrystal dependent white-light and near-infrared electroluminescence of Si-implanted and plasma-enhanced chemical-vapor deposition-grown Si-rich SiO2", Journal of Applied Physics, Vol. 97, No. 9, pp. 094306, May 2005.
38. Ci-Ling Pan, Cho-Fan Hsieh, and Ru-Pin Pan, Masaki Tanaka, Fumiaki Miyamaru, Masahiko Tani, and Masanori Hangyo, "Control of enhanced THz transmission through metallic hole arrays using nematic liquid crystal," Optics Express, Vol. 13, No. 11, pp. 3921 - 3930, May 30, 2005, collected by the Nano-Structured Surfaces Web.
39. Ming C. Chen, Jung Y. Huang, Qiantso Yang, C. L. Pan, and Jen-Inn Chyi, "Freezing phase scheme for fast adaptive control and its application to characterization of femtosecond coherent optical pulses reflected from semiconductor saturable absorber mirrors," Journal of The Optical Society Of America B, Vol. 22, No. 5, pp. 1134-1142, May 2005, selected by the Virtual Journal of Ultrafast Science, Vol. 4, No. 6, June 2005.
40. Gong-Ru Lin, Yung-Cheng Chang, Yu-Huang Lin, and J. H. Chen, "All Optical Data Format Conversion in Synchronously Modulated Single-Mode Fabry-Perot Laser Diode Using External Injection-Locking Induced Nonlinear Threshold Reduction Effect", IEEE Photonics Technology Letters, Vol. 17, No. 6, pp. 1307-1309, June 2005.
41. Gong-Ru Lin, Hao-Chung Kuo, Chi-Kuang Lin, and M. Feng, "Ultralow Leakage In0.53Ga0.47As p-i-n Photodetector Grown on Linearly Graded Metamorphic InxGa1-xP Buffered GaAs Substrate," IEEE Journal of Quantum Electronics, Vol. 41, No. 6, pp. 749-752, June 2005
42. Gong-Ru Lin, Ming-Chung Wu, and Yung-Cheng Chang, "Suppression of Phase and Supermode Noises in a Harmonic Mode-Locked Erbium-Doped Fiber Laser with a Semiconductor Optical Amplifier Based High-Pass Filter," Optics Letters, Vol. 30, No. 14, pp. 1834-1836, July 2005, selected article in Virtual Journal of Ultrafast Science, Vol. 4, No. 7, July 2005.
43. Tze-An Liu, Gong-Ru Lin, Yen-Chi Lee, Shing-Chung Wang, Masahiko Tani, Hsiao-Hua Wu, and Ci-Ling Pan, "Dark Current and Trailing Edge Suppression in Ultrafast Photoconductive Switches and THz Spiral Antennas Fabricated on Multi-Energy Arsenic-Ion-Implanted GaAs," Journal of Applied Physics, Vol. 98, art. 013711, July 2005, selected article in Virtual Journal of Ultrafast Science, Vol. 4, No. 8, August 2005
44. Jin-Wei Shi, H.-C. Hsu, F.-H. Huang, W.-S. Liu, J.-I. Chyi, Ja-Yu Lu, C.-K. Sun, and Ci-Ling Pan, "Separated-Transport-Recombination p-i-n Photodiode for High-Speed and High-Power Performance," IEEE Photon. Technol. Lett., Vol. 17, No. 8, pp. 1722-1724, August 2005.
45. Yung-Cheng Chang and Gong-Ru Lin, "Optically gain-switched laser diode based 10Gbit/s all-optical data

format converter", Optics Letters, Vol. 30, No. 16, pp. 2704-2706, 15 August 2005.

46. Jin-Wei Shi, H.-C. Hsu, F.-H. Huang, W.-S. Liu, J.-I. Chyi, Ja-Yu Lu, C.-K. Sun, and Ci-Ling Pan, "Separated-Transport-Recombination p-i-n Photodiode for High-Speed and High-Power Performance," IEEE Photon. Technol. Lett., Vol. 17, No. 8, pp. 1722-1724, August 2005.
47. Chao-Kuei Lee, Tze-An Liu, Kai-Fung Huang and Ci-Ling Pan, "Frequency Resolved Optical Gating Studies of Strained Saturable Bragg Reflector: Anomalous dispersion near Resonance Absorption of the Exciton Resonance," Jpn. J. Appl. Phys., Vol. 44, No. 9A, pp. 6553-6557, September 2005
48. Gong-Ru Lin, Ming-Chung Wu, Yung-Cheng Chang, and Ci-Ling Pan, "Ultrahigh supermode noise suppressing ratio of a semiconductor optical amplifier filtered harmonically mode-locked Erbium-doped fiber laser," Optics Express, Vol. 13, No. 18, pp. 7215–7224, September 5, 2005. 吳銘忠同學獲得 2005 年中國電機工程學會青年論文獎第三名
49. Yu-Ping Lan, Yea-Feng Lin, Yu-Tai Li and Ru-Pin Pan, Chao-Kuei Lee, and Ci-Ling Pan, "Intracavity measurement of liquid crystal layer thickness by wavelength tuning of an external cavity laser diode," Optics Express, Vol. 13, No. 20, pp. 7905–7912, Oct. 3, 2005.
50. Tang LC, Huang JY, Chang CS, Lee MH, Liu LQ, "New infrared nonlinear optical crystal CsGeBr3: synthesis, structure and powder second-harmonic generation properties," Journal of Physics-Condensed Matter 17 (46): 7275-7286 Nov 23 2005
51. Tze-An Liu, Gong-Ru Lin, Yung-Cheng Chang, Ci-Ling Pan, "A wireless audio and burst communication link with directly modulated THz photoconductive antenna," Optics Express, Vol. 13, No. 25, pp. 10416-10423, 12 December, 2005.
52. Chun-Jung Lin, Gong-Ru Lin, Yu-Lun Chueh, and Li-Jen Chou, "Analysis of Silicon Nanocrystals in Silicon-rich SiO2 Synthesized by CO_2 Laser Annealing," Electrochemical and Solid-State Letters, Vol. 8, No. 12, pp. D43-D45, December 2005.
53. Jung Y. Huang, and Wen T. Shih: "Probing the field-induced submolecular motions in a ferroelectric liquid crystal mixture with time-resolved two-dimensional infrared spectroscopy" J. Phys. C: Condens. Matter 18, 7593–7603, 2006.
54. Chung-Ping Li, Kung-Hwa Wei and Jung Y. Huang: "Enhanced Collective Electron Transport by CdSe Quantum Dots Self-Assembled in the Poly(4-vinylpyridine) Nanodomains of a Poly(styrene-b-4-vinylpyridine) Diblock Copolymer Thin Film" Angewandte Chemie InternationalEdition 45, 1-5, 2006.
55. Chung-Ping Li, Siao-Wei Yeh,Han-Chang Chang, Jung Y. Huang, and Kung-Hwa Wei: "The Orientation of CdSe Nanorods Affects the Electron Mobility of CdSe/P4VP Nanodomains Self-Assembled within a Poly(styrene-b-4-vinylpyridine) Diblock Copolymer Thin Film" Small 2, 359-363, 2006.
56. Chia-Hung Chou, Hsu-Shen Wang, Kung-Hwa Wei and Jung Y. Huang: "Thiophenol-modified CdS nanoparticles enhance the luminescence of benzoxyl dendron-substituted polyfluorene copolymers" Advanced Functional Materials 16, 909, 2006.
57. Chin-Cheng Weng, Chia-Hung Chou, Kung-Hwa Wei, and Jung Y. Huang: "Enhanced Electroluminescence of Poly(2-methoxy-5-(20-ethylhexyloxy)-1,4-phenylene vinylene) Films in the Presence of TiO2 Nanocrystals" Journal of Polymer Research 13, 229, 2006.
58. Chun-Jung Lin, Chao-Kuei Lee, Eric Wei-Guang Diau, and Gong-Ru Lina, "Time-resolved Photoluminescence Analysis of Multidose Si-ion-implanted SiO_2," Journal of Electrochemistry Society, Vol. 153, pp. E25-E32, January 2006, selected by the Virtual Journal of Ultrafast Sciences, Vol. 5, No. 1, January 2006.
59. Chun-Jung Lin, Y.-L. Chueh, L.-J. Chou, C.-W. Chang, E. W. G. Diau, H.-C. Kuo, and G.-R. Lin, "Countinuous-Wave and Time-Resolved Photoluminescence Analysis of Silicon Nanocrystals Formed by Thermal Annealing of Amorphous Silicon Oxides at Different Times," Japanese Journal of Applied Physics, Vol. 45, No. 2A, pp. 1040-1043, Feb 2006
60. Chao-Yuan Chen, Cho-Fan Hsieh, Yea-Feng Lin, Ci-Ling Pan and Ru-Pin Pan, "A Liquid-Crystal-Based Terahertz Tunable Lyot Filter," Appl. Phys. Lett., Vol. 88, 101107, March 6, 2006, selected by Virtual Journal of THz Science and Technology, March 2006.

61. Yi-Chao Wang, Ci-Ling Pan, Jia-Min Shieh and Bau-Tong Dai, “Dopant Profile Engineering by Near-Infrared Femtosecond Laser Activation,” Appl. Phys. Lett., Vol. 88, 1311104, March 27, 2006, selected by Virtual Journal of Nanoscale Science and Technology, Vol. 13, No. 14, April 10, 2006 and Virtual Journal of Ultrafast Science, Vol. 5, No. 4, April 2006.
62. Cho-Fan Hsieh and Ru-Pin Pan, Tsung-Ta Tang, Hung-Lung Chen, and Ci-Ling Pan, “Voltage-controlled liquid crystal terahertz phase shifter and quarter wave plate,” Optics Letters, Vol. 31, No. 8, pp. 1112-1114, April 15, 2006, selected by Virtual Journal of THz Science and Technology, April 2006 and OSA Virtual Journal for Biomedical Optics, Vol. 1, No. 5, May 2006.
63. Gong-Ru Lin, Kun-Chieh Yu, Yung-Cheng Chang, “All-optical pulse data generation in a semiconductor optical amplifier gain-controlled by a reshaped optical clock injection”, Applied Physics Letters, Vol. 88, No. 19, 191114, May 2006. Selected by Virtual Journal of Ultrafast Science, Vol. 5, No. 6, June 2006.
64. Gong-Ru Lin, Ci-Ling Pan, and I-Hsiang Chiu, “Supermode-noise-free eighth-order femtosecond soliton from a backward dark-optical-comb-injection mode-locked semiconductor optical amplifier fiber laser,” Opt. Lett. Vol. 31, No. 6, pp. 835-837, March 15, 2006, selected by Virtual Journal of Ultrafast Science, Vol. 5, No. 6, June 2006.
65. Gong-Ru Lin and I-hsiang Chiu, “110-pJ and 410-fs Pulse at 10 GHz Generated by Multi-Stage External Fiber Compression of Optically Injection Mode-Locked Semiconductor Optical Amplifier Fiber Laser”, IEEE Photonics Technology Letters, Vol. 18, No. 9-12, pp. 1010-1012, May-June 2006.
66. Gong-Ru Lin, Kun-Chieh Yu, and Yung-Cheng Chang, “10 Gbit/s All-Optical NRZ-to-RZ Data Format Conversion Based on a Backward Dark-Optical-Comb Injected Semiconductor Optical Amplifier”, Optics Letters, Vol. 31, No. 10, pp. 1376-1378, 15 May 2006. Selected by Virtual Journal of Ultrafast Science, Vol. 5, No. 7, June 2006. (廖育聖與游昆潔先生榮獲九十五年度國教育部通訊競賽研究所組優勝)
67. Ying-Tsung Lin and Gong-Ru Lin, “Dual-Stage Soliton Compression of a Self-Started Additive Pulse Mode-Locked Erbium-Dope Fiber Laser for 48-fs Pulse Generation”, Optics Letters, Vol. 31, No. 10, pp. 1382-1384, 15 May 2006. Selected by Virtual Journal of Ultrafast Science, Vol. 5, No. 7, June 2006.
68. Yu-Sheng Liao, Jin-Wei Shi, Y.-S. Wu, Hao-Chung Kuo, M. Feng, and Gong-Ru Lin, “Optically Heterodyne Diagnosis of a High-Saturation-Power Undoped InP Sandwiched InGaAs p-i-n Photodiode Grown on GaAs”, Optics Express, Vol. 14, No. 12, pp. 5031-5037, 12 June 2006.
69. Yu-Ting Lin and Chih Chen, Jia-Min Shieh and Yao-Jen Lee, Ci-Ling Pan, Ching-Wei Cheng, Jian-Ten Peng, and Chih-Wei Chao, “Trap-state density in continuous-wave laser-crystallized single-grain-like silicon transistors,” Appl. Phys. Lett., 88, 233511 (June 5, 2006), selected by Virtual Journal of Nanoscale Science and Technology, Vol. 13, No. 24, June 19, 2006.
70. Hsin-Ying Wu, Cho-Fan Hsieh, Tsung-Ta Tang, Ru-Pin Pan, and Ci-Ling Pan, “Electrically Tunable Room-Temperature 2π Liquid Crystal Terahertz Phase Shifter,” IEEE Photon. Technol. Lett., Vol. 18, No. 14, pp. 1488-1490, July 15, 2006, selected by Virtual Journal of THz Science and Technology, July 2006.
71. Yu-Kuei Hsu, Ching-Wei Chen, Jung Y. Huang, Ci-Ling Pan, Jing-Yuan Zhang, Chen-Shiung Chang, “Erbium doped GaSe crystal for mid-IR applications,” Optics Express, Vol. 14, No. 12, pp. 5484-5491, 12 June, 2006, selected by Virtual Journal of Ultrafast Science, Vol. 5, No. 8, August 2006, and OSA Virtual Journal for Biomedical Optics, Vol. 1, No. 7, July 2006.
72. Jin-Wei Shi, Yu-Tai Li and Ci-Ling Pan, M.-L. Lin, Y.-S. Wu, W.-S. Liu and J.-I. Chyi, “Bandwidth Enhancement Phenomenon of a High-Speed GaAs-AlGaAs Based Unitraveling Carrier Photodiode with an Optimally Designed Absorption-Layer at an 830nm Wavelength,” Appl. Phys. Lett., Vol. 89, art. 053512, July 31, 2006.
73. Gong-Ru Lin, Hao-Chung Kuo, Huang-Shen Lin, and Chi-Chiang kao, “Rapid Self-Assembly of Ni Nanodots on Si Substrate covered by a Less-Adhesive and Heat-Accumulated SiO_2 Layer”, Applied Physics Letters, Vol. 89, No. 7, pp. 073108, August 2006. Selected by Virtual Journal of Nanoscale Science & Technology, Vol. 14, No. 9, August 2006.
74. Yu-Sheng Liao, Gong-Ru Lin, Hao-Chung Kuo, Kai-Ming Feng, and M. Feng, “10Gbit/s Operation of an

In0.53Ga0.47As p-i-n Photodiode on Metamorphic InGaP Buffered Semi-Insulating GaAs Substrate", IEEE Photonics Technology Letters, Vol. 18, No. 17, pp. 1822-1824, September 2006.

75. Gong-Ru Lin, C.-J. Lin, L.-J. Chou, and Y.-L. Chueh, "Microphotoluminescence and Microphotoreflectance Analyses of CO2 Laser Rapid-Thermal-Annealed SiOx Surface With Buried Si Nanocrystals", IEEE Transactions on Nanotechnology, Vol. 5, No. 5, pp. 511-516, September 2006.
76. Gong-Ru Lin, Chi-Kuan Lin, L.-J. Chou, and Y.-L. Chueh, "Synthesis of Si Nano-Pyramids at SiOx/Si Interface for Enhancing Electroluminescence of Si-Rich SiOx Based MOS Diode", Applied Physics Letters, Vol. 89, No. 9, 093126, September 2006. Selected by Virtual Journal of Nanoscale Science & Technology, Vol. 14, No. 12, September 2006.
77. Gong-Ru Lin, Jun-Yuan Chang, Yu-Sheng Liao, and Hai-Han Lu, "L-Band Erbium-Doped Fiber Laser with Coupling-Ratio Controlled Wavelength Tunability", Optics Express, Vol. 14, No. 21, pp. 9473-9479, 16 October 2006.
78. Ching-Wei Chen, Yu-Kuei Hsu, Jung Y. Huang, and Chen-Shiung Chang, Jing-Yuan Zhang, Ci-Ling Pan, "Generation Properties of Coherent Infrared Radiation in the Optical Absorption Region of GaSe," Optics Express, Vol. 14, Issue 22, pp. 10636-10644, Oct. 30, 2006, selected by Virtual Journal of Ultrafast Science, Vol. 6, No. 1, January 2007, listed in Virtual Journal of THz Science and Technology, October 2006.
79. Ching-Wei Chen, Jung Y. Huang and Ci-Ling Pan, "Pulse retrieval from interferometric autocorrelation measurement by use of the population-split genetic algorithm," Optics Express, Vol. 14, No. 22, pp. 10930-10938, Oct. 30, 2006, selected by Virtual Journal of Ultrafast Science, Vol. 6, No. 1, January 2007..
80. Gong-Ru Lin, Hai-Han Lu, and Jun-Yuan Chang, "Wavelength Tunability of a Coupler and Air-Gap Etalon Controlled High-Efficiency L-Band Mode-Locked Erbium-Doped Fiber Laser", IEEE Photonics Technology Letters, Vol. 18, No. 21, pp. 2233-2235, November 2006. (張峻源同學榮獲 2005 年光電科技研討會學生論文獎)
81. Yu-Sheng Liao and Gong-Ru Lin, "Comparison on the Sensitivity of Fiber-optic SONET OC-48 PIN-TIA Receivers Measured by Using Synchronous Modulation Inter-Mixing Technique and Bit-Error-Rate Tester", IEEE Transactions on Intrumentation and Measurements, Vol. 55, No. 6, pp. 2172-2175, December 2006.
82. Gong-Ru Lin, Chun-Jung Lin, Yu-Lun Chueh, and Li-Jen Chou, "Localized CO2 Laser Annealing Induced Dehydrogenation/Ablation and Optical Refinement of Si-Rich SiOx Film with Embedded Si Nanocrystals", Journal of Nanoscience and Nanotechnology, Vol. 6, No. 12, pp. 3710-3717, December 2006.
83. Hsin-Ying Wu, Tsung-Ta Tang, Chih-Chieh Wang, Ru-Pin Pan, Shao-Ju Chang, and Jenn-Chang Hwang, "Controllable Alignment Modes of Nematic Liquid Crystals on Argon Ion Beam Bombarded Polyimide Films", Mol. Cryst. Liq. Cryst. Vol. 475, pp.45-55, 2007.
84. Tsung-Ta Tang , Hsin-Ying Wu, Chia-Jen Lin, and Ru-Pin Pan, "A simple method of determining the pitch of a chiral nematic liquid crystal", Mol. Cryst. Liq. Cryst., Vol. 478, pp. 143-150, 2007.
85. Gong-Ru Lin, Jun-Yuan Chang, " Femtosecond mode-locked Erbium-doped fiber ring laser with intra-cavity loss controlled full L-band wavelength tenability," Optics Express, vol. 15, Issue 1, pp.97-103, 8 January 2007.
86. Jia-Min Shieh, Yi-Fan Lai, and Wei-Xin Ni, Hao-Chung Kuo, Chih-Yao Fang, Jung Y. Huang, and Ci-Ling Pan, "Enhanced photoresponse of a Metal-Oxide-Semiconductor photodetector with Si nanocrystals embedded in the oxide layer," Appl. Phys. Lett., Vol. 90, art. 051105, January 30, 2007, selected by Virtual Journal of Nanoscale Science and Technology, Vol. 15, No. 6, February 12, 2007, top 20 most downloaded articles, Appl. Phys. Lett., February 2007.
87. Chung-Ping Li, Chia-Hao Wu, Kung-Hwa Wei, Jeng-Tzong Sheu, J. Y. Huang, U-Ser Jeng and Keng S. Liang: "The Effect of Nanoscale Confinement on the Collective Electron Transport Behavior in Au Nanoparticles Self-Assembled in a Nanostructured Poly(styrene-b-4-vinylpyridine) Diblock Copolymer Ultra Thin Film" Advanced Functional Materials 17, 2283-2290, 2007.
88. Yu-Ting Lin and Chih Chen, Jia-Min Shieh and Ci-Ling Pan, "Stability of continuous-wave laser-crystallized epi-like silicon transistors," Appl. Phys. Lett. Vol. 30, art. 073508, February 16, 2007.
89. Gong-Ru Lin, Chi-Kuan Lin, and Chun-Jung Lin, "Enhanced Fowler-Nordheim Tunneling Effect in a

Nanocrystallite Si Based LED with Interfacial Si Nano-pyramids", Optics Express, Vol. 15, No. 5, pp. 2555-2563, March 2007.

90. Gong-Ru Lin, Ying-Tsung Lin, and Chao-Kuei Lee, "Simultaneous pulse amplification and compression in all-fiber-integrated pre-chirped large-mode-area Er-doped fiber amplifier", Optics Express, Vol. 15, Issue 6, pp. 2993-2999, March 2007.
91. Gong-Ru Lin, Chun-Jung Lin, Hao-Chung Kuo, Huang-Sheng Lin, and Chi-Chiang Kao,"Anomalous microphotoluminescence of high-aspect-ratio Si nanopillars formatted by dry-etching Si substrate with self-aggregated Ni nanodot mask", Applied Physics Letters, Vol. 90, No. 14, 143102, April 2007.
92. Gong-Ru Lin, Chun-Jung Lin, and Ya-Chung Chang, "Optical characterization of CO2-laser-ablated Si-rich SiOx", Applied Physics Letters, Vol. 90, No. 15, 151903, April 2007.
93. Kuang Yao Lo, Yi Jen Huang, Jung Y. Huang, Zhe Chuan Feng, William E. Fenwick, Ming Pan and Ian T. Ferguson: "Reflective Second Harmonic Generation from ZnO thin films: a study on the Zn-O bonding " Appl. Phys. Lett. 90, Issue 16, 161904, 2007.
94. Gong-Ru Lin, Yia-Chung Chang, En-Shao Liu, Hao-Chung Kuo, and Huang-Shen Lin,"Low-Refractive-Index Si Nano-pillars on Si Substrate," Applied Physics Letters, Vol. 90, No. 18, 181923, April 2007.
95. Hung-Wen Chen, Yu-Tai Li, Ci-Ling Pan, Jeng-Liang Kuo, Ja-Yu Lu, Li-Jin Chen, and Chi-Kuang Sun, "Investigation on spectral loss characteristics of subwavelength terahertz fibers," Opt. Lett. Vol. 32, No. 9, pp. 1017-1019, May 2007.
96. Yu-Tai Li, J.-W. Shi, Ci-Ling Pan, C.-H. Chiu, W.- S. Liu, C. -K. Sun, and J. -I. Chyi, "Sub- THz Photonic-Transmitters Based on Separated- Transport- Recombination Photodiode and Micromachined Slots Antenna," IEEE Photon. Technol. Lett., Vol. 19, No. 11 pp. 840-842, June 1, 2007.
97. Gong-Ru Lin and Chun-Jung Lin, "Enhancing Nanocrystallite Si Electroluminescence by Suppressing Oxygen Decomposition in High Temperature and Low Plasma Power PECVD", Journal of Electrochemistry Society, Vol. 154, No. 8, pp. H743-748, June 2007.
98. Yi-Chao Wang, Jia-Min Shieh, Hsiao-Wen Zan and Ci-Ling Pan, "Near-infrared femtosecond laser crystallized poly-Si thin film transistors," Opt. Exp., Vol. 15, No. 11, pp. 6981-6986, May 28, 2007, selected by Virtual Journal of Ultrafast Sciences, Vol . 6, No. 7, July 2007.
99. Gong-Ru Lin, Yu-Sheng Liao, and Kun-Chieh Yu, "All-optical decision-gating of 10Gbit/s return-to-zero data by temporally narrowing the gain-window in a semiconductor optical amplifier", IEEE/OSA Journal of Lightwave Technology, Vol. 25, No. 7, pp. 1651-1658, July 2007.
100. Gong-Ru Lin and Chia-Yang Chen, "Enhanced Pumping Energy Transfer between Si Nanocrystals and Erbium Ions in Si-rich SiOx Sputtered Using Si/Er2O3 Encapsulated SiO Substrate", Journal of Nanoscience and Nanotechnology, Vol. 7, No. 8, pp. 2841-2847, July 2007.
101. Shao-Ju Chang, Kuen-Yi Wu, Ya-Hsin Yang, Jenn-Chang Hwang, Hsin-Ying Wu, Ru-Pin Pan, An-Ping Lee and Chwung-Shan Kou, "Liquid crystal alignment on the a-C:H films by Ar plasma ion immersion", Thin Solid Films, Vol. 515, Issue 20-21, pp.8000-8004, 31 July 2007.
102. Hsin-Ying Wu and Ru-Pin Pan, "Liquid crystal surface alignments by using ion beam sputtered magnetic thin films" Appl. Phys. Letts, Vol. 91, art. 074102, 13 Aug. 2007.
103. Gong-Ru Lin and Chun-Jung Lin, "A CO2 laser rapid-thermal-annealing SiOx based metal-oxide-semiconductor light emitting diode", Applied Physics Letters, Vol. 91, No. 7, 072103, August 2007.
104. Gong-Ru Lin, Chun-Jung Lin, and Hao-Chung Kuo,"Silicon nano-pillar array enhanced Fowler-Nordheim tunneling in a silicon nanocrystal based metal-oxide-semiconductor light emitting diode", Applied Physics Letters, Vol. 92, No. 9, 093122, August 2007.
105. H. Ahn, C.-H. Chuang, Y.-C. Wang,Y.-P. Ku, S. Gwo and Ci-Ling Pan, "Terahertz Emission from Vertically Aligned InN Nanorod Arrays," Appl. Phys. Lett. Vol. 91, art. 132108, September 27, 2007.
106. Ru-Pin Pan, Chia-Rong Sheu, Yu-Ping Lan, Yi-Fan Lai and Ci-Ling Pan, "Liquid Crystal Enabled Multi-channel Power Equalizer and Stabilizer," Optics Comm., Vol. 278, Issue 2, pp. 329-333, 15 October, 2007.
107. C. Y. Kang, C. H. Chao, S. C. Shiu, L. J. Chou, M. T. Chang, Gong-Ru Lin, and C.-F. Lin, "Formation of

self-organized platinum nanoparticles and their microphotoluminescence enhancement in the visible light region," Journal of Applied Physics, Vol. 102, No. 7, Art. No. 073508, October 2007.

108. Gong-Ru Lin, C.-J. Lin, and C.-T. Lin, "Low-plasma and high-temperature PECVD grown silicon-rich SiOx film with enhanced carrier tunneling and light emission," Nanotechnology, Vol. 18, No. 39, Art. No. 395202, October 2007.
109. H. Ahn, Y.-P. Ku, Y.-C. Wang, C.-H. Chuang, S. Gwo, and Ci-Ling Pan, "Terahertz Spectroscopic studies of Vertically-Aligned InN Nanorod Arrays," Appl. Phys. Lett., Vol. 91, art. 163105, 15 October 2007.
110. Gong-Ru Lin, Ci-Ling Pan and Kun-Chieh Yu, "Dynamic chirp control of all-optical format-converted pulsed data from a multi-wavelength inverse-optical-comb injected semiconductor optical amplifier," Opt. Exp., Vol. 15, Issue 20, pp. 13330-13339, 1 October 2007.
111. V. V. Meriakri, I. P.Nikitin, Ci-Ling Pan, Ru-Pin Chao Pan, M. P. Parkhomenko, E. E.Chigrai, "Methods and Results of Investigating the Dielectric Properties of Liquid Crystals in the Millimeter Wave Band," submitted to Telecommunications and Radio Engineering, http://www.begellhouse.com/journals/0632a9d54950b268.html, Oct. 31, 2007.
112. Gong-Ru Lin; Ci-Ling Pan; Ying-Tsung Lin, "Self-Steepening of Prechirped Amplified and Compressed 29-fs Fiber Laser Pulse in Large-Mode-Area Erbium-Doped Fiber Amplifier," Journal of Lightwave Technology, Vol. 25, No. 11, pp. 3597 – 3601, Nov. 2007.
113. Gong-Ru Lin, C.-L. Pan and Ying-Tsung Lin, "The Effect of Large-mode-Field-Area Erbium-Doped Fiber on Pre-Chirped Femtosecond Amplification and Compression of Mode-Locked Fiber Laser Pulses", OSA/IEEE Journal of Lightwave Technology, Vol. 25, No. 11, pp. 3597-3601, November 2007.
114. Yi-Fan Huang, Surojit Chattopadhyay, Tze-An Liu, Ci-Ling Pan, Yu-Kuei Hsu, Yi-Jun Jen, Cheng-Yu Peng, Chih-Shan Lee, Yuan-Huei Chang, Hung-Chun Lo, Chih-Hsun Hsu, Kuei-Hsien Chen, Li-Chyong Chen, "Improved broadband and quasiomnidirectional anti-reflection properties with biomimetic silicon nanostructures," Nature Nanotechnology, Vol. 2, pp. 770-774, December 2007.
115. Gong-Ru Lin, Ci-Ling Pan and Kun-Chieh Yu, "Dynamic chirp control of all-optical format-converted pulsed data from a multi-wavelength inverse-optical-comb injected semiconductor optical amplifier," Opt. Exp., Vol. 15, Issue 20, pp. 13330-13339, 1 October 2007, selected by Virtual Journal of Ultrafast Science Vol. 6, No. 12, December 2007.
116. Gong-Ru Lin, Kun-Chieh Yu, Ci-Ling Pan and Yu-Sheng Liao, "All-Optical Decision-Gating of 10-Gb/s RZ Data in a Semiconductor Optical Amplifier Temporally Gain-Shaped With Dark-Optical-Comb," Journal of Lightwave Technology, Vol. 25, No. 7, pp. 1651 – 1658, July 2007, selected by Virtual Journal of Ultrafast Science Vol. 6, No. 12, December 2007.
117. Jia-Min Shieh, Chih Chen and Yu-Ting Lin, Ci-Ling Pan, "Enhanced green laser-activation by anti-reflective gate structures in panel transistors," Appl. Phys. Lett., Vol. 92, art. 063503, 11 February 2008.
118. Ja-Yu Lu, Chin-Ping Yu, Hung-Chung Chang, Hung-Wen Chen, Yu-Tai Li, Ci-Ling Pan, and Chi-Kuang Sun, "Terahertz air-core microstructure fiber," Appl. Phys. Lett. Vol. 92, art. 064105, 11 February 2008.
119. Ja-Yu Lu, Chung-Chiu Kuo, Chui-Min Chiu, Hung-Wen Chen, Yuh-Jing Hwang, Ci-Ling Pan, and Chi-Kuang Sun, "THz interferomertric imaging using subwavelength plastic fiber based THz endoscope," Opt. Exp., Vol. 16, No. 4, pp. 2494-2501, 18 February 2008.
120. Ja-Yu Lu, Chui-Min Chiu, Chung-Chiu Kuo, Chih-Hsien Lai, and Hung-Chung Chang, Yuh-Jing Hwang, Ci-Ling Pan, and Chi-Kuang Sun, "Terahertz scanning imaging with a subwavelength plastic fiber," Appl. Phys. Lett., Vol. 92, art. 084102, 25 February 2008.
121. Chia-Jen Lin,Yu-Tai Li, Cho-Fan Hsieh, Ru-Pin Pan, and Ci-Ling Pan, "Manipulating Terahertz Wave by a Magnetically Tunable Liquid Crystal Phase Grating," Opt. Exp., Vol. 16, No. 5, pp. 2995-3001, 3 March 2008.
122. Tzu-Ming Liu, Ja-Yu Lu, Hung-Ping Chen, Chung-Chiu Kuo, Meng-JuYang, Chih-Wei Lai, Pi-Tai Chou, Ming-Hao Chang, Hsiang-Lin Liu, Yu-Tai Li, Ci-Ling Pan, Shih-Hung Lin, Chieh-Hsiung Kuan, and Chi-Kuang Sun, "Resonance-enhanced dipolar interaction between terahertz photons and confined acoustic phonons in nanocrystals," Appl. Phys. Lett., Vol. 92, art. 093122, 3 March 2008.

123. H. Ahn, Y.-P. Ku, and C.-H. Chuang, and Ci-Ling Pan, H.-W. Lin, Y.-L. Hong, and S. Gwo, "Intense terahertz emission from α-plane-grown InN surface," Appl. Phys. Lett., Vol. 92, art. 102103, 10 March 2008.
124. Wei-Jan Chen, Jhi-Ming Hsieh, Shu Wei Huang, Hao-Yu Su, Chien-Jen Lai, Tsung-Ta Tang, Chuan-Hsien Lin, Chao-Kuei Lee, Ru-Pin Pan, Ci-Ling Pan, and A. H. Kung, "Sub-Single-Cycle Optical Pulse Train with Constant Carrier Envelope Phase," Phys. Rev. Lett., Vol. 100, art. 163906, April 25, 2008.
125. Ru-Pin Pan, Cho-Fan Hsieh, Ci-Ling Pan, Chao Yuan Chen, and "Temperature-dependent optical constants and birefringence of nematic liquid crystal 5CB in the terahertz frequency range," J. App. Phys., Vol. 103, No. 10, art. 101809, 15 May 2008.

B. Quantum (Photonic Crystal) structures and Enabling devices

1. Min-Feng Chang, Po-Tsung Lee, S. P. McAlister, and Albert Chin, "Low Sub-threshold Swing HfLaO/Pentacene Organic Thin Film Transistors," *IEEE Electron Device Lett.* 29, pp.215-217 (2008) (SCI IF:2.716)
2. C. H. Chiu, T. C. Lu, H. W. Huang, C. F. Lai, C. C. Kao, J. T. Chu, C. C. Yu, H. C. Kuo, and S. C. Wang, C. F. Lin, T. H. Shueh, "Fabrication of InGaN/GaN MQW nanorods LED by ICP-RIE and PEC oxidation process with self-assembly Ni metal islands", Nanotechnology, V18, N.44, p445201, Nov. 7, 2007
3. Tien-Chang Lu, Tsung-Ting Kao, Chih-Chiang Kao, Jung-Tang Chu, Kang-Fan Yeh, Li-Fan Lin, Yu-Chun Peng, Hung-Wen Huang, Hao-Chung Kuo, and Shing-Chung Wang "GaN-Based High-Q Vertical-cavity Light Emitting Diodes", IEEE Electron. Device Lett., V28, N10, pp884, Oct., 2007
4. Shing-Chung Wang, Tien-Chang Lu, Chih-Chiang Kao, Jong-Tang Chu, Gen-Sheng Huang, Hao-Chung Kuo, Shih-Wei Chen, Tsung-Ting Kao, Jun-Rong Chen, and Li-Fan Lin, "Optically Pumped GaN-based Vertical Cavity Surface Emitting Lasers: Technology and Characteristics", Jpn. J. Appl. Phys., V46, No. 8B, pp5397-5407, Aug. 23, 2007
5. C. H. Chiu, M. H. Lo, C. F. Lai, T. C. Lu, Y. A. Chang, H. W. Huang, H. C. Kuo, S. C. Wang, C. F. Lin, and Y. K. Kuo, "Optical properties of high Indium $In_{0.3}Ga_{0.7}N$/GaN MQW green nanorods by plasma etching with nanoscale nickel metal islands", Nanotechnology, V18, N33, p335706, Aug. 23, 2007
6. C. E. Lee, Y. J. Lee, H. C. Kuo, M. R. Tsai, B. S. Cheng, T. C. Lu, S. C. Wang, C. T. Kuo, "Enhancement of Flip-Chip Light-Emitting Diodes With Omni-Directional Reflector and Textured Micropillar Arrays", IEEE Photon. Tech. Lett., V19, No16, pp1200-1202, Aug. 15, 2007
7. Chun-Feng Lai, Peichen Yu, Te-Chung Wang, Hao-Chung Kuo, Tien-Chang Lu, Shing-Chung Wang and Chao-Kuei Lee "Lasing Characteristics of a GaN Photonic Crystal Nanocavity Light Source", Appl. Phys. Lett., V91, 041101, Jul. 23, 2007
8. T. S. Ko, C. P. Chu, T. C. Lu, H. C. Kuo, and S. C. Wang "Synthesis of In_2O_3 nanocrystal chains and annealing effect on their optical properties", J. Vac. Sci. Technol. A, V25, pp1038-1041 ,Jul 2, 2007
9. Y.C. Lee, H.C. Kuo, C.E. Lee, J.R. Chen, Y.A. Chang, T.C. Lu, S.C. Wang, and S.W. Chiou, "High Temperature Stability of 650-nm Resonant-Cavity Light-Emitting Diodes Fabricated Using Wafer Bonding Technique on Silicon Substrates", IEEE Photon. Tech. Lett., V19, No14, pp1060-1062, Jul 15, 2007
10. Hou-Guang Chen, T. S. Ko, Tien-Chang Lu, Hao-Chung Kuo and Shing-Chung Wang, Li Chang, "Dislocation reduction in non-polar GaN grown on stripe patterned r-plane sapphire substrates", Appl. Phys. Lett., V91, 021914, Jul. 9, 2007
11. G. S. Huang, T. C. Lu, H. C. Kuo and S. C. Wang and Hou-Guang Chen,"Fabrication of hybrid nitride microcavity with high quality factor using highly reflective AlN/GaN and Ta_2O_5/SiO_2 distributed Bragg mirrors", IEEE Photon. Tech. Lett., V19, No13, pp999-pp1001, July 1, 2007
12. G. S. Huang, H. C. Kuo, M. H. Lo, T. C. Lu, S. C. Wang, and J. Y. Tsai, "Improvement of efficiency and ESD characteristics of ultraviolet light emitting diodes by inserting AlGaN and SiN buffer layers", J. Crystal Growth, V305, pp55-58, July 1, 2007
13. C. H. Chiu, H.C. Kuo, C. E. Lee, C. H. Lin, P.C. Cheng, H. W. Huang, T.C. Lu, S. C. Wang, and K. M. Leung, "Fabrication and Characteristics of thin-film InGaN–GaN light-emitting diodes with an TiO_2/SiO_2

omnidirectional reflector", Semicon. Sci. Tech, V22, p831-835, Jun. 21, 2007

14. Chih-Chiang Kao, Kang-Fan Yeh, Jong-Tung Chu, Wei-Lun Peng, Hung-Wen Huang, Tien-Chang Lu, Hao-Chung Kuo and Shing-Chung Wang, "Light-Output Enhancement of Nano-Roughened GaN Laser Lift-off Light-Emitting Diodes Formed by ICP Dry Etching", IEEE Photon. Tech. Lett., V19, N11, p849, Jun. 1, 2007
15. Y. J. Lee, T.C. Lu, H.C. Kuo, and S.C. Wang, "High Brightness GaN-based Light Emitting Diodes", IEEE J. Display Technol. V3, No2, pp118-125, June, 2007
16. T. S. Ko, T. C. Wang, R. C. Gao, H. G. Chen, G. S. Huang, T. C. Lu*, H. C. Kuo, and S. C. Wang "Observations on surface morphologies and dislocations of a-plane GaN grown by metal organic chemical vapor deposition", Phys. Stat. Sol. (c), V4, No. 7, pp2510-2514, May 31, 2007
17. T. Wang, T. Ko, H. Kuo, T. Lu, Min Yu, C. Chuo, and Z. Lee, "Optical and structural properties of a-plane GaN with epitaxial lateral overgrowth", Phys. Stat. Sol. (c), V4, No. 7, pp2519-2513, May 31, 2007
18. G. S. Huang, Hou-Guang Chen, J. J. Chen, T. C. Lu, H. C. Kuo, and S. C. Wang, "Hybrid nitride microcavity using crack-free highly reflective AlN/GaN and Ta_2O_5/SiO_2 distributed Bragg mirror", Phys. Stat. Sol. (a), V204, No. 6, pp1977-1981, May 15, 2007
19. T. S. Ko, T. C. Lu, T. C. Wang, M. H. Lo, J. R. Chen, R. C. Gao, H. C. Kuo, S. C. Wang "Optical characteristics of a-plane InGaN multiple quantum wells with different well width", Appl. Phys. Lett., V90, 181122, Apr. 30, 2007.
20. Po-Tsung Lee, Tsan-Wen Lu, Chia-Min Yu, and Chung-Chuan Tseng, "Photonic crystal circular-shaped microcavity and its uniform cavity-waveguide coupling property due to presentation of whispering gallery mode," *Opt. Express* 15, pp. 9450-9457 (2007) (SCI IF:4.009)
21. John D. O'Brien, Wan Kuang, Jiang-Rong Cao, Min-Hsiung Shih, Po-Tsung Lee, Mahmood Bagheri, Adam Mock, and W. K. Marshall, "Photonic crystal microcavity lasers," *J. Phys. D: Appl. Phys.* 40, 2671 (2007) (invited) (SCI IF: 2.077)
22. Po-Tsung Lee, Tsan-Wen Lu, Jyun-Hao Fan, and Feng-Mao Tsai, "High quality factor microcavity lasers realized by circular photonic crystal with isotropic photonic bandgap effect," *Appl. Phys. Lett.* 90, 151125 (2007) (SCI IF:4.127) (Selected for *Virtual Journal of Nanoscale Science & Technology,* Vol. 15, issue 17, Apr. 30, 2007)
23. Po-Tsung Lee, Tsan-Wen Lu, and Feng-Mao Tsai, "Octagonal Quasi-Photonic Crystal Single-Defect Micro-cavity with Whispering Gallery Mode and Condensed Device Size," *IEEE Photon. Technol. Lett.* 19, pp. 710-712 (2007) (SCI IF:2.266)
24. Po-Tsung Lee, Tsan-Wen Lu, Feng-Mao Tsai, and Tien-Chang Lu, "Lasing Action of Octagonal Quasi-Periodic Photonic Crystal Micro-Cavity," *J. Jpn. Appl. Phys.* 46, pp. 971-973 (2007) (SCI IF:1.096)
25. Hou-Guang Chen, Nai-Fang Hsu, Hsin-Hung Yao, Jung-Tang Chu, Tien-Chang Lu, Hao-Chung Kuo and Shing-Chung Wang, "Strong Ultraviolet Emission from InGaN/AlGaN Multi Quantum Well Grown by Multi-step Process", Jpn. J. Appl. Phys., Vol. 46, No. 4B, pp. 2574-2577 ,Apr. 24, 2007
26. Yea-Chen Lee, Chia-En Lee, Bo-Siao Cheng, Tien-Chang Lu, Hao-Chung Kuo, Shing-Chung Wang, and Shu-Woei Chiou, "High Performances of 650 nm Resonant Cavity Light Emitting Diodes for Plastic Optical Fiber Application", Jpn. J. Appl. Phys., Vol. 46, No. 4B, pp. 2450-2453, Apr. 24, 2007
27. Y. J. Lee, P.C. Lin, T.C. Lu, H.C. Kuo, and S.C. Wang, "Dichromatic InGaN-based white light-emitting-diodes by using laser lift-off and wafer-bonding scheme", Appl. Phys. Lett., V90, 161115, Apr. 18, 2007
28. H. W. Huang, H. C. Kuo, C. F. Lai, C. E. Lee, C. W. Chiu, T. C. Lu, S. C. Wang, C. H. Lin, and K. M. Leung "High performance GaN-based vertical-injection light-emitting diodes with TiO_2/SiO_2 omni-directional reflector and n-GaN roughness", V19, Issue 18, pp565-567, IEEE Photon. Tech. Lett, Apr. 15, 2007
29. Y. J. Lee, T. C. Lu, H.C. Kuo, S.C. Wang, T. C. Hsu, M. H. Hsieh, M. J. Jou, and B. J. Lee, "Nano-roughening n-side surface of AlGaInP-based LEDs for increasing extraction efficiency", Materials Science and Engineering: B, V138, No2, pp157-160, March 25, 2007
30. P. T. Lee, T. W. Lu, F. M. Tsai, and T. C. Lu, "Lasing Action of Octagonal Quasi-Periodic Photonic Crystal Microcavity," Jpn. J. Appl. Phys., V46, No. 3A, pp971 -973, Mar. 8, 2007
31. G.S. Huang, T. C. Lu, H. H. Yao, H.C. Kuo, S. C. Wang, Greg Sun, Chih-wei Lin, and Li Chang, "Fabrication and characterization of active region of a terahertz GaN/AlGaN quantum cascade laser", J. Crystal Growth, V298,

pp687-690,Feb. 2007

32. Hung-Wen Huang, Chih-Chiang Kao, Jung-Tang Chu, Wei-Chih Wang, Tien-Chang Lu, Hao-Chung Kuo, Shing-Chung Wang, and Chang-Chin Yu, “Investigation of InGaN/GaN Light Emitting Diodes with Nano-roughened surface by Excimer Laser Etching Method”, Materials Science and Engineering: B, V136, pp182-186, Jan, 25, 2007
33. T. S. Ko, T. C. Wang, R. C. Gao, H. G. Chen, G. S. Huang, T. C. Lu*, H. C. Kuo, and S. C. Wang “Study on optimal growth condition of a-plane GaN grown on r-plane sapphire by MOCVD”, J. Crystal Growth, V300, p303-313, Jan. 20, 2007
34. T. S. Ko, T. C. Wang, H. G. Chen, R. C. Gao, Y. J. Lee, T. C. Lu, H. C. Kuo, and S. C. Wan, “InGaN/GaN Nano-stripe Grown on Pattern Sapphire by Metal Organic Chemical Vapor Deposition”, Appl. Phys. Lett., V90, 013110, Jan, 1, 2007
35. H.C. Kuo , W.C. Chen, F.I. Lai , C.P. Cheng , H.C. Kuo , S.C. Wang , W.F. Hsieh , "Effects of doping concentration and annealing temperature on properties of highly-oriented al-doped ZnO films," Journal of Crystal Growth Vol287, no(1),PP. 78-84 JAN 18 2006
36. T.C. Wang , H.C. Kuo , Z.H. Lee , C.C. Chuo , M.Y. Tsai , C.E. Tsai , T.D. Lee , T.C. Lu , J. Chi ,” Quaternary AlInGaN multiple quantum well 368 nm light-emitting diode,” Journal of Crystal Growth Vol287,no (2),pp. 582-585 JAN 25 2006
37. Y.A. Chang , J.T. Chu , C.T. Ko , H.C. Kuo , C.F. Lin , S.C. Wang ,” MOCVD growth of highly strained 1.3 mu m InGaAs : Sb/GaAs vertical cavity surface emitting laser,” Journal of Crystal Growth Vol287,no (2),pp. 550-553 JAN 25 2006
38. I.L. Chen , W.C. Hsu, T.D. Lee , H.C. Kuo , K.H. Su , C.H. Chiou , J.M. Wang , Y.H. Chang ,” Growth of highly strained RnGaAs quantum wells by metalorganic chemical vapor deposition with application to vertical-cavity surface-emitting laser,” Japanese Journal of Applied Physics Vol45,no (1-3),pp. L54-L56 JAN 2006
39. Y.A. Chang , J.R. Chen , H.C. Kuo , Y.K. Kuo , S.C. Wang ,” Theoretical and experimental analysis on InAlGaAs/AlGaAs active region of 850-nm vertical-cavity surface-emitting lasers,” Journal of Lightwave Technology Vol24,no(1),pp. 536-543 JAN 2006
40. G.S. Huang , T.C. Lu , H.H. Yao , H.C. Kuo, S.C. Wang , C.W. Lin , L.Chang,” Crack-free GaN/AlN distributed Bragg reflectors incorporated with GaN/AlN superlattices grown by metalorganic chemical vapor deposition,” Applied Phycics Letters Vol88,no (6),pp.061904 FEB 6 2006
41. C.J. Lin , C.K. Lin , C.W. Chang , Y.L. Chueh , H.C. Kuo , E.W.G. Diau , L.J. Chou, G.R. Lin ,” Photoluminescence of plasma enhanced chemical vapor deposition amorphous silicon oxide with silicon nanocrystals grown at different fluence ratios and substrate temperatures,” Japanese Journal of Applied Physics Vol.45 ,no.(2A),pp.1040-1043 FEB 2006
42. I.L. Chen , W.C. Hsu , H.C. Kuo , C.P. Sung , C.H. Chiou , J.M. Wang , Y.H. Chang , H.C. Yu , Lee TD,” Effect of annealing on low-threshold-current large-wavelength InGaAs quantum well vertical-cavity laser,” Japanese Journal of Applied Physics ,Vol.45,no. (2A),pp. 770-773 FEB 2006
43. Y.J. Lee , T.C. Lu, H.C. Kuo , S.C. Wang , M.J. Liou , C.W. Chang , T.C. Hsu , M.H. Hsieh , M.J. Jou , B.J. Lee ,” AlGaInP light-emitting diodes with stripe patterned omni-directional reflector,” Japanese Journal of Applied Physics ,Vol.45,no.(2A),pp. 643-645 FEB 2006
44. H.C. Yu , J.S. Wang , Y.K. Su , S.J. Chang , F.I. Lai , Y.H. Chang , H.C. Kuo , C.P. Sung , H.P.D. Yang , K.F. Lin , J.M. Wang , J.Y. Chi , R.S. Hsiao , S .Mikhrin ,” 1.3-mu m InAs-InGaAs quantum-dot vertical-cavity surface-emitting laser with fully doped DBRs grown by MBE,” IEEE Photonics Technology Letters,Vol.18,no. (1-4),pp.418-420 JAN-FEB 2006
45. Y.J. Lee , T.C. Lu , H.C. Kuo , S.C. Wang , M.J. Liou , C.W. Chang , T.C. Hsu , M.H. Hsieh , M.J. Jou , B.J. Lee ,” High brightness AlGaInP-based light emitting diodes by adopting the stripe-patterned omni-directional reflector,” Semiconductor Science and Technology,Vol.21,no. (2),pp. 184-189 FEB 2006
46. C.H. Lin , J.Y. Tsai ,C.C. Kao , H.C. Kuo , C.C. Yu , J.R. Lo , K.M. Leung ,” Enhanced light output in InGaN-based light-emitting diodes with onmidirectional one-dimensional photonic crystals,” Japanese Journal of

Applied Physics,Vol.45,no. (3A),pp.1591-1593 MAR 2006

47. H.W. Huang , C.C. Kao , Y.A. Chang , H.C. Kuo , L.H. Laih , S.C. Wang ," A novel method to improve VCSELs oxide-confined aperture uniformity using selective As+-implanted underlying layer," Materials Chemistry and Physics,Vol.97,no. (1),pp. 10-13 MAY 10 2006
48. P.C. Peng , H.C. Kuo , W.K. Tsai , Y.H. Chang , C.T. Lin , S. Chi , S.C. Wang ," Dynamic characteristics of long-wavelength quantum dot vertical-cavity surface-emitting lasers with light injection," Optics Express,Vol.14,no. (7),pp. 2944-2949 APR 3 2006
49. H.H. Yao, T.C. Lu, G.S. Huang, C.Y. Chen, W.D. Liang, H.C. Kuo, S.C. Wang," InGaN self-assembled quantum dots grown by metal-organic chemical vapour deposition with growth interruption," Nanotechnology 17 (6): 1713-1716 MAR 28 2006
50. C.C. Kao, T.C. Lu, H.W. Huang, J.T. Chu, Y.C. Peng, H.H. Yao, J.Y. Tsai, T.T. Kao, H.C. Kuo, S.C. Wang, C.F. Lin," The lasing characteristics of GaN-based vertical-cavity surface-emitting laser with AlN-GaN and Ta2O5-SiO2 distributed Bragg reflectors" IEEE Photonics Technology Letters 18 (5-8): 877-879 MAR-APR 2006
51. Y.H. Chang, P.C. Peng, W.K. Tsai, G. Lin, F. Lai, R.S. Hsiao, H.P. Yang, H.C. Yu, K.F. Lin, J.Y. Chi, S.C. Wang, H.C. Kuo," Single-mode monolithic quantum-dot VCSEL in 1.3 mu m with sidemode suppression ratio over 30 dB" IEEE Photonics Technology Letters 18 (5-8): 847-849 MAR-APR 2006
52. Y.J. Lee, J.M. Hwang, T.C. Hsu, M.H. Hsieh, M.J. Jou, B.J. Lee, T.C. Lu, H.C. Kuo, S.C. Wang," GaN-based LEDs with Al-deposited V-shaped sapphire facet mirror" IEEE Photonics Technology Letters 18 (5-8): 724-726 MAR-APR 2006
53. J.T. Chu, T.C. Lu, H.H. Yao, C.C. Kao, W.D. Liang, J.Y. Tsai, H.C. Kuo, S.C. Wang," Room-temperature operation of optically pumped blue-violet GaN-based vertical-cavity surface-emitting lasers fabricated by laser lift-off" Japanese Journal of Applied Physics 45 (4A): 2556-2560 APR 2006
54. S.Y. Kuo, F.I. Lai , W.C. Chen, C.P. Cheng, H.C. Kuo, S.C. Wang," Ultraviolet lasing of sol-gel-derived zinc oxide polycrystalline films" Japanese Journal of Applied Physics 45 (4B): 3662-3665 APR 2006
55. T.C. Wang, H.C. Kuo, T.C. Lu, C.E. Tsai, M.Y. Tsai, J.T. Hsu, J.R. Yang," Study of InGaN multiple quantum dots by metal organic chemical vapor deposition" Japanese Journal of Applied Physics 45 (4B): 3560-3563 APR 2006
56. Y.C. Peng, C.C. Kao, H.W. Huang, J.T. Chu, T.C. Lu, H.C. Kuo, S.C. Wang, C.C. Yu," Fabrication and characteristics of GaN-based microcavity light-emitting diodes with high reflectivity AIN/GaN distributed Bragg reflectors" Japanese Journal of Applied Physics 45 (4B): 3446-3448 APR 2006
57. H.W. Huang, J.T. Chu, C.C. Kao, T.H. Hsueh, T.C. Lu, H.C. Kuo, S.C. Wang, C.C. Yu, S.Y. Kuo," Enhanced light output in InGaN/GaN light emitting diodes with excimer laser etching surfaces" Japanese Journal of Applied Physics 45 (4B): 3442-3445 APR 2006
58. P.T. Lee, T.W. Lu, F.M. Tsai, T.C. Lu, H.C. Kuo," Whispering gallery mode of modified octagonal quasiperiodic photonic crystal single-defect microcavity and its side-mode reduction" Applied Physics Letters 88 (20): Art. No. 201104 MAY 15 2006
59. SY Kuo, CC Kei, CN Hsiao, CK Chao, FI Lai, HC Kuo, WF Hsieh, SC Wang," Catalyst-free GaN nanorods grown by metalorganic molecular beam epitaxy" IEEE Transactions on Nanotechnology 5 (3): 273-277 MAY 2006
60. YA Chang, SH Yen, TC Wang, HC Kuo, YK Kuo, TC Lu, SC Wang," Experimental and theoretical analysis on ultraviolet 370 nm AlGaInN light-emitting diodes" Semiconductor Science and Technology 21 (5): 598-603 MAY 2006
61. GS Huang, HH Yao, TC Lu, HC Kuo, SC Wang," Aluminum incorporation into AlGaN grown by low-pressure metal organic vapor phase epitaxy" Journal of Applied Physics 99 (10): Art. No. 104901 MAY 15 2006
62. FI Lai, SY Kuo, JS Wang, RS Hsiao, HC Kuo, J Chi, SC Wang, HS Wang, CT Liang, YF Chen," Temperature-dependent optical properties of In0.34Ga0.66As1-xNx/GaAs single quantum well with high nitrogen content for 1.55 mu m application grown by molecular beam epitaxy" Journal of Crystal Growth 291 (1): 27-33 MAY 15 2006
63. CK Lee, JH Hsu, DC Wang, YH Chang, HC Kuo, SC Wang," Optical properties of high density InGaN QDs

grown by MOCVD" Materials Science & Engineering C-Biomimetic and Supramolecular Systems 26 (5-7): 975-978 Sp. Iss. SI, JUL 2006

64. HW Huang, HC Kuo, JT Chu, CF Lai, CC Kao, TC Lu, SC Wang, RJ Tsai, CC Yu, CF Lin," Nitride-based LEDs with nano-scale textured sidewalls using natural lithography" Nanotechnology 17 (12): 2998-3001 JUN 28 2006
65. YS Liao, JW Shi, YS Wu, HC Kuo, M Feng, GR Lin," Optically heterodyne diagnosis of a high-saturation-power undoped InP sandwiched InGaAs p-i-n photodiode grown on GaAs" Optics Express 14 (12): 5031-5037 JUN 12 2006
66. YJ Lee, JM Hwang, TC Hsu, MH Hsieh, MJ Jou, BJ Lee, TC Lu, HC Kuo, SC Wang," Enhancing the output power of GaN-based LEDs grown on wet-etched patterned sapphire substrates" IEEE Photonics Technology Letters 18 (9-12): 1152-1154 MAY-JUN 2006
67. PC Peng, WR Peng, KM Feng, HY Chiou, J Chen, HC Kuo, SC Wang, S Chi," OCDMA light source using directly modulated Fabry-Perot laser diode in an external injection scheme" IEEE Photonics Technology Letters 18 (9-12): 1103-1105 MAY-JUN 2006
68. FI Lai, SY Kuo, YH Chang, HW Huang, CW Chang, CC Yu, CF Lin, HC Kuo, SC Wang," Fabrication of magnesium-doped gallium nitride nanorods and microphotoluminescence characteristics" Journal of Vacuum Science & Technology B 24 (3): 1123-1126 MAY-JUN 2006
69. TS Ko, CP Chu, HG Chen, TC Lu, HC Kuo, SC Wang," Observation of strong red photoluminescence with broadband in indium oxynitride nanoparticles" J Journal of Vacuum Science & Technology A 24 (4): 1332-1335 JUL-AUG 2006
70. FI Lai, SY Kuo, JS Wang, HC Kuo, SC Wang, HS Wang, CT Liang, YF Chen," Effect of nitrogen contents on the temperature dependence of photoluminescence in InGaAsN/GaAs single quantum wells" Journal of Vacuum Science & Technology A 24 (4): 1223-1227 JUL-AUG 2006
71. GR Lin, K HC uo, HS Lin, CC Kao," Rapid self-assembly of Ni nanodots on Si substrate covered by a less-adhesive and heat-accumulated SiO2 layers" Applied Physics Letters 89 (7): Art. No. 073108 AUG 14 2006
72. Po-Tsung Lee, Tsan-Wen Lu, Feng-Mao Tsai, and Tien-Chang Lu, "Investigation of whispering gallery mode dependence on cavity geometry of quasiperiodic photonic crystal microcavity lasers," *Appl. Phys. Lett.* 89, 231111 (2006) (SCI IF:4.127)
73. Po-Tsung Lee, Tsan-Wen Lu, Feng-Mao Tsai, Tien-Chang Lu, and Hao-Chung Kuo, "Whispering gallery mode of modified octagonal quasi-periodic photonic crystal single defect microcavity and its side mode reduction," *Appl. Phys. Lett.* 88, 201104 (2006) (SCI IF:4.127)
74. HW Huang, JT Chu, TH Hsueh, MC Ou-Yang, HC Kuo, SC Wang," Fabrication and photoluminescence of InGaN-based nanorods fabricated by plasma etching with nanoscale nickel metal islands" Journal of Vacuum Science & Technology B 24 (4): 1909-1912 JUL-AUG 2006
75. C. C. Kao, H. C. Kuo, H. W. Huang, J. T. Chu, Y. C. Peng, Y. L. Hsieh, C. Y. Luo, S. C. Wang, C.C. Yu, C. F. Lin "Light-output enhancement in a nitride-based light-emitting diode with 22 degrees undercut sidewalls" IEEE Photonincs Technology Letters 17 (1): 19-21 JAN 2005(2)
76. . Kuo, Y. H. Chang, Y. A. Chang, F. I. Lai, J. T. Chu, M. N. Tsai, S. C. Wang "Single-mode 1.27-mu m InGaAs : Sb-GaAs-GaAsP quantum well vertical cavity surface emitting lasers" IEEE Journal of Selected Topics in Quantum Electronics 11 (1): 121-126 JAN-FEB 2005(0)
77. H. C. Kuo, Y. H., H. H. Yao, Y. A. Chang, F. I. Lai, M. Y. Tsai, S. C. Wang "High-speed modulation of InGaAs : Sb-GaAs-GaAsP quantum-well vertical-cavity surface-emitting lasers with 1.27-mu m emission wavelength" IEEE Photonincs Technology Letters 17 (3): 528-530 MAR 2005(0)
78. HPD Yang, F. I. Lai, Y. H. Chang, H. C. Yu,C. P. Sung, H. C. Kuo, S. C. Wang,S. Y. Lin, J. Y. Chi "Singlemode (SMSR > 40 dB) proton-implanted photonic crystal vertical-cavity surface-emitting lasers" Electronics Letters 41 (6): 326-328 MAR 17 2005(0)
79. H. W. Huang,C. C. Kao, J. I. Chu, H. C. Kuo, S. C. Wang, C. C. Yu "Improvement of InGaN-GaN light-emitting diode performance with a nano-roughened p-GaN surface" IEEE Photonincs Technology Letters 17 (5): 983-985

MAY 2005(0)

80. T. H. Hsueh,H. W.Huang, F. I. Lai, J. K. Sheu, Y. H. Chang, H. C. Kuo, S. C. Wang "Photoluminescence from In0.3Ga0.7N/GaN multiple-quantum-well nanorods" Nanotechnology 16 (4): 448-450 APR 2005(0)
81. T. H. Hsueh,H. W.Huang, C. C. Kao,Y. H. Chang, M. C. Ou-Yang, H. C. Kuo, S. C. Wang "Characterization of InGaN/GaN multiple quantum well nanorods fabricated by plasma etching with self-assembled nickel metal nanomasks" Japanese Journal of Applied Physics 44 (4B): 2661-2663 APR 2005(0)
82. Y. H. Chang, T. H. Hsueh, F. I. Lai, C. W. Chang, C. C. Yu,H.W. Huang, C. F. Lin, H. C. Kuo, S. C. Wang "Fabrication and micro-photoluminescence investigation of Mg-doped gallium nitride nanorods" Japanese Journal of Applied Physics 44 (4B): 2657-2660 APR 2005(0)
83. Y. H. Chang, H. C. Kuo, Y. A. Chang, J. T. Chu, M. Y. Tsai, S. C. Wang "10 Gbps InGaAs : Sb-G-aAs-GaAsP quantum well vertical cavity surface emitting lasers with 1.27 mu m emission wavelengths" Japanese Journal of Applied Physics (4B): 2556-2559 APR 2005(0)
84. J. T. Chu, H. W. Huang, C. C. Kao, W. D. Liang, F. I. Lai,C. F. Chu, H. C. Kuo, S. C. Wang "Fabrication of large-area GaN-based light-emitting diodes on Cu substrate" Apanese Journal of Applied Physics (4B): 2509-2511 APR 2005(2)
85. G. R. Lin, H. C. Kuo, C. K. Lin, M. Feng "Ultralow leakage In0.53Ga0.47As p-i-n photodetector grown on linearly graded metamorphic InxGa1-xP buffered GaAs substrate" EE Journal of Quantum Electronics 41 (6): 749-752 JUN 2005(0)
86. T. H. Hsueh, J. K. Shen, H. W. Huang, J. Y. Chu, C. C. Kao, H. C. Kuo, S. C. Wang "Enhancement in light output of InGaN-based microhole array light-emitting diodes" IEEE Photonics Technology Letters 17 (6): 1163-1165 JUN 2005(1)
87. Y. A. Chang, H. C. Kuo, C. Y. Lu, Y. K. Kuo, S. C. Wang "Improving high-temperature performance in continuous-wave mode InGaAsN/GaAsN ridge waveguide lasers" Semiconductor Science and Technology 20 (6): 601-605 JUN 2005(1)
88. Y. H. Chang, H. C. Kuo, F. I. Lai, K. F. Tzeng, H. C. Yu, C. P. Sung, H. P. Yang, S. C. Wang "High speed (> 13 GHz) modulation of 850 nm vertical cavity surface emitting lasers (VCSELs) with tapered oxide confined layer" IEE Proceedings-Optoelectronics 152 (3): 170-173 JUN 2005(0)
89. Y. A. Chang, H. C. Kuo, Y. H. Chang, S. C. Wang "Improved photoluminescence of 1.26 mu m InGaAs/GaAs quantum wells assisted by Sb surfactant and indium-graded intermediate layers" Applied Physics Letters 87 (6): Art. No. 061908 AUG 8 2005(0)
90. C. C. Kao, Y. C. Peng, H. H. Yao, J. Y. Tsai, Y. H. Chang, J. T. Chu, H. W. Huang, T. T. Kao, T. C. Lu, H. C. Kuo, S. C. Wang, Lin CF "Fabrication and performance of blue GaN-based vertical-cavity surface emitting laser employing AlN/GaN and Ta2O5/SiO2 distributed Bragg reflector" Applied Physics Letters 87 (8): Art. No. 081105 AUG 22 2005(0)
91. Y. A. Chang, F. I. Lai, H. C. Yu, H. C. Kuo, L. W. Laih, C. L. Yu, S. C. Wang "High temperature stability 850-nm In0.15Al0.08Ga0.77As/Al0.3Ga0.7As vertical-cavity surface-emitting laser with single Al0.75Ga0.25As current blocking layer" Japans Journal of Applied Physics 44 (28-32): L901-L902 2005(0)
92. F. I. Lai, H. C. Kuo,Y. H. Chang,M. Y. Tsai, C. P. Chu, S. Y. Kuo, S. C. Wang, N. Tansu , Yeh JY, Mawst LJ "Temperature-dependent photoluminescence of highly strained InGaAsN/GaAs quantum wells (lambda=1.28-1.45 mu m) with GaAsP strain-compensated layers" Japans Journal of Applied Physics 44 (8): 6204-6207 AUG 2005(0)
93. Y. J. Lee, T. C. Hsu, H. C. Kuo, S. C. Wang, Y. L. Yang, S. N. Yen, Y. T. Chu,Y. J. Shen, M. H. Hsieh, M. J. Jou, Lee BJ "Improvement in light-output efficiency of near-ultraviolet InGaN-GaN LEDs fabricated on stripe patterned sapphire substrates" Materials Sciences and Engineering B-SOLID State Materials for Advanced Technology 122 (3): 184-187 SEP 25 2005(1)
94. H. W. Huang, J. T. Chu, C. C. Kao, T. H. Hseuh, T. C. Lu, H. C. Kuo, S. C. Wang, Yu CC "Enhanced light output of an InGaN/GaN light emitting diode with a nano-roughened p-GaN surface" Nanotechnology 16 (9): 1844-1848 SEP 2005(0)

95. HPD Yang , Y. H. Chang, F. I. Lai, H. C. Yu,Y. J. Hsu, G. Lin, R. S. Hsiao, H. C. Kuo, S. C. Wang,J. Y. Chi "Singlemode InAs quantum dot photonic crystal VCSELs" Electronics Letters 41 (20): 1130-1132 SEP 29 2005(0)
96. Y. J. Lee, H. C. Kuo, S. C. Wang, T. C. Hsu, M. H. Hsieh, M. J. Jou, B. J. Lee "Increasing the extraction efficiency of AlGaInP LEDs via n-side surface roughening" IEEE Photonics Technology Letters 17 (11): 2289-2291 NOV 2005(0)
97. T. H. Hsueh, J. K. Sheu, H. W. Huang,Y. H. Chang,M. C. Ou-Yang, H. C. Kuo, S. C. Wang "Fabrication and characterization of In0.25Ga0.75N/GaN multiple quantum wells embedded in nanorods" Japanese Journal of Applied Physics 44 (10): 7723-7725 OCT 2005(0)
98. I. L. Chen, W. C. Hsu, H. C. Kuo, H. C. Yu, C. P. Sung, C. M. Lu, C. H. Chiou, J. M. Wang, Y. H. Chang, T. D. Lee, Wang JS " Low-threshold-current-density, long-wavelength, highly strained InGaAs laser grown by metalorganic chemical vapor deposition" Japanese Journal of Applied Physics 44 (10): 7485-7487 OCT 2005(0)
99. P. C. Peng, Y. H. Chang, H. C. Kuo, W. K. Tsai, G. Lin , C. T. Lin, H. C.Yu, H. P.Yang, R. S.Hsiao, K. F.Lin, J. Y.Chi, S.Chi , S. C. Wang "1.3 mu m quantum dot vertical-cavity surface-emitting laser with external light injection" Electronics Letters 41 (22): 1222-1223 OCT 27 2005(0)
100. J. T.Chu, C. C.Kao, H. W.Huang, W. D.Liang,C. F.Chu, T. C.Lu, Kuo HC, S. C. Wang "Effects of different n-electrode patterns on optical characteristics of large-area p-side-down InGaN light-emitting diodes fabricated by laser lift-off" Japanese Journal of Applied Physics, 44 (11): 7910-7912 NOV 2005(0)
101. Y. J.Lee, H. C.Tseng, H. C. Kuo, S. C. Wang, C. W.Chang, T. C.Hsu, Y. L.Yang, M. H.Hsieh, M. J.Jou, B. J.Lee "Improvement in light-output efficiency of AlGaInP LEDs fabricated on stripe patterned epitaxy" IEEE Photonics Technology Letters 17 (12): 2532-2534 DEC 2005(0)
102. Wan Kuang, Jiang-Rong Cao, Tian Yang, Sang-Jun Choi, Po-Tsung Lee, John D. O'Brien, and P. Daniel Dapkus, "Classification of modes in suspended membrane, 19 missing hole photonic crystal micro-cavities," *J. Opt. Soc. Am. B,* 22, pp. 1092-1099 (2005) (SCI IF:2.649)
103. H. C. Kuo, Y. S.Chang, F. Y.Lai, T. H.Hseuh, L. T.Chu, L. H0Laih, S. C. Wang "High speed performance of 850 nm silicon-implanted AlGaAs/GaAs vertical cavity emitting lasers" Solid-State Electronics 48 (3): 483-485 MAR 2004(1)
104. C. F.Lin, H. H.Yao, J. W.Lu,Y. L.Hsieh, H. C. Kuo, S. C. Wang "Characteristics of stable emission GaN-based resonant-cavity light-emitting diodes" Journal of Cryatal Growth 261 (2-3): 359-363 JAN 19 2004(4)
105. H. C. Kuo, Y. S.C hang, C. F.Lin, T. C.Lu, S. C. Wang "MOCVD growth of high-performance InGaAsP/InGaP strain-compensated VCSELs with 850 nm emission wavelength" Journal of Cryatal Growth 261 (2-3): 355-358 JAN 19 2004(0)
106. H. H.Yao, C. F.Lin, H. C. Kuo, S. C. Wang "MOCVD growth of AlN/GaN DBR structures under various ambient conditions" Journal of Cryatal Growth 262 (1-4): 151-156 FEB 15 2004(4)
107. T. C.Lu, J. Y.Tsai, H. C. Kuo, S. C. Wang " Comparisons of InP/InGaAlAs and InAlAs/InGaAlAs distributed Bragg reflectors grown by metalorganic chemical vapor deposition" Materials Science and Engineering B-Solid State Materials for Advanced Technology 107 (1): 66-69 FEB 25 2004(0)
108. C. C.Kao, Huang HW. Tsai JY, Yu CC, Lin CF, H. C. Kuo, S. C. Wang "Study of dry etching for GaN and InGaN-based laser structure using inductively coupled plasma reactive ion etching" aterials Science and Engineering B-Solid State Materials for Advanced Technology 107 (3): 283-288 MAR 25 2004(2)
109. Huang HW, Kao CC, Tsai JY, Yu CC, Chu CF, Lee JY, Kuo SY, Lin CF, Kuo HC, Wang SC "Effect of rapid thermal annealing on beryllium implanted p-type GaN" MATERIALS SCIENCE AND ENGINEERING B-SOLID STATE MATERIALS FOR ADVANCED TECHNOLOGY 107 (3): 237-240 MAR 25 2004(1)
110. Chu CF, Lai FI, Chu JT, Yu CC, Lin CF, Kuo HC, Wang SC "Study of GaN light-emitting diodes fabricated by laser lift-off technique" JOURNAL OF APPLIED PHYSICS 95 (8): 3916-3922 APR 15 2004(2)
111. Laih LH, Kuo HC, Lin GR, Laih LW, Wang SC "As+-implanted AlGaAs oxide-confined VCSEL with enhanced oxidation rate and high performance uniformity" IEEE PHOTONICS TECHNOLOGY LETTERS 16 (6):

1423-1425 JUN 2004(0)

112. Yu HC, Chang SJ, Su YK, Sung CP, Yang HP, Huang CY, Lin YW, Wang JM, La FI, Kuo HC "Improvement of high-speed oxide-confined vertical-cavity surface-emitting lasers" JAPANESE JOURNAL OF APPLIED PHYSICS43 (4B): 1947-1950 APR 2004(0)
113. Chang YH, Lai FI, Lu CY, Kuo HC, Yu HC, Sung CP, Yang HP, Wang SC "High-speed (> 10 Gbps) 850 nm oxide-confined vertical cavity surface emitting lasers (VCSELs) with a planar process and reduced parasitic capacitance" SEMICONDUCTOR SCIENCE AND TECHNOLOGY 19 (7): L74-L77 JUL 2004(1)
114. Lin GR, Yu KC, Lin CJ, Kuo HC, Ou-Yang MC "Pumping intensity dependent surface charge accumulation and redshifted microphotoluminescence of silicon-implanted quartz" APPLIED PHYSICS LETTERS 85 (6): 1000-1002 AUG 9 2004(2)
115. Huang HW, Kao CC, Chu JT, Kuo HC, Wang SC, Yu CC, Lin CF "Investigation of GaN LED with Be-implanted Mg-doped GaN layer" MATERIALS SCIENCE AND ENGINEERING B-SOLID STATE MATERIALS FOR ADVANCED TECHNOLOGY 113 (1): 19-23 OCT 15 2004(0)
116. Huang HW, Kao CC, Hsueh TH, Yu CC, Lin CF, Chu JT, Kuo HC, Wang SC "Fabrication of GaN-based nanorod light emitting diodes using self-assemble nickel nano-mask and inductively coupled plasma reactive ion etching" MATERIALS SCIENCE AND ENGINEERING B-SOLID STATE MATERIALS FOR ADVANCED TECHNOLOGY 113 (2): 125-129 OCT 25 2004(3)
117. Lai FI, Hsueh TH, Chang YH, Kuo HC, Wang SC, Laih LH, Song CP, Yang HP "10 Gb/s single-mode vertical-cavity surface-emitting laser with large aperture and oxygen implantation" SEMICONDUCTOR SCIENCE AND TECHNOLOGY 19 (8): L86-L89 AUG 2004(0)
118. Lai F., Chang YH, Hsueh TH, Huang HW, Laih LH, Kuo HC, Wang SC, Guung TC "Improvement of kink characteristics performance of GaAsVCSEL with a indium-tin-oxide top transparent overcoating" MATERIALS SCIENCE AND ENGINEERING B-SOLID STATE MATERIALS FOR ADVANCED TECHNOLOGY 113 (3): 203-206 NOV 15 2004(0)
119. T.C.Lu, W.C. Hu, Y.S.Chang, H. C. Kuo, S. C. Wang "Spectrally resolved spontaneous emission patterns of oxide-confined vertical-cavity surface-emitting lasers" Japanese Journal of Applied Physics 96 (11): 5992-5995 DEC 1 2004(0)
120. Y.H. Cang, H. C. Kuo, F.I. Li,Y.A. ang, C.Y.Lu, L.H.Laih, S. C. Wang "Fabrication and characteristics of high-speed oxide-confined VCSELs using InGaAsP-InGaP strain-compensated MQWs" Journal of Technology 22 (12): 2828-2833 DEC 2004(1)
121. H. C. Kuo, H. H.Yao,Y.H.Cang, Y.A.Cang, M.YTai, JHieh, E.Y.Cang, S. C. Wang "MOCVD growth of highly strained InGaAs : Sb-GaAs-GaAsP quantum well vertical cavity surface-emitting lasers with 1.27 mu m emission" Journal of Cryatal Growth 272 (1-4): 538-542 DEC 10 2004(3)

C. Volume Holographic Materials, Technology and Enabling devices

1. Shiuan-Huei Lin, Po-Lin Chen, Yi-Nan Hsiao and Wha-Tzong Whang, "Fabrication and Characterization of poly (methyl methacrylate) photopolymer doped with 9,10-Phenanthrenequinone (PQ) based derivatives for volume holographic data storage", Optics Communications, Vol. 281, pp. 559-566, 2008.
2. V. Marinova, D. Petrova, S. H. Lin and K.Y. Hsu, "Light-induced and holographic properties of Fe+Mn doubly-doped $Bi_4Ge_3O_{12}$ crystals", Optics Communications, Vol. 281, pp. 37-43, 2008.
3. Shiuan-Huei Lin, Yi-Nan Hsiao, Ken Y. Hsu and Wha- Tzong Whang, "Poly (methyl methacrylate-co-hydroxyethyl methacrylate) photopolymer doped with photoinitiator system Eosin Y Spirit Soluble/Triethanolamine for holographic data storage," in press, J. Optical Memory & Neural Networks, 2008.
4. Shiuan Huei Lin, Po-Lin Chen, Jung-Hwa Lin, Yi-Nan Hsiao and Ken Y. Hsu, "Phenanthrenequinone-doped copolymers for volume holographic data storage applications," submitted to Optical Engineering, 2008.
5. D. Petrova, V. Marinova, R. C. Liou, S. H. Lin and K.Y. Hsu, "Characterization of doped $Bi_4Ge_3O_{12}$ single crystals by light-induced, electrical and photoelectrical measurements" J. of optoelectronics and advanced material, Vol. 9, No. 2, p. 282 – 285, February 2007.

6. Jian-Shuen Fang, Qi Hao, David J. Brady, Mohan Shankar, Bob D. Guenther, Nikos P. Pitsianis, and Ken Y. Hsu, “Path-dependent human identification using a pyroelectric infrared sensor and Fresnel lens arrays”, Optics Express Vol. 14, 609-624, 2006, selected by OSA’s Virtual J. for Biomedical Optics, Vol. 1, Issue2, Feb. 10, 2006.

7. V. Marinova, S. H. Lin, and Ken Y. Hsu "Light-induced properties of ruthenium-doped $Bi_4Ge_3O_{12}$ crystals" J. Appl. Phys. 98, 113527, 2005.

8. Yi-Nan Hsiao, Wha-Tzong Whang and Shiuan Huei Lin, “Effect of ZnMA on optical and holographic characteristics of doped PQ/PMMA photopolymer,” Japanese J. of Appl. Phys., 44 (2), 914-919, 2005.

9. Yi-Nan Hsiao, Wha-Tzong Whang and Shiuan Huei Lin, “Analyses on Physical Mechanism of Holographic Recording in Phenanthrenquinone doped Poly(methyl methacrylate) Hybrid Materials,” Optical Engineering, Vol. 43, Issue 9, pp. 1993-2002, 2004.

International Conference papers:

A. Coherent and THz Photonics

1. Tze-An Liu and Ci-Ling Pan, Masahiko Tani, Makoto Nakajima and Masanori Hangyo, Kiyomi Sakai, Shin-ichi Nakashima, “Ultrabroadband terahertz field detection by proton-bombarded InP photoconductive antennas,” presented at the 14th International Conference on Ultrafast Phenomena 2004, Niigata, Japan, July 25-30, 2004, paper published in Ultrafast Phenomena XIV: Proceedings of the 14th International Conference, Niigata, Japan, July 25-30, 2004 (Springer Series in Chemical Physics, V. 79), Takayoshi Kobayashi, Tadashi Okada, Tetsuro Kobayashi, Keith A. Nelson, Sandro De Silvestri, Editors, Springer-Verlag, Berlin, 2005, pp. 756-758.
2. Ching-Wei Chen and Ci-Ling Pan, Su-Frang Shu, Chao-Kuei Lee, “Population-split Genetic Algorithm for phase retrieval of ultrafast laser pulses,” ibid., pp. 103-105.
3. Chao-Yuan Chen, and Ci-Ling Pan, Cho-Fan Hsieh, and Ru-Pin Pan, “Magnetically Controlled 2π Liquid Crystal Terahertz Phase Shifter,” ibid., pp.723-725.
4. Ci-Ling Pan, Cho-Fan Hsieh, and Ru-Pin Pan, Masaki Tanaka, Fumiaki Miyamaru, Masahiko Tani, and Masanori Hangyo, “Control of THz transmission through two-dimensional metallic photonic crystals,” postdeadline paper, ibid., pp. 699-701.
5. Kuo-Cheng Yu, Chun-Jung Lin, M.-J. Ou-yang, Hao-Chung Kuo, and Gong-Ru Lin, “Correlation between Surface Charge Accumulation and Pumping Intensity Dependent Red-Shifted Micro-Photoluminescence of Si-Implanted Quartz with Buried Si Nanocrystals”, The 2004 Materials Research Society Spring Meeting (MRS2004), poster paper. A4.37, San Francisco CA, USA, April 12-16, 2004.
6. Yu-Sheng Liao and Gong-Ru Lin, “5 GHz optically cross-gain modulation induced mode-locking of semiconductor optical amplifier”, OSA/IEEE Conference on Laser and Electro-Optics (CLEO2004), Poster Session II, Paper CWA-#982, San Francisco CA USA, May 16-21, 2004.
7. Jing-Yuan Zhang, Chao-Kuei Lee, Jung Y. Huang, and Ci-Ling Pan, “Sub femto-joule sensitive single-shot XFROG measurements based on optical parametric amplification,” ibid., paper CTuZ5.
8. Yi-Chao Wang, Alexei K. Zaitsev and Ci-Ling Pan, Jia-Min Shieh, “New low temperature poly-silicon fabrication technique by near infrared femto-second laser annealing,” ibid., paper CThD1.
9. Yung-Cheng Chang and Gong-Ru Lin, “Tunable dual wavelength NRZ-to-RZ format transformed data pulse-train generated from a non-dc-biased laser diode by externally pseudo-random-binary-sequence seeding”, OSA/IEEE Conference on Laser and Electro-Optics (CLEO2004), Poster Session II, Paper CWA-#964, San Francisco CA USA, May 16-21, 2004.
10. Yung-Cheng Chang, Yu-Huang Lin, Yu-Sheng Liao, and Gong-Ru Lin, “Tunable Dual-Wavelength NRZ-to-RZ Data-Format Transformer at 10 Gbps Using Non-DC-Biased and Synchronously Modulated Laser Diode”, Ninth Optoelectronics and Communications Conference/Third International Conference on Optical Internet

(OECC/COIN2004), Poster session, paper 13p-106, Yokohama, Japan, July12-16, 2004

11. Yu-Sheng Liao and Gong-Ru Lin, “Detuning the Duty Cycle of Backward Optical Injection for Optimized Mode-Locking in Semiconductor Optical Amplifier Fiber Laser”, Ninth Optoelectronics and Communications Conference/Third International Conference on Optical Internet (OECC/COIN2004), Poster session, paper 13p-100, Yokohama, Japan, July12-16, 2004.
12. Yu-Huang Lin, Yung-Cheng Chang, Yu-Sheng Liao, and Gong-Ru Lin, “Optically triggered on/off keying of 10-Gbit/s single-mode return-to-zero data pulse-train from Fabry-Perot laser diode”, Ninth Optoelectronics and Communications Conference/Third International Conference on Optical Internet (OECC/COIN2004), Poster session, paper 13p-68, Yokohama, Japan, July12-16, 2004.
13. C.-J. Lin, Y.-L. Chueh, L.-J. Chou, C.-W. Chang, E. W. G. Diau, H.-C. Kuo, and G.-R. Lin, “Countinuous-Wave and Time-Resolved Photoluminescence Analysis of Silicon Nanocrystals Formed by Thermal Annealing of Amorphous Silicon Oxides at Different Times”, 2004 International Conference on Solid State Devices and Materials, Poster session, paper P9-12, Tokyo, September 15-17, 2004.
14. Ci-Ling Pan, “NCTU Photonics Programs: an Overview,” invited talk, presented at the 2005 NRC-IME-ITRI Trilateral Photonics Workshop, Ottawa, Canada, Sept. 27-29, 2004.
15. Tze-An Liu, Zu-sho Chow, Jia-Huey Tsao, Teh-Ho Tao, Chao-Yuan Chen, Cho-Fan Hsieh, Ru-Pin Pan, and Ci-Ling Pan, “THz transmission spectroscopic studies of deoxyhemoglobin, ” presented at the Frontiers in Optics 2004, the 88th Annual Meeting of the Optical Society of America and Laser Sciences XX, Rochester, NY, USA, Oct. 10-14, 2004.
16. Chi-Kuang Lin, Yu-Sheng Liao, Hao-Chung Kuo, and Gong-Ru Lin, “Low-leakage In0.53Ga0.47As p-i-n photodetector fabricated on GaAs substrate with linearly graded metamorphic InxGa1-xP buffer”, 2004 Asia-Pacific Optical and Wireless Communications Conference and Exhibition (APOC 2004), paper. 5624-61, Beijing, China, November 7-11, 2004.
17. Yi-Hsiang Chiu, Yu-Sheng Liao, and Gong-Ru Lin, “The effect of backward injecting wavelength on the mode-locking dynamics of a semiconductor amplifier based fiber laser”, 2004 Asia-Pacific Optical and Wireless Communications Conference and Exhibition (APOC 2004), paper. 5624-61, Beijing, China, November 7-11, 2004.
18. Ming-Chung Wu, Yung-Cheng Chang, and Gong-Ru Lin, “Comparison on the noise and jitter characteristics of harmonic injection-locked and mode-locked erbium-doped fiber lasers”, 2004 Asia-Pacific Optical and Wireless Communications Conference and Exhibition (APOC 2004), paper. 5623-97, Beijing, China, November 7-11, 2004.
19. Ci-Ling Pan, Ru-Pin Pan, Chao-Yuan Chen, T. R. Tsai, C. H. Wang, Cho-Fan Hsieh, “Liquid Crystal THz Optics,” invited talk, presented at the Croucher Advanced Study Institute on “Frontiers of Photonics Research: Nanophotonics, Femtosecond Photonics and Biophotonics,” Hong Kong, December 6-10, 2004.
20. I-Hsiang Chiu, Yu-Sheng Liao, Yung-Cheng Chang, and Gong-Ru Lin, “A 3.5-ps Mode-Locked Semiconductor Optical Amplifier Fiber Laser generated by 60-ps Backward Optical Dark Pulse-Train Injection”, Photonics West 2005, Symposia: Lasers and Applications in Science and Engineering, San Jose, California, 22-27 January 2005.
21. Chi-Kuan Lin, Gong-Ru Lin, Chun-Jung Lin, Hao-Chung Kuo and Chia-Yang Chen, “Silicon Defect and Nanocrystal Related White and Red Electroluminescence of Si-rich SiO_2 Based Metal-Oxide-Semiconductor Diode”, Photonics West 2005, Conference on Fiber Lasers II: Technology, Systems, and Applications, Symposia: Lasers and Applications in Science and Engineering, San Jose, California, 22-27 January 2005.
22. Ming-Chung Wu, Yung-Cheng Chang, and Gong-Ru Lin, “Suppression of Supermode and Phase Noises in Mode-Locked Erbium-Doped Fiber Laser with a Semiconductor Optical Amplifier Based High-Pass Filter”, Photonics West 2005, Conference on Fiber Lasers II: Technology, Systems, and Applications, Symposia: Lasers and Applications in Science and Engineering, San Jose, California, 22-27 January 2005.
23. Chia-Yang Chen, Chun-Jung Lin, Hao-Chung Kuo, Gong-Ru Lin, Yu-Lun Chueh, Li-Jen Chou, Chih-Wei Chang and Eric Wei-Guang Diau, “Improved Near-infrared Luminescence of Si-rich SiO_2 with Buried Si Nanocrystals Grown by PECVD at Optimized N_2O Fluence”, Photonics West 2005, Conference on Synthesis and Photonics of

Nanoscale Materials III, Symposia: Lasers and Applications in Science and Engineering, San Jose, California, 22-27 January 2005.

24. Ci-Ling Pan, "An Overview of THz Research Activities in Taiwan," invited talk, presented at the Photonics West 2005, San Jose, California, USA, Jan. 22-27, 2005, published as Proc. SPIE Vol. 5727, pp. 74-81, Terahertz and Gigahertz Electronics and Photonics IV; R. Jennifer Hwu, Kurt J. Linden; Eds., Mar 2005.
25. Chao-Kuei Lee, J. Y. Huang, Ci-Ling Pan, and Jing-Yung Zhang, "Novel Method for Generation of Tunable UV/Blue Femtosecond Pulses," presented at the 2005 Advanced Solid-State Photonics Meeting, paper WB24, Vienna, Austria, Feb. 6-9, 2005, proceeding paper to be published in ASSP2005 TOPS vol. 98, Optical Society of America (young scientist traveling support Award).
26. Ming-Chung Wu, Yung-Cheng Chang, and Gong-Ru Lin, "Phase Noise and Supermode Suppression in Harmonic Mode-Locked Erbium-Doped Fiber Laser with a Semiconductor Optical Amplifier Based High-Pass Filter", Optical Fiber Communication Conference and Exhibit (2005 OFC/NFOEC Meeting), Session OFJ - Pulsed Lasers, Paper OFJ6, Anaheim, California, March 6-11, 2005.
27. Chi-Kuan Lin, Hao-Chung Kuo, Gong-Ru Lin, and M. Feng, "A Low-Dark-Current InGaAs Photodetector Made on Metamorphic InGaP Buffered GaAs Substrate", Optical Fiber Communication Conference and Exhibit (2005 OFC/NFOEC Meeting), Session OFM - Detectors and Receivers, Paper OFM4, Anaheim, California, March 6-11, 2005.
28. Chun-Jung Lin, Gong-Ru Lin, Yu-Lun Chueh, and Li-Jen Chou, "CO_2 Laser Annealing Synthesis of Silicon Nanocrystals Buried in Si-rich SiO_2", 2005 MRS spring Meeting, poster paper A19.2, San Francisco, CA USA, March 28-April 1, 2005.
29. Chia-Yang Chen, Chun-Jung Lin, Hao-Chung Kuo, Gong-Ru Lin, Yu-Lun Chueh, Li-Jen Chou, Chih-Wei Chang and Eric Wei-Guang Diau, "Effects of N_2O Fluence on The PECVD-grown Si-rich SiO_x with Buried Si Nanocrystals", 2005 MRS spring Meeting, poster paper A19.11, San Francisco, CA USA, March 28-April 1, 2005.
30. Ci-Ling Pan, "Ultra-broadband THz field detection by Ion-implanted III-V PC Antenna," invited talk, presented at the Photonics West 2005, San Jose, California, USA, Jan. 22-27, 2005, published as: Proc. SPIE Vol. 5725, pp. 53-60, Ultrafast Phenomena in Semiconductors and Nanostructure Materials IX; Kong-Thon Tsen, Jin-Joo Song, Hongxing Jiang; Eds., Apr 2005.
31. Yung-Cheng Chang, Yu-Huang Lin, J. H. Chen, and Gong-Ru Lin, "All-Optical OC-192 NRZ-to-PRZ Data-Format Conversion by Injection-Locking a Synchronously Modulated Fabry-Perot Laser Diode", OSA/IEEE Conference on Laser and Electro-Optics (CLEO2005), Poster Session III, Paper JThE81, Baltimore MA USA, May 22-27, 2005.
32. I-Hsiang Chiu, Ming-Chung Wu, and Gong-Ru Lin, "Generation of 1.8-ps Mode-Locked Semiconductor Optical Amplifier Fiber Laser Pulses by 60-ps Backward Optical Dark Comb Injection", OSA/IEEE Conference on Laser and Electro-Optics (CLEO2005), Poster Session II, Paper JWB50, Baltimore MA USA, May 22-27, 2005.
33. Yu-Ping Lan, Tsung-Sheng Shih, Ci-ling Pan, Yea-Feng Lin and Ru-Pin Pan, "A WDM Channel Selectable Diode Laser with A Mode-hop-free fine-tuning Mechanism," presented at Conference on Lasers and Electro-Optics, CLEO/QELS'05, Baltimore, Maryland, USA, May 22-27, 2005, paper JTUC88.
34. Zun-Hao Chen, Jia-Min Shieh, Bau-Tong Dai, Yi-Chao Wang, Ci-Ling Pan; "Near-Infrared Femtosecond Laser-Processed Thin-Film Transistor," ibid., paper CFG7.
35. Ching-Wei Chen, Yu-Kuei Hsu, J. Y. Huang, C. S. Chang, Ci-Ling Pan, Jing-Yuan Zhang,"Intense picosecond infrared pulses tunable from 2.4 μm to 38 μm for nonlinear optics applications", paper # CFI3-1, IQEC/CLEO-PR 2005, Tokyo, Japan, July 11-15, 2005 (Student Travel Support Award).
36. Yi-Chao Wang, Alexei Zaitsev, and Ci-Ling Pan, Jia-Min Shieh, Zun-Hao Chen, and Bau-Tong Dai "Near-Infrared Femtosecond Laser activation of shallow B and P doped layers,", paper # CTuC3-P12, IQEC/CLEO-PR 2005, Tokyo, Japan, July 11-15, 2005.
37. Yu-Ping Lan, Pei-Lin Chen and Ci-Ling Pan "Wavelength Stabilization of a DFB Diode Laser Using a Fiber Bragg Grating," paper # CWAB3-P26, IQEC/CLEO-PR 2005, Tokyo, Japan, July 11-15, 2005.

38. Yung-Cheng Chang, Ming-Chung Wu, and Gong-Ru Lin, “A Pulse-Compressed and Harmonic Mode-Locked SOA-EDFA Laser Link with Suppressed Phase and Supermode Noises”, International Conference on Quantum Electronics 2005 and the Pacific Rim Conference on Lasers and Electro-Optics 2005 (IQEC/CLEO-PR 2005), Paper oral CThM1-5, Tokyo, Japan, July 11-15 2005.
39.
40. Yu-Ping Lan, Yi-Fan Lai, Ru-Pin Pan, Ci-Ling Pan, “Automatically Controlled Power Equalizer for Liquid Crystal Based Optical Demultiplexer,” paper # CTuC3-P25, IQEC/CLEO-PR 2005, Tokyo, Japan, July 11-15, 2005.
41. Gong-Ru Lin, “Retrospect on the Research of Silicon Nanocrystal Embedded Silicon Oxide Materials and Light-Emitting Devices in NCTU/IEO”, 3rd Symposium on Nanophotonics Science and Technology, Hwalian, Taiwan, September 13-17, 2005.
42. Chao-Kuei Lee, J. Y. Zhang, J. Y. Huang, and Ci-Ling Pan, “A novel method of ultrabroad band (White-light) femtosecond optical parametric amplification,” presented at Joint Conference on Ultrafast Optics V and Applications of High Field and Short wavelength Sources XI, UFO/HFSW 2005, Nara, Japan, Sept. 25-30, 2005.
43. Ru-Pin Pan, Chao-Yuan Chen, Cho-Fan Hsieh, and Ci-Ling Pan, “A Liquid-Crystal-Based Terahertz Tunable Lyot Filter,” paper #ThCC3, presented at the 18th annual meeting of IEEE/LEOS, LEOS 2005, Sydney, Australia, October 23-27, 2005.
44. Cheng Lo, Cho-Fan Hsieh, Ru-Pin Pan and Ci-Ling Pan, “Effects of Hole Material on Enhanced Terahertz Transmission through Metallic Hole Arrays,” ibid., paper # ThCC4.
45. Cho-Fan Hsieh, Hung-Lung Chen, Chao-Yuan Chen, Ru-Pin Pan, and Ci-Ling Pan, “Voltage Controlled Liquid Crystal Terahertz Quarter Wave Plate,” ibid., paper # ThCC5.
46. Yu-Sheng Liao, and Gong-Ru Lin, “Beyond 10-Gbps operation of a metamorphic InGaP buffered In0.53Ga0.47As p-i-n photodetector grown on GaAs substrate”, 2005 Asia-Pacific Optical and Wireless Communications Conference and Exhibition (APOC 2005), oral paper 6020-75, Shanghai China, November 6-10, 2005.
47. Chun-Jung Lin, Hao-Chung Kuo, and Gong-Ru Lin, “Analysis of silicon nanocrystals in silicon-rich SiO2 synthesized by CO2 laser annealing”, 2005 Asia-Pacific Optical and Wireless Communications Conference and Exhibition (APOC 2005), oral paper 6020-72, Shanghai China, November 6-10, 2005.
48. Ci-Lin Pan and Ru-Pin Pan, “Recent progress in liquid crystal THz optics,” invited talk, presented at Photonics West 2006, San Jose, California, USA, Jan. 21-26, 2006, invited paper, in Proceedings of SPIE -- Volume 6135 Liquid Crystal Materials, Devices, and Applications XI, Liang-Chy Chien, Editor, pp. 61350D-1 to -13 (Feb. 23, 2006).
49. Hsiang Chiu and Gong-Ru Lin, “10 Gbit/s All-Optical NRZ-to-RZ Data Format Conversion in a Dark-Optical-Comb Injected Semiconductor Optical Amplifier”, Optical Fiber Communication Conference and Exhibit (2006 OFC/NFOEC Meeting), Session JThB, Poster paper JThB33, Anaheim, California, March 5-10, 2006.
50. Hsiang Chiu and Gong-Ru Lin, “10GHz Dark-Optical-Comb Injection-Mode-Locked Semiconductor Optical Amplifier Fiber Laser with 400fs and 30nm Tunable Pulses”, Optical Fiber Communication Conference and Exhibit (2006 OFC/NFOEC Meeting), Session OWI, Poster paper OWI28, Anaheim, California, March 5-10, 2006.
51. Hsiang Chiu and Gong-Ru Lin, “Optimization on Cross-Gain-Modulating Power and Wavelength for Pulsed Data-Pattern Reshaping in Optical-Clock Controlled Semiconductor Optical Amplifier”, Optical Fiber Communication Conference and Exhibit (2006 OFC/NFOEC Meeting), Session JThB, Poster paper JThB19, Anaheim, California, March 5-10, 2006.
52. Gong-Ru Lin, “White-light and near-infrared electroluminescence of furnace or CO2 laser annealed Si-rich SiO2 with structural defects and Si nanocrystals”, 2006 SPIE Symposium on Photonics Europe (PE 2006), paper 6195-32, Strasbourg, France, April 3-6, 2006.

53. Huang-Shen Lin, Chih-Chiang Kao, Chun-Jung Lin, Hao-Chung Kuo, Shing-Chung Wang, and Gong-Ru Lin, "Self-assembled Ni nanodot on SiO2 film: a novel reactive ion etching mask for Si nanopillar formation on Si substrate" 2006 SPIE Symposium on Photonics Europe (PE 2006), paper 6195-32, Strasbourg, France, April 3-6, 2006.
54. Chia-Yang Chen, Chun-Jung Lin, and Gong-Ru Lin, "Synthesis of Erbium Doped Si-rich SiOx by Radio-Frequency Magnetron Cosputtering using Si/SiO/Er2O3 Target", Materials Research Society's 2006 Spring Meeting, San Francisco, CA, USA, April 17-21, 2006.
55. Chun-Jung Lin, Gong-Ru Lin, Yu-Lun Chueh, and Li-Jen Chou, "Anomalous Absorption of Silicon Nanocrystals in Silicon-rich SiO1.25 Matrix Precipitated by CO2 Laser Annealing", 2006 Integrated Photonics Research and Applications (IPRA) and Nanophotonics (NANO) Topical Meeting, Oral paper Nanomaterials NThC4, Uncasville, Connecticut USA, April 24-28, 2006.
56. Chun-Jung Lin, Chi-Kuan Lin, Gong-Ru Lin, "Enhanced Electroluminescence of Si-rich SiOx Based MOS Diode by Interfacial Precipitated Si Nano-Pyramids", 2006 Integrated Photonics Research and Applications (IPRA) and Nanophotonics (NANO) Topical Meeting, Oral paper Nanomaterials NThC5, Uncasville, Connecticut USA, April 24-28, 2006.
57. Ci-Ling Pan, "An Overview of NCTU Photonics Programs and Selected THz Topics," invited talk, presented at the NSC-UPM Workshop On Optoelectronics, Sala De Juntas, Edificio A, Etsi Telecomunicacion, Universidad Politechnica Madrid, Madrid, Spain, May 22, 2006.
58. Jia-Min Shieh, Yi-Fan Lai, An-Thung Cho, Wei-Xin Ni, Hao-Chung Kuo, Chih-Yao Fang, Jung Y. Huang, C-Ling Pan, "Ultraviolet Light Detection with Silicon Nanocrystals-embedded Mesoporous Silica Sensing Layer," paper CTuS4, presented at CLEO/QELS 2006, Long Beach, California, May 21-26, 2006.
59. H.-Y. Huang, Jin-Wei Shi, Y.-S. Wu, J.-I. Chyi, J.-K. Sheu, W.-C. Lai, G.-R. Lin, Ci-Ling Pan, "Modulation-Speed Enhancement of a GaN Based Green Light-Emitting-Diode (LED) by Use of n-type Barrier Doping for Plastic Optical Fiber (POF) Communication," paper JWB74, presented at CLEO/QELS 2006, Long Beach, California, May 21-26, 2006.
60. Jin-Wei Shi, Yu-Tai Li, Ci-Ling Pan, M.-L. Lin, Y.-S. Wu, W.-S. Liu, J.-I. Chyi; "Separated-Transport-Recombination p-i-n Photodiode (STR-PD) with High-Speed and High-Power Performance under Continuous-Wave (CW) Operation," paper CTuS6, presented at CLEO/QELS 2006, Long Beach, California, May 21-26, 2006.
61. Yu-Sheng Liao, Gong-Ru Lin, Hao-Chung Kuo, Kai-Ming Feng, Milton Feng, "A 10-Gbps In0.53Ga0.47As p-i-n Photodiode Receiver on Metamorphic InGaP Buffered GaAs Substrate", OSA/IEEE Conference on Laser and Electro-Optics (CLEO2006), Oral Session CThD - Receivers and Detectors, Paper CThD1, Long Beach, California USA, May 21-26, 2006.,
62. Chun-Jung Lin, Chi-Kuan Lin, and Gong-Ru Lin, "Synthesis of Si Nano-Pyramids at SiO_x/Si Interface for Enhancing Electroluminescence of Si-Rich SiOx Based MOS Diode", OSA/IEEE Conference on Laser and Electro-Optics (CLEO2006), Joint Poster Session I Paper JTuD43, Long Beach, California USA, May 21-26, 2006.
63. Chi-Ming Hung, Kun-Chieh Yu, Yung-Cheng Chang, and Gong-Ru Lin, "All-Optical Decision Gating of 10 Gbit/s RZ Data Stream with a Reshaping-Optical-Clock Controlled Semiconductor Optical Amplifier", OSA/IEEE Conference on Laser and Electro-Optics (CLEO2006), Joint Poster Session II Paper JWB36, Long Beach, California USA, May 21-26, 2006.
64. Ru-Pin Pan, Cho-Fan Hsieh, Hsin-Ying Wu, Tsung-Ta Tang, and Ci-Ling Pan, "Electrically controlled liquid crystal 2π terahertz phase shifter," paper OPTIP-42, presented at the 21th International Liquid Crystal Conference, Keystone, Colorado, July 2-7, 2006.
65. Ru-Pin Pan, Chao-Yuan Chen, Cho-Fan Hsieh, and Ci-Ling Pan, "Temperature-dependent complex refractive

indices and birefringence of nematic liquid crystal 5CB in the terahertz frequency range", paper DEVIP-78, ibid..

66. Tsung-Ta Tang, Hsin-Ying Wu, Chia-Jen Lin, and Ru-Pin Pan, "A Simple Method to Determine the Pitch of Chiral Nematic Liquid Crystal", ibid..
67. Hsin-Ying Wu, Tsung-Ta Tang, Chin-Chieh Wang, Ru-Pin Pan, Shao-Ju. Chang, Jenn-Chang Hwang, "Controllable alignment modes of nematic liquid crystal on argon ion beam bombarded polyimide films", ibid..
68. Jung Y. Huang, "2D IR of Submolecular Reorientation Dynamics in Surface Stabilized Ferroelectric Liquid Crystals with nc-ZnO Doping", DYNAP-6, ibid..
69. Gong-Ru Lin, "All-Optical NRZ-to-RZ Data Format Conversion with Optically Injected Laser Diodes or Semiconductor Optical Amplifiers", 2006 Asia-Pacific Optical and Wireless Communications Conference and Exhibition (APOC 2006), Session APOC01, paper 6353-93, Gwangju Korea, September 3-7, 2006.
70. Gong-Ru Lin, "All-Optical NRZ-to-RZ Data Format Conversion with Optically Injected Laser Diodes or Semiconductor Optical Amplifiers", 2006 Asia-Pacific Optical and Wireless Communications Conference and Exhibition (APOC 2006), Session APOC01, paper 6353-93, Gwangju Korea, September 3-7, 2006.
71. Yu-Sheng Liao, I-Shiang Chiu, and Gong-Ru Lin, "Femtosecond Harmonically Optical-Injection Mode-Locked Semiconductor Optical Amplifier Based Fiber Lasers", 2006 Asia-Pacific Optical and Wireless Communications Conference and Exhibition (APOC 2006), Session APOC01, paper 6351-7, Gwangju Korea, September 3-7, 2006.
72. Kun-Chieh Yu, Yu-Sheng Liao, and Gong-Ru Lin, "Self Optical Decision Gating of Degraded RZ Data Stream at 10Gbits/s with a Optical-Clock-Injected Semiconductor Optical Amplifier", 2006 Asia-Pacific Optical and Wireless Communications Conference and Exhibition (APOC 2006), Session APOC03, paper 6353-42, Gwangju Korea, September 3-7, 2006.
73. Jun-Yuan Chang, Yu-Sheng Liao, Hai-Han Lu, and Gong-Ru Lin, "Wavelength control of L-band erbium-doped fiber laser with tunable-ratio output couplers", 2006 Asia-Pacific Optical and Wireless Communications Conference and Exhibition (APOC 2006), Session APOC02, paper 6351-71, Gwangju Korea, September 3-7, 2006.
74. Gong-Ru Lin and Chun-Jung Lin, "SiOx/Si Interfacial Si Nano-Pyramids Enhancd Electroluminescence from Si-Rich SiOx MOSLED", the 3rd International Conference on Group IV Photonics, poster paper 22, September 13-15, Ottawa Canada, 2006.
75. Gong-Ru Lin and Chun-Jung Lin, "Enhancement of Fowler-Nordheim Tunneling Based Light Emission from metal-SiOx-Si MOSLED", the 3rd International Conference on Group IV Photonics, oral paper FA3, September 13-15, Ottawa, Canada, 2006
76. Ci-Ling Pan, "Nonlinear optical studies of Si-O polar nanostructures," invited talk, presented at the 13th Laser Physics Workshop, Zhang Jia Jie, China, Oct. 20-25, 2006.
77. Ru-Pin Pan, and Ci-Ling Pan, "Control of enhanced THz transmission through metallic hole arrays using liquid crystals", invited talk, presented at the 13-th laser physics workshop, Changziajie, Sanxi, China, 20-25, October, 2006,.
78. Hung-Wen Chen, Ja-Yu Lu, Jeng-Liang Kuo, Yu-Tai Li, Ci-Ling Pan, Li-Jin Chen, Po-Jui Chiang, Hung-Chun Chang and Chi-Kuang Sun, "Terahertz Fiber-Based Coupler, " Paper P-3, presented at AP-THz 2006 (1st Asian-Pacific THz Photonics Workshop), Dec. 14, 2006, Hsinchu, Taiwan.
79. Ja-Yu Lu, Yu-Tai Li, Ci-Ling Pan, Chin-Ping Yu, Hung-Chung Chang, Hung-Wen Chen and Chi-Kuang Sun, "Air-Core Microstructure Fiber For Terahertz Radiation Waveguiding," Paper P-4, ibid..
80. Hung-Wen Chen, Ja-Yu Lu, Jeng-Liang Kuo, Yu-Tai Li, Ci-Ling Pan, Li-Jin Chen, and Chi-Kuang Sun, "Study On Attenuation Spectrum Of Subwavelength-Diameter Thz Fibers," Paper P-5, ibid..
81. Yu-Chien Lai, Cho-Fan Hsieh, Ru-Pin Pan, and Ci-Ling Pan, "Polarizing Terahertz Wave with Liquid Crystal," Paper P-6, ibid..
82. Wei-Wen Wang, Yu-Tai Li, Ci-Ling Pan, "THz Radiation Characteristics of the Photonic- Transmitters Based on

Separated- Transport- Recombination Photodiode and Micromachined Slot Antenna," Paper P-7, ibid..

83. Ru-Pin Pan, Chao-Yuan Chen, Cho-Fan Hsieh, Genel Farcy, I-Chen Ho, and Ci-Ling Pan, "The Temperature-Dependent Refractive Indices of Two Typical Liquid Crystals 5CB and PCH5 in the THz Frequency Range," Paper P-8, ibid..
84. Cho-Fan Hsieh, Hsin-Ying Wu, Ru-Pin Pan, Tsung-Ta Tang and Ci-Ling Pan, "Tunable 2π Terahertz Phase Shifter Using a Sandwiched Nematic Liquid Crystal Cell," Paper P-9, ibid..
85. Chia-Jen Lin, Yu-Tai Li , Cho-Fan Hsien, Ru-Pin Pan and Ci-Ling Pan, "Magnetically Controlled Liquid Crystal Terahertz Tunable Phase Grating," Paper P-10, ibid..
86. C. K. Kou, Chao-kuei Lee, Chih-Yu Wang, Tze-An Liu, Jin-Long Peng, Ci-Ling Pan, "Frequency locking of two laser diodes to femtosecond frequency comb –Frequency Standard of THz," Paper P-14, ibid..
87. I-Chen Ho, Cho-Fan Hsieh, Chao-Yuan Chen, Ru-Pin Pan, Ci-Ling Pan, "Electrically Controlled Liquid-Crystal-Based Terahertz Tunable Solc Filter," Paper P-15, ibid. .
88. Yun-Pu Ku, Yi-Chao Wang, Hyeyoung Ahn, Ci-Ling Pan, "THz spectroscopic studies of epitaxial GaN film," Paper P-16, ibid. .
89. Che-Jui Hsu, Jin-Wei Chen, Ci-Ling Pan, "Dielectric Responses in GaSe studied by THz-TDS," Paper P-17, ibid..
90. Ru-Pin Pan and Ci-Ling Pan, "Liquid-Crystal-based Electrically Tunable THz Optical devices," invited talk, presented at Photonics West 2007, San Jose, California, USA, Jan. 20-35, 2007, invited paper published in Proceedings of SPIE -- Volume 6487 Emerging Liquid Crystal Technologies II, Liang-Chy Chien, Editors, item 648709 (Feb. 9, 2007).
91. J.-Y. Lu, C.-P. Yu, H.-C. Chang, H.-W. Chen, Y.-T. Li, C.-L. Pan, and C.-K. Sun, "Air-core microstructure fiber for terahertz radiation waveguiding," presented at Conference on Lasers and Electro-Optics/Quantum Electronics and Laser Science Conference/Conference on Photonic Applications, Systems, and Technologies (CLEO/QELS'2007), Baltimore, MD, USA (2007), paper CThLL5.
92. H.-W. Chen, J.-Y. Lu, L. –J. Chen, P. –J. Chiang, H.-C. Chang, , Y.-T. Li, C.-L. Pan, and C.-K. Sun, "THz Fiber Directional Coupler," ibid., paper CThLL7.
93. J.-W. Shi, Yu-Tai Li and Ci-Ling Pan, C.-H. Chiu, M.-L. Lin, W.- S. Liu, and J.-I. Chyi, "Sub-THz Photonic-Transmitters Based on Separated-Transport-Recombination Photodiode and Micromachined Slots Antenna," ibid., paper CMY1.
94. Hung-Wen Chen, Ja-Yu Lu, Li-Jin Chen, Yu-Tai Li, Ci-Ling Pan, Chi-Kuang Sun, "Spectral Loss Characteristics of Subwavelength THz Fibers," ibid., paper JWA107.
95. Ci-Ling Pan, "THz Photonic Elements with Liquid-Crystal-Enabled Functionalities," invited paper, presented at the SURA THz Applications Workshop, Washington, D. C., June 6 – 8, 2007.
96. Kejian Chen, Yutai Li, WingYiu Cheung, Wei-wen Wang, Ci-Ling Pan, and Kam Tai Chan, "CW Sub-Terahertz wave generation by GaAs:O Materials," paper FH1-5, presented at CLEO/Pacific Rim 2007, Seoul, Korea, August 26 - August 31, 2007
97. Tsung-Ta Tang, Ru-Pin Chao, Yi-Chao Wang, Ci-Ling Pan, "THz time-domain spectroscopic studies of a ferroelectric liquid crystal in the SmA* and SmC* phases," Paper O-29, presented at The 11th international conference on ferroelectric liquid crystals, Sapporo, Japan, Sep. 3 – 8, 2007.
98. Ci-Ling Pan, "Overview of NCTU Photonics Programs and Selected Topics in Laser Technology and Optics of Structured Materials," invited talk, presented at the 2nd Cross-Strait Workshop on Optical Microstructures and Laser Technology, Nanjing, China, Sept. 11 – 16, 2007.
99. Jung Y. Huang, Liu S. Li, and Ming C. Chen, "Molecular Binding Effect from a Doping of ZnO Nanocrystals in Surface Stabilized Ferroelectric Liquid Crystal", Oral paper presented in the 11th International Conference on Ferroelectric Liquid Crystal, Hokkaido University, Sapporo, Japan, September 3-8, 2007.
100. Cho-Fan Hsieh, Yu-Chien Lai, Ru-Pin Pan, Ci-Ling Pan, "A Liquid-Crystal-Based Terahertz Polarizer," presented at Frontiers in Optics 2007/Laser Science XXIII conferences, San Jose, California, USA, September 16-20, 2007, in Laser Science, OSA Technical Digest (CD) (Optical Society of America, 2007), paper JSuA2.

101. Chia-Jen Lin, Yu-Tai Li, Cho-Fan Hsieh, Ru-Pin Pan, Ci-Ling Pan, “Terahertz Beam Splitting by Tunable Liquid Crystal Phase Grating,” ibid., in Laser Science, OSA Technical Digest (CD) (Optical Society of America, 2007), paper JSuA4.
102. Ci-Ling Pan, Hyeyoung Ahn, Chun-Hao Chuang and Yi-Chao Wang, “Optical-Pump-THz-Probe studies of femtosecond-laser annealed amorphous silicon,” invited talk, presented in Terahertz Photonics, Conference PA120, SPIE Photonics Asia Conferences, also the 2nd Asian-Pacific Workshop on THz Photonics (AP-THz2007), 11 - 15 November 2007, Beijing International Convention Centre, Beijing China.
103. Ci-Ling Pan, Ru-Pin Pan, I-Chen Ho, Cho-Fan Hsieh and Chao-Yuan Chen, “Birefrient Terahertz filters using nematic liquid crystals,” invited talk, presented at Photonics West 2008, San Jose, California, USA.
104. Yu-Tai Li, Ci-Ling Pan, J.-w. Shi, Cheng-Yu Huang, Nan-Wei Chen, Shu-Han Chen, J.-i. Chyi, “Sub-THz Photonic-Transmitters Based on GaAs/AlGaAs Uni-Traveling Carrier Photodiode and Micromachined Circular Disk Monopole Antenna for Ultra-Wideband Communication,” to be presented at Conference on Lasers and Electro-Optics/Quantum Electronics and Laser Science Conference/Conference on Photonic Applications, Systems, and Technologies (CLEO/QELS’2007), May 4-9, 2008, San Jose, California, USA, paper CThD5.
105. Chao-Kuei Lee, Sung-Hui Lin, Ci-Ling Pan, “Enhancement of Broadband Terahertz Radiation by Carrier Dynamics Modulation with a Single Chirped Optical Pulse,” ibid., paper JWA37.
106. C. W. Chow, C. H. Yeh, Y. T. Li, C. H. Wang, F. Y. Shih, Y. M. Lin, C. L. Pan, S. Chi, “Demonstration of High Spectral Efficient Long Reach Passive Optical Networks Using OFDM-QAM,” ibid., paper CPDB7, postdeadline session II.
107. Chia-Jen Lin, Chuan-Hsien Lin, Yu-Tai Li, Cho-Fan Hsieh, Ru-Pin Pan, and Ci-Ling Pan, “Electrically Controlled Liquid Crystal Terahertz Phase Grating,” to be presented at the 22nd International Liquid Crystal Conference, June 29-July 3, 2008, ICC Jeju, Jeju Island, Korea, paper APP32.
108. Ru-Pin Pan, Cho-Fan Hsieh, Ci-Ling Pan, Viacheslav. V. Meriakri, Mikhail. P. Parkhomenko, Evgenii.E.Chigrai, “Dielectric properties of liquid crystals in the millimeter and sub-millimeter or THz frequency range,” Paper ID: hal-00265930, to be presented at 5th International Conference on Broadband Dielectric Spectroscopy And Its Applications, 26 to 29 August , 2008, Lyon, France.
109. V. V. Meriakri, Ci-Ling Pan, Ru-Pin Pan, M. P. Parkhomenko, E. E.Chigrai, “Measurement of dielectric properties of liquid crystals in the THz range,” to be presented at 4th International Conference On Advanced Optoelectronics And Lasers (CAOL’2008) September 29 – October 4, 2008, Alushta, Crimea, Ukraine.

B. Quantum (Photonic Crystal) structures and Enabling devices

1. C. Chiu, H. Kuo, C. Lee, C. Lin, H. Huang, T. Lu, S. Wang and K. Leung, "Study of the Thin-Film GaN-Based LEDs with TiO2/SiO2 Omnidirectional Reflectors and PEC Roughened Surfaces," 212th Meeting of the Electrochemical Society in Washington, DC from October 7 - 12, 2007.
2. Y. Lee, C. Chiu, H. Kuo, T. Lu, S. Wang, K. Nar, K. Lau, Z. Yang, S. Chang and S. Lin, "Simultaneously Enhancing Internal and Extraction Efficiencies of GaN-based Light Emitting Diodes Via Chemical-Wet-Etching Patterned-Sapphire-Substrate (CWE-PSS)," 212th Meeting of the Electrochemical Society in Washington, DC from October 7 - 12, 2007.
3. C.E. Lee, C.H. Chiu, M.H. Lo, H.W. Huang, T.C. Lu, H.C. Kuo, S.C. Wang, “MOCVD Growth of GaN-Based LEDs With Naturally Formed Nano-pyramids”, 2007 International Conference on Solid State Devices and Mayterials (SSDM), Tsukuba International Congress Center, Ibaraki, Japan**, S**ept 18-21, 2007 (oral presentation)
4. C. F. Lai, H. C. Kuo, T. C. Lu, S. C. Wang, H. T. Hsueh, J.-F. T. Wang, C. H. Chao, W. Y. Yeh and J. Y. Chi, “Azimuthal Anisotropy of Light Extraction from Photonic Crystal Light-emitting Diodes”, 7th International Conference on Nitride Semiconductors, MGM Grand Hotel, Las Vegas, Nevada, USA, Sept. 16-21 2007
5. Te-Chung Wang, Tsung-Shine Ko, Run-Ci Gao, Tien-Chang Lu, Hao-Chung Kuo, Sing-Chung Wang, Jenq-Dar Tsay, ”The Internal Quantum Efficiency Behavior of a-Plane and c-Plane InGaN/GaN MQWs with Different

Indium Compositions", WP112, The 7th International Conference on Nitride Semiconductors, MGM Grand Hotel, Las Vegas, Nevada, USA, Sept. 16-21 2007

6. Tien-chang Lu, C. C. Kao, G. S. Huang, H. C. Kuo, and S. C. Wang "Recent progress on GaN-based vertical cavity surface emitting lasers," *Invited talk*, 6766-15, SPIE Optics East, Seaport World Trade Center, Boston, Massachusetts USA, Sept. 9-12, 2007
7. Tien-chang Lu, C. C. Kao, G. S. Huang, H. C. Kuo, and S. C. Wang "Optically and Electrically Pumped GaN-based VCSELs," *Invited talk*, WA2-1, The 7th Pacific Rim Conference on Lasers and Electro-Optics (CLEO/PR 2007), COEX, Seoul, Korea Aug. 26-31, 2007
8. S. C. Lin, T. C. Wang, T. S. Ko, T. C. Lu, H. C. Kuo and S. C. Wang, "Characteristics of ultraviolet nonpolar InGaN/GaN light emitting diodes using trench epitaxial lateral overgrowth technology," WP-043, The 7th Pacific Rim Conference on Lasers and Electro-Optics (CLEO/PR 2007), COEX, Seoul, Korea Aug. 26-31, 2007
9. J. R. Chen, Y. A. Chang, H. C. Kuo, T. C. Lu, Y. K. Kuo, and S. C. Wang, "Theoretical and Experimental Analysis of Temperature-Insensitive 655-nm Resonant-Cavity LEDs," WA1-4, The 7th Pacific Rim Conference on Lasers and Electro-Optics (CLEO/PR 2007), COEX, Seoul, Korea Aug. 26-31, 2007
10. T. S. Ko, T. C. Wang, J. R. Chen, M. H. Lo, G. S. Huang, T. C. Lu, H. C. Kuo, S. C. Wang, "The effects of H_2/NH_3 gas flow during growth process on the morphology and hole concentration of a-plane p-type GaN", 15th International Conference on Crystal Growth, Salt Lake City, Utah, USA, Aug. 12-17, 2007
11. T. S. Ko, T. C. Wang, J. R. Chen, M. H. Lo, C. P. Chu, G. S. Huang, T. C. Lu, H. C. Kuo, S. C. Wang, "Defects reduction and luminescence improvement of a-plane GaN structure by inserting SiNx nanomask ", 15th International Conference on Crystal Growth, Salt Lake City, Utah, USA, Aug. 12-17, 2007
12. Tsung-Shine Ko, Chia-Pu Chu, Tien-Chang Lu, Hao-Chung Kuo, and Shing-Chung Wang, "Characteristics of indium oxide nanoloquats grown by thermal evaporation", 15th International Conference on Crystal Growth, Salt Lake City, Utah, USA, Aug. 12-17, 2007
13. Hou-guan Chen, Tsung-shine Ko, Li Chang, Yue-han Wu, Tien-chang Lu, Hao-chung Kuo, and Shing-chung Wang, "Investigation on microstructure in GaN epitaxial growth on the striped patterened r-plane sapphire substrates", 15th International Conference on Crystal Growth, Salt Lake City, Utah, USA, Aug. 12-17, 2007
14. T. S. Ko, T. C. Wang, J. R. Chen, M. H. Lo, C. P. Chu, G. S. Huang, T. C. Lu, H. C. Kuo, S. C. Wang, "Defects reduction and luminescence improvement of a-plane GaN by inserting SiN_x nanomasks", International Conference on Materials for Advanced Technologies 2007, Singapore, July 1~6, 2007
15. T. S. Ko, T. C. Wang, J. R. Chen, M. H. Lo, C. P. Chu, G. S. Huang, T. C. Lu, H. C. Kuo, S. C. Wang, "The effects of H_2/NH_3 gas flow during growth process on the morphology and hole concentration of *a*-plane p-type GaN", International Conference on Materials for Advanced Technologies 2007, Singapore, July 1~6, 2007
16. G. S. Huang, M. H. Lo, J.-R. Chen, Chen Hou-Guang, J. R. Chu, T. S. Ko, T. C. Lu, H. C. Kuand S. C. Wang, "Room Temperature Ultraviolet Emission from In-Rich Ingan/AlGaN Multiple Quantum Wells", International Conference on Materials for Advanced Technologies 2007, Singapore, July 1~6, 2007
17. M. H. Lo, G. S. Huang, T. S. Ko, J. R. Chen, H. C. Kuo, T. C. Lu and S. C. Wang, "Improvement in extraction efficiency of ultraviolet light emitting diodes with natural textured surface of p-GaN at various growth temperatures", International Conference on Materials for Advanced Technologies 2007, Singapore, July 1~6, 2007
18. J. R. Chen, G. S. Huang, Ming-Hua Lo, Tsung-Shine Ko, T. C. Lu, H. C. Kuo and S. C. Wang, "Improvement in extraction efficiency of ultraviolet light emitting diodes with natural textured surface of p-GaN at various growth temperatures", International Conference on Materials for Advanced Technologies 2007, Singapore, July 1~6, 2007
19. T S Ko, C P Chu, T C Lu, H C Kuo, and S C Wang, "Characteristics of indium oxide nano-loquats grown by thermal evaporation, " European Material Research Society 2007 Spring Meeting, Strasbourg France, May 28 - June 1, 2007
20. H L Chang, T S Ko, T C Lu, H C Kuo, and S C Wang, "Effect of oxygen on characteristics of nickel oxide / indium tin oxide heterojunction diodes," E-MRS, European Material Research Society 2007 Spring Meeting,

Strasbourg France, May 28 - June 1, 2007

21. C. F. Lai, P-C. Yu, T. C. Wang, H. C. Kuo, T. C. Lu, S. C. Wang, and C. K. Lee "Ultraviolet lasing characteristics of a GaN photonic crystal defect emitter", Conference on Lasers and Electro-Optics (CLEO 2007), CThB3, Baltimore, MD, USA, May 6-11, 2007
22. J. T. Chu, T. C. Lu, H. C. Kuo, and S. C. Wang, "Emission characteristics of InGaN/GaN vertical-cavity surface-emitting lasers", Conference on Lasers and Electro-Optics (CLEO 2007), JWA124, Baltimore, MD, USA, May 6-11, 2007
23. Y. J. Lee, H. C. Kuo, T. C. Lu, and S. C. Wang, "High light-extraction GaN-based vertical LEDs with double diffuse surfaces", Conference on Lasers and Electro-Optics (CLEO 2007), CTuI4, Baltimore, MD, USA, May 6-11, 2007
24. F. I. Lai, H. W. Huang, C. H. Chiu, C. F. Lai, T. C. Lu, H. C. Kuo, and S. C. Wang, "INGaN/GaN MQW nanorods LED fabrication by ICP-RIE and PEC oxidation processes", Conference on Lasers and Electro-Optics(CLEO 2007), CMO3, Baltimore, MD, USA, May 6-11, 2007
25. C. C. Kao, T. C. Lu, T. T. Kao, L. F. Lin, H. C. Kuo, and S. C. Wang, "The characteristics of a high-Q GaN micro-cavity light emitting diode", Conference on Lasers and Electro-Optics (CLEO 2007), CMF4, Baltimore, MD, USA, May 6-11, 2007.
26. Tsan-Wen Lu, Chung-Chuan Tseng, Chia-Min Yu, and Po-Tsung Lee, "Photonic Crystal Circular-Shaped Microcavity Laser with High Quality Factor Whispering-Gallery Mode and Uniform Coupling Property," F2A-4, *IEEE WFOPC'07*, Taipei, Taiwan (2007)
27. Tsan-Wen Lu, Jyun-Hao Fan, Feng-Mao Tsai, and Po-Tsung Lee, "High quality factor circular photonic crystal microcavity lasers," TuF4-5, *CLEO-PR'07*, Soeul, Korea (2007)
28. Po-Tsung Lee, Tzu-Yueh Chang, and Ssu-Yuan Chen, "Investigation of Electrical Pulse Erasing Method Effect on Current-Voltage Characteristics of Organic Bistable Device," Thu-P6-04, *IDMC'07*, Taipei, Taiwan (2007)
29. Tzu-Yueh Chang, Ssu-Yuan Chen, and Po-Tsung Lee, "Investigation of Deposition Rate Effect on the Current-Voltage Characteristics of Organic Dynamic Random Access Bistable Devices," p.19, *SID'07*, Long Beach, CA, USA (2007) (SID'07 Student Travel Grant Award)
30. Ssu-Yuan Chen, Tzu-Yueh Chang, and Po-Tsung Lee, "Bistable Characteristics of the Organic Device with Heterojunction," O3.11, *MRS'07 Spring Meeting*, San Francisco, CA, USA (2007)
31. H. H. Yao, G. S. Huang, T.C. Lu, H. C. Kuo and S. C. Wang, "Effects of growth interruption time on InGaN/GaN quantum dots size grown by metal organic chemical vapor deposition", in Gallium Nitride materials and devices, Vol 6121, part of SPIE's Integrated Optoelectronics Devices, 2006 San Jose, CA, USA. (2006).
32. H. H. Yao, Y. T. Wang, T. C. Lu, H. C. Kuo, S. C. Wang and L. H. Peng, "Infrared Reflectance of Optic Phonon Modes in AlGaN Epitaxial Layers Grown on Sapphire Substrates " 2006 MRS SPRING MEETING, 17-21 April, San Francisco, CA, USA(2006)
33. T. S. Ko, C. F. Lay, Y. J. Lee, T. C. Lu, H. C. Kuo, S. C. Wang, "Characteristics of InGaN multiple quantum wells on patterned sapphire substrates"13th International Conference on Metal Organic Vapor Phase Epitaxy, 22-26 May, Miyazaki, Japan.(2006)
34. G. S. Huang, H. H. Yao, T. C. Lu, H. C. Kuo, S. C. Wang, "Fabrication and characterization of active region of a terahertz GaN/AlGaN quantum cascade laser" 13th International Conference on Metal Organic Vapor Phase Epitaxy, 22-26 May, Miyazaki, Japan.(2006)
35. H. H. Yao, H. G. Chen, G. S. Huang, T. C. Lu, H. C. Kuo, S. C. Wang, "High Quality and Crack-Free AlN/GaN Distributed Bragg Reflector Grown by Metal Organic Chemical Vapor Deposition" 13th International Conference on Metal Organic Vapor Phase Epitaxy, 22-26 May, Miyazaki, Japan.(2006)
36. Y. A. Chang, C. C. Kuo, T. T. Kao, W. K. Tsai, C. L. Yu, Y. T. Wu, F. I. Lai, L. W. Laih, L. H. Laih, H. C. Kuo, T. C. Lu, and S. C. Wang, "MOCVD growth and characterization of temperature insensitive 650-nm

resonant-cavity light-emitting diodes" 13th International Conference on Metal Organic Vapor Phase Epitaxy, 22-26 May, Miyazaki, Japan.(2006)

37. Y. A. Chang, C. C. Kuo, J. T. Chu, J. R. Chen, S. H. Yen, C. L. Yu, I. T. Wu, F. I. Lai, T. C. Lu, Y. K. Kuo, and S. C. Wang, "Growth and fabrication of p-side-down InGaAs:Sb/GaAs vertical-cavity surface-emitting lasers" 13th International Conference on Metal Organic Vapor Phase Epitaxy, 22-26 May, Miyazaki, Japan (2006)
38. Y. A. Chang, S. H. Yen, T. H. Ko, T. C. Wang, C. Y. Lu, H. C. Kuo, Y. K Kuo, T. C Lu, S. C. Wang," Experimental and Theoretical Analysis on Ultraviolet 370-nm AlGaInN Light-Emitting Diodes" CLEO/QELS 2006, 20-26 May, USA(2006)
39. Y. J. Lee, T.C. Lu, H.C. Kuo, S. C. Wang, J. M. Hwang, T. C. Hsu, M. H. Hsieh, and M. J. Jou," Fabricating GaN-based LEDs with V-Shape Sapphire Facet Mirror by Double Transferred Scheme " CLEO/QELS 2006, 20-26 May, USA(2006)
40. Y. J. Lee, T.C. Lu, H.C. Kuo, S. C. Wang, T. C. Hsu, M. H. Hsieh, M. J. Jou, and B. J. Lee," High Brightness AlGaInP-based LEDs with the Stripe Patterned Omni-Directional Reflector" CLEO/QELS 2006, 20-26 May, USA(2006)
41. Y. C. Lee, C. E. Lee, B. S. Cheng, T. C. Lu, H. C. Kuo, S. C. Wang and S. W. Chiou," High Performances of 650 nm Resonant Cavity Light Emitting Diodes for Plastic Optical Fiber Application" SSDM 2006, 12-15 September, Yokohama, Japan.(2006)
42. H. G. Chen[1], N. F. Hsu, J. T. Chu, H. H. Yao, T. C. Lu, H. C. Kuo and S. C. Wang," Strong Ultraviolet Emission from InGaN/AlGaN Multiple Quantum Well Grown by Multi-step Process" SSDM 2006, 12-15 September, Yokohama, Japan.(2006)
43. C. F. Lai, H. C. Kuo, T. S. Ko, C. E. Lin, C. H. Lin, K. M. Leung, T. C. Lu and S. C. Wang," High Power and High Reliability InGaN/GaN ITO Flip Light Emitting Diodes with TiO_2/SiO_2 Multilater Stack Omnidirectional Reflector "IWN 2006, 22-27 October, Kyoto, Japan.(2006)
44. G. S. Huang, H. G. Chen, T. C. Lu, T. T. Kao, H. H. Yao, H. C. Kuo, S. C. Wang," Crack-free epitaxial nitride microcavity using highly reflective AlN/GaN and Ta_2O_5/SiO_2 Bragg mirrors" IWN 2006, 22-27 October, Kyoto, Japan.(2006)
45. T. S. Ko, T. C. Wang, R. C. Gao, C. P. Chu, T. C. Lu, H. C. Kuo, S. C. Wang, "Study on growth condition of(11-20) a-plane GaN on (1-102) r-plane sapphire by MOCVD" IWN 2006, 22-27 October, Kyoto, Japan.(2006)
46. C. F. Lin, Z. J. Yang, B. C. Shieh, C. C. Chang, H. C. Kuo, S. C. Wang, R. J. Tsai, and C. C. Yu, "InGaN-based Light Emitting Diodes with Inclined Undercut Structure" IWN 2006, Kyoto, Japan.(2006)
47. Y. J. Lee, T. C. Lu, H. C. Kuo, S. C. Wang, T. C. Hsu, and M. H. Hsieh, "Fabrication and characterization of GaN-based LEDs grown on chemical wet-etched patterned sapphire substrates(CWE-PSS)" IWN 2006, 22-27 October ,Kyoto, Japan.(2006)
48. H. C. Kuo, T. C. Lu, Y.J. Lee, H. G. Huang, and S. C. Wang, "Improvement in the Extraction Efficiency of AlGaInP and GaN Thin Film LEDs Via n-Side Surface Roughing"210th ECS MEETING, 29 October- 3 November, Cancun, Mexico.(2006)
49. T.S. Ko, S. Yang, H.C. Hsu, C.P. Chu, H.F. Lin, S.C. Liao, T.C. Lu, H.C. Kuo, W.F. Hsieh, S.C. Wang," ZnO nanopowders fabricated by dc thermal plasma synthesis "AVS 53rd International Symposium & Exhibition, 12-17 November, San Francisco, CA, USA(2006)
50. T. C. Lu, C. C. Kao, H. W. Huang, J. T. Chu, G. S. Huang, H. C. Kuo and S. C. Wang, "Light enhancement in GaN-based emitters by nano-fabrication technique", 5th Cross-strait workshop on Nanoscience and Nanotechnology, 9~11 December, 2006, Hong Kong(2006)
51. Po-Tsung Lee, Tsan-Wen Lu, Feng-Mao Tsai, and Tien-Chang Lu, "Lasing Action of Octagonal Quasi-Periodic Photonic Crystal Micro-Cavities," ThB1.3, *IEEE/LEOS IPRM'06*, Princeton, NJ, USA (2006)
52. Tsan-Wen Lu, Feng-Mao Tsai, Po-Tsung Lee, and Tien-Chang Lu, "Modified Octagonal Quasi-Periodic Photonic Crystal Single-Defect Micro-Cavity Lasers," JWB11, *CLEO/QELS'06*, Long Beach, CA, USA (2006)
53. Feng-Mao Tsai, Po-Tsung Lee, Tsan-Wen Lu, and Tien-Chang Lu, "Fabrication and Characteristics of

Two-Dimensional Quasi-Periodic Photonic Crystal Lasers," CMKK6, *CLEO/QELS'06*, Long Beach, CA, USA (2006)

54. Y. H. Chang, G. R. Lin, H. C. Kuo, Jim Y. Chi, and S. C. Wang," Singlemode Monolithically Quantum-Dot Vertical-Cavity Surface-Emitting Laser in 1.3 μm with Side-mode Suppression ratio > 30dB," IEEE/LEOS, Conference, paper 401,. 2005
55. H. P. D. Yang, F. I. Lai, Y. H. Chang, H. C. Yu, C. P. Sung, H. C. Kuo, S. C. Wang, S. Y. Lin,J. Y. Chi," Single Mode (SMSR > 40 dB) Proton-Implanted Photonic Crystal Vertical-Cavity Surface-Emitting Lasers," IEEE/LEOS, Conference, paper 466,. 2005
56. H. H. Yao, G.S. Huang, Y. T. Wang、W. D. Liang、C. Y. Chen、M. You、H. C. Kuo and S. C. Wang," Growth of III-nitrides nano-structures by metal-organic chemical vapor deposition" EW-MOVPE Conference,2005
57. T. H. Hsuech, M. Y. Tsai, T. C. Wang, H. C. Kuo, and S. C. Wang, "Effects of Thermal Annealing on Optical Properties of InGaN Quantum Dots Grown by Metalorganic Chemical Vapor Deposition ," CLEO 2005, JTuH2-3 2005 Japan
58. H H Yao, G. S Huang, C Y Chen, W D Liang, H. C. Kuo, and S. C. Wang, "Study of InGaN Self-assembled Quantum Dots with Interruption Growth by Metal Organic Chemical Vapor Deposition," CLEO 2005, JTuH2-4 2005 Japan
59. F I Lai, W Y Chen, C C Kao, C F Lin, H. C. Kuo, and S. C. Wang, "Enhancement of Light-output of GaN-based Light-emitting Diodes by Bias-assisted Photoelectrochemical Oxidation of p-GaN in H_2O ," CLEO 2005, CTuN3-2 2005 Japan
60. J. T. Chu, W. D. Liang, C. C. Kao, H W Huang, T. C. Lu, H. C. Kuo, and S. C. Wang "Optically Pumped GaN-based Vertical Cavity Surface Emitting Laser at Room Temperature," CLEO 2005, CTuJ3-5 2005 Japan
61. C. C. Kao, H. H. Yao, Y. C. Peng T. C. Lu, H. C. Kuo, and S. C. Wang, "An Optically Pumped Blue GaN-based Vertical-cavity Surface Emitting Laser Employing A1N/GaN and Ta_2o_5 / Sio_2 Distributed Bragg Reflectors," CLEO 2005, CTuJ3-6 2005 Japan
62. Y. J. Lee, T. C. Hsu, Y. L. Yang S. N. Yen, Y T Chu, Y J Shen, M H Hsieh, M J Jou, B J Lee, H. C. Kuo, and S. C. Wang, "Improvement in Light-output Efficiency of Near-Ultraviolet InGaN-GaN LEDs Fabricated on Stripe Patterned Sapphire Substrate ," CLEO 2005, CWAB3-P53 2005 Japan
63. F. Lai, Y. Chang, H. Yang, H. .Yu, H. C. Kuo, and S. C. Wang "Single Mode Output(SMSR＞40dB)Utilizing Photonic Crystal on Proton-Implanted Vertical-Cavity Surface-Emitting Lasers," CLEO 2005, CThE2-1 2005 Japan
64. Min-Ying Tsai, Tao-Hung, Ya-hsien Chang, H. C. Kuo and S. C. Wang, "Optical Properties of Ultra-High-Density InGaN Quantum Dots Grown by Metalorganic Chemical Vapor Deposition "，Second Asia-Pacific Workshop on Widegap Semiconductors (APWS-2005),March 7-9, 2005, Hsinchu Lakeshore Hotel, Hsinchu, Taiwan
65. Te-Chung Wang, Zheng-Hong Lee, Chang-Cheng Chuo, Min-Ying, TsaiChing-En, Fei-Chang Hwang, Hao-Chung Kuo, and Jim Chi,"AIInGaN Ultraviolet Light Emitting Diode"， Second Asia-Pacific Workshop on Widegap Semiconductors (APWS-2005),March 7-9, 2005, Hsinchu Lakeshore Hotel, Hsinchu, Taiwan.
66. Tsan-Wen Lu and Po-Tsung Lee, "Thermal Characteristics of Two-Dimensional Photonic Crystal Lasers," 1064, *IEEE WOCN'05*, Dubai, UAE (2005)
67. Kuo-Hsi Yen, Hsiao-Wen Zan, Chieh-Ping Ko, Pu-Kuan Liu, Tzu-Yueh Chang, Kuo-Hui Su, Shih-Chiang Wei, Po-Tsung Lee, C. H. Chen, C. M. Yeh, and J. C. Hwang, "Organic thin-film transistors with AlN film as a gate-insulator by RF/ICP Sputtering," *EuroDisplay'05* (2005)
68. Po-Tsung Lee, Hsiao-Wen Zan, Shih-Chiang Wei, Cheng-Chung Lee, Jia-Chu Ho, and T. H. Hu, "Thermal Behavior and Self-Heating Effect in Pentacene-Based Thin Film Transistors," Wed-12-05, *IDMC'05*, Taipei, Taiwan (2005)
69. Y. S. Chang, H. C. Kuo, and S. C. Wang," Improvement of high speed performance for 10-Gb/s 850 nm

VCSELs," SPIE Photonic West, Conference 5364, paper 5364-10, Jan. 2004

70. F. I. Lai, H. C. Kuo, and S. C. Wang," Improvement of kink characteristics of proton implanted VCSEL with ITO overcoating," SPIE Photonic West, Conference 5364, paper 5364-28, Jan. 2004
71. F. I. Lai, C. F. Chu, J. T. Chu, C. C. Yu, C. F. Lin, H. C. Kuo, and S. C. Wang, "Improvement of high power and high current operation of GaN lught emitting diodes by laser lift-off technique," *CLEO 2004*, CWA29 2004
72. S. C. Wang, "Fabrication and emission characteristics of p-GaN and GaN multiple quantum well nanorods," 2004 US Airforce & Taiwan Nanoscience Initiative Workshop, paper C5, Feb. 2004
73. T. H. Hsueh, Y. H. Chang, F. I Lai, H. W. Hung, M. C. Ou-yang, C. W. Chang, H. C. Kuo, and S. C. Wang, "Fabrication and emission characteristic of InGaN/GaN multiple quantum wells nanorods," *CLEO 2004*, IWA20
74. H. C. Kuo, C. F. Chu, J. T. Chu, Fang-I Lai, C. C. Yu, C. F. Lin, and S. C. Wang " Fabrication of p-side down GaN Vertical Light Emitting Diodes on Copper Substrates by Laser Lift-off" ISBLLED 2004
75. H. C. Kuo, Y. S. Chang, F. Y. Lai, T. H. Hsueh, L. H. Lai, and S. C. Wang, "High speed Perfromance of 850 nm InGaAsP/InGaP strain-compensated VCSELs", SPIE Proceeding 2004 (EI)
76. Y. H. Chang, H. C. Kuo, M. Y. Tsai, S. C. Wang, N. Tansu, J. Y. Yeh, L. J. Mawst, "Temperature dependent photoluminescence of highly strained InGaN/GaAs Quantum Well(λ=1.28-1.45 μm) with GaAsP strain-compensated layer", SSDM International Cconference, pp82-83, Sep. 2004
77. Y. H. Chang, H. C. Kuo, F. I. Lai, Y. A. Chang, P. T. Lee, S. C. Wang and L. H. Laih, "Fabrication of High Speed Single Mode 1.27 μm InGaAs:Sb-GaAsP Quantum Wells Vertical Cavity Surface Emitting Laser", SSDM International Cconference, pp. 930-931, Sep. 2004
78. T. H. Hsueh, H. W. Huang, C. C. Kao, Y. H. Chang, M. O. Yang, H. C. Kauo and S. C. Wang, "InGaN/GaN Multi-Quantum-Well Nanorods Fabricted by Plasma Etching Using Self-assembled Nickel Nano-masks", SSDM International Cconference, pp. 882-883, Sep. 2004
79. F. I. Lai, J. T. Chu, C. F. Chu. W. D. Liang, H. C. Kuo and S. C. Wang, "Fabrication of large-area GaN Certical Light Emitting Diodes on Copper Substrates by Laser Lift-off", SSDM International Cconference, pp. 806-807, Sep. 2004
80. Jung-Tang Chu, Wen-Deng Liang, Chen-Fu Chu, H.C. Kuo, and S. C. Wang, "Large Emitting Area GaN Based Light Emitting Diode Fabricated on Conducting Copper Substrates", accepted by LEOS, 2004
81. Chih-Chiang Kao, J. T. Chu, H. W. Huang, Y. C. Peng, C. C. Yu, Y. L. Hseih, C. F. Lin, H. C. Kuo, and S. C. Wang, "InGaN-Based Light-Emitting Diode With Undercut Side wall", accepted by LEOS, 2004
82. Hung-Wen Huang, Tao-Hung Hsueh, Chih-Chiang Kao, Ya-Hsien Chang, Miaochia Ou-Yang, Hao-Chung Kuo and Shing-Chung Wang, "Fabrication of InGaN multi-quantum-well nanorod by Ni nano-mask", accepted by LEOS, 2004
83. H. C. Kuo, Y. A. Chang, G. W. Chang, M. Y. Tsai, and S. C. Wang C. T. Liang, and Y. F. Chen, "Effect of Sb incorporation on optical properties of InGaAsN/GaAsN rrown by MOCVD, PE-71, 2004
84. M. Y. Tsai[1], H. C. Kuo[1]*, Y. H. Chang[1], Y. A. Chang[1], S. C. Wang[1], N. Tansu[2], Jeng-Ya Yeh[3], Luke J. Mawst[3,] "Temperature Dependent Photoluminescence of highly Strained InGaAsN/GaAs Quantum Well (λ=1.20-1.45 μm) with GaAsP Strain-compensated Layer", TICON 2004
85. T. H. Hsueh, Y. H. Chang, Fang-I Lai, H. W. Huang, M. C. Ou-yang, C. W. Chang, H. C. Kuo, S. C. Wan , "Fabrication and emission characteristic of InGaN/GaN multiple quantum wells nanorods", 2004
86. H. H. Yao, Y. S. Chang, M. C. Ou-yang, C. F. Lin, H. C. Kuo*, S. C. Wang, "Formation and Characteristic of GaN Quantum Dots by Self-assembled Nanoholes", 2004

C. Volume Holographic Materials, Technology and Enabling devices

1. Ken Y. Hsu, Shiuan-Huei Lin, Yi-Nan Hsiao, and Po-Lin Chen, "Fabrication and Characterization of poly (methyl methacrylate) photopolymer doped with quinone-based photosensitive molecules for volume holographic recording," (invited talk) **Paper ThH1-1,** The 7th Pacific Rim Conference on Lasers and Electro-Optics, Seoul, Korea, August 26 - 31, 2007

2. Shiuan-Huei Lin, Yi-Nan Hsiao, and Ken Y. Hsu, "PMMA-based photopolymer materials for holographic data storage," IEEE LEOS - Summer Topicals 2007, Port land, USA, July 23-25, 2007

3. Shiuan-Huei Lin and Ken Y. Hsu," Low-Shrinkage Doped PMMA Photopolymer for Holographic Data Storage Applications", (invited talk), conference proceeding, p. 86, 6th International Syposium on Modern Optics and its applications, Bandung, August, 6-10, 2007.

4. Shiuan-Huei Lin, Polin Chen, and Ken Yuh Hsu, "Fabrication and characterization of phenanthrenequinone-doped copolymers materials for volume holographic memory," Paper 5.5, International Forum on Holography Expo-2007, Moscow, 25-27, September, 2007.

5. Ken Yuh Hsu, Yi-Nan Hsiao, and Shiuan-Huei Lin, "Investigation on new doped PMMA photopolymers and their applications on multiplexed holograms," Paper 5.6, International Forum on Holography Expo-2007, Moscow, 25-27, September, 2007.

6. Chun-I Chuang, Shiuan Huei Lin, and Yu-Faye Chao, "Real-time measurement of PQ:PMMA photopolymer by phase modulated ellipsometer" Paper 5.7, International Forum on Holography Expo-2007, Moscow, 25-27, September, 2007.

7. Ken Y. Hsu, "Photorefractive and photopolymer materials for volume holographic recording," (Invited) 5th International Symposium on Modern Optics and Its Applications (ISMOA 2005), Bandung, Indonesia, 15-20 August, 2005.

8. Vera Marinova, Shiuan Huei Lin and Ken Yuh Hsu, "Role of Ruthenium on Optical, Photoelectrical and Holographic Properties of Bi12TiO20 and Bi12SiO20 Crystals", Paper MPC-1, Photorefractive Effects, Materials and Devices, June 19-23, 2005, Sanya, China.

9. Vera Marinova, M. Gospodinov, Shiuan Huei Lin and Ken Yuh Hsu, "Crystal Growth and Optical Properties of Relaxor Ferroelectric Pb2ScTaO6 Crystals Doped with Ru and Rh", Paper MPC-2, Photorefractive Effects, Materials and Devices, June 19-23, 2005, Sanya, China.

10. Vera Marinova, Shiuan Huei Lin and Ken Yuh Hsu, "Light-induced and holographic properties of Fe, Mn and Fe+Mn doubly doped Bi4Ge3O12 crystals", Paper MPC-4, Photorefractive Effects, Materials and Devices, June 19-23, 2005, Sanya, China.

11. Ken Y. Hsu, Vera Marinova and Shiuan Huei Lin, "Bi12TiO20:Ru Crystals for two-wavelength holographic recording", (Invited paper), Photorefractive Fiber and Crystal Devices: Materials, Optical Properties, and Applications X, San Diego, USA, 31 July-4 August, 2005.

12. Shiuan-Huei Lin and Ken Y. Hsu, "Investigations on doped PQ:PMMA photopolymers for volume holographic recording", Photorefractive Fiber and Crystal Devices: Materials, Optical Properties, and Applications X, San Diego, USA, 31 July-4 August, 2005.

13. Yi-Nan Hsiao, June-hua Lin, Shiuan Huei Lin, and Ken Y. Hsu, "Volume holographic storage characteristics on Znic Methyl Acrylate / PhenanthreneQuinone Codoped Poly(Methyl Methacrylate) Photopolymers", Paper PA17, International Conference on Holography, Optical Recording and Processing of Information, Varna, Bulgaria, 21-25 May, 2005.

14. P. Petkova, V. Marinova, T. Dimov, I. IlievS. H. Lin, and K. Y. Hsu, "Light-induced and holographic properties of transition elements doped BGO crystals", Paper PA20, International Conference on Holography, Optical Recording and Processing of Information, Varna, Bulgaria, 21-25 May, 2005.

15. Shiuan Huei Lin, Vera Marinova and Ken Yuh Hsu, "Doped Bi12TiO20 and Bi4Ge3O12 photorefractive crystals for holographic applications", (Invited paper) Paper LA06, International Conference on Holography, Optical Recording and Processing of Information, Varna, Bulgaria, 21-25 May, 2005.

16. Ren-Chung Liu and Ken-Yuh Hsu, "Distortion-invariant optical pattern recognition by using binary phase-only synthetic discriminant function (BPOSDF) filter", International Conference on Holography, Optical Recording and Processing of Information (Holography 2005), Varna, Bulgaria, 21-25 May, 2005.

17. Shiuan-Huei Lin, and Ken Y. Hsu, “Investigation on new PQ:PMMA photopolymers for holographic recording”, (Invited paper) Global Perspectives in Frontiers of Photonics, Computational Imaging, Biophotonics and Nanophotonics, May 18-20, 2005, Duke university, USA..

18. Shiuan-Huei Lin, Yi-Nan Hsiao, Wha Tzong Whang, and Ken Y. Hsu, “Studies on doped PQ:PMMA photopolymers for holographic recording,” (Invited), Optical Information Processing Technology, Photonics Asia, November 8-11, 2004, Beijing, China.June-hua Lin, Yi-Nan Hsiao, Shiuan Huei Lin, and Ken Y. Hsu, “Experimental characterization of phenanthrenequinone-doped copolymer for volume holographic storage”, Paper PA12, International Conference on Holography, Optical Recording and Processing of Information, Varna, Bulgaria, 21-25 May, 2005.

19. Wei-Sheng Cheng; Wha-Tzong Whang; Yu-Chia Chang; Po-Lin Chen; Yi-Nan Hsiao; Shiuan-Huei Lin, “Effect of doping metal ion on holographic storage characteristics of PQ/poly(hydroxyethyl methacrylate-co-methyl methacrylate) hybrids,” Proceedings of SPIE 6620, 6620321-6620328, July, 2007.
20. Shiuan Huei Lin, Vera Marinova, Suzanne Piquet, and Ken Y. Hsu, “Light-induced properties of Bi12TiO20 crystals for two-center recording,” 9-10, Proceeding, EOS Topical Meeting Optics in Computing 2004, Engelberg, Switzerland, April 21-23, 2004.

21. Shiuan Huei Lin, “Doped PMMA photopolymer for volume holographicapplications,” 125-126, Proceeding, EOS Topical Meeting Optics in Computing 2004, Engelberg, Switzerland, April 21-23, 2004.

22. Ken Y. Hsu, Shiuan Huei Lin, and Vera Marinova, “Dynamic Intensity, polarization, and phase holograms,” Paper 14B1-1(Invited), ICO’04 International Conference Optics & Photonics in Technology Frontier, 12-15 July, 2004, Tokyo, Japan.

Yi-Nan Hsiao, Wha Tzong Whang, Shiuan Huei Lin, and Ken Y. Hsu, “Holographic characteristics of organo-metallic compound doped PQ:PMMA photopolymers,” Paper 5560-05 (Invited), Photorefractive Fiber and Crystal Devices: Materials, Optical Properties, and Applications IX, Denver, USA, 2-3 August, 2004.

Sub-Project2:

Representative Publications (sorted according to research topics):

[Bi-directional fiber transmission and novel interleaver applications]

1. M. F. Huang, J. Chen, J. Yu, S. Chi and G.-K. Chang "A Novel Dispersion-free Interleaver for Bi-directional DWDM Transmission Systems," IEEE J. Lightwave Technol., Vol. 25, No. 11, pp. 3543- 3554, 2007.
2. M.-F. Huang, K.-M. Feng, J. Chen, T.-Y. Lin, C.-C. Wei, S. Chi, “Wavelength-Interleaving Bidirectional Transmission System Using Unidirectional Amplification in a 5x100 km Recirculating Loop”, IEEE Photonics Technol. Lett., pp. 1326-1328, 2006.
3. M.F. Huang, J. Chen, K. M. Feng, et al., “210-km Bidirectional transmission system with a novel four-port interleaver to facilitate unidirectional amplification”, IEEE PHOTONICS TECHNOLOGY LETTERS 18 (1-4): 172-174, 2006.
4. K. M Feng, M. F Huang, C. C. Wei, C. Y Lai, T. Y. Lin, J. H. Chen and S. Chi, “Metro Add/Drop Network Applications of Cascaded Dispersion-Compensated Interleaver Pairs Using a Re-circulating loop”, IEEE Photonics Technol. Lett., vol.17, pp.1349-1351, June 2005.
5. J. Chen, “Dispersion-Compensating Optical Digital Filters for 40-Gb/s Metro Add–Drop Applications”, IEEE Photonic Technol. Lett., pp. 1310- 1312, 2004.

[Novel all-optical signal processing (slow lights, Optical 2R, PLC ROADM ….)]

6. P.C. Peng, C.T. Lin, H.C. Kuo, W.K. Tsai, J.N. Liu, S. Chi, S.C. Wang, G. Lin, H.P. Yang, K.F. Lin, J.Y. Chi, “Tunable slow light device using quantum dot semiconductor laser”, Optics Express 14 (26): 12880-12886, 2006.

7. H.C. Chien, C.C. Lee, C.T. Lin CT, et al., “EDFA-free all-optical 2R regeneration using a compact self-seeded Fabry-Perot laser diode”, IEEE PHOTONICS TECHNOLOGY LETTERS 18 (9-12): 1112-1114, 2006.
8. H.C. Chien, C.C. Lee, S. Chi, “An all-optical 2R regenerator using a compact self-seeded Fabry-Perot laser diode incorporated in a bidirectional EDFA”, IEEE PHOTONICS TECHNOLOGY LETTERS 18 (9-12): 1344-1346, 2006.
9. H.C. Chien, C.C. Lee, Y.M. Chen, et al., “All-optical 2R regeneration based on a compact self-seeded Fabry-Perot laser diode with an embedded fiber Bragg grating”, IEEE PHOTONICS TECHNOLOGY LETTERS 18 (1-4): 559-561, 2006.
10. C.-C. Wei and J. Chen, “Study of Differential Cross-Polarization Modulation in Semiconductor Optical Amplifier”, Optics Express, vol. 13, No. 21, pp. 8442-8451, Oct. 2005.
11. C.C Wei, M. F. Huang, J.H. Chen, “Enhancing the Frequency Response of Cross Polarization Wavelength Conversion”, IEEE Photonics Technol. Lett., vol.17, pp. 1683-1685, Aug. 2005.
12. M.-F. Huang, J. Chen, K.-M. Feng, C.-Y. Lai, C.-C. Wei, T.-Y. Lin, S. Chi, Z. Zhu, Y. J. Chen, Y.-C. Huang and S.-J. Chang, “Add/Drop Applications in Fiber Ring Networks Based on a Reconfigurable Optical Add/Drop Multiplexer in a Re-circulating Loop”, Optics Communications, vol. 267, November, pp. 113-117, 2006.

[Cost-effective/high-performance duobinary/DPSK/…. Transmission]

13. C.-C. Wei, J. Chen, and Y. Chen, “Evaluation the Performance Improvement of DPSK Signals by Amplitude Regeneration and Phase Noise Suppression”, to be published at Optics Lett., 2008.
14. W.R. Peng, S. Chi, “Quantum limit of optimum four-level ASK signals with direct detection optically preamplified receivers,” OPTICS EXPRESS, 15 (11): 6790-6797 MAY 28, 2007.
15. C. C. Wei and J. Chen,, “Convergence of phase fluctuation induced by intrachannel four-wave mixing in differential phase-shift keying transmission systems via phase fluctuation averaging”, Optics Lett., no. 10, pp. 1217-1219, May, 2007.
16. C. T. Lin, W. R. Peng, P. C. Peng, J. Chen, C. F. Peng, B. S. Chiou, and S. Chi, “Simultaneous Generation of Baseband and Radio Signals Using Only One Single-Electrode Mach–Zehnder Modulator With Enhanced Linearity,” IEEE Photon. Technol. Lett., vol. 18, pp. 2481-2483, 2006.
17. C.C. Wei, J. Chen, “Convergence of phase noise in DPSK transmission systems by novel phase noise averagers”, Optics Express, vol. 14, No. 21, pp. 9584-9593, 2006.
18. Y.-C. Lu, J. Chen, K.-M. Feng, P.-C. Yeh, T.-Y. Huang, W.-R. Peng, M.-F. Huang, and C.-C. Wei, “Improved SPM Tolerance and Cost-Effective Phase-Modulation Duobinary Transmission over 230 km Standard Single-Mode Fiber Using a Single Mach-Zehnder Modulator”, IEEE Photonics Technol. Lett., vol.17, 2754-2756, Dec. 2005.
19. W.-R. Peng, Y.-C. Lu, J. Chen, S. Chi, “Encoding ASK labeled CSRZ-DPSK payload by using only one dual-drive Mach-Zehnder Modulator with enhanced label performance”, IEEE Photonics Technol. Lett., vol.17, p. 2227-2229, Oct. 2005.

[Hybrid wireless/fiber access networking]

20. C.-T. Lin, Y.-M. Lin, J. Chen, S.-P. Dai, P. T. Shih, P.-C. Peng, and S. Chi, “Optical Direct-Detection OFDM Signal Generation for Radio-Over-Fiber Link Using Frequency Doubling Scheme with Carrier Suppression”, to be published at Optics Express, 2008.
21. C.-T. Lin, S.-P. Dai, J. Chen, P. T. Shih, P.-C. Peng, S. Chi, “A Novel Direct Detection Microwave Photonic Vector Modulation Scheme for Radio-Over-Fiber System”, to be published at IEEE Photon. Technol. Lett., 2008
22. C.T. Lin, P. T. Shih, J. Chen, W.-Q Xue, P.-C. Peng, S. Chi, “Optical Millimeter-Wave Signal Generation Using Frequency Quadrupling Technique and No Optical Filtering”, to be published at IEEE Photon. Technol. Lett., 2008
23. C.T. Lin, P. T. Shih, J. Chen, P.-C. Peng, S.-P. Dai, W.-J. Jiang, W.-Q Xue, and S. Chi, “Cost-Effective Multi-Services Hybrid Access Networks with no Optical Filter at Remote Nodes”, to be published at IEEE Photon.

Technol. Lett., 2008

24. C. T. Lin, J. Chen,, P. Peng, C. Peng, W. Peng, B. Chiou and S. Chi, “Hybrid optical access network integrating fiber-to-the home and radio-over-fiber systems”, IEEE Photon. Technol. Lett., vol. 19, pp. 610-612, Apr., 2007.

[Optical access networking (PON, OCDMA, …)]

25. W.R. Peng, W.P. Lin, S. Chi, “Improved fiber Bragg grating array OFFH-CDMA system using a novel frequency-overlapping multigroup method”, JOURNAL OF LIGHTWAVE TECHNOLOGY 24 (3): 1072-1081, 2006.
26. P.-C. Peng, W.-R. Peng; K.-M. Feng, H.-Y. Chiou, J. Chen; H.-C. Kuo, S.-C. Wang, S. Chi, “OCDMA light source using directly modulated Fabry-Perot laser diode in an external injection scheme”, IEEE Photonics Technol. Lett., pp. 1103-1105, 2006.
27. C.H. Yeh, D.Z. Hsu, S. Chi, “Upstream power equalization in a gigabit passive optical network Source,” OPTICS EXPRESS, 15 (8): 5191-5195 APR 16, 2007.
28. C.-H. Yeh, and S. Chi, “Optical fiber-fault surveillance for passive optical networks in S-band operation window,” Optics Express, vol. 13, no. 14, p. 5494-5498, 2005.

[Complicated fiber Bragg grating devices: advanced design and fabrication]

29. K.-C. Hsu, L.-G. Sheu, K.-P. Chuang, S.-H. Chang and Y. Lai, “Fiber Bragg grating sequential UV-writing method with real-time interferometric side-diffraction position monitoring,” Optics Express vol.13, No.10, p.3795, 2005.
30. K.-P. Chuang, L.-G. Sheu, and Y. Lai, “Complex fiber grating structures fabricated by sequential writing with polarization control”, Optics Letters 29, pp.340-342 2004.
31. K.-P. Chuang, L.-G. Sheu, and Y. Lai, “Pure apodized phase-shifted fiber Bragg gratings fabricated by a two-beam interferometer with polarization control”, IEEE Photon. Technol. Lett., vol. 16, pp. 834-836, 2004.
32. C.-L. Lee and Y. Lai, “Optimal dispersionless fiber Bragg grating filter with shorter grating length and smoother dispersion profile”, Optics Communications 235, pp.99-106, 2004.

[Novel tapered fiber devices, fiber amplifiers and fiber lasers]

33. N.K. Chen, C.M. Hung, S. Chi, Y. Lai, “Towards the short-wavelength limit lasing at 1450 nm over I-4(13/2)-> I-4(15/2) transition in silica-based erbium-doped fiber,” OPTICS EXPRESS, Vol: 15, Pages: 16448-16456, 2007. (selected into *Virtual Journal for Biomedical Optics*, Vol. 3, Issue 1, January, 2008)
34. N.K. Chen, C.L. Lee, S. Chi, “Wideband tunable wavelength-selective coupling in asymmetric side-polished fiber coupler with dispersive interlayer,” OPTICS EXPRESS, Vol: 15, Pages: 17747-17753, 2007.
35. N.K. Chen, D.Y. Hsu, S. Chi,“Widely tunable asymmetric long-period fiber grating with high sensitivity using optical polymer on laser-ablated cladding” OPTICS LETTERS, 32 (15): 2082-2084 AUG 1, 2007.
36. N. K. Chen, K. C. Hsu, S. Chi, and Y. Lai, "Tunable Er3+-doped fiber amplifiers covering S and C + L bands over 1490-1610 nm based on discrete fundamental-mode cutoff filters," Opt. Lett. 31, 2842-2844, 2006..
37. N. K. Chen and S. Chi, "Influence of a holey cladding structure on spectral characteristics of side-polished endlessly single-mode photonic crystal fibers," Opt. Lett. 31, 2251-2253, 2006.

[High repetition rate modelocked fiber soliton lasers]

38. W. -W. Hsiang, C. -Y. Lin, and Y. Lai, "Stable new bound soliton pairs in a 10 GHz hybrid frequency modulation mode-locked Er-fiber laser," Opt. Lett. 31, 1627-1629, 2006.
39. W.-W. Hsiang, C.-Y. Lin, N.-K. Sooi, Y. Lai, “Long-term stabilization of a 10 GHz 0.8 ps asynchronously mode-locked Er-fiber soliton laser by deviation-frequency locking,” Optics Express 14, 1822-1828, 2006.
40. W.-W. Hsiang, C.-Y. Lin, M.-F. Tien, and Y. Lai, “Direct generation of 10 GHz 816 fs pulse train from an erbium-fiber soliton laser with asynchronous phase modulation,” Opt. Lett. 30, 2493-2495, 2005.

[Quantum squeezing and quantum entanglement of optical solitons]

41. R.-K. Lee, Y. Lai, and B. A. Malomed, "Photon-number fluctuation and correlation of bound soliton pairs in

mode-locked fiber lasers," Opt. Lett. 30, 3084-3086, 2005.

42. R.-K. Lee, Y. Lai, and B. Malomed, "Generation of photon-number entangled soliton pairs through interactions," Phys. Rev. A 71, 013816, 2005.
43. R.-K. Lee, Y. Lai, and Yu. S. Kivshar, "Quantum correlations in soliton collisions," Phys. Rev. A 71, 053801 (2005).
44. R.-K. Lee, E. A. Ostrovskaya, Y. S. Kivshar, and Y. Lai, "Quantum-noises of matter-wave gap solitons," Phys. Rev. A 72, 033607, 2005.

[Nano-Aperture and Dual-probe near-field fiber head]

45. J.-Y. Fang, C.-H. Tien, and H.-P. D. Shieh, "Hybrid-effect transmission enhancement induced by oblique illumination in nano-ridge waveguide," Opt. Exp., 15, 11741, 2007.
46. J.-Y. Fang, C.-H. Tien, and H.-P. D. Shieh, "Dual-probe near-field fiber head with gap servo control for data storage applications," Opt. Exp., 15, 14619, 2007.
47. C.H. Tien, C.H. Hung, "Micromachined Polarization Beam Splitter With Adjustable Leak Ratio for Optical Pickup," IEEE Photon. Technol. Lett., 19, 1109, 2007.
48. J.-Y. Fang, C.-H. Tien, P. Herget, J. A. Bain, T.E. Schlesinger and H.-P. D. Shieh, "Optical Feedback Height Control System Using Laser Diode Sensor for Near-Field Data Storage Applications," J. Lightwave Technol., 25, 3704, 2007.
49. C.H. Tien, C.H. Hung, C.H. Lee, "Aberrations measurement of fiber-end microlens by free-space microoptical ronchi interferometer," IEEE Photon. Technol. Lett., 18, 1768, 2006.
50. Yu-Chieh Chen, Jen-Yu Fang, Chung-Hao Tien, and Han-Ping D. Shieh, "High-transmission hybrid-effect-assisted nanoaperture," Opt. Lett., 31, 655, 2006.

[MEMS processes and devices for near field applications]

51. H.-L. Hsu, Y.-R. Chang, Y. Chiu, Y.-H. Lin, and W. Hsu, "A self-aligned process between the nano-aperture and solid immersion lens," Journal of Micromechanics and Microengineering, 16, pp.2632-2638, 2006.
52. C.P. Hsu and W. Hsu, "Design and Characterization of Electrothermal Monolithic Long-Stretch Micro Drive with High Output Efficiency," IEEE/ASME Journal of Micro Electro Mechanical Systems, Vol. 15, No.4, pp.935-944, 2006.
53. C.T. Wu and W. Hsu, "Design and Fabrication of an Electrothermal Microactuator for Multi-level Conveying," Journal of Microsystem Technologies," Vol. 2, No. 4, pp.293-298, 2006.
54. L.N. Tsai, G.R. Shen, Y.T. Cheng, W. Hsu, "Performance Improvement of an Electrothermal Microactuator Fabricated Using Ni-Diamond Nanocomposite," IEEE/ASME Journal of Micro Electro Mechanical Systems, Vol. 15, No.1, pp. 149-159, 2006.
55. Z.H. Liang, Y.T. Cheng, W. Hsu, Y.W. Lee, "A Wafer-Level Hermetic Encapsulation for MEMS Manufacture Application, IEEE Trans. on Adv. Packaging," Vol.29, No.3, pp.513-519, 2006.

[Near Field Servo]

56. C.S. Chang and T.S. Liu, "LQG Controller for Active Vibration Absorber in Optical Disk Drive," Vol. 43, No. 2, IEEE Trans. Magnetics, pp.799-801, 2007.
57. H.C. Wang, M.S. Huang, and T.S. Liu, "Slider Dynamics with Adhesive Force in Near-Field Recording," Vol. 43, No. 2, IEEE Trans. Magnetics, pp.796-798, 2007.
58. H.S. Yu, and T.S. Liu, "Output Feedback Sliding Mode Control for a Linear Focusing Actuator in Digital Video Cameras," Vol.43, No.11, IEEE Trans. Magnetics, pp.4048-4050, 2007.
59. C.M. Chang and T.S. Liu, "A Wavelet Network Control Method for Disk Drives," pp. 63-68, Vol.14, No.1, IEEE Trans. Control System Technology, 2006.
60. W.C. Wu and T.S. Liu, "Frequency-Shaped Sliding Mode Control for Flying Height of Pickup Head in Near-Field

Optical Disk Drives," pp. 1061-1063, Vol.41, No.2, IEEE Trans. Magnetics, 2005.

61. C.W. Chen and T.S. Liu, "H∞ Repetitive Control for Pickup Head Flying Height in Near-Field Optical Disk Drives," pp. 1067-1069, Vol.41, No.2, IEEE Trans. Magnetics, 2005.
62. H.C. Wang, T.S. Liu, and C.S. Chang, "Study of Air Bearing with Grooved Disk Surface in Near-Field Disk Drives," pp.1047-1049, Vol.41, No.2, IEEE Trans. Magnetics, 2005.

Total Publication lists (sorted according to published year):

International Journal papers:

[Optical Communication: 2004-2008]

[Accepted]

1. C.-C. Wei, J. Chen, and Y. Chen, "Evaluation the Performance Improvement of DPSK Signals by Amplitude Regeneration and Phase Noise Suppression", to be published at Optics Lett., 2008.
2. C.-T. Lin, Y.-M. Lin, J. Chen, S.-P. Dai, P. T. Shih, P.-C. Peng, and S. Chi, "Optical Direct-Detection OFDM Signal Generation for Radio-Over-Fiber Link Using Frequency Doubling Scheme with Carrier Suppression", to be published at Optics Express, 2008.
3. C.-T. Lin, S.-P. Dai, J. Chen, P. T. Shih, P.-C. Peng, S. Chi, "A Novel Direct Detection Microwave Photonic Vector Modulation Scheme for Radio-Over-Fiber System", to be published at IEEE Photon. Technol. Lett., 2008
4. C.T. Lin, P. T. Shih, J. Chen, W.-Q Xue, P.-C. Peng, S. Chi, "Optical Millimeter-Wave Signal Generation Using Frequency Quadrupling Technique and No Optical Filtering", to be published at IEEE Photon. Technol. Lett., 2008
5. C.T. Lin, P. T. Shih, J. Chen, P.-C. Peng, S.-P. Dai, W.-J. Jiang, W.-Q Xue, and S. Chi, "Cost-Effective Multi-Services Hybrid Access Networks with no Optical Filter at Remote Nodes", to be published at IEEE Photon. Technol. Lett., 2008
6. C.T. Lin, P.-C. Peng, P. T. Shih, J. Chen, and S. Chi, "Distributed Feedback Laser in External Light Injection Scheme for Tunable Slow Light", to be published at Japanese Journal of Applied Physics 2008.
7. P.-C. Peng, C.T. Lin, Wen-Jr Jiang, J. Chen, F.-M. Wu, P. T. Shih and S. Chi, "Improvement of Transmission in Fiber Wireless System using Semiconductor Laser Amplifier", to be published at Electronics Letters 2008.

[Published]

1. C.H. Yeh, F.Y. Shih, C.H. Wang, C.W. Chow , S. Chi, "Cost-effective wavelength-tunable fiber laser using self-seeding Fabry-Perot laser diode," OPTICS EXPRESS, Vol:16, Pages: 435-439, 2008.
2. C.H. Yeh, S. Chi, "Self-protection against fiber fault for ring-based power-splitting passive optical networks," OPTICAL ENGINEERING, Vol: 47, Article Number: 020501, 2008.
3. C.H. Yeh, F.Y. Shih, C.T. Chen, et al., "Multiwavelength erbium fiber ring laser using Sagnac loop and Fabry-Perot laser diode," LASER PHYSICS LETTERS, Vol: 5, Pages: 210-212 , 2008.
4. C.H. Yeh, C.S. Lee, S. Chi, "Self-protecting dual-ring-architecture in time-sharing passive optical network to prevent the occurrence of fiber failure," OPTICS COMMUNICATIONS, Vol: 281, Pages: 1534-1537, 2008.
5. C.H. Yeh, C.N. Lee, F.Y. Shih, et al., "Using dual ring structure with different coupling ratio for S-band erbium-based fiber laser," LASER PHYSICS LETTERS, Vol: 5, Pages: 51-54, 2008.
6. N.K. Chen, C.M. Hung, S. Chi, Y. Lai, "Towards the short-wavelength limit lasing at 1450 nm over I-4(13/2)-> I-4(15/2) transition in silica-based erbium-doped fiber," OPTICS EXPRESS, Vol: 15, Pages: 16448-16456, 2007. (selected into *Virtual Journal for Biomedical Optics*, Vol. 3, Issue 1, January, 2008)
7. N.K. Chen, C.L. Lee, S. Chi, "Wideband tunable wavelength-selective coupling in asymmetric side-polished fiber coupler with dispersive interlayer," OPTICS EXPRESS, Vol: 15, Pages: 17747-17753, 2007.
8. C.H. Yeh, F.Y. Shih, C.T. Chen, S. Chi, "Triple-wavelength erbium fiber ring laser based on compound-ring

scheme", OPTICS EXPRESS, Vol: 15, Pages: 17980-17984, 2007.

9. N.K. Chen, D.Y. Hsu, S. Chi,“Widely tunable asymmetric long-period fiber grating with high sensitivity using optical polymer on laser-ablated cladding” OPTICS LETTERS, 32 (15): 2082-2084 AUG 1, 2007.
10. C.H. Yeh, M.C. Lin, B.C. Cheng, S. Chi, “Long-distance strain-induced-grating-based fiber sensors with erbium-based amplifiers,” OPTICAL ENGINEERING, 46 (6): Art. No. 064401 JUN, 2007.
11. W.R. Peng, S. Chi, “Quantum limit of optimum four-level ASK signals with direct detection optically preamplified receivers,” OPTICS EXPRESS, 15 (11): 6790-6797 MAY 28, 2007.
12. C.H. Yeh, S. Chi, “Utilizations of EDFA and SOA in series for broadband gain amplification,” LASER PHYSICS LETTERS, 4 (6): 433-436 JUN, 2007.
13. S.Y. Chou, C.H. Yeh, S. Chi, “Unitizations of double-ring structure and Erbium-doped waveguide amplifier for stable and tunable fiber laser,” LASER PHYSICS LETTERS, 4 (5): 382-384 MAY, 2007.
14. C.H. Yeh, D.Z. Hsu, S. Chi, “Upstream power equalization in a gigabit passive optical network Source,” OPTICS EXPRESS, 15 (8): 5191-5195 APR 16, 2007.
15. C.H. Yeh, M.C. Lin, B.C. Cheng, S. Chi, “S-Band long-distance fiber Bragg grating sensor system,” OPTICAL FIBER TECHNOLOGY, 13 (2): 170-173 APR, 2007.
16. C.H. Yeh, T.T. Huang, H.C. Chien, C.H. Ko, S. Chi, “Tunable S-band erbium-doped triple-ring laser with single-longitudinal-mode operation,” OPTICS EXPRESS, 15 (2): 382-386 JAN 22, 2007,
17. S.F. Wen, S. Chi, “DCF-based fiber Raman amplifiers with fiber grating reflectors for tailoring accumulated-dispersion spectra,”OPTICS COMMUNICATIONS, 272 (1): 247-251 APR 1, 2007.
18. M. F. Huang, J. Chen, J. Yu, S. Chi and G.-K. Chang "A Novel Dispersion-free Interleaver for Bi-directional DWDM Transmission Systems," IEEE J. Lightwave Technol., Vol. 25, No. 11, pp. 3543- 3554, 2007.
19. P.-C. Peng, K.-M. Feng, H.-Y. Chiou, W.-R. Peng, J. Chen, H.-C. Kuo, S.-C. Wang and S. Chi, “Reliable architecture for high-capacity fiber-radio systems”, Optical Fiber Technology, vol. 13, pp. 236-239, 2007.
20. Y. C. Lu, C. C. Wei, J. Chen, K. M. Feng, P. C. Yeh, T. Y. Huang, C. C. Chang, C. Tsao and S. Chi, “Effects of filter bandwidth and driving voltage on optical duobinary transmission systems”, Optical Fiber Technology, vol. 13, pp. 231-235, 2007.
21. C. C. Wei and J. Chen,, “Convergence of phase fluctuation induced by intrachannel four-wave mixing in differential phase-shift keying transmission systems via phase fluctuation averaging”, Optics Lett., no. 10, pp. 1217-1219, May, 2007.
22. C. T. Lin, J. Chen,, P. Peng, C. Peng, W. Peng, B. Chiou and S. Chi, “Hybrid optical access network integrating fiber-to-the home and radio-over-fiber systems”, IEEE Photon. Technol. Lett., vol. 19, pp. 610-612, Apr., 2007.
23. K.C. Hsu, L.G. Sheu, W.W. Hsiang, et al., “Methods of achieving linear index-change response for narrow-band fiber Bragg grating sequential writing,” OPTICS COMMUNICATIONS Vol: 277, Pages: 310-314, 2007.
24. C. T. Lin, W. R. Peng, P. C. Peng, J. Chen, C. F. Peng, B. S. Chiou, and S. Chi, “Simultaneous Generation of Baseband and Radio Signals Using Only One Single-Electrode Mach–Zehnder Modulator With Enhanced Linearity,” IEEE Photon. Technol. Lett., vol. 18, pp. 2481-2483, 2006.
25. C.C. Wei, J. Chen, “Convergence of phase noise in DPSK transmission systems by novel phase noise averagers”, Optics Express, vol. 14, No. 21, pp. 9584-9593, 2006.
26. H.C. Chien, C.C. Lee, C.T. Lin CT, et al., “EDFA-free all-optical 2R regeneration using a compact self-seeded Fabry-Perot laser diode”, IEEE PHOTONICS TECHNOLOGY LETTERS 18 (9-12): 1112-1114, 2006.
27. H.C. Chien, C.C. Lee, S. Chi, “An all-optical 2R regenerator using a compact self-seeded Fabry-Perot laser diode incorporated in a bidirectional EDFA”, IEEE PHOTONICS TECHNOLOGY LETTERS 18 (9-12): 1344-1346, 2006.
28. H.C. Chien, C.C. Lee, Y.M. Chen, et al., “All-optical 2R regeneration based on a compact self-seeded Fabry-Perot

laser diode with an embedded fiber Bragg grating", IEEE PHOTONICS TECHNOLOGY LETTERS 18 (1-4): 559-561, 2006.

29. M.-F. Huang, J. Chen, K.-M. Feng, C.-Y. Lai, C.-C. Wei, T.-Y. Lin, S. Chi, Z. Zhu, Y. J. Chen, Y.-C. Huang and S.-J. Chang, "Add/Drop Applications in Fiber Ring Networks Based on a Reconfigurable Optical Add/Drop Multiplexer in a Re-circulating Loop", Optics Communications, vol. 267, November, pp. 113-117, 2006.
30. M.-F. Huang, K.-M. Feng, J. Chen, T.-Y. Lin, C.-C. Wei, S. Chi, "Wavelength-Interleaving Bidirectional Transmission System Using Unidirectional Amplification in a 5x100 km Recirculating Loop", IEEE Photonics Technol. Lett., pp. 1326-1328, 2006.
31. M.F. Huang, J. Chen, K. M. Feng, et al., "210-km Bidirectional transmission system with a novel four-port interleaver to facilitate unidirectional amplification", IEEE PHOTONICS TECHNOLOGY LETTERS 18 (1-4): 172-174, 2006.
32. W.R. Peng, W.P. Lin, S. Chi, "Improved fiber Bragg grating array OFFH-CDMA system using a novel frequency-overlapping multigroup method", JOURNAL OF LIGHTWAVE TECHNOLOGY 24 (3): 1072-1081, 2006.
33. P.-C. Peng, W.-R. Peng; K.-M. Feng, H.-Y. Chiou, J. Chen; H.-C. Kuo, S.-C. Wang, S. Chi, "OCDMA light source using directly modulated Fabry-Perot laser diode in an external injection scheme", IEEE Photonics Technol. Lett., pp. 1103-1105, 2006.
34. C.H. Yeh, M.C. Lin, S. Chi, "Gain flattened erbium-doped amplifier with 34 nm flat bandwidth", ELECTRONICS LETTERS 42 (19): 1086-1088, 2006.
35. C.H. Yeh, M.C. Lin, S. Chi, "A gain-clamped S-band erbium-doped fiber amplifier using fiber Bragg grating", OPTICS COMMUNICATIONS 261 (2): 266-268, 2006.
36. C.H. Yeh, M.C. Lin, T.T. Huang, et al., "S-band gain-clamped grating-based erbium-doped fiber amplifier by forward optical feedback technique", OPTICS EXPRESS 14 (7): 2611-2617, 2006.
37. N. K. Chen, K. C. Hsu, S. Chi, and Y. Lai, "Tunable Er3+-doped fiber amplifiers covering S and C + L bands over 1490-1610 nm based on discrete fundamental-mode cutoff filters," Opt. Lett. 31, 2842-2844, 2006.
38. N. K. Chen, L. Zhang, K. C. Hsu, L. Hu, S. Chi, Y. Lai, S. M. Tseng, and J. T. Shy, "CW-pumped evanescent amplification based on side-polished fiber with heavily Er3+-doped glass overlay," Jpn. J. Appl. Phys. 45, 6328-6330, 2006.
39. N. K. Chen and S. Chi, "Influence of a holey cladding structure on spectral characteristics of side-polished endlessly single-mode photonic crystal fibers," Opt. Lett. 31, 2251-2253, 2006.
40. P.-C. Peng, K.-M. Feng, C.-C. Chang, H.-Y. Chiou, J. Chen, M.-F. Huang, H.-C. Chien, S. Chi , "Multiwavelength Fiber Laser using S-band Erbium-Doped Fiber Amplifier and Semiconductor Optical Amplifier," Optics Communications, vol. 259, pp. 200-203, 2006.
41. C.H. Yeh, M.C. Lin, S. Chi, "A tunable erbium-doped fiber ring laser with power-equalized output", Optics Express 14 (26): 12828-12831, 2006.
42. W. -W. Hsiang, C. -Y. Lin, and Y. Lai, "Stable new bound soliton pairs in a 10 GHz hybrid frequency modulation mode-locked Er-fiber laser," Opt. Lett. 31, 1627-1629, 2006.
43. W.-W. Hsiang, C.-Y. Lin, N.-K. Sooi, Y. Lai, "Long-term stabilization of a 10 GHz 0.8 ps asynchronously mode-locked Er-fiber soliton laser by deviation-frequency locking," Optics Express 14, 1822-1828, 2006.
44. P.C. Peng, C.T. Lin, H.C. Kuo, W.K. Tsai, J.N. Liu, S. Chi, S.C. Wang, G. Lin, H.P. Yang, K.F. Lin, J.Y. Chi, "Tunable slow light device using quantum dot semiconductor laser", Optics Express 14 (26): 12880-12886, 2006.
45. P.C. Peng, C.T. Lin, Kuo HC, et al., "Tunable optical group delay in quantum dot vertical-cavity surface-emitting laser at 10 GHz", ELECTRONICS LETTERS 42 (18): 1036-1037, 2006.
46. P.C. Peng, H.C. Kuo, W.K. Tsai, et al., "Dynamic characteristics of long-wavelength quantum dot vertical-cavity

surface-emitting lasers with light injection", OPTICS EXPRESS 14 (7): 2944-2949, 2006.

47. C.T. Lin, B.S. Chiou, S. Chi, "Cost-effective optoelectronic packages using powder metallurgy", IEEE JOURNAL OF SELECTED TOPICS IN QUANTUM ELECTRONICS 12 (5): 970-982, 2006.
48. C.T. Lin, B.S. Chiou, S. Chi, "Study on the weldability of stainless steel fabricated by powder metallurgy and metal injection molding for optoelectronic packages", OPTICAL ENGINEERING 45 (8): Art. No. 084002, 2006.
49. C.F. Chen, S. Chi, "The modified propagation equation for TM polarized subwavelength spatial solitons in a nonlinear planar waveguide", OPTIK 117 (10): 489-491, 2006.
50. Y.-C. Lu, J. Chen, K.-M. Feng, P.-C. Yeh, T.-Y. Huang, W.-R. Peng, M.-F. Huang, and C.-C. Wei, "Improved SPM Tolerance and Cost-Effective Phase-Modulation Duobinary Transmission over 230 km Standard Single-Mode Fiber Using a Single Mach-Zehnder Modulator", IEEE Photonics Technol. Lett., vol.17, 2754-2756, Dec. 2005.
51. C.-C. Wei and J. Chen, "Study of Differential Cross-Polarization Modulation in Semiconductor Optical Amplifier", Optics Express, vol. 13, No. 21, pp. 8442-8451, Oct. 2005.
52. W.-R. Peng, Y.-C. Lu, J. Chen, S. Chi, "Encoding ASK labeled CSRZ-DPSK payload by using only one dual-drive Mach-Zehnder Modulator with enhanced label performance", IEEE Photonics Technol. Lett., vol.17, p. 2227-2229, Oct. 2005.
53. C.C Wei, M. F. Huang, J.H. Chen, "Enhancing the Frequency Response of Cross Polarization Wavelength Conversion", IEEE Photonics Technol. Lett., vol.17, pp. 1683-1685, Aug. 2005.
54. K. M Feng, M. F Huang, C. C. Wei, C. Y Lai, T. Y. Lin, J. H. Chen and S. Chi, "Metro Add/Drop Network Applications of Cascaded Dispersion-Compensated Interleaver Pairs Using a Re-circulating loop", IEEE Photonics Technol. Lett., vol.17, pp.1349-1351, June 2005.
55. G. R. Lin, Y. C. Chang, Y. H. Lin, and J. H. Chen, "All Optical Data Format Conversion in Synchronously Modulated Single-Mode Fabry-Perot Laser Diode Using External Injection-Locking Induced Nonlinear Threshold Reduction Effect", IEEE Photonics Technol. Lett., vol.17, pp. 1307-1309, March 2005.
56. C.-C. Lee, T.-C. Kao, H.-C. Chien, and S. Chi, "A novel supervisory scheme for OXC based on different time-delay recognition," IEEE Photon. Technol. Lett., vol. 17, no. 12, p. 2745, 2005.
57. C.-H. Yeh, and S. Chi, "Utilizations of fiber Bragg gratings and Fabry-Perot lasers for fast wavelength switching technique," Optics Communications, vol. 256, no. 1-3, p. 73, 2005.
58. C.-H. Yeh, and S. Chi, "A wavelength converting and switching method based on Fabry-Perot laser diodes," Optics Communications, vol. 256, no. 1-3, p. 103, 2005.
59. C.-H. Yeh, C.-C. Lee, and S. Chi, "A bidirectional 2 x 2 optical switch technique using absorption or amplification function of erbium-doped fiber," Japanese Journal of Applied Physics, vol. 44, no. 10, p. 7472, 2005.
60. C.-F. Chen, and S. Chi, "Femtosecond second-order solitons in optical fiber transmission," OPTIK, vol. 116, no. 7, p. 331, 2005.
61. W.-P. Lin and H.-L. Wu, "Fiber Bragg gratings-based OCDMA-PON using dual-baseband modulation scheme," Japanese Journal of Applied Physics, vol. 44, no. 8, pp. 6062-6067, Aug. 2005.
62. W.-P. Lin, "A robust fiber-radio architecture for bidirectional WDM ring access network," IEEE/OSA Journal of Lightwave Technology, vol. 23, no. 9, pp. 2610-2620, Sept. 2005.
63. W.-P. Lin and J.-Y. Chen, "Implementation of a new ultrawide-band impulse system," IEEE Photonics Technology Letters, vol. 17, no. 11, pp. 2418-2420, Nov. 2005.
64. W.-R. Peng, P.-C. Peng, Y.-T. Hsueh, and S. Chi, "Performance comparisons of external modulated hybrid analog-digital signals in electrical and optical domains," IEEE Photon. Technol. Lett., vol. 17, no. 11, p. 2496, 2005.
65. C.-H. Yeh, and S. Chi, "Optical fiber-fault surveillance for passive optical networks in S-band operation window," Optics Express, vol. 13, no. 14, p. 5494-5498, 2005.

66. W.-P. Lin, W.-R. Peng, and S. Chi, “Dynamic wavelength allocation in wavelength division multiplexing radio-over-fiber access network,” Japanese Journal of Applied Physics, vol. 44, no. 3, p. 1282, 2005.
67. P.-C. Peng, Y.-H. Chang, H.-C. Kuo, and S. Chi, “1.3 um quantum dot vertical-cavity surface-emitting laser with external light injection,” Electron. Lett., vol. 41, no. 22, p. 1222, 2005.
68. C.-H. Yeh, K.-H. Lai, C.-C. Lee, and S. Chi, “Hybrid three-stage C- plus L-band optical fiber amplifier in cascade configuration,” Optical Engineering, vol. 44, no. 5, p. 054201, 2005.
69. K.-H. Lai, C.-H. Yeh, and S. Chi, “Coupled-structure erbium-doped fiber amplifier with 94-nm bandwidth,” Optical Engineering, vol. 44, no. 5, p. 055001, 2005.
70. C.-H. Yeh, and S. Chi, “Hybrid S- to L-band fiber amplifier module with coupled structure,” Optical Engineering, vol. 44, no. 5, p. 059701, 2005.
71. P.-C. Peng, and S. Chi, “Tunable single- and dual-wavelength fiber ring lasers using an Er-Yb doped waveguide amplifier,” Optical Engineering, vol. 44, no. 6, p. 060507, 2005.
72. P.-C. Peng, and S. Chi, “Wavelength-tunable optical short pulse generation with constant repetition frequency and pulsewidth,” Optical Engineering, vol. 44, no. 6, p. 064205, 2005.
73. C.-H. Yeh, M.-C. Lin, C.-C. Lee, and S. Chi, “Fiber Bragg grating-based multiplexed sensing system employing fiber laser scheme with semiconductor optical amplifier,” Japanese Journal of Applied Physics, vol. 44, no. 9A, p. 6590, 2005.
74. C.-H. Yeh, and S. Chi, “A wavelength-tunable erbium-doped fiber double-ring laser with stabilized single-frequency operation ,” Japanese Journal of Applied Physics, vol. 44, no. 7A, p. 5003, 2005.
75. C.-H. Yeh, M.-C. Lin, and S. Chi, “Stabilized and wavelength-tunable S-Band erbium-doped fiber ring laser with single-longitudinal-mode operation,” Optics Express, vol. 13, no. 18, p. 6828, 2005.
76. N.-K. Chen, S. Chi, and S.-M. Tseng, “An efficient local fundamental-mode cutoff for thermo-optic tunable Er3+-doped fiber ring laser,” Optics Express, vol. 13, no. 18, p. 7250, 2005.
77. C.-H. Yeh, and S. Chi, “A broadband fiber ring laser technique with stable and tunable signal-frequency operation,” Optics Express, vol. 13, no. 17, p. 6668, 2005.
78. P.-C. Peng, K.-M. Feng, W.-R. Peng, H.-Y. Chiou, C.-C. Chang, and S. Chi, “Long-distance fiber grating sensor system using a fiber ring laser with EDWA and SOA,” Optics Communications, vol. 252, no. 1-3, p. 127, 2005.
79. K.-H. Lai, and S. Chi, “Gain-clamped erbium-doped waveguide amplifier module with fiber Bragg grating using optical feedback,” Japanese Journal of Applied Physics, vol. 44, no. 6A, p. 4009, 2005.
80. C.-H, Yeh, K.-P. Fan, and S.Chi, “Operation of saturable-absorber-based autotracking filter for a stabilized single-frequency erbium fiber laser,” Japanese Journal of Applied Physics, vol. 44, no 6A, p. 4012, 2005.
81. H.-C. Chien, C.-H Yeh, C.-C. Lee, and S. Chi, “A tunable and single-frequency S-band erbium fiber laser with saturable-absorber-based autotracking filter,” Optics Communications, vol. 250, no. 1-3, p. 163, 2005.
82. H.-C. Chien, C.-H. Yeh, K.-H. Lai, and S. Chi, “Stable and wavelength-tunable erbium-doped fiber double-ring laser in S-band window operation,” Optics Communications, vol. 249, no. 1-3, p. 261, 2005.
83. C.-H. Yeh, C.-Y. Chen, and S. Chi, “Dynamic adjustment for gain-clamping erbium-doped fiber amplifier using a backward-injection light,” Optical Engineering, vol. 44, no. 2, p. 029701-1, 2005.
84. H.-C. Chien, C.-H Yeh, C.-C. Lee, and S. Chi, “Single-frequency tunable fiber ring laser based on erbium-doped waveguide amplifier and double filters,” Japanese Journal of Applied Physics, vol. 44, no. 1A, p. 231, 2005.
85. C.-H Yeh, C.-C. Lee, and S. Chi, “Bi-directional hybrid optical fiber amplifier for C or C-plus-L band,” Japanese Journal of Applied Physics, vol. 44, no. 1A, p. 237, 2005.
86. C.-H Yeh, C.-Y. Chen, C.-C. Lee, and S. Chi, “Wide-band two-stage erbium-doped fiber amplifier module in parallel configuration,” Japanese Journal of Applied Physics, vol. 44, no. 1A, p. 239, 2005.
87. C.-H Yeh, H.-C. Chien, C.-C. Lee, and S. Chi, “Gain-clamping erbium-doped waveguide amplifier module using

optical feedback technique," Optics Communications, vol. 246, no. 1-3, p. 73, 2005.

88. W.-W. Hsiang, C.-Y. Lin, M.-F. Tien, and Y. Lai, "Direct generation of 10 GHz 816 fs pulse train from an erbium-fiber soliton laser with asynchronous phase modulation," Opt. Lett. 30, 2493-2495, 2005.
89. R.-K. Lee, Y. Lai, and B. A. Malomed, "Photon-number fluctuation and correlation of bound soliton pairs in mode-locked fiber lasers," Opt. Lett. 30, 3084-3086, 2005.
90. K.-C. Hsu, L.-G. Sheu, K.-P. Chuang, S.-H. Chang and Y. Lai, "Fiber Bragg grating sequential UV-writing method with real-time interferometric side-diffraction position monitoring," Optics Express vol.13, No.10, p.3795, 2005.
91. Y. C. Liu and Y. Lai, "Optical birefringence and polarization dependent loss of square- and rectangular-lattice holey fibers with elliptical air holes: numerical analysis", Optics Express, Vol.13, No.1, 225-235, 2005.
92. R.-K. Lee, Y. Lai, and B. Malomed, "Generation of photon-number entangled soliton pairs through interactions," Phys. Rev. A 71, 013816, 2005.
93. R.-K. Lee, Y. Lai, and Yu. S. Kivshar, "Quantum correlations in soliton collisions," Phys. Rev. A 71, 053801 (2005).
94. Q. Guo, and S. Chi, "Does the phenomenological approach contradict the quantum theory of exciton-polariton spatial dispersion?," Inorganic Materials, vol. 41, no 5, p. 549, 2005.
95. B.-C. Cheng, H.-Y. Tseng, and S. Chi, "Self-induced transparency with transverse variations in resonant media by the power series approximation method," Physical Review E, vol. 71, no. 1, p. 016609 Part 2, 2005.
96. Y.-R. Chang, L. Hsu, and S. Chi, "Optical trapping of a spherically symmetric Rayleigh sphere: a model for optical tweezers upon cells," Optics Communications, vol. 246, no. 1-3, p. 97, 2005.
97. R.-K. Lee, E. A. Ostrovskaya, Y. S. Kivshar, and Y. Lai, "Quantum-noises of matter-wave gap solitons," Phys. Rev. A 72, 033607, 2005.
98. Y.-C. Chang, Y.-H. Lin, J. Chen and G.-R. Lin, "All optical NRZ-to-PRZ format transformer with an injection-locked Fabry-Perot laser diode at unlasing condition", Optics Express, vol. 12, no. 19, pp. 4449-4456, Sept. 2004
99. J. Chen, "Dispersion-Compensating Optical Digital Filters for 40-Gb/s Metro Add–Drop Applications", IEEE Photonic Technol. Lett., pp. 1310- 1312, 2004.
100. S. Cao, J. Chen, J.N. Damask, C.R. Doerr, L. Guiziou, G. Harvey, Y. Hibino, H. Li, S. Suzuki, K.-Y. Wu, P. Xie, "Interleaver Technology: Comparisons and Applications Requirements", IEEE J. Lightwave Technol., pp. 281- 289, 2004
101. P. C. Peng, W. R. Peng, W. P. Lin, and S. Chi, "Dynamic Encoder and Decoder Based on Fiber Bragg Gratings for Optical Security System," Japanese Journal of Applied Physics. vol.43, no.12, pp. 8101-8102, 2004.
102. C. H. Yeh, C. C. Lee, and S. Chi, "Optical monitoring technique based on scanning the gain profiles of erbium-doped fiber amplifiers for WDM networks," Opt. Commun., vol. 241, pp. 333-338, 2004.
103. C. H. Yeh, C. C. Lee, and S. Chi, "S- plus C-band erbium-doped fiber amplifier in parallel structure," Opt. Comm., vol. 241, pp. 443-447, 2004.
104. P. C. Peng, H. Y. Cheng, and S. Chi, "Wavelength-tunable add-drop multiplexers using fiber Fabry-Perot tunable filters for bidirectional wavelength-division multiplexing networks," Optical Engineering, vol. 43, pp. 2422-2425, 2004.
105. P. C. Peng, W. P. Lin, and S. Chi, "Star-bus-ring architecture for fiber Bragg grating sensors," Japanese Journal of Applied Physics, vol. 43, pp. 7072-7076, 2004.
106. C. H. Yeh, K. H. Lai, Y. J. Huang, and S. Chi "Hybrid L-band optical fiber amplifier module with erbium-doped fiber amplifiers and semiconductor optical amplifier," Japanese Journal of Applied Physics, vol. 43, pp. 5357-5358, 2004.
107. W. R. Peng, P. C. Peng, W. P. Lin, and S. Chi "A cost-effective fast frequency-hopped code-division

multiple-access light source using self-seeded Fabry-Perot laser with fiber Bragg grating array," IEEE Photonics Technology Letters, vol. 16, pp. 2550-2552, 2004.

108. P. C. Peng, W. R. Peng, J. H. Lin, and S. Chi "Generation of wavelength-tunable optical pulses using EDFA as external-injection light source and amplifier for Fabry-Perot laser diode," IEEE Photonics Technology Letters, vol. 16, pp. 2553-2555, 2004.
109. N. K. Chen, S. Chi, and S. M. Tseng, "Wideband tunable fiber short-pass filter based on side-polished fiber with dispersive polymer overlay," Optics Letters, vol. 29, pp. 2219-2221, 2004.
110. P. C. Peng, and S. Chi, "Over 31 nm wavelength-switched pulse generation from a fiber ring laser with a Fabry-Perot laser diode," Japanese Journal of Applied Physics, vol. 43, pp. 4236-4237, 2004.
111. C. H. Yeh, K. H. Lai, C. C. Lee, and S. Chi "Simultaneously gain-flattening and gain-clamping technique for erbium-doped fiber amplifiers by backward injection of a Fabry-Perot laser light," Japanese Journal of Applied Physics, vol. 43, pp. 4238-4239,2004.
112. C. H. Yeh, C. C. Lee, and S. Chi, "Fast wavelength switching based on a Fabry-Perot laser pair using optical injection," Japanese Journal of Applied Physics, vol. 43, pp. 3454-3455, 2004.
113. C. H. Yeh, C. C. Lee, and S. Chi, "120-nm bandwidth erbium-doped fiber amplifier in parallel configuration," IEEE Photonics Technology Letters, vol. 16, pp. 1637-1639, 2004.
114. N. K. Chen, S. Chi, and S. M. Tseng, "Narrow-band channel-dropping filter based on side-polished fiber with long interaction length ," Japanese Journal of Applied Physics, vol. 43, pp. L475-L477, 2004.
115. C. H. Yeh, C. C. Lee, and S. Chi, "Fast tunable laser based on Fabry-Perot lasers with optical injection," Optical Engineering, vol. 43, pp. 812-815, 2004.
116. P. C. Peng, J. H. Lin, and S. Chi, "Generation of wavelength-tunable optical pulses using a linear-cavity fiber laser scheme with a Fabry-Perot laser diode," IEEE Photonics Technology Letters, vol. 16, pp. 1023-1025, 2004.
117. C.-L. Lee and Y. Lai, "Optimal dispersionless fiber Bragg grating filter with shorter grating length and smoother dispersion profile", Optics Communications 235, pp.99-106, 2004.
118. K.-P. Chuang, L.-G. Sheu, and Y. Lai, "Complex fiber grating structures fabricated by sequential writing with polarization control", Optics Letters 29, pp.340-342 2004.
119. K.-P. Chuang, L.-G. Sheu, and Y. Lai, "Pure apodized phase-shifted fiber Bragg gratings fabricated by a two-beam interferometer with polarization control", IEEE Photon. Technol. Lett., vol. 16, pp. 834-836, 2004.
120. C.-L. Lee and Y. Lai, "Synthesis of long-period fiber gratings using evolutionary programming", Fiber & Integrated Optics, Volume 23.4., 2004.
121. R.-K. Lee and Y. Lai, "Amplitude-squeezed fiber-Bragg-grating solitons," Phys. Rev. A 69, 021801(R) 2004; also as part of Virtual Journal of Nanoscale Science& Technology 9, Issue 8, 2004.
122. R.-K. Lee and Y. Lai, and B. A. Malomed, "Quantum Fluctuations around Bistable Solitons in the Cubic-Quintic nonlinear Schrodinger equation," J. Opt. B 6, 367, 2004.
123. R.-K. Lee and Y. Lai, "Quantum theory of fiber Bragg grating solitons," J. Opt. B 6, S638, 2004.
124. R.-K. Lee and Y. Lai, "Fluorescence squeezing spectra near a photonic bandgap," J. Opt. B 6, S715, 2004.
125. R.-K. Lee, Y. Lai, and B. Malomed, "Quantum correlations in bound-soliton pairs and trains in fiber lasers," Phys. Rev. A 70, 063817 2004; also as part of Virtual Journal of Quantum Information 5, Issue 1, 2005.

[Optical Storage: 2004-2008]

[Accepted]

1. Tzu-Hsiang Lan and Choung-Hao Tien, "Study on Focusing Mechanism of Radial Polarization with Immersion Objective," Jpn. J. Appl. Phys.,, in press, 2008.
2. Yung-Sung Lan and Chung-Hao Tien, "Design of Catadioptric Lens with Servo Optical Mechanism in

Holographic Recording System," Jpn. J. Appl. Phys., in press, 2008.

[Published]

1. J.W. Chung, and W. Hsu, "Fabrication of a polymer-based torsional vertical comb drive using a double-side partial exposure method," J. Micromech. Microeng. 18, 2008.
2. T.H. Lan, C.H. Tien, "Servo study of radially polarized beam in high numerical aperture optical data storage system," Jpn. J. Appl. Phys., 46 3758, 2007.
3. J.-Y. Fang, C.-H. Tien, and H.-P. D. Shieh, "Hybrid-effect transmission enhancement induced by oblique illumination in nano-ridge waveguide," Opt. Exp., 15, 11741, 2007.
4. J.-Y. Fang, C.-H. Tien, and H.-P. D. Shieh, "Dual-probe near-field fiber head with gap servo control for data storage applications," Opt. Exp., 15, 14619, 2007.
5. C.H. Tien, C.H. Hung, "Micromachined Polarization Beam Splitter With Adjustable Leak Ratio for Optical Pickup," IEEE Photon. Technol. Lett., 19, 1109, 2007.
6. J.-Y. Fang, C.-H. Tien, P. Herget, J. A. Bain, T.E. Schlesinger and H.-P. D. Shieh, "Optical Feedback Height Control System Using Laser Diode Sensor for Near-Field Data Storage Applications," J. Lightwave Technol., 25, 3704, 2007.
7. J.W. Chung, and W. Hsu, "Enhancement on forming complex three dimensional microstructures by a double-side multiple partial exposure method," Journal of Vacuum Science and Technology B, 25,1671, 2007; also selected in the Virtual Journal of Nanoscale Science & Technology, October Issue, 2007.
8. C.S. Chang and T.S. Liu, "LQG Controller for Active Vibration Absorber in Optical Disk Drive," Vol. 43, No. 2, IEEE Trans. Magnetics, pp.799-801, 2007.
9. H.C. Wang, M.S. Huang, and T.S. Liu, "Slider Dynamics with Adhesive Force in Near-Field Recording," Vol. 43, No. 2, IEEE Trans. Magnetics, pp.796-798, 2007.
10. H.S. Yu, and T.S. Liu, "Output Feedback Sliding Mode Control for a Linear Focusing Actuator in Digital Video Cameras," Vol.43, No.11, IEEE Trans. Magnetics, pp.4048-4050, 2007.
11. C.S. Chang, T.S. Liu, and Y.C. Tang, "A Tracking Motion Approach for Piezotube Actuator in Disk Drive Subject to Disk Deformation and Disturbance," Vol. 16, Smart Materials and Structures, pp.1542-1548, 2007.
12. C.H. Tien, C.H. Hung, C.H. Lee, "Aberrations measurement of fiber-end microlens by free-space microoptical ronchi interferometer," IEEE Photon. Technol. Lett., 18, 1768, 2006.
13. Y.-C. Chen, J.-Y. Fang, C.-H. Tien, and H.-P. D. Shieh, "High-transmission hybrid-effect-assisted nanoaperture," Opt. Lett., 31, 655, 2006.
14. Y.-C. Chen, J.-Y. Fang, C.-H. Tien and H.-P. D. Shieh, "Double-Corrugated C-Shaped Aperture for Near-Field Recording," Jpn. J. Appl. Phys., 45 1348, 2006.
15. C.-H. Tien and C.-H. Lee, "Optical Properties of surface micromachining with randomly distributed etch holes," Jpn. J. Appl. Phys., 45 1015, 2006.
16. Y. Lai, E.V. Bordatchev, S.K. Nikumb, W. Hsu, "Performance Characterization of In-plane Electro-Thermally Driven Linear Microactuators," Journal of Intelligent Material Systems and Structures, Vol. 17, 10, pp. 919-929, 2006.
17. C.P. Hsu and W. Hsu, "Design and Characterization of Electrothermal Monolithic Long-Stretch Micro Drive with High Output Efficiency," IEEE/ASME Journal of Micro Electro Mechanical Systems, Vol. 15, No.4, pp.935-944, 2006.
18. C.T. Wu and W. Hsu, "Design and Fabrication of an Electrothermal Microactuator for Multi-level Conveying," Journal of Microsystem Technologies," Vol. 2, No. 4, pp.293-298, 2006.
19. H.-L. Hsu, Y.-R. Chang, Y. Chiu, Y.-H. Lin, and W. Hsu, "A self-aligned process between the nano-aperture and solid immersion lens," Journal of Micromechanics and Microengineering, 16, pp.2632-2638, 2006.

20. L.N. Tsai, G.R. Shen, Y.T. Cheng, W. Hsu, “Performance Improvement of an Electrothermal Microactuator Fabricated Using Ni-Diamond Nanocomposite,” IEEE/ASME Journal of Micro Electro Mechanical Systems, Vol. 15, No.1, pp. 149-159, 2006.
21. Z.H. Liang, Y.T. Cheng, W. Hsu, Y.W. Lee, “A Wafer-Level Hermetic Encapsulation for MEMS Manufacture Application, IEEE Trans. on Adv. Packaging,” Vol.29, No.3, pp.513-519, 2006.
22. C.M. Chang and T.S. Liu, “A Wavelet Network Control Method for Disk Drives,” pp. 63-68, Vol.14, No.1, IEEE Trans. Control System Technology, 2006.
23. C.S. Chang and T.S. Liu, “Design of Adaptive Dynamic Absorber to Reduce Optical Disk Drive Vibration at Multiple Rotating Speeds,” Vol. 45, No. 2B, pp.1120-1123, Japanese Journal of Applied Physics, 2006.
24. C.S. Chang, T.S. Liu, and S.K. Lin, “Design a Linear Motor Absorber,” Vol. 99, Issue 8, Art. No. 08R323, Journal of Applied Physics, 2006.
25. C.C. Hsiao, C.Y. Peng, and T.S. Liu, “An Optical Lever Approach to Photodetector Measurement of Pickup-Head Flying Height in an Optical Disk Drive,” Measurement Science and Technology, Vol. 17, pp.2335-2342, 2006.
26. H.C. Wang and T.S. Liu, “Airflow Velocity Effects on Air Bearing with Grooved Disk Surface in Near-Field Optical Disk,” Physics of Fluids, Vol. 18, No. 5, 057103, 2006.
27. C.C. Hsiao, T.S. Liu, and S.H. Chieng, “Adaptive Inverse Control for the Pickup Head Flying Height of Near-Field Optical Disk Drives,” Smart Materials and Structures, Vol. 15, pp. 1632-1640, 2006.
28. W.C. Wu and T.S. Liu, “Frequency-Shaped Sliding Mode Control for Flying Height of Pickup Head in Near-Field Optical Disk Drives,” pp. 1061-1063, Vol.41, No.2, IEEE Trans. Magnetics, 2005.
29. C.W. Chen and T.S. Liu, “H∞ Repetitive Control for Pickup Head Flying Height in Near-Field Optical Disk Drives,” pp. 1067-1069, Vol.41, No.2, IEEE Trans. Magnetics, 2005.
30. H.C. Wang, T.S. Liu, and C.S. Chang, “Study of Air Bearing with Grooved Disk Surface in Near-Field Disk Drives,” pp.1047-1049, Vol.41, No.2, IEEE Trans. Magnetics, 2005.
31. C.H. Ho, and W. Hsu, “Experimental investigation on an embedded root method for stripping SU-8 photoresist in UV-LIGA process, Journal of Micromechanics and Microengineering,” Vol. 14, pp.356-364, 2004.
32. C.S. Lin, S.Y. Wen, and W. Hsu, “A Variable Optical Attenuator with a Tunable Non-smoothe Curved Mirror,” Japanese Journal of Applied Physics, Vol.43, No. 11A, pp.7764-7768, 2004.
33. C.M. Chang and T.S. Liu, “Study of Wavelet Repetitive Control,” Vol.151, No.3, pp.303-309, IEE Proceedings - Control Theory and Applications, 2004.
34. W.C. Wu and T.S. Liu, “Sliding Mode Based Learning Control for Track-Following in Hard Disk Drives,”Vol.14, Issue 8, pp.861-876, International Journal of Mechatronics, 2004.
35. J.W. Chen, and T.S. Liu, “A Gap Capacitance Method for Slider Flying Height Measurement in Near-Field Optical Disk Drives,” Vol. 14, Issue 10, pp. 1141-1155, International Journal of Mechatronics, 2004.

International Conference papers:

[Optical communication: 2004-2008]

1. C.-T. Lin, Y.-M. Lin, J. Chen, S.-P. Dai, P.-C. Peng, P. T. Shih, S. Chi, “Generation of Direct-Detection Optical OFDM Signal for Radio-over-Fiber Link Using Frequency Doubling Scheme with Carrier Suppression”, OFC 2008, paper OMM5, San Diego, U.S.A.
2. K.-M. Feng, C.-Y. Wu, D.-H. Hsueh, C.-S. Ku, C.-P. Chang, H.-Y. Lin, J. C., J. Chen, “Demonstration of an Optical FIFO Multiplexer”, OFC 2008, San Diego, U.S.A.
3. M.-F. Huang, J. Yu, H.-C. Chien, A. Chowdhury, J. Chen, S. Chi, G.-K. Chang, “A Simple WDM-PON

Architecture to Simultaneously Provide Triple-Play Services by Using One Single Modulator", OFC 2008, paper OTul4, San Diego, U.S.A.

4. P.-C. Peng, C.-T. Lin, W.-J. Jiang, J. Chen, P. T. Shih, F.-M. Wu, S. Chi, "Transmission Improvement in Fiber Radio Links Using Semiconductor Laser", OFC 2008, paper JThA68, San Diego, U.S.A.
5. C.-T. Lin, P. T. Shih, J. Chen, P.-C. Peng, S.-P. Dai, W.-Q. Xue, S. Chi, "Generation of Carrier Suppressed Optical mm-Wave Signals Using Frequency Quadrupling and No Optical Filtering", OFC 2008, paper JThA73, San Diego, U.S.A.
6. P.-C. Peng, W.-C. Kao, C.-T. Lin, J. Chen, P. T. Shih, S. Chi, "Fast Light Improvement Using Periodic Bending of Erbium-Doped Fiber", OFC 2008, paper JThA2, San Diego, U.S.A.
7. Y. Lai and W.-W. Hsiang, "Laser dynamics of new fiber soliton lasers", presented at Asian Conference on Ultrafast Phenomena (ACUP) 2008. (invited papers).
8. Chun-Ting Lin, Cheng-Feng Peng, Jyehong Chen, Peng-Chun Peng, Wei-Ren Peng, Bi-Shiou Chiou, S. Chi, "Hybrid optical access network integrating baseband and radio signals transmitted on a single wavelength", CLEO/QELS 2007, paper CFP4, Baltimore, U.S.A.
9. M. F. Huang, Ji. Yu, G.-K. Chang, J. Chen, S. Chi,"Bi-directional DPSK transmission over 230-km SSMF employing innovative Bi-directional amplification", CLEO/QELS 2007, paper CMH3, Baltimore, U.S.A.
10. C. C. Wei and J. Chen, "Supression of phase noise induced by intrachannel four-wave mixing using phase noise averagers," CLEO/QELS 2007, paper JTuA134, Baltimore, U.S.A.
11. M. F. Huang, J. Yu, J. Chen, G.-K. Chang, S. Chi, "A Cost-Effective WDM-PON Configuration Employing Innovative Bi-directional Amplification", OFC, 2007, paper OWL3, Anaheim, California, U.S.A.
12. C.-T. Lin, C.-F. Peng, P.-C. Peng, J. Chen, W.-R. Peng, B.-S. Chiou, S. Chi, "Simultaneous Modulation and Transmission of FTTH Baseband and Radio Signals on a Single Wavelength", OFC, 2007, paper OThM73, Anaheim, California, U.S.A.
13. P.-C. Peng, C.-C. Chiang, J. Chen, C.-T. Lin, S. Chi "Tunable Ultrafast and Ultraslow Light in Erbium Doped Waveguide at Room Temperature", OFC, 2007, paper JThA11, Anaheim, California, U.S.A.
14. J. Chen, "Convergence of phase noise in DPSK transmission systems by novel phase noise averagers," presented at Symposium on Next-Generation Lightwave Communications, held at CUHK, 2007. (invited paper)
15. R.-K. Lee and Y. Lai, "Quantum theory of self-induced transparency solitons," 10th Squeezed State and Uncertainty Relations, Bradford, UK, 31 Mar. - 4 Apr., 2007.
16. Y. Lai, K.-C. Hsu, C.-L. Lee, and N.-K. Chen, "Advanced design and fabrication of fiber gratings", presented at Workshop On Fiber Optics and Passive Components (WFOPC) 2007. (invited papers)
17. C.-M. Hung, N.-K. Chen, Y. Lai, and S. Chi, "Towards the short-wavelength limit at 1450 nm in a widely tunable erbium-doped fiber laser," paper CMC1, CLEO 2007.
18. N. K. Chen and S. Chi, "Novel local liquid-core single-mode fiber for dispersion engineering using submicron tapered fiber," paper JThA5, OFC 2007 conference, Anaheim, USA, Mar. 25-29, 2007.
19. Y. Lai, "Optical communication research at NCTU", presented at Symposium on Next-Generation Lightwave Communications, held at CUHK, 2007. (invited paper)
20. C.-M. Hung, N.-K. Chen, Y. Lai, and S. Chi, "High-gain low-noise tunable EDFA over S- and C+L-bands with double-pass configuration," paper ThD2-4, CLEO/PR 2007.
21. Y. Lai, Y.-K. Tu, S.-C. Jeng, "Optical Communication R&D and Broadband Access in Taiwan", paper We2.1.3, ECOC 2006. (invited paper).
22. W. -W. Hsiang, C. -Y. Lin, and Y. Lai, "Observation of Stable Bound Soliton Pairs in a 10 GHz Actively FM Mode-Locked Er-Fiber Laser," paper JWB58, CLEO 2006.
23. W.-W. Hsiang, C.-Y. Lin, N.-K. Sooi, Y. Lai, "Stabilizing a 10 GHz 0.8 ps asynchronously mode-locked Er-fiber

soliton laser by deviation-frequency locking," paper OThC7, OFC 2006.

24. C. C. Wei, J. Chen, C. H. Fang and C. Tsao, "20 Gbps (2-bit/symbol) DPSK over Inverse-RZ Modulation Format Using a Single MZM", ECOC, 2006, paper Tu3.2.5, Cannes, France.
25. C. T. Lin, P. C. Peng, J. Chen, C. F. Peng, C. C. Chiang, H. C. Kuo, S. C. Huang, and B. S. Chiou, "10 GHz Tunable Slow Light in Multi-Quantum Well Distributed Feedback Laser", ECOC, 2006, paper 57, Cannes, France.
26. M.-F. Huang, T.-Y. Lin, C.-C. Wei, K.-M. Feng, J. Chen, S. Chi, "Novel Four-Port Interleavers Facilitate Unidirectional Amplification for Wavelength-Interleaving Bidirectional Transmission System", CLEO/QELS, 2006, paper CFP3, Long Beach, U.S.A.
27. M.-F. Huang, J. Chen, K.-M. Feng, T.-Y. Lin, C.-C. Wei, C.-Y. Lai, S. Chi, Z. Zhu, Y. J. Chen, Y.-C. Huang, S.-J. Chang, "Cascaded Reconfigurable Optical Add/Drop Multiplexer (ROADM) in Metro Add/Drop Network Applications", CLEO/QELS, 2006, paper CWQ5, Long Beach, U.S.A.
28. Y. C. Lu, C. C. Wei, J. Chen, C. Tsao, S. Chi, K. M. Feng, P. C. Yeh, T. Y. Huang, C. C. Chang, "2.5 dB Sensitivity Improvement by Optimizing the Driving Voltage of an MZM and Electrical Filter Bandwidth of Optical Duobinary Transmission Systems", OFC 2006, paper JTHB42, Anaheim, U.S.A.
29. H.-Y. Chiou, P.-C. Peng, K.-M. Feng, W.-R. Peng, J. Chen, H.-C. Kuo, S.-C. Wang, S. Chi, "A Star-Ring-Bus Architecture for WDM Fiber-Wireless System", OFC 2006, paper OFM5, Anaheim, U.S.A.
30. W.-R. Peng, J. Chen, S.-Y. Tsai, C. Tsao, and S. Chi, "Evaluation of the Inherent Ripple Effects on the Performance of an Optical DQPSK Signal Generated by Using Only One MZM," Paper P08, Photonics in Switching (PS2006).
31. W.-R. Peng, J. Chen, S.-Y. Tsai, C. Tsao, and S. Chi, "The Impact of Inherent Ripples on the Performance of an Optical DQPSK Signal Generated by Single One DD-MZM," Paper P50, 2006 International Topical Meeting on Microwave Photonics (MWP'2006).
32. W.-R. Peng, S.-Y. Tsai, J. Chen, and S. Chi, "Comparing the performances of optical DQPSK signal generated by single modulator with and without pulse carver," Paper JWB25, Coherent Optical Technologies and Applications (COTA 2006).
33. N. K. Chen, K. C. Hsu, S. Chi, and Y. Lai, "Tunable Er 3+-doped fiber amplifiers covering S- and C+L bands (1490 ~ 1610 nm) using discrete all-fiber ASE suppressing filters," paper TuAA5, IEEE/LEOS 2006 conference, Montreal, Canada, Oct. 29 - Nov. 2, 2006.
34. N. K. Chen, K. C. Hsu, K. F. Hong, S. Chi, and Y. Lai, "High-cutoff-efficiency tunable short-pass filter over 400 nm (1250 ~ 1650 nm) wavelength range," paper 6D4-2, OECC 2006 conference, Kaohsiung, Taiwan, Jul. 3-7, 2006.
35. W.-R. Peng, Y.-C. Lu, J. Chen, and S. Chi, "ASK/RZ-DPSK labeled signal generation using only one mach-zehnder modulator," ECOC'05, paper Mo 4.4.6, Glasgow, U.K., Sept. 2005.
36. Y.-C. Lu, J. Chen, K.-M. Feng, P.-C. Yeh, T.-Y. Huang, W.-R. Peng, M.-F. Huang, C.-C. Wei, and S. Chi, "A Cost-Effective Phase-Modulation-Enhanced Duobinary Modulation to Improve SPM Tolerance Using Only One Mach-Zehnder Modulator," ECOC'05, Glasgow, U.K., Sept. 2005.
37. M.-F. Huang, C.-Y. Lai, J. Chen, K.-M. Feng, C.-C. Wei, T.-Y. Lin, and S. Chi, "Using a Novel Four-Port Interleaver to Enable Unidirectional Amplification in a 210-km Bidirectional Transmission System," The 18th Annual Lasers and Electro Optics Society Meeting (LEOS), Hilton Sydney, Sydney, Australia, TuU 1, 2005.
38. M.-F. Huang, C.-C. Wei, C.-Y. Lai, T.-Y. Lin, K.-M. Feng, J. Chen and S. Chi, "Cascadability Study of Dispersion-Compensated Interleaver Pairs for Metro Add/Drop Applications Using a Re-Circulating Loop," Conference on Laser and Electro-Optics (CLEO) and Quantum Electronic s and Laser Science Conference (QELS), Baltimore, Maryland, USA, JTHE63, 2, 2005.
39. P.-C. Peng, K.-M. Feng, W.-R. Peng, H.-Y. Chiou, C.-C. Chang, and S. Chi, "Long-Distance FBG Sensor System

using Fiber Ring Laser with Hybrid Amplifier," Optical Fiber Sensors Conference (OFS-17), Paper P2-67, Bruges, Belgium, May 2005.

40. W.-R. Peng, W.-P. Lin, H.-C. Chien, and S. Chi, "A novel scheme for better performance in optical code-division multiple access," IQEC and CLEO-PR 2005, Paper CThC3-P30, Tokyo, Japan.
41. W.-R. Peng, P.-C. Peng, J. Chen, S.-Y. Tsai, and S. Chi, "Performance comparisons between direct NRZ and gain-switched RZ modulation on Fabry-Perot lasers," IQEC and CLEO-PR 2005, Paper CWAB3-P75, Tokyo, Japan.
42. W.-R. Peng, P.-C. Peng, Y.-T. Hsueh, and S. Chi, "Performance study of multiple radio channels in a hybrid analog radio and digital baseband fiber link with external modulation," the Tenth Optoelectronics and Communications Conference/Third International Conference on Optical Internet (OECC/COIN2005), pp. 560-561, Korea, July 4-8, 2005.
43. C.-C. Lee, T.-C. Kao, H.-C. Chien, K.-M. Feng, and S. Chi, "A Different Time Delay Technique for Supervising Switch Fabric in OXC," Optical Fiber Communication Conference (OFC), U.S.A, March. 2005.
44. N.-K. Chen, and S. Chi, "Evanescent Wave Photonic Crystal Fiber Tunable Filter Using Dispersive Optical Polymers," Optical Fiber Communication Conference (OFC), U.S.A, March. 2005.
45. M. C. Yuang, P. L. Tien, J. Shih, S. S. W. Lee, Y.-M. Lin, and J. Chen, "A QoS Optical Packet-Switching System for Metro WDM Networks," ECOC'05, , paper We 1.4.2, Glasgow, U.K., Sept. 2005.
46. J.-Y. Chen, Y.-C. Chen and W.-P. Lin, "Generation of Optical-Based Impulse Radio Signal for Ultra-Wideband Wireless Systems," Technical Digest of the 10th OptoElectronics and Communications Conference, Seoul, Korea, pp.502-503, July 2005.
47. W.-P. Lin and Y.-F. Hsu, "Dynamic wavelength allocation in WDM fiber-radio access network," 7th Interference Conference on Transparent Optical Networks, Barcelona, Spain, We.C2.4, July 2005.
48. K.-C. Hsu, L.-G. Sheu, and Y. Lai, "Fabrication of Fiber Bragg Gratings by Sequential UV-Writing with Real-Time Interferometric Side-Diffraction Position Monitoring," presented on ECOC 2005.
49. R.-K. Lee, Y. Lai, and B. Malomed, "Quantum fluctuations and quantum correlations of bound-soliton pairs and trains in fiber lasers," IQEC and CLEO-PR 2005, QWD4-7, Tokyo, Japan, 11-15 July 2005.
50. C.-Y. Lin, W.-W. Hsiang, M.-F. Tien and Y. Lai, "Direct generation of 10GHz 816fs pulse train from an asynchronous modelocked Er-fiber laser", paper CTuCC5, CLEO 2005.
51. R.-K. Lee, E. A. Ostrovskaya, Y. S. Kivshar, and Y. Lai, "Squeezed matter-wave gap solitons in optical lattices," 16th Biennial Australian Institute of Physics Congress, AOS-27, Canberra, Australia, 31 January - 4 February, 2005.
52. N. K. Chen, S. Chi, and S. M. Tseng, "A Widely Tunable Side-Polished Fiber Filter Based on Dispersive Evanescent Wave Tunneling," The 17th Annual Meeting of the IEEE Lasers and Electro-Optics Society (LEOS), pp. 302-303, Puerto Rico, November 7-11, 2004.
53. P.-C. Peng, W.-R. Peng, W.-P. Lin, and S. Chi, "A Novel Dynamic Encoder and Decoder using Fiber Bragg Gratings and Optical Switches for Optical Security System," the Ninth Optoelectronics and Communications Conference/Third International Conference on Optical Internet (OECC/COIN2004), pp. 234-235, Japan, July 12-16, 2004.
54. P.-C. Peng, W.-P. Lin, and S. Chi, "A self-healing architecture for fiber Bragg grating sensor network," IEEE Sensors 2004, pp. 60-63, Austria, Oct. 24-27, 2004.
55. W.-P. Lin, W.-R. Peng and S. Chi, "A novel bidirectional wavelength add-drop multiplexer in the WDM radio-over-fiber ring network," Proceeding of IEEE Conference on OECC/COIN'04, Pacifico Yokohama, Yokohama, Japan, pp. 378-379, July 2004.
56. R.-K. Lee, Y. Lai, and B. Malomed, "Squeezing of Bi-solitons in Cubic-Quintic Schroedinger Equations," OSA

Nonlinear Guided Waves and Their Applications, MC-5, Toronto, Canada, 28-31 March 2004.

57. R.-K. Lee and Y. Lai, "Interaction induced photon-number entangled temporal soliton pairs," OSA Nonlinear Optics, FA3, Waikoloa, Hawaii, USA, 2-6 August 2004.
58. R.-K. Lee, E. A. Ostrovskaya, Y. S. Kivshar, and Y. Lai, "Squeezed matter-wave gap solitons in optical lattices," 16th Biennial Australian Institute of Physics Congress, AOS-27, Canberra, Australia, 31 January - 4 February, 2005.
59. K.-P. Chuang and Y. Lai, “Interferometric side-diffraction position monitoring technique for writing long fiber Bragg gratings”, paper CThM6, CLEO/IQEC, 2004.
60. Y. Lai, “Quantum noise squeezing and correlation”, 4th Annual meeting of Fitzpatrick Center, Duke University, 2004. (invited paper)
61. Y. Lai, “Advanced design and fabrication techniques of fiber grating devices”, Wireless and Optical Communication Conference (WOCC) 2004. (invited paper)
62. K.-P. Chuang, L.-G. Sheu, and Y. Lai, “Complex fiber grating structures fabricated by using polarization control of the UV exposure beam”, paper MF25, OFC, 2004.
63. Z. Zhu, W. Chen, Y. J. Chen, J. Sun, D.-W. Huang, J. Chen, “Cascaded-able Cline-reconfigurable Optical Add-drop Mutliplexer”, Tul 5.1, ECOC, 2004.

[Optical storage: 2004-2008]

1. J. Chung, Y.C. Lee, and W. Hsu, “Fabrication of polymer-based vertical comb drive using a double-side multiple partial exposure method,” 2008 IEEE MEMS Conference, Jan. 13-17, Tucson, USA, 2008.
2. C.-W. Chang and W. Hsu, “Characterization of microresistance welding with electro-thermal actuator for micro assembly, SPIE Symposium on MOEMS-MEMS,” Jan. 19-24, San Jose, USA, 2008.
3. T.-H. Lan, and C.-H. Tien, “Study on Focusing Mechanism of Radial Polarization in Immersion Lens,” ISOM07, We-J-26, Singapore , 2007.
4. S.-W. Yin, P.-J. Cheng , C.-H. Tien, “Transmission through composite nano aperture and effects of surface plasmon resonance,” CLEO07, JThD56, Baltimore, USA, 2007.
5. C.C. Yeh, J. Chung, C.W. Chang and W. Hsu, “Micro Assembly by Micro Resistance Welding with Electro-Thermal Actuators,” Proc. 2nd IEEE Int. Conf. on Nano/Micro Engineered and Molecular Systems, Bangkok, Thailand, pp333-336, 2007.
6. J. Chung and W. Hsu, “Fabrication of 3D Photoresist Microstructures for the Polymer Vertical Comb Drive,” Proc. 2nd IEEE Int. Conf. on Nano/Micro Engineered and Molecular Systems, Bangkok, Thailand, pp634-638, 2007.
7. Y.S. Lin and W. Hsu, “A Novel Fabrication Method of Microlens Array by Surface Tension and Injection,” Process Proc. 2nd IEEE Int. Conf. on Nano/Micro Engineered and Molecular Systems, Bangkok, Thailand, pp443-446, 2007.
8. T.S. Liu, and C.C. Hsiao, “Control Experiments on Pickup Head Flying above Rotating Disk,” IEEE Multi-conference on Systems and Control, Singapore, October 2007.
9. T.-H. Lan and C.-H. Tien, “Servo Study of Radially Polarized Beam in High-NA Optical Data Storage System,” ISOM06, Th-I-57, Takamatsu, Japan, 2006.
10. C.-Y. Yang, Y.-T. Cheng, and W. Hsu, “Nano-Roughening for Reliable N/MEMS Manufacture,” IEEE-NEMS 2006, Jan. 18-21, Zhuhai, China, 2006.
11. H.L. Hsu, Y.R. Chang, Y.H. Lin, and W. Hsu, “A novel self-aligned process between the nano-aperture and solid immersion lens,” the 3rd Asia-Pacific Conference of Transducers and Micro-Nano Technology (APCOT 2006), June 25-28, Singapore, 2006.
12. J.W. Chung, Y.Y. Teng, and W. Hsu, “Characterization of Electroplated Nickel Films at Different Thickness,” the

3rd Asia-Pacific Conference of Transducers and Micro-Nano Technology (APCOT 2006), June 25-28, Singapore, 2006.

13. H.C. Wang, M.S. Huang, and T.S. Liu, "Slider Dynamics with Adhesive Force in Near-Field Recording,"pp.84-85, Asia-Pacific Data Storage Conference, Hsinchu, Taiwan, 2006.
14. C.C. Hsiao, and T.S. Liu, "Pickup Head Dynamics of Near-Field Optical Disk in the Presence of Grooved Surface," pp.86-87, Asia-Pacific Data Storage Conference, Hsinchu, Taiwan, 2006.
15. M.S. Huang and T.S. Liu, "Dust Removal on Rotating Disk Surface," pp.90-91, Asia-Pacific Data Storage Conference, Hsinchu, Taiwan, 2006.
16. C.S. Chang, T.S. Liu, H.C. Huang, S.K. Lin, M.T. Peng, T.R. Jeng, "LQG Controller for Active Vibration Absorber in Optical Disk Drive," pp.92-93, Asia-Pacific Data Storage Conference, Hsinchu, Taiwan, 2006.
17. C.H. Liu and T.S. Liu, "Vibration Energy Absorption of Disk Drive Using Particle Damper," pp.100-101, Asia-Pacific Data Storage Conference, Hsinchu, Taiwan, 2006.
18. C.C. Hsiao and T.S. Liu, "A PZT Bender Actuator for Both Focusing and Track Seeking in Near-Field Optical Disk Drives," pp.232-233, Asia-Pacific Data Storage Conference, Hsinchu, Taiwan, 2006.
19. P.J. Wu, and T.S. Liu, "Immune Algorithm for Tracking Control of Pickup Head Actuator," pp.236-237, Asia-Pacific Data Storage Conference, Hsinchu, Taiwan, 2006.
20. L.N. Tsai, Y.T. Cheng, and W. Hsu, "Nanocomposite Effects on The Coefficient of Thermal Expansion Modification for High Performance Electro-Thermal Microactuator, IEEE MEMS 2005, Jan. 30- Feb.3, Miami, USA, 2005.
21. C.H. Lin, C.C. Yeh, C.P. Hsu, W. Hsu, "Design and Fabrication of a Cascaded Electro-Thermal Bimorph Actuator," 2005 ASME International Mechanical Engineering Congress, Nov. 5-11, Orlando, USA, 2005.
22. C.C. Hsiao, S.H. Chien, and T.S. Liu, "Flying Height Control for Pickup Head in Near-Field Optical Disk Drives," International Conference on Electrical Engineering, Kunming, China, 2005.
23. C.S. Chang and T.S. Liu, "Application of Linear Motors to Reduce Disk Drive Vibration," presented in ISAMT/SOMMA 2005, Taiwan.
24. C.H. Liang, Y.T. Cheng, W. Hsu, and Y. Lee, "A Low Temperature Wafer-Level Hermetic Package Using UV Curable Adhesive," The 54th Electronic Components and Technology Conference, June 1-4, Las Vegas, USA, 2004.
25. L.N. Tsai, G.R. Shen, Y.T. Cheng, and W. Hsu, "Power and Reliability Improvement of an Electro-Thermal Microactuator Using Ni-Diamond Nanocomposite," The 54th Electronic Components and Technology Conference, June 1-4, Las Vegas, USA, 2004.
26. Y.R. Chang, Y. Chiu, and W. Hsu, "Development of Self-alignment Process between SIL/SSIL and Aperture for Near-field Recording Pick-up Head," Asia-Pacific Data Storage Conference, Sept, 27-30, Taoyuan, Taiwan. (Outstanding Poster Award), 2004.
27. C. Chio, S.H. Hsu, Y.T. Huang, and W. Hsu, "Si-based ARROW-B Surface Plasmon Resonance Sensors, International Electronic Devices and Materials Symposia," Dec. 20-23, Hsin Chu, Taiwan, 2004.
28. E.V. Bordatchev, S.K. Nikumb, and W. Hsu, "Laser micromachining of the miniature functional mechanisms," Photonics North 2004: Photonic Applications in Astronomy, Biomedicine, Imaging, Materials Processing, and Education, Proceedings of SPIE, Vol. 5578, 2004.
29. J.W. Chen, T.S. Liu, and T.Y, Liao, "Discrete Sliding Mode Control for Pickup Head Flying Height," pp.1040-1048, the 5th Asian Control Conference, Melbourne, Australia, 2004.
30. C.C. Shaw, T.S. Liu, and S.H. Chien, "Adaptive Inverse Control for Flying Height of Near-Field Optical Disk Drives," pp.1049-1056, the 5th Asian Control Conference, Melbourne, Australia, 2004.
31. C.M. Chang and T.S. Liu, "Fourier-Series Based Control for Flying Height in Near-Field Optical Disk Drive,"

pp.220-221, Asia-Pacific Data Storage Conference, Taoyuan, Taiwan, 2004.

32. H.C. Wang, T.S. Liu, and C.S. Chang, "Study of Air Bearing with Grooved Disk Surface in Near-Field Disk Drives," pp.192-193, Asia-Pacific Data Storage Conference, Taoyuan, Taiwan, 2004.
33. J.W. Chen and T.S. Liu, "H∞ Repetitive Control for Head Flying Height in Near-Field Optical Disk Drives," pp. 218-219, Asia-Pacific Data Storage Conference, Taoyuan, Taiwan, 2004.
34. Y.C. Kuo, T.S. Liu, Y.C. Tang, and C.S. Chang, "Dynamic Analysis and Experiments for Near-Field Optical Disk Drive,"pp.78-79, Asia-Pacific Data Storage Conference, Taoyuan, Taiwan, 2004.
35. T.S. Liu and H.C. Su, "Design and Fabrication of Thin Film Nanocoil," pp.194-195, Asia-Pacific Data Storage Conference, Taoyuan, Taiwan, 2004.
36. W.C. Wu and T.S. Liu, "Frequency-Shaped Sliding Mode Control for Flying Height of Pickup Head in Near-Field Optical Disk Drives," pp.212-213, Asia-Pacific Data Storage Conference, Taoyuan, Taiwan, 2004.
37. T.S. Liu and H.C. Wang, "Dynamic Simulation and Experiments for Near-Field Optical Disk Drives", pp. 280-286, Proc. the Second Asian Conference on Multibody Dynamics, Seoul, Korea, 2004.

Sub-Project3:

Total Publication lists (sorted according to published year):

International Journal papers:

詹益仁教授

1. C.K. Lin, J.C. Wu, W.K. Wang, Y.J. Chan, J.S. Wu, Y.C. Pan, C.C. Tsai, J.T. Lai, "Performance enhancement by the $In_{0.65}Ga_{0.35}As$ pseudomorphic channel on the $In_{0.5}Al_{0.5}As$ metamorphic buffer layer", *IEEE Trans. Electron Device.*, vol. 51, pp1214-1217, 2004.
2. W.K. Wang, C.H. Lin, P.C. Lin, C.K. Lin, F.S. Huang, Y.J. Chan, G.T. Chen and J.I. Chyi, "Low-k BCB passivation on AlGaN/GaN HEMT fabrication," *IEEE Electron Device Lett.*, Dec. 2004.
3. 光纖通訊用光電元件及電路技術, 電子月刊/2004 年/6 月號/光電/靜電放電防護技術(下)專輯 P154-159,黃凡修,詹益仁, 共同撰寫該篇技術性介紹文章.
4. W.K. Wang, P.C. Lin, C.H. Lin, C.K. Lin, F.S. Huang, Y.J. Chan, G.T. Chen and J.I. Chyi,"Performance enhancement by using the n^+-GaN cap layer and gate recess technology on the AlGaN/GaN HEMT fabrication," *IEEE Electron Device Lett.*, Jan. 2005.
5. Lin CK, Wang WK, Chan YJ, Chiou HK, "BCB-bridged distributed wideband SPST switch using 0.25μm $In_{0.5}Al_{0.5}As$-$In_{0.5}Ga_{0.5}As$ metamorphic HEMTs." IEEE Transaction on Electron Devices 52 (1): 1-5 Jan 2005.
6. W.K. Wang, Y.J. Li, Y.J. Chan, G.T. Chen and J.I. Chyi, "Low damage, Cl_2-based gate recess etching for 0.3 m gate-length AlGaN/GaN HEMT fabrication," *IEEE Electron Device Lett.*, vol. 25, pp. 52-54, 2004.
7. Ching-Hui Lin; Wen-Kai Wang; Po-Chen Lin; Cheng-Kuo Lin; Yu-Jung Chang; Yi-Jen Chan, "Transient pulsed analysis on GaN HEMTs at cryogenic temperatures," *IEEE Electron Device Lett.*, Vol 26 (10): 710-712 Oct 2005.
8. WK Wang, PC Lin, CH Lin, CK Lin, YJ Chan, et al. "Performance enhancement by using the n (+)-GaN cap layer and gate recess technology on the AlGaN/GaN HEMTs fabrication." Proceedings Institute Of Physics Conference Series Vol 184: 267-270 2005
9. CK Lin, JC Wu, Chan, YJ, et al., "Power performance enhancement of metamorphic $In_{0.3}Al_{0.7}As/In_{0.45}Ga_{0.55}As$ HEMTs using pseudomorphic channel design," Proceedings Institute Of Physics Conference Series Vol 184: 287-290 2005
10. .H.C. Chiu, L.B. Chang, Y.C. Huang, C.W. Chen, Y.J. Li, Y.J. Chan "Improved Schottky Leakage Current of $In_{0.5}Al_{0.5}As/In_{0.5}Ga_{0.5}As$ Metamorphic HEMTs Using $(NH_4)_2S_x$ Treatment", *Electrochemical and Solid-State*

Letters., vol. 9(10), 2006.

11. W.Y. Chiu, J.W. Shi, W.K. Wang, Y.S. Wu, Y.J. Chan, Y.L. Huang, and R. Xuan "Leaky-Wave Photodiodes with a Partially p-Doped Absorption Layer and a Distributed-Bragg-Reflector (DBR) for High-Power and High-Bandwidth Responsivity Product Performance" *IEEE Photon. Technol. Lett.,* Vol. 18, No. 11, pp.1267-1269 Jun. 2006.
12. F.H. Huang, C.K. Lin, Y.S. Wu, Y.C. Wang, and Y.J. Chan, "A *W*-band Injection-Locked Frequency Divider Using GaAs pHEMTs and Cascode Circuit Topology", *IEEE Microwave and Wireless Components Letters*, Vol. 17, No. 12, pp. 885-887, Dec. 2007.F.H. Huang, and Y.J. Chan, "A *V*-Band CMOS Injection-Locked Oscillator Using Fundamental Harmonic Injection", *IEEE Microwave and Wireless Components Letters*, Vol. 17, No. 12, pp. 882-884, Dec. 2007.
13. W.Y. Chiu, T.W. Huang, Y.H. Wu, Y.J. Chan, C.H. Hou, H.T. Chien, and C.C. Chen, "A photonic crystal ring resonator formed by SOI nano-rods", *Opt. Express,* Vol. 15, No. 23, pp. 15500-15506, Nov. 2007.
14. W.Y. Chiu, J.W. Shi, Y.S. Wu, F.H. Huang, W. Lin, and Y.J. Chan, "The Monolithic Integration of a Wavelength-Demultiplexer with Evanescently Coupled Uni-Traveling Carrier Photodiodes", *IEEE Photon. Technol. Lett.,* Vol. 19, No. 19, pp. 1433-1435, Oct. 2007.
15. M.W. Hsieh, Y.M. Hsin, Y.J. Chan, and D. Tang, "Low-frequency noise properties of SiGe heterojunction bipolar transistors", *Jpn. J. Appl. Phys.*, Vol. 46, No. 9A, pp. 5729-5733, 2007.
16. Y.J. Chan, C.F. Huang, C.C. Wu, C.H. Chen, and C.P. Chao, "Performance consideration of MOS and junction diodes for varactor application", *IEEE Trans. Electron Device.*, Vol. 54, No. 9, pp. 2570-2573, 2007.
17. D.M. Lin, C.K. Lin, F.H. Huang, J.S. Wu, W.K. Wang, Y.Y. Tsai, Y.J. Chan, and Y.C. Wang, "Dual-gate E/E- and E/D-mode AlGaAs/InGaAs pHEMTs for microwave circuit applications", *IEEE Trans. Electron Device.*, Vol. 54, No. 8, pp. 1818-1824, Aug. 2007.
18. K.H. Liang, H.Y. Chang, and Y.J. Chan, "A 0.5-7.5 GHz ultra low-voltage low-power mixer using bulk-injection method by 0.18-mu m CMOS technology", *IEEE Microwave and Wireless Components Letters*, Vol. 17, No. 7, pp. 531-533, 2007.
19. H.T. Lin, Z.W. Pei, and Y.J. Chan, "Carrier transport mechanism in a nanoparticle-incorporated organic bistable memory device", *IEEE Electron Device Lett.*, Vol. 28, No. 7, pp. 569-571, 2007.
20. C.N. Liao, F.T. Chien, C.L. Wang, H.C. Chiu, and Y.J. Chan, "A novel power MOSFET structure with shallow junction dual well design", *IEICE Trans. Electronics*, Vol. E90C, No. 5, pp. 937-942, 2007.
21. P.Y. Lo, Z.W. Pei, F.Y. Yang, Y.R. Peng, Y.C. Lin, and Y.J. Chan, " Stable Polymer Dielectric Film for Polythiophene Thin Film Transistor on Modified Poly (vinyl phenol) with Polar Functional Group", *Jpn. J. Appl. Phys.*, Vol. 46, No. 4B, pp. 2714-2716, 2007.

慕振瀛教授

1. T.-P. Hsieh, P.-C. Chiu, Y.-C. Liu, N.-T. Yeh, W.-C. Ho, and J.-I. Chyi, "Selective Growth of InAs Quantum Dots on Patterned GaAs", J. Vac. Sci. Tech. B, 23(1), 262-266, 2005.
2. W.-H. Chang, H.-Y. Chen, H.-S. Chang, W.-Y. Chen, T. M. Hsu, T.-P. Hsieh, J.-I Chyi, and N.-T. Yeh, "Electroreflectance Studies of InAs Quantum Dots with InxGa1-xAs Capping Layer Grown by Metal-Organic Chemical Vapor Deposition", Appl. Phys. Lett. 86, 131917, 2005.
3. L. Jiang, S.-S. Li, W.-S. Liu, N.-T. Yeh and J.-I. Chyi, "A Two-Stack, Multi-Color $In_{0.5}Ga_{0.5}As$/GaAs and InAs/GaAs Quantum Dot Infrared Photodetector for Long Wavelength Infrared Detection", Infrared Physics and Technology, Vol.46, 249-256, 2005.
4. W.-S. Liu and J.-I. Chyi, "Optical Properties of InAs Quantum Dots with InAlAs/InGaAs Composite Matrix", J. Appl. Phys., 97, 024312, 2005.
5. T.-P. Hsieh, N.-T. Yeh, P.-C. Chiu, W.-H. Chang, T.-M. Hsu, W.-J. Ho, and J.-I. Chyi , "1.55 m m Emission from

InAs Quantum Dots Grown on GaAs", Appl. Phys. Lett. 87, 151903, 2005

6. T.-P. Hsieh, H.-S. Chang, W.-Y. Chen, W.-H. Chang, T. M. Hsu, N.-T. Yeh, W.-J. Ho, P.-C. Chiu, and J.-I. Chyi, "Growth of Low-Density InGaAs Quantum Dot for Single Photon Source by Metal-Organic Chemical Vapor Deposition", Nanotechnology 17, 512-515, Jan. 2006.
7. W.-H. Chang, W.-Y. Chen, H.-S. Chang, T.-P. Hsieh, J.-I. Chyi, and T. M. Hsu, "Efficient Single Photon Sources Based on Low Density Quantum Dots in Photonic Crystal Nanocavities", Phys. Rev. Lett. 96. 117401, 2006.
8. C. K. Chao, J.-I. Chyi, C. N. Hsiao, C. C. Kei, S. Y. Guo, and K. N. Lee, "Catalyst-Free Growth of InN Nanorods by Chemical Beam Epitaxy", Appl. Phys. Lett. 88, 233111, 2006.
9. W.-S. Liu, H. Chang, Y.-S. Liu, and J.-I. Chyi, "Pinhole-Like Defects in Multi-Stack 1.3 mm InAs Quantum Dot Laser", J. Appl. Phys. 99, 114514, 2006.
10. C.-K. Chao, H.-S. Chang, T. M. Hsu, C.-N. Hsiao, C.-C. Kei, S.-Y. Kuo, and J.-I. Chyi, "Optical Properties of Indium Nitride Nanorods Prepared by Chemical-Beam Epitaxy", Nanotechnology, 17, 15, 3930, 2006.
11. T.-P. Hsieh, P.-C. Chiu, J.-I. Chyi, H.-S. Chang, W.-Y. Chen, Tzu Min Hsu, and W.-H. Chang "Enhancing Luminescence Efficiency of InAs Quantum Dots at 1.5 mm Using a Carrier Blocking Layer", Appl. Phys. Lett. 89, 053110, 2006.
12. W.-S. Liu, David M. T. Kuo, J.-I. Chyi, W.-Y. Chen, H.-S. Chang and T. M. Hsu, "Enhanced thermal stability and emission intensity of InAs quantum dots covered by an InGaAsSb strain-reducing layer'' Appl. Phys. Lett. 89, 053110, 2006.
13. T.-P. Hsieh, H.-S. Chang, W.-Y. Chen, T.-M. Hsu, W.-H. Chang, and J.-I. Chyi , "Single Photon Emission from an InGaAs Quantum Dot Precisely Positioned on a Nano-Plane", Appl. Phys. Lett., 90, 073105, 2007.
14. Pei-Chin Chiu, Wei-Sheng Liu, Meng-Jie Shiau, Wen-Yen Chen, Hsing-Szu Chang, Tzu-Min Hsu and Jen-Inn Chyi "Enhancing the Optical Properties of InAs Quantum Dots by an InAlAsSb Overgrown Layer", Appl. Phys. Lett., 91, 153106, 2007.

李佩雯教授

1. G. L. Chen, D. M. T. Kuo, W. T. Lai, and P. W. Li, 2007, "Tunneling spectroscopy of germanium quantum-dot in single-hole transistors with self-aligned electrodes," Nanotechnology, vol. 18, p. 475402.
2. T. -H. Lee, C. -H. Huang, Y. -Y. Yang, T. Suryasindhu, and P. W. Li, 2007, "Nanoscale thick layer transfer of hydrogen-implanted wafer by using polycrystalline silicon sacrificial layer," Applied Physics Letters, vol. 91, p.203119.
3. T. -H. Lee, Y. -Y. Yang, C. -H. Huang, P. W. Li, and T. Suryasindhu, 2007, "Fabrication of a Nano-scale Single Crystalline Silicon Thin Film on Insulator," Electrochemical and Solid-State Letters, vol. 10, K17-19.
4. S. Maikap, P. J. Tzeng, C. H. Lin, T. Y. Wang, H. Y. Lee, S. S. Tzeng, C. C. Wang, T. C. Tien, L. S. Lee, P. W. Li, J. R. Yang and M. J. Tsai, 2007, "TiN nanocrystal flash memory devices," to appear in International Journal of Nanomanufacturing. (invited paper)
5. W. T. Lai and P. W. Li, 2007, "Growth kinetics and related physical/electrical properties of Ge quantum-dots formed by thermal oxidation of $Si_{1-x}Ge_x$-on-insulator," Nanotechnology, vol. 18, p. 145402.
6. Y. C. Hsu, W. T. Lai, P. W. Li, and D. M. T. Kuo, 2007, "Room-temperature observation of current bistability and fine structures in germanium quantum dots/SiO_2 resonant tunneling diodes," Physica E, vol. 38, p.135-138.
7. J. H. Wu and P. W. Li, 2007, "Ge nanocrystals metal-oxide-semiconductor transistors with Ge nanocrystals formed by thermal oxidation of poly-$Si_{0.88}Ge_{0.12}$," Semiconductor Science and Technology, vol. 22, p. S89-S92.
8. P. W. Li, M. T. Kuo, and Y. C. Hsu, 2006, "Photo-excitation effects on carrier transports in Germanium quantum dot resonant tunneling diodes," Applied Physics Letters, vol. 89, p.133105.
9. P. W. Li, M. T. Kuo, W. M. Liao, and W. T. Lai, 2006, "Study of tunneling currents through germanium quantum dot single-hole and -electron transistors," Applied Physics Letters. vol. 88, p. 213117 (NSC94-2120-M-008-002)

Also selected for the June 12, 2006 issue of Virtual Journal of Nanoscale Science & Technology.

10. W. M. Liao, P. W. Li, M. T. Kuo and W. T. Lai, 2006, "Room-temperature transient carrier transports in germanium single-electron/-hole transistors," Applied Physics Letters, vol. 88, p. 182109. (NSC94-2120-M-008-002)

Also selected for the May 22, 2006 issue of Virtual Journal of Nanoscale Science & Technology.

11. M. T. Kuo and P. W. Li, 2006, "Interdot Coulomb repulsion effect on the charge transport of parallel double single electron transistors," Japanese Journal of Applied Physics, vol. 45, no. 4A, p. 2281-2287.
12. S. S. Liu, P. W. Li, W. H. Lan, and W. J. Lin, 2006, "The improvement of GaN p-i-n UV sensor by 8-pairs AlGaN/GaN superlattices structure," Material Science and Engineering B Solid State Materials For Advanced Technology, vol. 124, no. 1, p. 33-36.
13. W. M. Liao and P. W. Li, 2005, "Temperature stability of SiGe dynamic threshold-voltgae MOSFETs," Japanese Journal of Applied Physics, vol. 44, no. 12, p.8453-8455.
14. S. S. Liu, P. W. Li, W. H. Lan, and W. J. Lin, 2005, "Improvements of AlGaN/GaN p-i-n UV sensors with graded AlGaN Layer for the UV-B (280-320 nm) detection," Material Science and Engineering B Solid State Materials For Advanced Technology, vol. 122, no. 9, p. 196-200.
15. M. T. Kuo and P. W. Li, 2005, "Tunneling current through a single Germanium quantum dot," Japanese Journal of Applied Physics, vol. 44, no. 9A, p.6429-6434.
16. S. S. Liu, P. W. Li, and W. J. Lin, 2005, "The improvements of GaN p-i-n UV sensor on 1^0 off-axis sapphire substrate," Material Science and Engineering B Solid State Materials For Advanced Technology, vol. 121, no. 7, p. 85-91.
17. S. S. Liu, P. W. Li, W. H. Lan, and W. J. Lin, 2005, "High temperature high humidity and electrical static discharge stress effects on GaN PIN UV sensor," Material Science and Engineering B Solid State Materials For Advanced Technology, vol. 121, no. 7, p. 29-33.
18. P. W. Li, W. M. Liao, M. T. Kuo, S. S. Tseng, P. S. Chen, and M. –J. Tsai, 2004, "Optical and electronic properties of Ge quantum dots formed by selective oxidation of SiGe/Si-on-Insulator," Japanese Journal of Applied Physics, vol. 43, no. 11 A, p. 7788-7792.
19. P. W. Li, W. M. Liao, M. T. Kuo, S. W. Lin, P. S. Chen, S. C. Lu, and M. –J. Tsai, 2004, "Fabrication of a germanium quantum-dot single electron transistor with large Coulomb-blockade oscillations at room temperatures," Applied Physics Letters, vol. 85, p. 1532.

Also selected for the Sep. 13, 2004 issue of Virtual Journal of Nanoscale Science & Technology.

辛裕明教授

1. Shou-Chien Huang, Chia-Tsung Chang, Chun-Ting Pan, and Yue-Ming Hsin, "Improved SiGe Power HBT Characteristics by Emitter Layout," accepted for publication in Solid State Electronics 2008.
2. Wei-kuo Huang, Shou-chian Huang, Yue-ming Hsin and Jin-Wei Shi "36 GHz Bandwidth Optoelectronic integrated circuit with Flip-Chip Assembled InP HBT/Evanescently Coupled Photodiode" Accepted for publication in IEE IET Optoelectronics 2008
3. Wei-Kuo Huang, Yu-Chang Liu and Yue-Ming Hsin, "Bandwidth Enhancement in Si Photodiode by Eliminating Slow Diffusion Photocarriers" Electronics Letters, Vol. 44, No. 1, Jan. 2008.
4. Che-ming Wang, Shou-Chien Huang, Wei-Kuo Huang and Yue-ming Hsin, "An InP/InGaAs/InP DHBT with High Power Density at Ka-band," 52, Solid-State Electronics, pp. 49-52, 2008
5. Meng-Wei Hsieh, Yue-Ming Hsin, Yi-Jen Chan, and Denny Tang, "The Low Frequency Noise Properties of SiGe HBT's with Selectively Implanted Collector," Japanese Journal of Applied Physics, Vol. 46, No. 9A, 2007
6. Kuang-Po Hsueh, Yue-Ming Hisn, Jinn-Kong Sheu, Wei-Chih Lai, Chun-Ju Tun, Chia-Hung Hsu and Bi-Hsuan Lin, "Effects of Leakage Current and Schottky-like Ohmic Contact on the Characterization of $Al_{0.17}Ga_{0.83}N$/GaN

HBTs," Solid State Electronics, Vol 51/7 pp 1073-1078, 2007.

7. Che-ming Wang, Yue-Ming Hsin, Haijun Zhu, J. M. Kuo, and Y. C. Kao, "Temperature dependent study of InAlAs-InP/GaAsSb/InP double heterojunction bipolar transistors," 90, 232102, Applied Physics Letters 2007
8. Kuang-Po Hsueh, Shou-Chian Huang, Ching-Tai Li, Yue-Ming Hsin, Jinn-Kong Sheu, Wei-Chih Lai, and Chun-Ju Tun, "Temperature dependent study of *n*-ZnO/*p*-GaN junction diodes," 90, 132111, Applied Physics Letters March 2007
9. Che-ming Wang and Yue-ming Hsin, "Enhanced f_T and linearity performance of InGaP/GaAs HBTs using non-uniform doping collector," Semiconductor Science and Technology 22, pp. 330-336, 2007
10. Wei-Kuo Huang, Yu-Chang Liu and Yue-Ming Hsin, "A high speed and high responsivity photodiode in standard CMOS technology," IEEE Photonics Technology Letters, Vol. 19, No. 4, pp. 197-199, 2007
11. Wei-kuo Huang, Yu-An Liu, Che-ming Wang, Yue-ming Hsin, Cheng-Yi Liu, and Tsung-Jung Yeh,"Flip-Chip Assembled GaAs pHEMT Ka-band Oscillator." IEEE Microwave and Wireless Components Letters, Vol. 17, No. 1, pp. 67-69, 2007
12. Hung-tsao Hsu and Yue-ming Hsin, "Simulation Study of a Novel Collector-up npn InGaP/GaAs Heterojunction Bipolar Transistor with a p-Type Doping Buried Layer for Current Confinement," IEICE Transactions on Electronics, Vol. E90-C, No.1, pp.171-178, 2007
13. Hung-tsao Hsu and Yue-ming Hsin, "Collector-up Heterojunction Bipolar Transistor using a *p*-Type Doping Buried Layer," Semiconductor Science and Technology, 21, pp. 1728-1732 , 2006
14. Kuang-Po Hsueh, Kuo-Chun Chiang, Yue-Ming Hsin and Charles J. Wang, "Investigation of Cr- and Al-based metals for the reflector and Ohmic contact on n-GaN simultaneously in GaN flip-chip light-emitting diodes," Applied Physics Letters, Vol.89, No.19, pp. 191122 Nov. 2006
15. Wen-Bin. Tang, Che-Ming. Wang and Yue-ming Hsin, "A New Extraction Technique for the Complete Small-Signal Equivalent Circuit Model of InGaP/GaAs HBT Including Base Contact Impedance and AC Current Crowding Effect", IEEE Microwave Theory and Techniques, Vol. 54, No. 10, pp. 3641-3647, 2006.
16. Wei-kuo Huang, Shou-chian Huang, Hsiao-wen Chung, Yue-ming Hsin, Jin-Wei Shi, Yung-Chung Kao and Jenn-Ming Kuo, "37 GHz Bandwidth Monolithically Integrated InP HBT/Evanescently Coupled Photodiode," IEEE Photonics Technology Letters, Vol. 18, No. 12, pp. 1323-1325, 2006
17. Meng-Wei Hsieh, Yue-Ming Hsin, Kung-Hao Liang, Yi-Jen Chan, Chwan-Ying Lee and Denny Tang, "The RF Power Characteristics of SiGe HBTs at Cryogenic Temperatures," IEEE Trans. Electron Devices, Vol. 53, No. 6, pp. 1452-1458, 2006.
18. W. B. Tang and Y. M. Hsin, "Reversible Off-state Breakdown Walkout in Passivated AlGaAs/InGaAs PHEMTs," IEEE Transactions on Device and Materials Reliability, Vol. 6, No. 1 March, 2006.
19. Kuang-Po Hsueh, Yue-Ming Hsin, and Jinn-Kong Sheu, "Low Schottky barrier to etched p-GaN using regrown AlInGaN and InGaN contact layer," Journal of Applied Physics, 99, 026106, 2006
20. Kuang-Po Hsueh, Hung-Tsao Hsu, Che-Ming Wang, Shou-Chian Huang, Yue-Ming Hsin, and Jinn-Kong Sheu, "Effect of Cl_2/Ar dry etching on p-GaN with Ni/Au metallization characterization," Applied Physics Letters, 87, 252107, 2005
21. Che-ming Wang, Kuang-Po Hsueh and Yue-ming Hsin, "Collector Doping Design for Improving DC and RF Performance in InGaP/GaAs HBTs before onset of Kirk effect," IEICE Transaction on Electronics, Vol. E88-C, No. 8, pp. 1790-1792, 2005
22. Y. M. Hsin, W.B. Tang, and H.T. Hsu, "Temperature Dependence of Electron Saturation Velocity in GaAs Measured in InGaP/GaAs HBT Using DC and AC Approaches" Solid-State Electronics 49, pp. 295-300, 2005.
23. Kuang-Po Hsueh, Hung-Tsao Hsu, Chao-His Wu and Yue-ming Hsin, "Surface oxygen implantation for GaAs MESFETs passivation," 19, L118-120, Semiconductor Science and Technology 2004

24. W. B. Tang, H. T. Hsu, C. C. Fan, C. H. Wang and N. Y. Li, Y. M. Hsin, “Temperature Dependence of Current Gain of InGaP/InGaAsN/GaAs Heterojunction Bipolar Transistors,” Vol. 201/9, pp. 2190-2193, physica status solidi (a) 2004

25. Che-ming Wang, Hung-Tsao Hsu, Hsiu Chuan Shu, and Yue-ming Hsin, “High Linearity InGaP/GaAs Power HBTs by Collector Design,” Vol. 25, No. 2, pp. 58-60, IEEE Electron Device Letter 2004.

許晉瑋教授

1. Z. Pei, J.-W. Shi, Y.-M. Hsu, F. Yuan, C. S. Liang, S. C. Lu, W. Y. Hsieh, M.-J. Tsai, and C. W. Liu, “Bandwidth Enhancement in an Integratable SiGe Phototransistors by Removal of Excess Carriers” *IEEE Electron Device Lett.,* vol. 25, pp. 286-288, May, 2004. (SCI, EI)

2.J.-W. Shi and C.-W. Liu, "Design and Analysis of Separate-Absorption-Transport-Charge-Multiplication Traveling-Wave Avalanche Photodetectors " *IEEE/OSA Journal of Lightwave Technology*, vol. 22, pp.1583-1590, June, 2004. (SCI, EI)

3. D. Lasaosa, J.-W. Shi, D. Pasquariello, K.-G. Gan, M.-C. Tien, H.-H. Chang, S.-W. Chu, C.-K. Sun, Y.-J. Chiu, and J. E. Bowers, “Traveling-Wave Photodetectors with High Power-Bandwidth and Gain-Bandwidth Product Performance” *IEEE Journal of Sel. Topics in Quantum Electronics,* vol. 14, pp.728-741, July/Aug., 2004 (Invited Paper) (SCI, EI)

4. F. Yuan, J.-W. Shi, Z. Pei, and C. W. Liu, “Mextram Modeling of Si/SiGe Heterojunction Phototransistors” *IEEE Trans. on Electron Device.* vol. 51, pp.870-876, June, 2004. (SCI, EI)

5. J.-W. Shi, Z. Pei, F. Yuan, Y.-M. Hsu, Chee-Wee Liu, S.C. Lu, and M. -J. Tsai “Performance Enhancement of High-Speed SiGe Based Hetero-junction Phototransistor with Side-Wall Terminal”, *Appl. Phys. Lett,* vol. 85, pp. 2947-2949, Oct., 2004. (SCI, EI)

6.Y.-S. Wu, J.-W. Shi, J.-Y. Wu, F.-H. Huang, Y.-J. Chan, Y.-L. Huang, and R. Xuan “High Performance Evanescently Edge Coupled Photodiodes with Partially p-Doped Photo-absorption Layer at 1.55 m Wavelength” *IEEE Photon. Tech. Lett* vol. 17, pp.878-880, April, 2005. (SCI, EI)

7. Jin-Wei Shi, C.-H. Jiang, K.-M. Chen, Y.-J. Yang, J.-L. Yen, “Single-mode vertical-cavity surface-emitting laser with ring-shaped light-emitting aperture,”*Appl. Phys. Lett.,*vol. 87, pp. 031109-1-3, July, 2005. (SCI, EI)

8. J.-W. Shi, H.-C. Hsu, F.-H. Huang, W.-S. Liu, J.-I. Chyi, Ja-Yu Lu, Chi-Kuang Sun, and Ci-Liang Pan, “Separated-Transport-Recombination p-i-n Photodiode for High-speed and High-power Performance” *IEEE Photon. Technol. Lett,* vol. 17, pp. 1722-1724, Aug., 2005. (SCI, EI)

9. J.-W. Shi, C.-Y. Wu, Y.-S. Wu, P.-H. Chiu, and C.-C. Hong, High-Speed, High-Responsivity, and High-Power Performance of Near- Ballistic Uni-Traveling-Carrier Photodiode at 1.55μm Wavelength,”*IEEE Photon. Technol. Lett.,* vol.17, pp. 1929-1931, Sep., 2005. (SCI, EI)

10. J.-W. Shi, C.-A. Hsieh, A.-C. Shiao, Y.-S. Wu, F.-H. Huang, S.-H. Chen, Y.-T.Tsai , and J.-I. Chyi, “Demonstration of a Dual-Depletion-Region Electro-Absorption Modulator at 1.55μm Wavelength for High-Speed and Low-Driving-Voltage Performance, " *IEEE Photon. Technol. Lett.,* vol. 17, pp. 2068-2070, Oct., 2005. (SCI, EI)

11. W.-Y. Chiu, F.-H. Huang, Y.-S. Wu, D.-M. Lin, Y.-J. Chan, S.-H. Chen, J.-I. Chyi, and J.-W. Shi, “Improvement of Mesa-Sidewall Leakage Current Using Benzocyclobuten Sidewall Process in InGaAs/InP MSM Photodetector,” Japanese Journal of Applied Physics (Brief Communication), vol. 44, No. 4B, pp. 2586-2587. (SCI, EI)

12. J.-W. Shi, Y.-S. Wu, S.-H. Hsieh, H.-C. Hsu, F.-H. Huang, Y.-J. Chan, Ja-Yu Lu, C.-K. Sun, C.-C. Hong, “High-Power and High-Responsivity Photodiode for Long-Haul and Short-Reach Fiber Communication” SPIE Optic East 2005 (Invited Paper, Optic East, Oct. 2005). (EI)

13. J.-W. Shi, H.-Y. Huang, J.-K. Sheu, S.-H. Hsieh, Y.-S. Wu, Ja-Yu Lu, F.-H. Huang, W.-C. Lai, “Nitride Based Photodiode at a 510nm Wavelength for Plastic Optical Fiber Communication,” *IEEE Photon. Technol. Lett.,* vol. 18, pp. 283-285, Jan., 2006. (SCI, EI)

14. Jin-Wei Shi, J.-L. Yen, C.-H. Jiang, K.-M. Chen, T.-J. Hung, and Ying-Jay Yang, "Vertical-Cavity Surface-Emitting Lasers (VCSELs) with High-Power and Single-Spot Far-Field Distributions at 850nm Wavelength by use of Petal-Shaped Light-Emitting Apertures" *IEEE Photon. Technol. Lett.,* vol. 18, March, 2006. (SCI, EI)
15. Y.-S. Wu, J.-W. Shi, and P.-H. Chiu "Analytical Modeling of a High-Performance Near-Ballistic Uni-Traveling-Carrier Photodiode at a 1.55 m Wavelength," *IEEE Photon. Technol. Lett.,* vol. 18, pp. 938-940, April, 2006. (SCI, EI)
16. W.-Y. Chiu, J.-W. Shi, W.-K. Wang, Y.-S. Wu, Y.-J. Chan, Y.-L. Huang, and R. Xuan, "Leaky-Wave Photodiodes with a Partially p-Doped Absorption Layer and a Distributed-Bragg-Reflector (DBR) for High-Power and High-Bandwidth-Responsivity Product Performance" *IEEE Photon. Technol. Lett.,* vol. 18, pp. 1323-1325, June, 2006. (SCI, EI)
17. W.-K. Huang, S.-C. Huang, H.-W. Chung, Y.-M. Hsin, J.-W. Shi, Y.-C. Kao, and J.-M. Kuo, "37-GHz Bandwidth Monolithically Integrated InP HBT/Evanescently Coupled Photodiode" *IEEE Photon. Technol. Lett.,* vol. 18, pp. 1267-1269, June, 2006. (SCI, EI)
18. Y.-S. Liao, J.-W. Shi, Y.-S. Wu, H.-C. Kuo, M. Feng, and G.-R. Lin, "Optically heterodyne diagnosis of a high-saturation-power undoped InP sandwiched InGaAs p-i-n photodiode grown on GaAs" *Optic Express* vol. 14, pp. 5031-5037, June, 2006. (SCI, EI)
19. J.-W. Shi, P.-H. Chiu, F.-H. Huang, Y.-S. Wu, Ja-Yu Lu, C.-K. Sun, and C.-W. Liu, P.-S. Chen "Si/SiGe-Based Edge-Coupled Photodiode with Partially P-Doped Photo-absorption Layer for High Responsivity and High-Power Performance" *Appl. Phys. Lett,* vol. 88, pp.193506 2006. (SCI, EI)
20. J.-W. Shi, H.-Y. Huang, J.-K. Sheu, C.-H. Chen, Y.-S. Wu, and W.-C. Lai, "The improvement in Modulation Speed of GaN-Based Light-Emitting Diode (LED) by Use of n-Type Barrier Doping for Plastic Optical Fiber (POF) Communication" *IEEE Photon. Technol. Lett.,* vol. 18, pp. 1636-1638, Aug., 2006. (SCI, EI)
21. J.-W. Shi, Y.-T. Li, C.-L. Pan, M. L. Lin, Y. S. Wu, W. S. Liu, and J.-I. Chyi, "Bandwidth enhancement phenomenon of a high-speed GaAS-AlGaAs based unitraveling carrier photodiode with an optimally designed absorption layer at an 830nm wavelength" *Appl. Phys. Lett,* vol. 89, pp.053512 2006. (SCI, EI)
22. J.-W. Shi, T.-J. Hung, Y.-Y. Chen, Y.-S. Wu, Wei Lin, and Ying-Jay Yang, "InP-Based Transverse Junction Light-Emitting Diodes for White-Light Generation at Infrared Wavelengths," *IEEE Photon. Technol. Lett.*, vol. 18, pp. 2053-2055, Oct., 2006. (SCI, EI)
23. J.-W. Shi, H.-Y. Huang, C.-K. Wang, J.-K. Sheu, W.-C. Lai, Y.-S. Wu, C.-H. Chen, J.-T. Chu, H.-C. Kuo, Wei-Ping Lin, Tsung-Hsun Yang, and J.-I. Chyi "Phosphor-Free GaN-Based Transverse Junction Light Emitting Diodes for the Generation of White Light" *IEEE Photon. Technol. Lett.,* vol. 18, pp. 2593-2595, Dec., 2006. (SCI, EI)
24. J.-W. Shi, A.-C. Shiao , C.-C. Chu, and Y.-S. Wu "Dual-Depletion-Region Electro-Absorption Modulator with Evanescently-Coupled Waveguide Wavelength for High-Speed (>40GHz) and Low Driving-Voltage Performance" *IEEE Photon. Technol. Lett.,* vol. 19, pp. 345-347, March, 2007. (SCI, EI)
25. N.-W. Chen, C.-T. Chuang, and Jin-Wei Shi, "A W-Band Linear Tapered Slot Antenna on Rectangular-Grooved Silicon Substrate" *IEEE Antennas and Wireless Propagation Lett.,* vol. 6, pp. 90-92, 2007. (SCI, EI)
26. J.-W. Shi, Y.-S. Wu, Z.-R. Li, and P.-S. Chen, "Impact-Ionization-Induced Bandwidth-Enhancement of a Si/SiGe-Based Avalanche Photodiode Operating at a Wavelength of 830nm with a Gain-Bandwidth Product of 428GHz" *IEEE Photon. Technol. Lett.,* vol. 19, pp. 474-476, April, 2007. (SCI, EI)
27. Yu-Tai Li, J.-W. Shi, Ci-Ling Pan, C.-H. Chiu, W.- S. Liu, Nan-Wei Chen, C.-K. Sun, and J.-I. Chyi, "Sub-THz Photonic-Transmitters Based on Separated-Transport-Recombination Photodiodes and a Micromachined Slot Antenna" *IEEE Photon. Technol. Lett.,* vol. 19, pp. 840-842, June, 2007. (SCI, EI)
28. J.-W. Shi, J.-K. Sheu, C.-K. Wang, C.-C. Chen, C.-H. Hsieh, J.-I. Chyi, and W.-C. Lai, "Linear Cascade Arrays of

GaN Based Green Light Emitting Diodes for High-Speed and High-Power Performance" *IEEE Photon. Technol. Lett.,* vol. 19, pp. 1368-1370, Sep., 2007. (SCI, EI)

29 W.-Y. Chiu, J.-W. Shi, Y.-S. Wu, F.-H. Huang, Wei Lin, and Y.-J. Chan "The Monolithic Integration of a Wavelength-Demultiplexer with Evanescently-Coupled Uni-Traveling-Carrier Photodiodes" *IEEE Photon. Technol. Lett.,* vol. 19, pp.1433-1435, 2007. (SCI, EI)

30. Y.-S. Wu, J.-W. Shi, P.-H. Chiu, and Wei Lin "High-Performance Dual-Step Evanescently-Coupled Uni-Traveling-Carrier Photodiodes" *IEEE Photon. Technol. Lett.,* vol. 19, pp. 1682-1684, 2007. (SCI, EI)

31. J.-W. Shi, L.-C. Yang, C.-C. Chen, Y.-S. Wu, S.-H. Guol, and Ying-Jay Yang, "Minimization of Damping in the Electrooptic Frequency Response of High-Speed Zn-Diffusion Single-Mode Vertical-Cavity Surface-Emitting Lasers" *IEEE Photon. Technol. Lett.,* vol. 19, pp. 2057-2059, Dec., 2007. (SCI, EI)

32. K.-H. Lin, C.-M. Lai, C.-C. Pan, J.-I. Chyi, J.-W. Shi, S.-Z. Sun, C.-F. Chang, and C.-K. Sun, "Spatial manipulation of nanoacoustic waves with nanoscale spot sizes," *Nature Nanotechnology* vol. 2, pp. 704-708, Nov., 2007.

33. J.-W. Shi, J.-K. Sheu, C.-H. Chen, G.-R. Lin, and W.-C. Lai, "High-Speed GaN-based Green Light Emitting Diodes with Partially n-doped Active Layers and Current-Confined Apertures," *IEEE Electron Device Lett.,* vol. 29, pp. 158-160, Feb., 2008. (SCI, EI)

張正陽教授

1. 1.C. C. Chen, C. H. Hou, J. K. Sheu, J. Y. Chang, M. H. Li, G. C. Chi, and C. Wu, "Gratings inGaN membranes," JAPANESE JOURNAL OF APPLIED PHYSICS 43 (8B): 5854-5856 (2004).
2. 2.C. C. Chen, Y. L. Tsai. C. L. Hsu and J. Y. Chang, "Propagation loss reduction of photonic crystalslab waveguides by microspheres," OPTICS EXPRESS, 12 (17): 3934-3939, (2004).
3. 3.C. M. Wang, J. Y. Chang, C. L. Hsu, C. C. Lee and J. C. Yang, "Si-Based Guided-ModeResonance Filter on a Microoptical Bench," IEE Electronics Letters, 40 (21), 1335 –1336(2004).
4. Jenq-Yang Chang, Chih-Ming Wang, Chien-Chieh Lee, Hsi-Fu Shih, Mount-Learn Wu, " Realization of free-space optical pickup head with stacked Si-based phase elements", IEEE
5. Photonics Technology Letters, 17 (1): 214-216, (2005).
6. Wang, C. M.; Chang, Y. C.; Sung, C. D.; Tien, H. T.; Lee, C. C.; Chang, J. Y., "Anisotropic wet etching on birefringent calcite crystal," Applied Physics A: Materials Science & Processing, Sep2005, Vol. 81 Issue 4, p851-854, (2005).
7. W.-Y. Chen, W.-H. Chang, H.-S. Chang, T. M. Hsu, Chien-Chieh Lee, Chii-Chang Chen, P. G.Luan, J.-Y. Chang, T.-P. Hsieh, and J.-I. Chyi, "Enhanced light emission from InAs quantumdots in single-defect photonic crystal microcavities at room temperature," Appl. Phys. Lett. 87,071111 (2005).
8. De-Hao Chien, Chang-Heng Tsai, Shih-Shou Lo, Chii-Chang Chen, Jenq-Yang Chang, "Solidimmersion lenses in planar waveguides," IEEE Journal of Lightwave Technology, 23(9), 2746 2748(2005).
9. Chao-Chia Cheng , Chih-Ming Wang , Mao-Jen Wu , Jenq-Yang Chang, "A hybrid grism-lensdevice for diffraction grating demultiplexer," OPTICAL ENGINEERING, vol. 45(8), pp. 085002-1 - 085002-5, Aug. 2006. SCI/EI
10. C. C. Lee, C. M. Wang, S. K. Huang, J. Y. Chang, G. C. Chi, S. C. Shu, and C. Y. Liu, "Fabrication and Tolerance Reducing of Si-Based Pickup Module for Optical Storage," Opt. Eng., 45(7), pp. 074601-074605, Jul. 2006.
11. C. M. Wang, B. Ung, Y. Sheng, and J. Y. Chang, "Enhanced Transmission through Nano-Aperture on a Tapered Metallic Substrate," Opt. Commun., Volume 265, Issue 2pp. 678-682, 2006 15th Sep. 2006.
12. Che-Lung Hsu, Yung-Chih Liu, Chih-Ming Wang, Mount-Learn Wu, Ya-Lun Tsai, Yue-Hong Chou, Chien-Chieh Lee, and Jenq-Yang Chang, "Bulk Micromachined Optical Filter Based on Guided-Mode Resonance in Silicon Nitride Membrane," IEEE J. Lightwave Tech., vol. 24, no. 4, 1922-1928, Apr. 2006.

13. Mount-Learn Wu, Che-Lung Hsu, Yung-Chih Liu, Chih-Ming Wang, and Jenq-Yang Chang,“Silicon-Based and Suspended Membrane Type of Guided-Mode Resonance Filters with the Spectrum-Modifying Layer Design,” Opt. Lett., vol. 31, no. 22, 3333-3335, Nov. 2006.
14. Che-Lung Hsu, Mount-Learn Wu, Yung-Chih Liu, Yun-Chih Lee, and Jenq-Yang Chang, “Flattened Broad-Band Notch Filters Using Guided-Mode Resonance Associated with Asymmetric Binary Gratings,” IEEE Photo. Tech. Lett., vol. 18, no. 24, 2572-2574, Dec. 2006.
15. Li-Ming Chang, Chia-Hung Hou, Yu-Chen Ting, Chii-Chang Chen, Che-Lung Hsu, Jenq-Yang Chang, Chien-Chieh Lee, Guan-Ting Chen, and Jen-Inn Chyi, 2006, Aug., “Laser emission from GaN photonic crystals,” Appl. Phys. Lett., vol. 89, 071116.
16. Mount-Learn Wu, Yun-Chih Lee, Che-Lung Hsu, Yung-Chih Liu, and Jenq-Yang Chang, “Experimental and Theoretical Demonstration of Resonant Leaky-Mode in Grating Waveguide Structure with A Flattened Passband,” accepted by Jpn. J. Appl. Phys. 2007. (SCI), NSC95-2221-E-008-118-MY3.
17. Mount-Learn Wu, Che-Lung Hsu, Hsiao-Chin Lan, Hung-I Huang, Yung-Chih Liu, Zong-Ru Tu, Chien-Chieh Lee, Jian-Shian Lin, Chih-Chieh Su, and Jenq-Yang Chang, “Authentication labels based on guided-mode resonant filters,” Opt. Lett., 32, 1614-1616 (2007).
18. C. M. Wang, H. I Huang, C. C. Chao, and J. Y. Chang and Y. Sheng, “Transmission enhancement through a trench-surrounded nano metallic slit by bump reflectors,” accepted by Opt. Express. 2007. (SCI/EI)

陳啟昌教授

1. Chii-Chang Chen*, Ya-Lun Tsai, Che-Lung Hsu, Jenq-Yang Chang, “Propagation loss reduction of photonic crystal slab waveguides by microspheres”, Optics Express, vol. 12, p. 3934, 2004. (time cited:3, self-citations excluded)
2. Hung-Ta Chien, Hui-Ting Tang, Chao-Hsien Kuo, Chii-Chang Chen, Zhen Ye*, “Directed diffraction without negative refraction,” Phys. Rev. B. vol. 70, p. 113101, 2004. (time cited:31, self-citations excluded)
3. Chii-Chang Chen*, Hung-Da Chien, Pi-Gang Luan, “Photonic crystal beam splitters,” Appl. Opt. vol. 43, p. 6187, 2004 (time cited:5, self-citations excluded)
4. Shih-Shou Lo*, Mou-Sian Wang, Chii-Chang Chen, "Semiconductor hollow optical waveguides formed by omni-directional reflectors," Optics Express Vol. 12, 6589, 2004. (time cited:12, self-citations excluded)
5. Chii-Chang Chen*, Chih-Yu Chen, Wen-Kai Wang, Fan-Hsiu Huang, Cheng-Kuo Lin, Wei-Yu Chiu, Yi-Jen Chan, "Photonic crystal directional couplers formed by InAlGaAs nano-rods," Optics Express, vol. 13, p. 38, 2005. (time cited:9, self-citations excluded)
6. Chia-Hua Chan*, Chii-Chang Chen, Chih-Kai Huang, Wei-Hsiang Weng, Hung-Sen Wei, Hui Chen, Hsiao-Tsung Lin, Hsiang-Szu Chang, Wen-Yen Chen, Wen-Hao Chang, Tzu-Min Hsu, “Self-assembly free-standing photonic crystals,” Nanotechnology 16, 1440, 2005. (time cited:2, self-citations excluded)
7. De-Hao Chien, Chang-Heng Tsai, Shih-Shou Lo*, Chii-Chang Chen, Jenq-Yang Chang. ”Solid immersion lenses in planar waveguides,” IEEE J. Lightwave Technol.vol. 23, p. 2746, 2005. (time cited:0)
8. Shih-Shou Lo, Hua-Kung Chiu, Chii-Chang Chen*, ” Fabricating lower loss hollow optical waveguide via amorphous silicon bonding using dilute KOH solvent,” IEEE Photon. Technol. Letters, vol. 17, 2592, 2005. (time cited:0)
9. Hung-Ta Chien*, Chii-Chang Chen, Pi-Gang Luan, "Photonic crystal beam splitters," Opt. Commun. vol. 259, 873, 2006. (time cited:0)
10. Chii-Chang Chen*, Thomas Pertsch, Rumen Iliew, Falk Lederer, Andreas Tünnermann, "Directional emission from photonic crystal waveguides," Optics Express, vol. 14, 2423, 2006. (time cited:5, self-citations excluded)
11. Chia-Hung Hou*, Chii-Chang Chen, Bao-Jen, Pong, Ming-Hung Li, Gou-Chung Chi, N. C. Chen, C. F. Shih, P. H. Chang, "GaN-Based Stacked Micro-Optics System," Applied Optics, vol. 45, 2396, 2006. (time cited:0)

12. Shih-Shou Lo*, Chii-Chang Chen, “Air-core hollow optical waveguides with omnidirectional reflectors,” Opt. Eng. vol. 45, 044601, 2006. (time cited:0)
13. S. S. Lo*, Chii-Chang Chen, S.-C. Hsu and C.-Y Liu, “Fabricating a hollow optical waveguide for optical communication applications,”IEEE J. MEMS. Vol. 15, 584, 2006. (time cited:0)
14. Li-Ming Chang, Chia-Hung Hou, Yu-Chen Ting, Chii-Chang Chen*, Che-Lung Hsu, Jenq-Yang Chang, Chien-Chieh Lee, Guan-Ting Chen, Jen-Inn Chyi, "Laser emission from GaN photonic crystals," Appl. Phys. Lett. vol. 89, 071116, 2006. (time cited:3, self-citations excluded)
15. Hung-Ta Chien and Chii-Chang Chen*, “Focusing of electromagnetic waves by periodic arrays of air holes with gradually varying radii,” Opt. Express. Vol. 14, 10759, 2006. (time cited:1, self-citations excluded)
16. Yen-Ling Tsaia*, Chia-Hua Chun, Jinn-Luh Ou, Chih-Kai Huang, Chii-Chang Chen, “Magnetic Fe_3O_4 nanoparticles synthesized for preparations of silica-coated composites,” Desalination, vol. 200, 97, 2006. (time cited:0)
17. Chii-Chang Chen, Wei-Chi Ku, Sung-Kay Chiu, Chi-Meng Tzeng*, “Deoxyribonucleic acid hybridization acceleration by photovoltaic effect,” Appl. Phys. Lett. vol. 89, 233902, 2006. (time cited:0)
18. Fu-Li Hsiao, Chia-Hua Chan*, Chii-Chang Chen, "Optical properties of metallo-dielectric opals," Appl. Phys. Lett. vol. 89, 253123, 2006. (time cited:0)
19. Shih-Shou Lo*, Chii-Chang Chen, Frank Garwe, Thomas Pertch, “Broad-Band Anti-Reflection Coupler for a:Si Thin-Film Solar Cell,” J. of Phys. D: Appl. Phys. vol. 40, 754, 2007. (time cited:0)
20. Fu-Li Hsiao*, Abdelkrim Khelif, Hanane Moubchir, Abdelkrim Choujaa, Chii-Chang Chen, and Vincent Laude, "Complete band gaps and deaf bands of triangular and honeycomb phononic crystals," J. Appl. Phys. vol. 101, 044903, 2007. (time cited:0)
21. C. L. Lin*, P. H. Chen, C. H. Chan, C. C. Lee, Chii-Chang Chen, J. Y. Chang, C. Y. Liu, “Light enhancement by the formation of an Al-oxide honeycomb nano-structure on the n-GaN surface of thin-GaN LED,“ Appl. Phys. Lett. vol. 90, p. 242106, 2007. (time cited:0)
22. Shih-Shou Lo, Chii-Chang Chen*, “1x2 Multimode Interference Couplers by SHOW-ODR,” Optics Letters, vol. 32, p. 1803, 2007. (time cited:0)
23. Chih-Kai Huang, Chia-Hua Chan, Chia-Yin Chen, Yen-Ling Tsai, Chii-Chang Chen, Jin-Lin Hane and Kuo-Huang Hsieh*, "Rapid fabrication of 2- and 3-D photonic crystals and their inversed structures," Nanotechnology. Vol. 18, 265305, 2007. (time cited:0)
24. Shih-Shou Lo, Chii-Chang Chen*, "High finesse of optical filter by a set Fabry-Perot Cavity," JOSA B vol. 24, p. 1853, 2007. (time cited:0)
25. Wei-Yu Chiu, Tai-Wei Huang, Yen-Hsiang Wu, Yi-Jen Chan, Chia-Hung Hou, Hung-Ta Chien, Chii-Chang Chen*, “A photonic crystal ring resonator formed by SOI nano-rods,” Optics Express. Vol. 15, p. 15500, 2007. (time cited:0)
26. Fu-Li Hsiao*, Abdelkrim Khelif, Hanane Moubchir, Abdelkrim Choujaa, Chii-Chang Chen, Vincent Laude, “Waveguiding in a complete band gap phononic crystal slab,” Phys. Rev. E, vol. 76, p. 056601, 2007. (time cited:0)
27. Guan-Ting Chen, Jen-Inn Chyi*, Chia-Hua Chan, Chia-Hung Hou, Chii-Chang Chen, Mao-Nan Chang, “Crack-free GaN grown on AlGaN/(111)Si micropillar array fabricated by polystyrene microsphere lithography,” Appl. Phys. Lett. vol. 91, p. 261910, 2007. (time cited:0)
28. Chih-Kai Huang, Chia-Hung Hou, Chii-Chang Chen, Yen-Ling Tsai, Li-Ming Chang, Hung-Sen Wei, Kuo-Huang Hsieh, Chia-Hua Chan*, “Magnetic SiO2/Fe3O4 Colloidal Crystal,” Nanotechnology, vol. 19, 055701, 2008. (time cited:0)

International Conference papers:

詹益仁教授

1. C.K. Lin, J.C. Wu, W.K. Wang, H.C. Chiu and Y.J. Chan, "The fabrication of enhancement-mode metamorphic InAlAs/InGaAs HEMT by Pt Schottky metal diffusion", presented in International Conference on InP and Related Materials, Japan, Jun. 2004.
2. C.K. Lin, J.C. Wu, W.K. Wang, and Y.J. Chan, "Characteristics of $In_xGa_{1-x}As$/InAlAs (x=0.5, 0.6) metamorphic HEMTs on GaAs substrates", presented in International Conference on InP and Related Materials, Japan, Jun. 2004
3. C.K. Lin, J.C. Wu, and Y.J. Chan, "Power performance enhancement of metamorphic $In_{0.3}Al_{0.7}As/In_{0.45}Ga_{0.55}As$ HEMTs using pseudomorphic channel design", presented in Interl. Symp. Compound Semi, Korea, Sep. 2004.
4. W.K. Wang, P.C. Lin, C.H. Lin, C.K. Lin, Y.J.Chan, G.T. Chen, and J.I. Chyi, "Performance enhancement by using the n^+-GaN cap layer and gate recess technology on the AlGaN/GaN HEMTs fabrication," presented in Interl. Symp. Compound Semi, Korea, Sep. 2004.
5. YJ Li, HY Tu, JY Wu, FH Huang, YJ Chan, "Suppression of I-V Kink in $In_{0.5}Al_{0.5}As/In_{0.5}Ga_{0.5}As$ mHEMT by Means of O_2-Plasma", presented in The 6th Topical Workshop on Heterostructure Microelectronics (TWHM 2005), Japan from August 22 to 25, 2005
6. CH Lin ,WK Wang, PC Lin, CK Lin, YJ Chan, et al., "The transient anaysis on GaN HEMTs in cryogenic enviroment", presented in The 6th Topical Workshop on Heterostructure Microelectronics (TWHM 2005), Japan from August 22 to 25, 2005
7. W. Y. Chiu, W. K. Wang, Y. S. Wu, F. H. Huang, D. M. Lin, Y. J. Chan and J. W. Shi, "InP/InGaAs Leaky Waveguide Photodiode with a Partially p-Doped Absorption Layer and a Distributed-Bragg-Reflector (DBR) for High-Power and High-Bandwidth-Responsivity Product Performance" *Int. Conference on Solid State Devices and Materials*, Tokyo, Sep. 2006.
8. Y. S. Wu1, D.-M. Lin1, F.-H. Huang1, W. Y. Chiu1, J.-W. Shi, and Y. J. Chan, "A Size-Dependent Equivalent-Circuit Model of High Performance Near-Ballistic-Transport Photodiode" *Int. Conference on Solid State Devices and Materials*, Tokyo, Sep. 2006.
9. Y. J. Li, J. S. Wu, H. C. Chiu and Y. J. Chan, "High Power Performance of Metamorphic HEMTs using Pd Schottky contacts" *Int. Conference on Solid State Devices and Materials*, Tokyo, Sep. 2006.
10. W.Y. Chiu, J.W. Shi*, Y.S. Wu, and Y.J. Chan,"The Integration of a 1500/1550nm Wavelength-Splitter with Evanescently-Coupled Uni-Traveling-Carrier Photodiodes for CWDM Application", OPT 2006.
11. W.Y. Chiu, J.W. Shi*, Y.S. Wu, and Y.J. Chan,"The Integration of a 1500/1550nm Wavelength-Splitter with Evanescently-Coupled Uni-Traveling-Carrier Photodiodes for CWDM Application", IEDMS 2006.
12. C.H. Lin, K.H. Liang, H.Y. Chang, Y.J. Chan, C.C. Chiong, and Eric Bryerton, "A Q-band low phase noise voltage controlled oscillator using balanced π-feedback in 2-μm GaAs HBT process", *IEEE RFIC Symposium*, Hawaii, USA, June 2007.

綦振瀛教授

1. W.-S. Liu, and J.-I. Chyi, "Optical Properties of InAs Quantum Dots with InGaAs/InAlAs Composite Matrix", 16th Intl. Conf. InP Related Materials, Kagoshima, Japan, 2004.
2. T.-P. Hsieh, N.-T. Yeh, P.-C. Chiu, W.-J. Ho, and J.-I. Chyi, "1.55 m Emission from InAs Quantum Dots Grown on GaAs", Intl. Conf. MOVPE XII, Maui, U.S.A., 2004.
3. W.-S. Liu, H. Chang, Y.-S. Liu, and J.-I. Chyi, "Investigation on the Pinhole-Like Defects on Multi-Stack InAs/GaAs Quantum Dot Layers", XIII Intl. Conf. on MBE, Edinburgh, UK, 2004.

4. J.-I. Chyi and W.-S. Liu, “Growth of InAs Quantum Dots for Photonic Devices”, IUMRS Intl. Conf. in Asia, Hsinchu, Taiwan, R.O.C., 2004.
5. W.-S. Liu, H. Chang, Y.-S. Liu, and J.-I. Chyi, “Pinhole-Like Defects in Multi-Stack 1.3 μm InAs Quantum Dot laser“, Intl. Electron Devices and Materials Symposia, Hsinchu, Taiwan, R.O.C., 2004.
6. T.-P. Hsieh, N.-T. Yeh, P.-C. Chiu, W.-H. Chang, T.-M. Hsu, W.-J. Ho, and J.-I. Chyi, “1.55 m Emission from InAs Quantum Dots Grown on GaAs“, Optics and Photonics Taiwan, Jhongli, Taiwan, R.O.C., 2004.
7. T.-P. Hsieh, H.-S. Chang, W.-Y. Chen, W.-H. Chang, T. M. Hsu, N.-T. Yeh, W.-J. Ho, P.-C. Chiu, and J.-I. Chyi , “Growth of Low-Density InGaAs Quantum Dot for Single Photon Source by Metal-Organic Chemical Vapor Deposition”, Intl. Symposium on Compound Semiconductors (ISCS), Rust, Germany, 2005.
8. J.-I. Chyi , W.-S. Liu, T.-P. Hsieh, T. M. Hsu, W. H. Chang, W. Y. Chen and H. S. Chang, “Progress on InAs-Based Quantum Dot Light Emitters”, the 208 th Meeting of the Electrochemical Society (ECS), Los Angeles, U.S.A., 2005. (Invited)
9. J.-I. Chyi, “(In,Ga)As Quantum Dot Photonic Devices”, 3rd Intl. Workshop Nanoscale Semiconductor Devices, Chonju, Korea, 2006. (Invited)
10. T.-P. Hsieh, H.-S. Chang, W.-Y. Chen, T. M. Hsu, and J.-I. Chyi, “Single photon emission from an InGaAs quantum dot on a nano-plane”, Optics and Photonics Taiwan, Hsinchu, Taiwan, R.O.C., 2006.
11. M.-J. Shiau, P.-C. Chiu, W.-S. Liu, T.-P. Hsieh, and J.-I. Chyi, “The Effects of Antimony Irradiation on the Optical Properties of InAs QDs”, Optics and Photonics, Hsinchu, Taiwan, R.O.C., 2006.
12. C.-Y. Chen, C.-H. Chang, T.-P. Hsieh, P.-C. Chiu, J.-I. Chyi, “Enhancing Luminescence Efficiency of InAs Quantum Dots at 1.5 m by Using a Carrier Blocking Layer”, Optics and Photonics, Hsinchu, Taiwan, R.O.C., 2006.
13. Y.-J. Tseng, T.-P. Hsieh, C.-J. Wang, T.-Y. Chi, and J.-I. Chyi, “Design of High Quality Factor and Low Mode-Volume Photonic Crystal Micro-cavities for Laser Applications”, Optics and Photonics Taiwan, Hsinchu, Taiwan, R.O.C., 2006.
14. T.-P. Hsieh, H.-S. Chang, W.-Y. Chen, W.-H. Chang, T.-M. Hsu, N.-T. Yeh, W.-J. Ho, P.-C. Chiu, and J.-I. Chyi, “Enhancing Luminescence Efficiency of InAs Quantum Dots at 1.5 m”, International Electron. Devices and Materials Symposium, Tainan, Taiwan, R.O.C., 2006.
15. W.-S. Liu, J.-I. Chyi, W.-Y. Chen, H.-S. Chang, and T.-M. Hsu, “Enhanced Thermal Stability and Emission Intensity of InAs Quantum Dots Covered by InGaAsSb Strain-Reducing Layer”, 14th Intl. Conf. Molecular Beam Epitaxy, Tokyo, Japan, 2006.
16. H.-C. Lin, T.-P. Hsieh, C.-C. Pan, G.-T Chen, H.-C. Liu, T.-M. Hsu, and J.-I. Chyi, “Optical Investigation of InN Quantum Dots Grown by Metal-Organic Chemical Vapor Phase Epitaxy”, Intl. Workshop on Nitride Semiconductors, Kyoto, Japan, 2006.
17. W.-S. Liu, J.-I. Chyi, W.-Y. Chen, H.-S. Chang, and T.-M. Hsu, “Enhanced Thermal Stability and Emission Intensity of InAs Quantum Dots Covered by InGaAsSb Strain-Reducing Layer”, 14th Intl. Conf. Molecular Beam Epitaxy, Tokyo, Japan, 2006.
18. T.-P. Hsieh, C.-J. Wang, H.-S. Chang, W.-Y. Chen, T. M. Hsu, P.-C. Chiu, and J.-I. Chyi, “Spatially Controlled InGaAs Quantum Dots Grown on a Nano-plane by Metal Organic Vapor Phase Epitaxy, ICMOVPE-XIII, Miyazaki, Japan, 2006.
19. T.-P. Hsieh, H.-S. Chang, W.-Y. Chen, T. M. Hsu, P.-C. Chiu, and J.-I. Chyi, “Enhanced Luminescence Efficiency of InAs Quantum Dots at 1.5 m”, 4th Intl. Conf. QDs, Chamonix-Mont Blanc, France, 2006.
20. H.-S. Chang, W.-H. Chang, W.-Y. Chen, T.-P. Hsieh, J.-I. Chyi, and T.-M. Hsu, “Optical Properties of Exciton Charge States in InGaAs Quantum Dots Grown by Metalorgainc Chemical Vapor Deposition”, 28th Intl. Conf. on the Physics of Semiconductor, Vienna, Austria, 2006.

21. W.-Y. Chen, H.-S. Chang, W.-H. Chang, T.-P. Hsieh, J.-I. Chyi, and T.-M. Hsu, “Collective and Individual Emissions for InGaAs Quantum Dots in Photonic Crystal Nonovavity”, 28th Intl. Conf. on the Physics of Semiconductor, Vienna, Austria, 2006.
22. W.-H. Chang, W.-Y. Chen, H.-S. Chang, J.-I. Chyi, T.-P. Hsieh, and T.-M. Hsu, “Low-Density Quantum Dots Embedded in Photonic Crystal Nonocavities for Single-Photon Generations”, 28th Intl. Conf. on the Physics of Semiconductor, Vienna, Austria, 2006.
23. T.-P. Hsieh, H.-S. Chang, W.-Y. Chen, T. M. Hsu, and J.-I. Chyi, “Single Photon Emission from an InGaAs Quantum Dot on a Nano-Plane”, 19th International Conf. Indium Phosphide and Related Materials, Matsue, Japan, 2007.
24. P.-C. Chiu, W.-S. Liu, M.-J. Hsiau, J.-I. Chyi , W.-Y. Chen, H.-S. Chang, and T.-M. Hsu, “High Optical Quality InAs Quantum Dots with an InAlAsSb Strain-Reducing Layer”, 19th International Conf. Indium Phosphide and Related Materials, Matsue, Japan, 2007.

李佩雯教授

1. S. H. Hsu, W. T. Lai, and P. W. Li, 2007, “Suppression of gate-induced tunneling barrier lowering on Germanium Quantum-dot Single-hole Transistors with Self-aligned Electrodes,” 2007 International Electron Device and Material Symposium.
2. S. Tseng and P. W. Li, 2007, “Photoresponse enhancement of eetal-Oxide-Semiconductor photodetector with multi-stack germanium quantum dots embedded in oxide,” 2007 International Electron Device and Material Symposium, HsinChu, Taiwan.
3. G. L. Chen, W. T. Lai, and P. W. Li, 2007, “Large Coulomb-blockade Oscillations on Germanium Quantum-dot Single-hole Transistor,” 2007 International Electron Device and Material Symposium, HsinChu, Taiwan.
4. S. Tseng and P. W. Li, 2007, “Photoresponse enhancement of metal-oxide-semiconductor near ultraviolet photodetector with multi-stack germanium quantum dots embedded in oxide,” oral presentation in 2007 International Conference on Solid-State Devices and Materials, Japan.
5. W. T. Lai and P. W. Li, 2007, “Transient Behavior of Germanium Quantum-dot Resonant Tunneling Diode,” oral presentation in to 2007 International Conference on Solid-State Devices and Materials, Japan.
6. S. H. Hsu, W. T. Lai, and P. W. Li, “High performance Germanium Quantum-dot Single-hole Transistors with Self-aligned Electrodes,” oral presentation in 2007 International Conference on Solid-State Devices and Materials, Japan.
7. G. L. Chen, W. T. Lai, M. T. Kuo, and P. W. Li, “Room-temperature Observation of Large Coulomb-blockade Oscillations from Germanium Quantum-dot Single-hole Transistors with Self-aligned Electrodes,” oral presentation in 2007 IEEE Nanotechnology Conference, Hong Kong.
8. S. Tseng, W. T. Lai, and P. W. Li, 2006, “Optical and Electrical Characteristics of Ge Quantum Dots Formed by Selective Oxidation of $Si_{0.85}Ge_{0.15}$ and the Related Interdigited Photodiode”, 2006 International Electron Device and Material Symposium (Best Paper)
9. S. Maikap, P. Tzeng, S. Tseng, C. Lin, H. Lee, C. Wang, L. Lee, T. Tien, S. Lo, P. W. Li, M. Tsai, 2006, “High density and uniform ALD TiN nanocrystal flash memory devices with large memory window and good retention,” 2006 International Electron Device and Material Symposium (Best Paper)
10. W. T. Lai and P. W. Li, 2006, “Fabrication of Ge quantum-dots by oxidation of $Si_{1-x}Ge_x$-on-insulator nanowires and its applications to resonant tunneling diodes and single-electron/-hole Transistors,” oral presentation in 2006 International Conference on Solid-State Devices and Materials, Yokohama, Japan.
11. S. Maikap, P. Tzeng, S. Tseng, C. Lin, H. Lee, C. Wang, L. Lee, T. Tien, S. Lo, P. W. Li, M. Tsai, “High density and uniform ALD TiN nanocrystal flash memory devices with large memory window and good retention,“ oral presentation in 2006 International Conference on Solid-State Devices and Materials, Yokohama, Japan.

12. Y. C. Hsu, P. W. Li, and David M. T. Kuo, 2006, "Room temperature observation of current bistability and find structures in germanium quantum dits/SiO_2 resonant tunneling diodes," oral presnetation in European Material Research Symposium, Nice, France.
13. R. H. Wu and P. W. Li, 2006, "Ge nanocrystal Metal-oxide-semiconductor capacitors formed by oxidation of poly-$Si_{0.88}Ge_{0.12}$", oral presentation in the 3rd International Silicon Germanium Device and Technology Meeting, Princeton, USA.
14. W. T. Lai, P. W. Li, and David M. T. Kuo, 2006, "Room-temperature steady-state and transient carrier transport properties of Germanium single electron/hole transistors," presentation in the 3rd International Silicon Germanium Device and Technology Meeting, Princeton, USA.
15. S. S. Tseng, W. T. Lai, and P. W. Li, 2006, "Metal-insulator-metal photodetectors with Ge quantum dots formed by selective oxidation of single crystalline-$Si_{0.85}Ge_{0.15}$/Si-on-insulator," oral presentation in the 3rd International Silicon Germanium Device and Technology Meeting, Princeton, USA.
16. C. H. Huang, C. L. Chang, Y. Y. Yang, T. Suryasindhu, W. C. Liao, Y. H. Su, P. W. Li, C. Y. Liu, C. S. Lai, J. H. Ting, C. S. Chu, and T. H. Lee, 2006, "Nanothick Layer Transfer of Huydrogen-implanted Wafer Using Polysilicon Sacrificial Layer," presented in 2006 Material Research Symposium Spring Meeting, San Francisco, USA.
17. P. W. Li, 2006, "Physical Properties of Ge Quantum Dots and Room-Temperature Ge Single-electron/hole Transistors", invited talk, Symposium on Nano Device Technology, Hsin, Taiwan.
18. P. W. Li, 2006, "Ge Quantum Dots Transistors," invited talk, presented at the annual meeting of the Physics Society, Taiwan, Republic of China（中國物理學會）, January 18, 2006, Taipei, Taiwan.
19. W. T. Lai, W. M. Laio, P. W. Li and M. T. Kuo, 2005, "Effects of Parasitic MOSFETs and Traps on Charge Transport Properties of Germanium Quantum Dot Single Electron/Hole Transistors," oral presentation in 2005 IEEE International Conference on Electronic Devices and Solid-State Circuits, HongKong.
20. W. M. Liao, W. T. Lai, P. W. Li, M. T. Kuo, P. S. Chen, and M. –J. Tsai, 2005, "Strong Quantum Confinement and Coulomb Blockade Effects in Ge Quantum Dots/SiO_2 system," Proceeding of 5th IEEE Nanotechnology Conference, Nagoya, Japan.
21. W. M. Liao, C. F. Shih, and P. W. Li, 2005, "Thermal Sensitivity of SiGe Dynamic Threshold pMOSFETs," 12th International Symposium on the Physical and Failure Analysis of Integrated Circuits (IPFA), Singapore.
22. W. T. Lai, W. M. Liao, M. T. Kuo, and P. W. Li, 2005, "Quantum Confinement Effects on the Electronic Structure of Ge Quantum-Dots Formed by Selective Oxidation of SiGe-on-Insulator," present in the International Conference on Silicon Epitaxy and Heterostructures, Hyogo, Japan.
23. M. T. Kuo and P. W. Li, 2005, "Single Electron Transistor at High Temperature," presented in the 2005 American Physics Spring Meeting, Los Angeles, USA.
24. P. W. Li, W. M. Liao, M. T. Kuo, and W. T. Lai, 2005, "Optical and Electronics Characteristics of Germanium Quantum Dots Formed by Selective Oxidation of SiGe/Si-on-Insulator," presented in the 2005 American Physics Society Spring Meeting, Los Angeles, USA.
25. P. W. Li W. M. Liao, W. T. Lai, M. T. Kuo and M. –J. Tsai, 2005, "Germanium Quantum-Dots Formed by Selective Oxidation of SiGe and Room-Temperature Ge Single-Electron Transistors," presented in 2005 US Air Force/Taiwan Nanoscience Initiative Workshop, Hawaii, USA.
26. S. S. Tseng, P. W. Li, W. M. Liao, and W. T. Lai, "Photoluminesence of Ge nanocrystals formed by oxidation of polycrystalline-$Si_{0.8}Ge_{0.2}$", presented in 2005 Electron Devices and Materials Symposia, Kaoshiung, Taiwan.
27. W. T. Lai, P. W. Li, W. M. Liao, and S. S. Tseng, "Growth mechanism of Ge Quantum Dots Formed by Selective Oxidation of $Si_{1-x}Ge_x$-on insulator," presented in 2005 Electron Devices and Materials Symposia, Kaoshiung, Taiwan.

28. W. M. Liao, C. F. Shih, W. T. Lai, and P. W. Li, “Study of SiGe Dynamic Threshold pMOSFET at Various Temperature,” presented in 2004 International Electron Devices and Materials Symposia, HsinChu, Taiwan.
29. W. M. Liao, P. W. Li, M. T. Kuo, P. S. Chen, and M. –J. Tsai, “Electrical and Optical properties of Ge Quantum-dots Formed by Selective Oxidation of SiGe-on-Insulator and Room-Temperature Ge Single-Electron Transistors,” presented in the 2nd International SiGe Technology and Device Meeting, Frankfurd, Germany, 2004.
30. P. W. Li, W. M. Liao, P. S. Chen, S. C. Lu, and M. –J. Tsai, “Fabrication and Characterization of Ge Quantum-dot Transistor Formed by Selective Oxidation of SiGe/Si-on-Insulator,” presented in 2004 Material Research Symposium Spring Meeting.
31. M. Liao, P. W. Li, M. T. Kuo, P. S. Chen, and M. -J. Tsai, “Electrical and Optical Properties of Ge Quantum-Dots Formed by Selective Oxidation of SiGe-on-Insulator and Room-Temperature Ge Single-Electron Transistors”, presented in Symposium on Nano Device Technology 2004.

辛裕明教授

1. As Collector-up Heterojunction Bipolar Transistors with a p+-doped Buried Layer for Current C(Invited Talk) Yue-Ming Hsin, Wei-Kuo Huang, Yu-Chang Liu, Pai-En Yean, and Wei-Zen Chen, “A high-speed 850-nm optical receiver by integrating Si photodiode and CMOS IC,” OPTO 2008, Photonics West 2008, 19 - 24 January 2008, San Jose Convention Center, California, USA
2. Shou-Chien Huang, Cheng-Hung Hsieh, Yue-Ming Hsin and Yu-Chi Wang, “Temperature Dependence of Large-Signal Model of pHEMTs,” 2007 International Electron Devices and Materials Symposium (IEDMS), November 30 – December 1, Taiwan, 2007
3. Jang-Zern Tsai, Chang-Yu Liao, Ching-Wen Shiao, Ching-Jung Chen, Yue-Ming Hsin, “PZT Piezoelectric Thin Film for Biomass Detection” , The 13th Symposium of Young Asian Biochemical Engineers’ Community, Seoul, Korea 2007
4. Jang-Zern Tsai, Zhen-Chia Liu, Ching-Jung Chen, Kai-Hung Hsueh, Yue-Ming Hsin, Wen-Yih Chen , “Characterization of Interdigitated Electrode Pairs as Biosensors for Human Serum Albumin” , The 13th Symposium of Young Asian Biochemical Engineers’ Community, in Seoul, Korea 2007
5. J. Z. Tsai, C. J. Chen, K. H. Shiue, Z. C. Liu, W. Y. Chen, Y. M. Hsin, “The Development of Oligonucleotide Micro Array Detecting System,” 2007 International Conference on Solid State Devices and Materials (SSDM 2007), September 18-21, Tsukuba International Congress Center, (EPOCHAL TSUKUBA), Ibaraki, Japan, 2007
6. Yue-ming Hsin, Ching-Tai Li, Kuang-Po Hsueh, Chun-Ju Tun, H.-C. Lin, and Jen-Inn Chyi “DC characteristics of GaN/ZnO Collector-up HBT" 2007 Topical Workshop on Heterostructure Microelectronics (TWHM 2007), Kisarazu, Chiba, Japan, August 21-24, 2007
7. Chi-shien Lee, Wei-kuo Huang, Che-ming Wang, Yue-ming Hsin, and Tsung-Jung Yeh, “Ka-band Flip-Chip Assembled Power Amplifier,” Oral presentation, 2006 Asia Pacific Microwave Conference (APMC), Yokohama, Japan, Dec. 12-15, 2006
8. Wen-Bin Tang, Shou-Chien Huang, Yue-Ming Hsin, “AC Current Crowding Effect on High Frequency Noise of InGaP/GaAs HBT,” 2006 International Electron Devices and Materials Symposia (IEDMS), NCKU, Taiwan, Dec. 7-8, 2006
9. J. Z. Tsai , W. C. Chiang , C. J. Chen , and Y. M. Hsin, “Processing of PZT pyroelectric thin film for infrared sensor,” 2006 International Electron Devices and Materials Symposia (IEDMS), NCKU, Taiwan, Dec. 7-8, 2006
10. Kuang-Po Hsueh, Yue-Ming Hsin, Jinn-Kong Sheu, Wei-Chih Lai, Chun-Ju Tun, Chia-Hung Hsu and Bi-Hsuan Lin, “$Al_{0.17}Ga_{0.83}N$/GaN heterojunction bipolar transistors fabricated by double mesa technology,” 2006 International Electron Devices and Materials Symposia (IEDMS), NCKU, Taiwan, Dec. 7-8, 2006
11. Che-ming Wang, Shou-Chien Huang, Wei-Kuo Huang and Yue-ming Hsin, “29 GHz power performance of a 230

GHz sub-μm InP/InGaAs DHBT," 2006 International Electron Devices and Materials Symposia (IEDMS), NCKU, Taiwan, Dec. 7-8, 2006

12. J. Z. Tsai, C. Y. Liao, C. J. Chen, and Y. M. Hsin, "Characterization of PZT Thin Films by Sol-gel Method in Application of Resonant Sensor," 2006 International Electron Devices and Materials Symposia (IEDMS), NCKU, Taiwan, Dec. 7-8, 2006
13. W. K. Huang, S. C. Huang, H. W. Chung, Y. M. Hsin, J. W. Shi, Yung-chung Kao, and Jenn-ming Kuo, "36 GHz Bandwidth Optoelectronic integrated circuit with Flip-Chip Assembled InP HBT/Evanescently Coupled Photodiode," 2006 International Electron Devices and Materials Symposia (IEDMS), NCKU, Taiwan, Dec. 7-8, 2006
14. Meng-Wei Hsieh, Yue-ming Hsin, Kung-Hao Liang, Yi-Jen Chan, Denny Tang, Chwan-Ying Lee, "The Analysis of Power and Linearity Characteristics of SiGe HBTs at Low Temperatures," 2006 IEEE MTT-S International Microwave Symposium, San Francisco, California, June 11-16, 2006
15. Yue-ming Hsin, Yu-An Liu, Che-ming Wang, Wei-kuo Huang and Tsung-Jung Yeh, "27 GHz Flip-Chip Assembled pHEMT Oscillator," The 2006 International Conference on Compound Semiconductor Manufacturing Technology (CS-MANTECH) Vancouver, BC, Canada, April 24-27, 2006
16. Kuang-Po Hsueh, Kuo-Chun Chiang, Charles J. Wang, and Yue-Ming Hsin, "High-reflectivity and thermal-stability Cr-base Reflectors and n-type Ohmic Contact for GaN-based flip-chip light-emitting diodes," OPTOELECTRONICS (OPTO) Photonics West 2006, 21–26 January 2006, San Jose, California, USA
17. Chen-Yang Huang and Yue-ming Hsin, "An Integrated Dual-Band SiGe HBT Low Noise Amplifier," IEEE International Workshop on Radio-Frequency Integration Technology, (RFIT) November 30 to December 2, 2005 in Singapore
18. W. K. Huang, S. C. Huang and Y. M. Hsin, "Electrical and Optical Characteristics of an InP/InGaAs HBT with Composite Collector," Electronic Devices and Materials Symposium (EDMS), Taiwan, R.O.C., Nov. 24-25, 2005.
19. Hung-Tsao Hsu and Yue-ming Hsin "InGaP/Ga onfinement," Electronic Devices and Materials Symposium (EDMS), Taiwan, R.O.C., Nov. 24-25, 2005.
20. Chun-Ting Pan, Chih-Ming Hung, and Yue-Ming Hsin, "The Electric Characteristics with Various Emitter-Base Spacing of InP/InAlGaAs Double Heterojunction Bipolar Transistor," Electronic Devices and Materials Symposium (EDMS), Taiwan, R.O.C., Nov. 24-25, 2005.
21. Chi-Hong Ho and Yue-ming Hsin, "The Process Integration of GaN BJT and MOSFET," Electronic Devices and Materials Symposium (EDMS), Taiwan, R.O.C., Nov. 24-25, 2005.
22. Shou-Chien Huang, Wei-Kuo Huang, and Yue-ming Hsin "Fabrication and Characterization of PIN Photodiodes Based on InP/InGaAs HBT Structure," Electronic Devices and Materials Symposium (EDMS), Taiwan, R.O.C., Nov. 24-25, 2005.
23. Kuang-Po Hsueh, Kuo-Chun Chiang, Charles J. Wang, and Yue-Ming Hsin "A novel fabrication for blue flip-chip light-emitting diodes," Electronic Devices and Materials Symposium (EDMS), Taiwan, R.O.C., Nov. 24-25, 2005.
24. Che-ming Wang and Yue-ming Hsin, "High Speed InGaAs/InP DHBTs Fabrication and Performance," Electronic Devices and Materials Symposium (EDMS), Taiwan, R.O.C., Nov. 24-25, 2005.
25. Che-ming Wang and Yue-ming Hsin, "Improved f_T and linearity of InGaAs/InP DHBT by Non-uniform Collector Doping Design," Electronic Devices and Materials Symposium (EDMS), Taiwan, R.O.C., Nov. 24-25, 2005.
26. Che-ming Wang and Yue-ming Hsin, "Improved InGaP/GaAs HBTs Power Capability by Non-uniform Collector Doping Design," The 6th Topical Workshop on Heterostructure Microelectronics (TWHM 2005) , Hyogo, Japan, August 22-25, 2005

27. Wei-kuo Huang, Shou-chian Huang and Yue-ming Hsin, “Improved Electrical and Optical Characteristics of InP/InGaAs HBTs with Composite Collector,” The 10th OptoElectronics and Communications Conference. OECC, Korea, July 4-8, 2005
28. Che-ming Wang and Yue-ming Hsin, “DC and AC Characteristics of HBTs with Different Base Width,” 17th Indium Phosphide and Related Materials Conference on 8-12 May 2005, at the Thistle Hotel, Glasgow.
29. Kuang-Po Hsueh, Shou-Chian Huang, Jinn-Kong Sheu and Yue-Ming Hsin, “Physical and Electrical Characteristics of p-GaN after Cl2/Ar dry etching,” 2005 Materials Research Society Spring Meeting, March 28 to April 1, San Francisco, CA, USA, 2005
30. Kuang-Po Hsueh, Jinn-Kong Sheu, and Yue-Ming Hsin, “Reduced damage of dry etching by AlInGaN/InGaN growth,” The Second Asia-Pacific Workshop on Widegap Semiconductors (APWS-2005) at Hsinchu Lakeshore Hotel in Hsinchu, Taiwan on March 7 (Mon) - 9 (Wed), 2005
31. Shih-Tzung Su, Kuang-Po Hsueh , Yue-ming Hsin, Feng-Tso Chien, Ching-Ling Cheng,” Simulation of 4H-SiC MESFETs,” The Second Asia-Pacific Workshop on Widegap Semiconductors (APWS-2005) at Hsinchu Lakeshore Hotel in Hsinchu, Taiwan on March 7 (Mon) - 9 (Wed), 2005
32. Kurt Cimino, Yue-ming Hsin, S.C. Shen, and Milton Feng, “Study of 1/f and 1/f2 Noise for InP SHBT and DHBT,” 2005 International Conference on Compound Semiconductor Manufacturing Technology, New Orleans, USA, April 11 - 14, 2005
33. Wei-Kuo Huang, Shou-Chian Huang and Yue-Ming Hsin, “Monolithically Integrated InP-based (1.55μm) 1.25 Gb/s p-i-n/HBT Front-End Photoreceivers,” 2004 IEDMS, Dec. 20-23, National Chiao Tung University, Taiwan, 2004.
34. Che-ming Wang, Hung-Tsao Hsu, and Yue-ming Hsin, “Improved HBTs Kirk effect and AC Performance by Collector Design,” 2004 IEDMS, Dec. 20-23, National Chiao Tung University, Taiwan, 2004.
35. Hsiu-Chuan Shu, Chun-Ting Pan and Yue-ming Hsin, “Modified VBIC Model with Thermal Coupling Effect for InGaP/GaAs HBTs,” 2004 IEDMS, Dec. 20-23, National Chiao Tung University, Taiwan, 2004.
36. Wen-Bin Tang and Yue-ming Hsin, “Tunable High Power-Handling Capability of High-Temperature Superconductor Planar Filter,” 2004 Applied Superconductivity Conference, Jacksonville, FL, USA, Oct. 3-8, 2004.
37. Che-ming Wang, Hung-Tsao Hsu, Hsiu Chuan Shu, and Yue-ming Hsin, “Improved InGaP/GaAs HBTs AC Performance and Linearity with Collector Design,” 2004 IEEE Radio Frequency Integrated Circuit Symposium (2004 RFIC), Fort Worth, TX, USA, June 6-8, 2004.
38. Yue-ming Hsin, Chia-Yen Chang, Chang-Chung Fan, Che-ming Wang, and H.T. Hsu, “Improved Power Performance of InGaP/GaAs HBT with Composite Collector,” 16th International Conference on Indium Phosphide and Related Materials (IPRM’04), Kagoshima Japan, May 31 – June 04, 2004.
39. Chih-Hao Wang, Wen-Yih Chen, Y. W. Chang, Yue-ming Hsin, T. S. Wu, and Jang-Zern Tsai, “Optimization of Immobilization and Hybridization Efficiency of ssDNA on Silicon Chips”, Biomedical Engineering Society Annual Symposium, Tainan, 2004
40. Jang-Zern Tsai, Yue-ming Hsin, Bo-rong Liang, Su-Jong Syu, Ting-Lin Tsai, “Measurement of DNA dielectric property and feasibility study of its application in DNA microarray”, Biomedical Engineering Society Annual Symposium, Tainan, 2004.
41. Bo-rong Liang, Su-Jong Syu, Ting-Lin Tsai, Yue-ming Hsin, Jang-Zern Tsai, Jing-Hsiang Hsu, and Wen-Yih Chen, “Au Nanoparticle-enhanced Electrical Detection of DNA Hybridization on Silicon Chips”, Taiwan International Conference on Nano Science and Technology, (TICON 2004), pp. 143-145, Hsinchu, June 30-July 3, 2004.

許晉瑋教授

1. J.-W. Shi, Y.-S. Wu, F.-H. Huang, and Y.-J. Chan "High-Responsivity, High-Speed, and High-Saturation-Power Performances of Evanescently Coupled Photodiodes with Partially p-Doped Photo-absorption Layer," pp.351-354, *IEDM Tech. Dig.,* 2004. (EI)
2. J.-W. Shi, C.-Y. Wu, S.-H. Hsieh, H.-C. Hsu, F.-H. Huang, "High Responsivity and High Power Performance of Si/SiGe Based Avalanche Photodiode for 10-Gb/s Short-Reach Fiber Communication," *Conference on Laser and Electro-Optics (CLEO/QELS'2005)*, USA, *Postdeadline, CPDA5,2005* (EI)
3. Y.-S. Wu, J.-W. Shi, J.-Y. Wu, F.-H. Huang, Y.-J. Chan, Y.-L. Huang, and R. Xuan, "Design and Demonstration of High-Power and High-Speed Evanescently Coupled Photodiodes with Partially p-Doped Photo-absorption Layer" *Conference on Laser and Electro-Optics (CLEO/QELS'2005)*, USA, OSA Technical Digest, CMGG1, 2005. (EI)
4. J.-W. Shi, Y.-S. Wu, S.-H. Hsieh, H.-C. Hsu, F.-H. Huang, Y.-J. Chan, Ja-Yu Lu, C.-K. Sun, C.-C. Hong, "High-Power and High-Responsivity Photodiode for Long-Haul and Short-Reach Fiber Communication" SPIE Optic East 2005 (Invited Paper, Optic East, Oct. 2005). (B)
5. C.-H. Jiang, J.-W. Shi, J.-L. Yen, K.-M. Chen, and Ying-Jay Yang, "Single-Mode Vertical-Cavity-Surface-Emitting-Laser (VCSEL) with Ring Shaped Microcavity and Low Divergence Angle Performance," *Conference on Laser and Electro-Optics (CLEO/QELS'2005)*, USA, OSA Technical Digest, JTUC83, 2005. (EI)
6. Wei-Yu Chiu, Fan-Hsiu Huang, Yen-Shian Wu, Don-Ming Lin, Shu-Han Chen, Jin-Wei Shi, Jen-Inn Chyi and Yi-Jen," Reduced Mesa-Sidewall Leakage Current in InGaAs/InP MSM Photodetector by BCB Sidewall Process" in Proc., International Conference on Solid State Devices and Materials ,Tokyo, pp. 944-945, 2004. (EI)
7. Y.-S. Wu, D.-M. Lin, F.-H. Huang, W. Y. Chiu, J.-W. Shi, and Y.-J. Chan, "A Bias-Dependent Equivalent-Circuit Model of High Performance Evanescently Coupled Photodiode with Partially P-Doped Absorption Layer" 2005 International Conference on Solid State Devices and Materials, Kobe, pp. 344-345, (2005) (EI)
8. Wei-Yu Chiu, Wen-Kai Wang, Yen-Shian Wum, Fan-Hsiu Huang, Dong-Ming Lin, Yi-Jen Chan and Jin-Wei Shi, "InP/InGaAs Partially p-Doped Photodiode with Leaky Optical Waveguide and Distributed Bragg Reflectors for High-Saturation-Current and High-Bandwidth-Responsivity Product" International Conference on Solid State Devices and Materials, Kobe, pp. 740-741 (2005) (EI)
9. J.-W. Shi, A.-C. Shiao, C.-A. Hsieh, Y.-S. Wu, F.-H. Huang, S.-H. Chen, and J.-I. Chyi, "Dual-Depletion-Region Electro-Absorption Modulator at 1.55 m Wavelength for High-Speed and Low-Driving-Voltage Performance" *Optical Fiber Communication (OFC 2006)*, USA, OWC3 (2006) (EI)
10. Y.-S. Wu, J.-W. Shi, and P.-H. Chiu, "Analysis of High-Performance Near-Ballistic Uni-Traveling-Carrier Photodiode at a 1.55 m Wavelength" *Optical Fiber Communication (OFC 2006)*, USA, OFI2, (2006) (EI)
11. W.-Y. Chiu, J.-W. Shi*, W.-K. Wang, Y.-S. Wu, Y.-J. Chan, Y.-L. Huang, and R. Xuan, "Photodiode with Partially Depleted Absorber, Leaky Optical Waveguide, and Distributed-Bragg-Reflector (DBR) for High-Power and High-Bandwidth-Responsivity Product Performance" *Optical Fiber Communication (OFC 2006)*, USA, OFI3, (2006) (EI)
12. H.-Y. Huang, J.-W. Shi, Y.-S. Wu, J.-I. Chyi, J.-K. Sheu, W.-C. Lai, G.-R. Lin, and Ci-Ling Pan, "Modulation-Speed Enhancement of a GaN Based Green Light-Emitting-Diode (LED) by Use of n-type Barrier Doping for Plastic Optical Fiber (POF) Communication" *Conference on Laser and Electro-Optics (CLEO/QELS'2006)*, USA, OSA Technical Digest, 2006. (EI)
13. J.-W. Shi, Yu-Tai Li, Ci-Ling Pan, M.-L. Lin, Y.-S. Wu, W.- S. Liu, and J.-I. Chyi, "Separated-Transport-Recombination p-i-n Photodiode (STR-PD) with High-Speed and High-Power Performance under Continuous-Wave (CW) Operation" *Conference on Laser and Electro-Optics (CLEO/QELS'2006)*, USA,

OSA Technical Digest, 2006. (EI)

14. J.-W. Shi, Y.-T. Li, M.L. Lin, Y.-S. Wu, W.-S. Liu, J.-I. Chyi, and C.-L. Pan, "Demonstration of a High-Speed GaAs-AlGaAs Based Unitraveling Carrier Photodiode with Improved Design of Absorption Layer" *The 11th Optoelectronics and Communications Conference,* Kaohsiung, Taiwan, 5C2-4, 2006. (EI)
15. J.-W. Shi, T.-J. Hung, Y.-S. Wu, and Y.-J. Yang, "InP Based White-Light Transverse Junction Light-Emitting-Diodes with Record-Wide (~580nm) Optical Bandwidth Performance" *The 11th Optoelectronics and Communications Conference,* Kaohsiung, Taiwan, 6C 1-3, 2006. (EI)
16. Y.-S. Wu, D. M. Lin, F. H. Huang, W. Y. Chiu, J. W. Shi, and Y. J. Chan, "A Size-Dependent Equivalent-Circuit Model of High Performance Near-Ballistic-Transport Photodiode" *2006 International Conference on Solid State Devices and Materials,* Kanagawa, Japan, P-6-9, 2006. (EI)
17. W. Y. Chiu, W. K. Wang, Y. S. Wu, F. H. Huang, D. M. Lin, Y. J. Chan, and J. W. Shi, "InP/InGaAs Leaky Waveguide Photodiode with a Partially p-Doped Absorption Layer and a Distributed-Bragg-Reflector for High-Power and High-Bandwidth-Responsivity Product Performance" *2006 International Conference on Solid State Devices and Materials,* Kanagawa, Japan, B-9-1, 2006. (EI)
18. Y.-S. Wu, P.-H. Chiu, and J.-W. Shi, "High-Speed and High-Power Performance of a Dual-Step Evanescently-Coupled Uni-Traveling-Carrier Photodiode at a 1.55 m Wavelength" *Optical Fiber Communication (OFC 2007)*, USA, OThG1, (2007) (EI)
19. J.-W. Shi, A.-C. Shiao, C.-C. Chu, and Y.-S. Wu, "Evanescently-Coupled Dual-Depletion-Region Traveling-Wave Electroabsorption Modulator with High-Speed and Low-Driving-Voltage Performance" *Optical Fiber Communication (OFC 2007)*, USA, OWH2, (2007) (EI)
20. Y.-S. Wu, J.-W. Shi, Z.-L. Li, "Si/SiGe-Based Photodiode on a Standard Silicon Substrate for 10-Gbit/s Short-Reach Fiber Communication at 830nm Wavelength" *Conference on Laser and Electro-Optics (CLEO/QELS'2007)*, USA, OSA Technical Digest, CMY4, 2007 (EI)
21. J.-W. Shi, Yu-Tai Li, Ci-Ling Pan, C.-H. Chiu, W.- S. Liu, and J.-I. Chyi, "Characterization of a Sub-THz Photonic Transmitter Based on a Separated-Transport-Recombination Photodiode", *Conference on Laser and Electro-Optics (CLEO/QELS'2007)*, USA, OSA Technical Digest, CMY1, 2007 (EI)
22. J.-W. Shi, Y.-S. Wu, and Wei-Yu Chiu, "High-Speed and High-Power 40GHz InP Based Photodiode for Microwave Photonic Applications" *2007 Asia-Pacific Microwave Photonics Conference,* Korea, Technical Digest, p.3-6, (2007) (Invited Paper) (EI)
23. J.-W. Shi, Shi-Hao Guol, J.-K. Sheu, W.-C. Lai, C.-K. Wang, C.-H. Chen, Cheng-Huang Kuo, and J.-I. Chyi "Phosphor-Free GaN-Based Cascade Transverse Junction Light Emitting Diode Arrays for the High-Power Generation of White-Light" Conference Proceeding of *IEEE Lasers and Electro-Optics Society 2007(LEOS/2007) Annual Meeting,* WU2 , 2007.
24. Shi-Hao Guol , Jin-Wei Shi , Yueh-Yi Chen, Jr-Hung Wang, Wei Lin, Ying-Jay Yang, Chi-Kuang Sun, "Flatten and Invariant Broadband Spectra of Transverse Junction Light-Emitting Diodes under a Large Range of Bias Current at 1.06μm Wavelengths" Conference Proceeding of *IEEE Lasers and Electro-Optics Society 2007(LEOS/2007) Annual Meeting,* WU3 , 2007.
25. Y.-S. Wu, C.-C. Chu, J.-W. Shi, J. M. Kuo and Y. C. Kao "Optoelectronic Mixer with Low Up-conversion Loss and Wide Up-conversion Bandwidth by Use of Flip-Chip Bonding Near-Ballistic Uni-Traveling-Carrier Photodiode and Coupled-Line Filter," to be published in *Proc. OFC 2008, San Diego*, CA, USA, Feb., 2008, pp. JThA38.

張正陽教授

1. Che-Lung Hsu, Jenq-Yang Chang, Chien-Chieh Lee and Chih-Ming Wang, "*Grey-Level Nanostrutured Guided Mode Resonator on Silicon-based Materials*," submitted to MOC2004.

2. C. M. Wang, C. L. Xu, J. Y. Chang and C. C. Lee, "*Silicon Based Guided-Mode Resonance Nano-Photonic Device*," SPIE 2004(Accepted)
3. C. M Wang, H. C. Lan, J. Y. Chang and C. C. Lee, "*Realization of Optical Pickup Head by Using Stacked Silicon Based Microoptical System*," SPIE 2004(Accepted)
4. Jenq-Yang Chang, Che-Lung Hsu, Chih-Ming Wang, Hsiao-Chin Lan and Chien-Chieh Lee,"*A Stacked Systems of Optical Pickup Head with Silicon Based Microoptical Elements*,"submitted to MOC2004.
5. Ting-Chang Lee, Hsin-Chun Huang, Chih-Ming Wang, Che-Lung Hsu, Tsung-Hsun Yang and Jenq-Yang Chang, "Novel GMR-based Biochip," Photonic west 2004(Accepted)
6. Chien-Chieh Lee, Chih-Ming Wang, Che-Lung Xu, Jing-Yi Chen, Jenq-Yang Chang, Yi-Ming Liao, and Gou-Chung Chi, "Nano-Structured Diffractive Optical Elements on SiNx Membrane for UV-Visible Regime Applications," Proc. SPIE Int. Soc. Opt. Eng. 5515, 170 (2004). 2005Jan Pub.
7. Chien-Chieh Lee, Chih-Ming Wang, and Jenq-Yang Chang, and Gou-Chung Chi, "Design andFabrication of Si-Based Pickup Module for Optical Storage," Proc. SPIE Int. Soc. Opt. Eng. 5524,378 (2004) 2005Jan Pub.
8. 3.C. M. Wang, C. L. Xu, J. Y. Chang and C. C. Lee, "Silicon Based Guided-Mode Resonance Nano-Photonic Device," Proc. SPIE Int. Soc. Opt. Eng. 5515, 275 (2004) 2005Jan Pub.
9. C. M. Wang, H. C. Lan, J. Y. Chang and C. C. Lee, "Realization of Optical Pickup Head by Using Stacked Silicon Based Micro optical System", Proc. SPIE Int. Soc. Opt. Eng. 5524, 115 (2004) 2005Jan Pub.
10. Jenq-Yang Chang, Che-Lung Hsu, Chih-Ming Wang, Hsiao-Chin Lan and Chien-Chieh Lee, "A Stacked Systems of Optical Pickup Head with Silicon Based Microoptical Elements," Proc. MOC.C-11, Jena Germany, Sep. (2004)
11. Ting-Chang Lee, Hsin-Chun Huang, Chih-Ming Wang, Che-Lung Hsu, Tsung-Hsun Yang, and Jeng-Yang Chang, "Novel GMR-based biochip," Proc. SPIE Int. Soc. Opt. Eng. 5702, 160 May (2005)
12. 7.C. M. Wang, C. L. Hsu, J. Y. Chang, and C. C. Lee, "Enhance transmission through a subwavelength slit on a bending metal substrate," Proc. SPIE Int. Soc. Opt. Eng. 5927-31, 59270V (2005)
13. H. C. Lan, C. S. Cheng, J. Y. Chang, and C. M. Wang, "An easy packaging hybrid optical element in grating based WDM application," Proc. SPIE Int. Soc. Opt. Eng. 5877-04, (2005)
14. C. C. Lee, C. L. Hsu, C. M. Wang, J. Y. Chen, J. Y. Chang, and G. C. Chi, "Si-based UV transparent subwavelength optical elements," Proc. SPIE Int. Soc. Opt. Eng. 5831- 44, (2005).
15. C. L. Hsu, Y. H. Chou, C. M. Wang, J. Y. Chang, and C. C. Lee, "Monolithic low sideband guided-mode resonance filter based on two-layer structure," Proc. SPIE Int. Soc. Opt. Eng.5831- 45, (2005).
16. G. J. Sheu, S. H. Tu, J. Y. Chang, and J. C. Chen, "Performance improved by using integrated micro heat pipe in LED module," Proc. SPIE Int. Soc. Opt. Eng. 5841-36, (2005).
17. Jenq-Yang Chang, Chih-Ming Wang, Hung-I Huang, and Chien-Chan Chao, "Enhanced transmission of subwavelength slit on tapered metallic structures," Proc. MOC. H51, p.218-219, Tokyo Japan, Oct.(2005)
18. Ya-Lun Tsai, Chii-Chang Chen, Jenq-Yanq Chang, and Che-Lung Hsu, "Reducing propagation loss of photonic crystal waveguide by sedimentation of three-dimensional microspheres," Proc. MOC. J2, p. 252, Tokyo Japan, Oct. (2005)
19. Jenq-Yang Chang, Che-Lung Hsu, Yu-Hong Chou, and Chih-Ming Wang, "Silicon-based subwavelength guided-mode resonance filter," Proc. MOC. H60, p.236, Tokyo Japan, Oct. (2005)
20. Jenq-Yang Chang, Che-Lung Hsu, Chih-Ming Wang, Yung-Chih Liu, Mount-Learn Wu, and Tsung-Hsun Yang, "Silicon-based micro and subwavelength optical elements and applications,"Proc. SPIE Aug. 2006. (invited talk)
21. Che-Lung Hsu, Mount-Learn Wu, Yun-Chih Liu, Ya-Lun Tsai, Zong-Ru Tu, and Jenq-Yang Chang," Fabrication of silicon-based guided-mode resonance filter with spectrum-modifying layer design," Micro Optics Conference,

Seoul, Korea, 2006.

22. Mount-Learn Wu, Che-Lung Hsu, Yun-Chih Liu, Yun-Chih Lee, and Jenq-Yang Chang, “Transmission bandstop filter with flattened passband by using resonant grating waveguide structure,” Micro Optics Conference, Seoul, Korea, 2006.
23. Yun-Chih Lee, Mount-Learn Wu, Che-Lung Hsu, Yung-Chih Liu, and Jenq-Yang Chang, “Analysis of resonant leaky-mode in grating waveguide structure with a flattened passband,” Micro Optics Conference, Seoul Korea, 2006.
24. Jenq-Yang Chang, Tsung-Hsun Yang, Che-Lung Hsu, Hsin-Chun Huang, and Wen-Yih Chen, “Small bio molecules detection with guided-mode resonance device,” Micro Optics Conference, Seoul, Korea, 2006.
25. Hsiao-Chin Lan, Chih-Ming Wang, Mount-Learn Wu, and Jenq-Yang Chang, ‘‘Wide-angle Bending Waveguide with Sub-wavelength Effective Microprism,” Micro Optics Conference, Seoul, Korea, 2006.
26. C. M. Wang, H. i. Huang, and J. Y. Chang, “Enhanced transmission through a nano-slit bordered by both trenches and bumps nanastructures,” SPIE 2006 (Accepted).
27. J. Y Chang, J. K. Sheu, M. L. Wu, Y. C. Lee, C. L. Hsu, C. C. Lee, T. S. Sheu, C. M. Wang, Y. C. Liu, Z. R. Tu, Y. C. Lee, C. F. Huang, S. H Tu, W. P. Lin, C. S. Fan Chiang, T. H. Yang, W. T. Chien, and C. C. Sun, “Narrowing spectral width of green LED by GMR structure to expand the color mixing field,” SPIE, San-Diego U.S.A. 2006.
28. Y. C. Lee, M. L. Wu, C. L. Hsu, Y. C. Liu, and J. Y. Chang, “The analysis of notch filter with wide flattened stopband by using asymmetric grating structure on planar waveguide,” 5th International conference on optics-photonics design & fabrication, Nara, Japan, Dec. 2006.
29. Ya-Lun Tsai, Mount-Learn Wu, Hsiao-Chin Lan, and Jenq-Yang Chang, “Design of Low-Loss Tapered Waveguide by Applying Photonic-Crystal-Based Microlens in Telescopic Structure,” 5th International conference on optics-photonics design & fabrication, Nara, Japan, Dec. 2006.
30. Yen-Hung Chen, Chao-Hung Lin, and Jenq-Yang Chang, “Active Narrowband Multiple Wavelength and Frequency-Doubling Filters in Aperiodically Poled Lithium Niobates,” 5th International conference on optics-photonics design & fabrication, Nara, Japan, Dec. 2006.
31. R. Tu, C. L. Hsu, M. L. Wu, and J, Y, Chang, “Realization of guided-mode resonance filter with membrane structure and modification of spectral response,” Optics and Photonics Taiwan 2006.
32. 13.C. F. Huang, Y. C. Lee, M. L. Wu, C. L. Hsu, and J. Y. Chang, “Flattened broadband filters with strongly modulated gratings with two distinct filling factors within one identical period,” Optics and Photonics Taiwan 2006.
33. P. Yeh, R. W. Pan, H.C. Lan, C. I. Chiang, L. W. Chang, M. L. Wu, and J. Y. Chang, “A High Efficiency and Uniformity Solar Concentrator for III-V Multi-Junction Solar Cell,” Optics and Photonics Taiwan 2006.
34. Chih-Hung Hsu, Hsiao-Chin Lan, An-Nong Wen, and Mount-Learn Wu, “Monolithic Fresnel Lens Based On The 45° Silicon Micro Reflector,” Optics and Photonics Taiwan 2006.
35. Chia-Chin Chen, Chuan-Sheng Chang, Hsiao-Chin Lan, Mount-Learn Wu, and Jenq Yang Chang, “Large Cross Section Silicon-on-insulator Rib Waveguide Bends by Near-field Air-based Microprism,” Optics and Photonics Taiwan 2006.
36. Shih-Pu Yang, Yun-Chih Lee, Chun-Jung Wang, Z.R. Tu, Mount-Learn Wu, and Jenq-Yang Chang, “Cascaded Gratings with Subwavelength Periods Applied to Light Extraction of LEDs,” Optics and Photonics Taiwan 2006.
37. Jenq-Yang Chang, Mount-Learn Wu, Che-Lung Hsu, Yun-Chih Lee, Ya-Lun Tsai, Hsiao-Chin Lan, Yung-Chih Liu, and Zong-Ru Tu, “Guided-Mode Resonance Device Constructed with Membrane Structure: Theoretical Analysis and Experimental Demonstration,” SPIE Symposium on Integrated Optoelectronic Devices 2007, San Jose, CA, USA, Jan. 2007.

陳啟昌教授

1. “Photonic Crystals and applications,”Optics and Photonics Taiwan 2004, (invited talk).
2. Chii-Chang Chen, Wei-Chi Ku, Sung-Kay Chiu, Chi-Meng Tzeng, “DNA hybridization using photovoltaic microarray,” Smart materials, nano-, and micro-smart systems, Sydney, Australia, 2004. (Invited Paper)
3. Chia-Hua Chan, Chih-Kai Huang, Wei-Hsiang Weng, Hung-Sen Wei, Hui Chen, Hsiao-Tsung Lin, Chii-Chang Chen, Hsiang-Szu Chang, Wen-Yen Chen,Wen-Hao Chang, Tzu-Min Hsu, “Self-assembly photonic crystals from the air-liquid interface,” Smart materials, nano-, and micro-smart systems, Sydney, Australia, 2004.
4. Chii-Chang Chen, Ya-Lun Tsai, Che-Lung Hsu, Jenq-Yang Chang,”Propagation loss reduction of photonic crystal slab waveguides by microspheres,” Smart materials, nano-, and micro-smart systems, Sydney, Australia, 2004.
5. Chii-Chang Chen, Chih-Yu Chen, Wen-Kai Wang, Fan-Hsiu Huang, Cheng-Kuo Lin, Wei-Yu Chiu, Yi-Jen Chan, “Photonic crystal directional couplers in nano-pillar array,” Photonic West 2005, San Jose, USA, 2005.
6. Chii-Chang Chen, Chih-Yu Chen, Wen-Kai Wang, Fan-Hsiu Huang, Cheng-Kuo Lin, Wei-Yu Chiu, Yi-Jen Chan, “Photonic crystal directional couplers in nano-pillar array,” European Conference on Integrated Optics, Grenoble, France, April, 2005.
7. Chii-Chang Chen, “Photonic Crystal Research in National Central University,” Workshop on Global Perspectives in Frontiers of Photonics, Duke University, USA, May 18, 2005. (Invited speaker)
8. Chii-Chang Chen, "Photonic Crsytal Research in National Central University,"Workshop on Photonic Crystals and Nano Photonics, National Taiwan University, Nov. 5, 2005. (Invited speaker)
9. Chii-Chang Chen, "Photonic Crystal Research in National Central University,"2006 Symposium on Nano Device Technology, Hsintsu, Taiwan, Apr. 28, 2006. (Invited speaker)
10. Chii-Chang Chen, T. Pertsch, R. Iliew, F. Lederer, A. Tünnermann, "Directional emission from photonic crystal waveguides," MOC 2006, Seoul, Korea, Sep. 12, 2006.
11. Chii-Chang Chen, "Nanophotonic applications toward photonic microchip," 2007 Annual Meeting of PSROC, National Central University, Jung-Li, Taiwan, Jan 24, 2007.
12. Chii-Chang Chen, "Nanophotonic applications toward photonic microchip," SPIE Optics & Photonics conference, San Diego, 2007. (invited paper)

BOOKS

辛裕明教授

1. *RF and High-speed devices*, Edited by Yue-ming Hsin, 2006.

陳啟昌教授

1. Pi-Gang Luan, Chii-Chang Chen, “Photonic Crystals,” Wu-Nan culture enterprise, (ISBN 957-11-4027-9), 2005.8. (in Chinese)

Sub-Project4:

Total Publication lists (sorted according to published year):

International Journal papers:

邱爾德教授

1. Elena V. Perevedentseva, Artashes V. Karmenyan, Fu-Jen Kao, Arthur Chiou, Second Harmonic Generation of Biotin and Biotin Ester Microcrystals trapped in Optical Tweezers with a Model-locked Ti: sapphire Laser,

Scanning 26 (5): I78-I82 Suppl. 1, Sept.-Oct. 2004. (SCI)

2. Ming-Tzo Wei and Arthur Chiou*, “Three-dimensional tracking of Brownian motion of a particle trapped in optical tweezers with a pair of orthogonal tracking beams and the determination of the associated optical force constants”, Optics Express 2005；13(15), 5798-5806. （SCI）
3. Arthur E. Chiou*, “Harnessing Light for Life：An overview of Biophotonics”, Invited Feature Article, Optics & Photonics News 2005; 16(9), 30-35.
4. K. Yang, M. Wei, A. V. Karmenyan, H. Chen, A. E. T. Chiou*, “Mapping of three-dimensional optical force field on a micro-particle confined in a counter-propagating dual-beam trap via light scattered along two orthogonal directions”, SPIE Proc. Vol.5930（2005）（EI）
5. W.P. Hu, H.-Y. Hsu, A. Chiou, K. Y. Tseng, H.-Y. Lin, G.L. Chang, S.-J. Chen, “Immunodetection of pentamer and modified C-reactive protein using surface plasmon resonance biosensing”, Biosensors and Bioelectronics 2006；1882, 1-7.（SCI）
6. M. -T. Wei, K. -T. Yang, A. Karmenyan, and A. Chiou*, “Three-dimensional optical force field on a Chinese hamster ovary cell in a fiber-optical dual-beam trap”, Opt. Express 2006; 14, 3056-3064 .（SCI）
7. Ming-Tzo Wei , Kuo-Feng Hua , Jowey Hsu , Artashes Karmenyan ,Hsien-Yeh Hsu, and Arthur Chiou*, “The interaction of lipopolysaccharide-coated polystyrene particle with membrane receptor proteins on macrophage measured by optical tweezers”, Proc. of SPIE Vol. 6326（2006）, 63260T-1~T-10.（EI）
8. Paul B. Bareil and Yunlong Sheng, Arthur Chiou, “Stress distribution on the surface of a spherical cell in an optical stretcher”, Optic Express 2006; Vol. 14, No. 25, 12503-12509.(SCI)
9. Chien Chou, Hsien-Yeh Hsu, Hsieh-Ting Wu, Arthur Chiou, Chih-Jen Yu, Kai-Yu Tseng, Zheng-Yuan Lee and Tsu-Shin Chan. Fiber-optic biosensor for detection of C-reactive protein and monitor of protein binding kinetics, Journal of Biomedical Optics 2007, Vol. 12(2), 024025(1-9). (SCI)
10. Shang-Ling Liu, Artashes Karmenyan, Ming-Tzo Wei, Chun-Chieh Huang, Chi-Hung Lin, and Arthur Chiou*, “Optical forced oscillation for the study of lectin-glycoprotein interaction at the cellular membrane of a Chinese hamster ovary cell”, Optics Express 2007, Vol. 15, Issue 5, pp. 2713-2723 (SCI)
11. M.-T. Wei, S.-L. Liu, T.-Y. Tseng, A. Karmenyan, A. Chiou*. “From Optical tweezers to optical forced oscillation : principles and potential biomedical applications”, Proc. of SPIE Vol. 6447（2007）, p.644707-1~644707-12.（EI）
12. Ming-Tzo Wei, Kuo-Feng Hua, Jowey Hsu, Artashes Karmenyan, Kai-Yu Tseng, Chi-Huey Wong, Hsien-Yeh Hsu, and Arthur Chiou*, “The interaction of lipopolysaccharide membrane receptors on macrophages pretreated with extract of Reishi polysaccharides measured by optical tweezers”, Optics Express 2007, Vol. 15, No. 17, p.11020-11032. (SCI)（20 August 2007）
13. Guan Bo Liao, Yin-Quan Chen, Huai-Jen Fan, Artashes Karmenyan, Chi-Hung Lin, Wei-Hau Chang, and Arthur Chiou*, "Recent Progresses in Optical Trap-and-Stretch of Red Blood Cells", Proc. of SPIE-OSA Biomedical Optics（2007）Vol. 6633, p.66330P-1~9. （EI）
14. Paul B. Bareil, Yunlong Sheng, Yin-Quan Chen, and Arthur Chiou*, “Calculation of spherical red blood cell deformation in a dual-beam optical stretcher”, Optics Express 2007, Vol. 15, No. 24, p.16029-16034. (SCI)
15. Guan-Bo Liao, Paul B. Bareil, Yunlong Sheng, and Arthur Chiou*, "One-dimensional jumping optical tweezers for optical stretching of bi-concave human red blood cells ", Optics Express 2008, Vol. 16, No. 3, p. 1996-2004.（SCI）

林奇宏教授

1. Chang YC, Hsu TL, Lin HH, Chio CC, Chiu AW, Chen NJ, Lin CH, Hsieh SL. (2004) Modulation of macrophage differentiation and activation by decoy receptor 3. J Leukoc Biol. 75(3):486-94.
2. Wu TJ, Huang HH, Lan CW, Lin CH, Hsu FY, Wang YJ. (2004) Studies on the microspheres comprised of reconstituted collagen and hydroxyapatite. Biomaterials. 25(4):651-8.

3. Lin CY, Shen YH, Wu SH, Lin CH, Hwang SM, Tsai YC. (2004) Effect of bismuth subgallate on nitric oxide and prostaglandin E2 production by macrophages. Biochem Biophys Res Commun. 315(4):830-5.
4. Sun DS, Lo SJ, Lin CH, Yu MS, Huang CY, Chen YF, Chang HH. (2005) Calcium oscillation and phosphatidylinositol 3-kinase positively- regulate integrin αIIbβ3-mediated outside-in signaling. J Biomed Sci. 12:321-333.
5. Shi-Wei Chu, Shih-Peng Tai, Chia-Lin Ho, Chi-Hung Lin, and Chi-Kuang Sun. (2005) High-Resolution Simultaneous Three-Photon Fluorescence and Third-Harmonic-Generation Microscopy. Microscopy research and technique, 66:193-197.
6. Yang TP, Chang TY, Lin CH, Hsu MT, Wang HW. ArrayFusion: a web application for multi-dimensional analysis of CGH, SNP and microarray data. Bioinformatics. 2006 Aug 25.
7. Chia-Fen Hsieh, Bo-Jui Chang, Chyi-Huey Pai, Hsuan-Yi Chen, Jin-Wu Tsai, Yung-Hsiang Yi, Yi-Ting Chiang, Da-Wei Wang, Sien Chi, Long Hsu, and Chi-Hung Lin. (2006) Stepped Changes Of Monovalent Ligand-Binding Force During Ligand-Induced Clustering Of Integrin aIIBb3. Journal of Biological Chemistry. 2006 Sep 1;281(35):25466-74
8. Wei-Nan Lian, Cheng-Hung Chang, Yin-Jhen Chen, Ro-Lan Dao, Yun-Cin Luo, Jun-Yi Chien, Shih-Lian Hsieh and Chi-Hung Lin. (2007) Intracellular delivery can be achieved by bombarding cells or tissues with accelerated molecules or bacteria without the need for carrier particles. Experimental Cell Research. 2007 Jan; 313(1):53-64.（SCI）
9. Jia-Fwu Shyu, Chung Shih, Chiung-Ying Tseng, Chi-Hung Lin, Der-Tzong Sun, Hsiao-Tung Liu, Hui-Chu Tsung, Tien-Hua Chen, Ru-Band Lu. (2007) Calcitonin induces podosome disassembly and detachment of osteoclasts by modulating Pyk2 and Src activities. Bone. 2007 May; 40(5):1329-1342. （SCI）
10. Shi-Wei Chu, Shih-Peng Tai, Chi-Kuang Sun and Chi-Hung Lin. (2007) Selective imaging in second-harmonic-generation microscopy by polarization manipulation. Appl. Phys. Lett. 2007 Sep; 91:103903.（SCI）
11. Shi-Wei Chu, Shih-Peng Tai, Ming-Che Chan, Chi-Kuang Sun, I-Ching Hsiao, Chi-Hung Lin, Yung-Chih Chen, and Bai-Ling Lin. (2007) Thickness dependence of optical second harmonic generation in collagen fibrils. Optics Express. 2007 Sep; 15(19):12005-12010. （SCI）

江惠華教授

1. Sheng-Hong Yu, Cheng-Hau Chen, Huihua Kenny Chiang*,'Development of fiber optics spectroscopic tooth colorimeter using white LED ',Biomedical Engineering – Applications, Basis & Communications, vol. 16(2), P.73-P.78, 2004 (EI)
2. Huihua Kenny Chiang, Sheng-Hung Yu, Cheng-Hau Chen,'牙齒比色儀－數位影像比色系統開發',工程科技通訊, vol.77, P.101-P.104, 2004.
3. Jyh-Kwei Chen, Huihua Kenny Chiang, Shou-Chia Chu, Tzu-Chien Hsiao, Che-Shoa Chang, 'Autofluorescence spectroscopy for differentiating oral benign tissues from precancerous lesions', Chin. Dent. J., vol. 23(3), P.182-P.188, 2004.
4. Tsuei-Lian Wang, Huihua Kenny Chiang*,Hui-Hsin Lu and Fang-Ying Peng, "Semi-quantitative Surface Enhanced Raman Scattering Spectroscopic Creatinine
   Measurement in Human Urine Samples,"Optical and Quantum Electronic, vol. 37, pp. 1415-1422. 2005. (SCI)
5. Eng-Kean Yeong, Tzu-Chien Hsiao, Huihua Kenny Chiang, Chill-Wann Lin,
   "Prediction of Burn Healing Time Using Artificial Neural Networks and Reflectance Spectrometer," Burns. vol. 31(4), pp. 415-20, 2005. (SCI)
6. Tsuei Lian Wang, Huihua K. Chiang*, Hui-Hsin Lu, Yung-Da Hung ,"SERS Quantitative Urine Creatinine Measurement of Human Subject ," Proc. SPIE 5703, pp. 17-24, 2005. (EI)

7. Huihua Kenny Chiang*, Po Hsiang Hsu, "Surface-Enhanced Raman Scattering(SERS) Spectroscopy Technique for Lactic Acid in Serum Measurement,"Proc. SPIE 5927, pp. 1Z1-1Z8, 2005. (EI)
8. Shou C. Chu, Tzu-Chien R. Hsiao,Chih Y.Wang, Jen k, Lin, and Huihua K.Chiang*, "Comparison of the Performance of Linear Multivariate Analysis Methods for Normal and Dyplasia Tissues Differentiation usingAutofluorescence Spectroscopy", IEEE TBME, vol. 55(11), pp. 2265-2273, 2006. (SCI)
9. Huihua Kenny Chiang*, Chih Yen Chen, Hung You Cheng, Ko-Hua Chen, David O. Chang, "Development of Infrared Thermal Imager for Dry EyeDiagnosis," Proc. SPIE 6294, pp. 629406:1-6, 2006. (EI)
10. Huihua Kenny Chiang; Hung-Shiang Ruan; Hung-You Cheng; Tung-Ting Fang, (2007) Raman spectroscopic monitoring of the bioeffects of nitroglycerin on Hb-O_2 in single red blood cell Proc. SPIE.6430, DOI: 10.1117/12.700380.（EI）
11. Hsiao Hsin Shin; Yan Sheng Tsai; Tao Yuan Wang; Shou Chia Chu; Huihua Kenny Chiang, (2007)Raman spectroscopic characterization on cervical neoplasm in biopsy direction Proc. SPIE.6430, DOI: 10.1117/12.700050.（EI）

高甫仁教授

1. 高甫仁，郭合哲，2004 .4，單一細胞之單光子與雙光子自發螢光顯微光譜：阿拉伯芥的原生質體與 PC12 細胞，科儀新知，第 25 卷， 第 5 期，p22-31
2. Chung-Yuan Mou, Te-Chen Yang, Hong-ping Lin and Fu-Jen Kao (corresponding author), 2004, Visualization of Topological Microstructures of Mesoporous Silicate Hollow Sphere with Confocal Microscopy, Jpn. J. Appl. Phys. 43, p1525-1526.
3. Xin Hong and Fu-Jen Kao (corresponding author), 2004, Micro-Surface Plasmon Resonance Biosensing Based on Gold Nanoparticle Film, Applied Optics 43, p2868-2873.
4. Xin Hong and Fu-Jen Kao (corresponding author), Optical biosensor based on localized surface plasmon resonance with high spatial resolution, 2004.1, SPIE Photonic West, San Jose, California, USA, Vol. 5327.（EI）
5. Fu-Jen Kao, Optical beam induced current microscopy at DC and Radio Frequency, 2004.1, SPIE Photonic West, San Jose, California, USA, Vol. 5353.（EI）
6. Fu-Jen Kao, Use of Optical Parametric Oscillator in Scanning Optical Microscopy, 2004.1, SPIE Photonic West, San Jose, California, USA, Vol. 5323.（EI）
7. Cheng-Chung Chang, Jen-Fei Chu, Fu-Jen Kao, Yi-Chun Chiu, Pei-Jen Lou, Huei-Chin Chen, Ta-Chau Chang, 2006, Verification of Antiparallel G-Quadruplex Structure in Human Telomeres by Using Two-Photon Excitation Fluorescence Lifetime Imaging Microscopy of the 3,6-Bis(1-methyl-4-vinylpyridinium)carbazole Diiodide Molecule, Analytical Chemistry, Vol. 78, pp. 2810-15 (2006)
8. Yu-Sheng Chien, Che-Hsin Lin, Fu-Jen Kao, and Cheng-Wen Ko, 2006, A Fully Integrated system for Cell/Particle Sorting in a Microfluidic Device Utilizing an Optical Tweezing and DIP Recognition Approach, Materials Science Forum, Vols. 505-507, pp. 643-648 (2006)
9. Yu-Sheng Chien, Che-Hsin Lin, Fu-Jen Kao, and Cheng-Wen Ko, 2007, Micro-Flow-Cytometer Integrated with Optical Tweezer and DIP Technique for Cell/Particle Sorting and Manipulation, Solid State Phenomena Vols. 121-123, pp. 1351-1354.（SCI）
10. Vladimir Ghukasyan, Yueh-Ying Hsu and Szu-Hao Kung and Fu-Jen Kao*, 2007, Application of fluorescence resonance energy transfer resolved by fluorescence lifetime imaging microscopy for the detection of enterovirus 71 infection in cells, J. Biomedical Optics, Vols. 12, pp. 024016-23.（SCI）
11. Elric Esposito, Fu-Jen Kao, Gail McConnell, Confocal optical beam induced current microscopy of light-emitting diodes with a white-light supercontinuum source, 2007, Applied Physics B, Vols 88, 551-555.（SCI）

12. Yueh-Ying Hsu, Yu-Ning Liu, Wenyen Wang, Fu-Jen Kao, and Szu-Hao Kung, 2007, *In vivo* dynamics of enterovirus protease revealed by fluorescence resonance emission transfer (FRET) based on a novel FRET pair, Biochemical and Biophysical Research Communications, Vols. 353, pp. 939-945.（SCI）
13. Jiung-De Lee, Yu-Fen Chang , Fu-Jen Kao, Lung-Sen Kao, Chung-Chih Lin, Ai-Chu Lu, Bai-Chuang Shyu, Shih-Hwa Chiou, De-Ming Yang, 2007, Detection of the interaction between SNAP25 and rabphilin in neuroendocrine PC12 cells using the FLIM/FRET technique, Microscopy Research and Techniques (accepted for publication, http://www3.interscience.wiley.com/cgi-bin/abstract/116321002/ABSTRACT .)（SCI）

International Conference papers:

International Conference:

(A) Invited Talk

邱爾德教授

1. A. Chiou, "A Bird's Eye View of Biophotonics with Selected Illustrative Examples." 2004 International Technology Conference "Technology Drives for tomorrow-Photonics & Biophotonics"；Hong Kong, China. (2004)
2. A. Chiou, "A guided-tour to the field of optical trapping and manipulation."The 8th International Conference on Optics Within Life Science (OWLS8)；Melbourne, Australia. (2004)
3. A. Chiou, "The story of optical manipulation and trapping : a show and tell." Photonics Asia 2004；Beijing, China. (2004)
4. A. Chiou. "Recent Progress in Biophotonics Research & Development at National Yang Ming University", Global Perspectives in Frontiers of Photonics Computational Imaging, Biophotonics and Nanophotonics Computational Imaging, Biophotonics and Nanophotonics；North Carolina, USA./ Invited talk. (May 2005)
5. A. Chiou. "Recent Progresses in Optical Trapping and Manipulation", IQEC and CLEO-PR 2005；Tokyo, Japan / Invited talk. (July 2005)
6. A. Chiou. "Mapping of three-dimensional optical force field on a micro-particle confined in a counter-propagating dual-beam trap via light scattered along two orthogonal directions.", 20TH Congress of the International Commission for Optics；Changchun, China /Invited talk. (Aug. 2005)
7. A. Chiou. "Cellular Mechanics and DNA Mechanics via Optical Manipulation", IEEE/LEOS2005：18th Annual Lasers and Electro Optics Society Meeting；Sydney, Australia/Invited talk.（Oct. 2005）
8. A. Chiou. "The wonderland of nano-biophotonics", ICOL-2005：International Conference on Optics & Optoelectronics；INDIA/ Invited talk [in conjunction with OSA's Fellow Travel Lecture].（Dec. 2005）
9. A. Chiou, "Recent Progresses in Optical Trapping & Manipulation for Biomedical Applications", Biomedical Photonics in the 21st century - Potential of Optical Devices, Tokyo, Japan.（Dec. 2006）
10. A. Chiou, "Fiber-optical dual-beam trap-and-stretch for potential biomedical applications", LALS 2007, Moscow, Russia, June, 2007. (6/11-14)
11. A. Chiou, "Recent progresses in optical trap-and-stretch of red blood cells", European Conferences on Biomedical Optics, Germany, June, 2007. (6/17-21)
12. A. Chiou, "Optical Forced Oscillation: Principle, Experimental Implementation, and Potential Biomedical Applications", APBP2007, Cairns, Australia.（7/9-11）
13. A. Chiou, "Biophotonics - A Tutorial Overview", 2007 Asia Optical Fiber Communication & Optoelectronic Exposition & Conference (AOE 2007)-IEEE/LEOS Conference, Shanghai, China.（10/17-19）
14. A. Chiou, Plenary paper："A Brief Introduction to Biophotonics with Selected Illustrative Examples", SPIE/COS Photonics Asia Conferences-Photonics Asia 2007, Beijing, China.（11/11-15）

高甫仁教授

1. Fu-Jen Kao, Economy, (Photonics) Industry, and Academia in Taiwan, Plenary Session, SAMAHANG PISIKA NG PILIPINAS, SPP2004, Oct. 2004, Bohol, Philippines. (2004)
2. Fu-Jen Kao and Peng-Hsiang Weng, Signal Processing and OBIC Microscopy, SAMAHANG PISIKA NG PILIPINAS, SPP2004, Oct. 2004, Bohol, Philippines. (2004)
3. Fu-Jen Kao and Chin-Ying Stephen Hsu, "Harmonic Generation Microscopy of Dental Sections", Photonics Asia, SPIE 2004. 11, Beijing, China. (2004)
4. Fu-Jen Kao, "Time-resolved OBIC microscopy", International Workshop on the Physics of Semiconductor Devices" , New Delhi, India, December 13 - 17, 2005.
5. Fu-Jen Kao, "Non-labeling Biosensing :Micro-Surface Plasmon Resonance Imaging and Cellular Vitality of PC12 Cells Revealed through Two-photon Auto-fluorescence",International Conference on Nanophotonics, January, 2004, Hakone, Japan.
6. Fu-Jen Kao, "High definition scanning imaging through modulated detection", Focus on Microscopy 2005, March 20-23, Jena, Germany.
7. Fu-Jen Kao, "Time-resolved optical beam induced current imaging with the frequency domain technique", Focus on Microscopy 2006, April 9~12, Perth, Australia/ Invited Committee Member.
8. Fu-Jen Kao, "Investigating photonics devices with ultrafast laser based RF spectroscopy and microscopy", Japan Spectroscopy Society at Tokyo Institute of Technology, May 17, 2006.
9. Fu-Jen Kao, "Time-correlated Single Photon Counting based FLIM/FRET__ a Novel and Cost-effective Tool for Molecular Dynamics Imaging", Optics Within Life Sciences 9, Nov . 26-29, 2006.
10. Fu-Jen Kao, Application of fluorescence resonance energy transfer resolved by fluorescence lifetime imaging microscopy for the detection of enterovirus 71 infection in cell, Focus on Microscopy 2007, April 10~13, 2007, Valencia, Spain.
11. Fu-Jen Kao, Implementing Time-Resolved Microscopy for Molecular Dynamics, Hamano-Kobe International Symposium on "Laser and Nano/Bio Sciences", October 19-20, 2007, Kobe, Japan.
12. Fu-Jen Kao, Implementing Time-Resolved Microscopy for Molecular Dynamics, The 5th Asian Conference on Ultrafast Phenomena in Singapore, 6~9 January 2008, Singapore.

(B) Regular Paper

邱爾德教授

1. A. Chiou. "Mapping of three-dimensional optical force field on a micro-particle confined in a counter-propagating dual-beam trap via light scattered along two orthogonal directions.", SPIE's Optics & Photonics；San Diego, California USA. (Aug. 2005)
2. Ming-Tzo Wei, Kuo-Feng Hua, Jowey Hsu, Artashes Karmenyan, Hsien-Yeh Hsu*, and Arthur Chiou**, "The interaction of lipopolysaccharide-coated polystyrene particle with membrane receptor proteins on macrophage measured by optical tweezers", SPIE's Optics & Photonics；San Diego, California USA. (Aug. 2006)（8/13-17）（擔任 Session Chair 主持會議、發表 paper、參加 SPIE 策略規劃委員會）

林奇宏教授

1. Bo-Jui Chang, Chia-Fen Hsieh, Chi-Hung Lin, Sien Chi, Long Hsu. 2004. Observing the dynamic variation of the binding force between rhodostomin ligand and integrin alpha (IIb) beta (3) receptor using a photonic force microscope. The International Symposium on Optical Science and Technology, SPIE 49th Annual Meeting. 5514-75.
2. Chien-Yi Tung, Hsiao-Fen Haung, Wei-Nan Lian, Hsei-Wei Wong, [1]Chi-Hung Lin. Dynamic analyses of gene expression profiles during hepatic differentiation - a study on well-differentiated hepatic cell line. HGM2005
3. Yiin-Jeng Jong, Shih-Heng Tseng, Ching Cheng, Ming-Ta Hsu, Yann-Jang Chen, Chi-Hung Lin. Study in genomic aberration of early onset breast cancer in Taiwan. HGM2005

4. Wei-Nan Lian, Tzu-Wei Wu, Ro-Lan Dao , Yann-Jang Chen, and Chi-Hung Lin. Deglycosylated basolateral Na,K-ATPase is mistargeted to the apical domain in polarized hepatic cells. HGM2005

江惠華教授

1. Plasmonics in Biology and Medicine / session 1：Plasmonics and Surface enhanced Raman Scattering / 5703-03,T. L. Wang, H. K. Chiang*, H. Lu, Y. Hung, SERS quantitative urine creatinine measurement of human subject, SPIE Photonics West 2005 / Conference5703.
2. Huihua Kenny Chiang*, Po Hsiang Hsu, "Surface-Enhanced Raman Scattering (SERS) Spectroscopy Technique for Lactic Acid in Serum Measurement," Proc. SPIE 5927, pp.395-402, 2005. (EI)
3. S. C. Chu, J. K. Lin, J. Yuan, S. H. Hua, Huihua Kenny Chiang, "Monte Carlo modeling simulation of the fluorescence spectra of colon and cervical tissues at different dysplasia grades", Proc. of SPIE Vol. 5705 p.283~292,2005(EI)
4. Tsuei Lian Wang, Huihua K. Chiang*, Hui-Hsin Lu, Yung-Da Hung ,"SERS Quantitative Urine Creatinine Measurement of Human Subject ," Proc. SPIE 5703, pp. 17-24, 2005 (EI)
5. S. C. Chu, Huihua Kenny Chiang, D.Y. Wang, C.E. Wu,"Monte Carlo autofluorescence modeling of cervical intraepithelial neoplasm progression" Proc. of SPIE,San Jose,USA,2006

高甫仁教授

1. Fu-Jen Kao and Chin-Ying Stephen Hsu, "Laser Scanning Microscopy as a Versatile Platform: Imaging based on Nonlinear and Ultrafast Effects", Photonics Asia, SPIE 2004. 11, Beijing, China.
2. Fu-Jen Kao , Use of Optical Parametric Oscillator in Scanning Optical Microscopy , SPIE 2004. 1 , San Jose , California , USA.
3. Fu-Jen Kao , Optical Beam Induced Current Microscopy at Radio Frequency , SPIE 2004.1 , San Jose , California , USA.
4. X . Hong and F. Kao , Optical Biosensor Based on Localized Surface Plasmon Resonance With High Spatial Resolution , SPIE 2004. 1, San Jose , California , USA.
5. Kao, F.J. & Hong, X., "Nano-Particle based plasmonics microscopy", Focus on Microscopy 2004, Philadelphia, U.S.A.

Local Conference:

(A) Invited Talk

邱爾德教授

1. A. Chiou. "A Brief Introduction to Biophotonics", OPT 2005, Tainan, Taiwan.（Dec. 2005）
2. A. Chiou, "Keynote Speech：Biomedical Applications of Optical Trapping & Manipulation", 光學工程研討會, 2006/2/14,中壢/中央大學.
3. A. Chiou, "Invited Lecture: The Wonderland of Nanobiophotonics", 奈米與再生醫學科技研討會， 2006/3/3, 台南
4. A. Chiou, "Invited Lecture: Biophotonics R&D and Educational Programs at NYMU", IEEE Opto-Electronics & Communication Conference (OECC2006), Kaoshiung, Taiwan, 2006/07/02 – 2006 07/5
5. A. Chiou, "Keynote Speech :The Wonderland of Nano-Biophotonics", The 2nd Symposium and Workshop on Micro/Nano Bioelectronics at National Chiao Tung University，交通大學第二屆微/奈米生物電子研討會，新竹/交通大學.(2006/7/26-28)
6. A. Chiou, "The wonderland of nano-biophotonics", 2006 年台北國際分子生物影像研討會, 台北/陽明大學(Oct. 2006）
7. A. Chiou, "From Optical Tweezers & Stretcher to Photonics Force Microscopy and Optical Forced Oscillation: Principles and Potential Biomedical Applications", First International Biophotonic Sciences (IBIS) Workshop , Taipei, Taiwan.（2007/11/5~6）

8. A. Chiou. “Optical Trapping, Stretching & Photonics Force Microscopy for Biomedical Applications”, Optics and Photonics Taiwan 2007，台中，臺灣

高甫仁教授

9. Fu-Jen Kao, “FLIM/FRET-a novel tool for molecular dynamics imaging”, The 11th Symposium on Recent Advances in Biophysics, May 24-26, 2006, National Taiwan University, Taipei.
10. Fu-Jen Kao, FLIM/FRET-a novel tool for molecular dynamics imaging, 12th NSRRC Users' Meeting & Workshops, October 3-4, 2006, Hsinchu,.
11. Fu-Jen Kao, Time-Resolved Microscopy for Molecular Dynamics and Selected Emerging Biophotonics Platforms, Canada-Taiwan Joint Workshop on Emerging Photonic Applications in Medicine, November 13~14, 2007, Taipei, Taiwan.

(B) Regular Paper

邱爾德教授

1. 魏名佐、楊坤達、張耀仁、林政宏、何恭 、陳慧琪、邱爾德,“利用電腦全像片建構多光點動態鉗住系統”, OPT2004, Jhongli, Taiwan.
2. 魏名佐、科孟揚、許先業、邱爾德, “Analysis of the Three-Dimensional Optical Force Field on Trapped Polystyrence Particle and T Lymph cell in Optical Tweezers.”, OPT 2005, Tainan, Taiwan.
3. 薛成巽、魏名佐、劉尚靈、王廷方、王群、邱爾德,“使用光鉗系統量測雙股 DNA 的動態訊息”, OPT 2005, Tainan, Taiwan.
4. 黃俊傑、楊坤達、魏名佐、科孟揚、邱爾德, “Mapping of Three-Dimentional Optical Force Field in Fiber-Optical Dual-Beam Trap.” OPT 2005, Tainan, Taiwan.
5. 劉尚靈、魏名佐、羅韻晴、邱爾德,“以雷射光鉗技術探討馬達蛋白的運動現象”, OPT 2005, Tainan, Taiwan.
6. 陳胤全、揚坤達、黃俊傑、科孟揚、邱爾德,“利用光學延伸器量測中國倉鼠卵巢細胞之形變”, OPT 2005, Tainan, Taiwan.
7. H.-Y. Lin, W. P. Hu, H. -Y. Hsu, A. Chiou, G. L. Chang, K. Y. Tseng, S.J.Chen, “Immunodetection of Pentamer And Modified C-Reactive Protein Using Surface Plasmon Resonance Biosensing”, Optics and Photonics Taiwan 2005；台南，臺灣. (Dec.2005)
8. T.-Y. Tseng, C.-S. Shiue, M.-T. Wei, C. Wang, T.-F. Wang, D. Ou-Yang, and A. Chiou, “The nonlinear elastic constant of a double-strand DNA segment measured by optical forced oscillation”, Optics and Photonics Taiwan 2006，新竹，臺灣
9. Jowey Hsu , Ming-Tzo Wei , Kuo-Feng Hua , Artashes Karmenyan , Hsien-Yeh Hsu and Arthur Chiou, “The Influence of Reishi Polysaccharides on the Interaction of Lipopolysaccharide With CD14 Membrane Receptors on Macrophage Measured by Optical Tweezers”, Optics and Photonics Taiwan 2006，新竹，臺灣
10. Yin-Quan Chen,Chun-Chieh Huang, Ming-Tzo Wei, Artashes Karmenyan, Wei-hau Chang and Arthur Chiou, “Deformation of the Human Erythrocyte in Optical stretcher”, Optics and Photonics Taiwan 2006，新竹，臺灣
11. 陳胤全、葉佳倫、魏名佐、黃俊傑、柯孟楊、林奇宏、章為皓、邱爾德,“雙光鉗式光學延伸器捕捉下人類紅血球之型變”, Optics and Photonics Taiwan 2007，台中，臺灣
12. 許喬威、洪莉珍、廖建豪、吳世雄、林奇宏、邱爾德,“藉由光鉗探討 LON 蛋白酶的作用機制”, Optics and Photonics Taiwan 2007，台中，臺灣
13. Te- Yu Tseng, Cha- Hui Lien, Chung Wang, Ting- Fang Wang and Arthur Chiou, “The interaction of double-stranded DNA molecule with RecA protein measured by optical tweezers”, Optics and Photonics Taiwan 2007，台中，臺灣
14. 范懷仁、白佳巾、廖冠博、黃鈺珊、林奇宏、章為皓、邱爾德,“利用震盪式光鉗研究維酯體與紅血球的型變”, Optics and Photonics Taiwan 2007，台中，台灣

林奇宏教授

1. 謝嘉芬、張博睿、白其卉、陳宣毅、王大為、祁生生、徐琅、林奇宏,“利用雷射光鉗技術量測在活細胞上受器（receptor）-配體（ligand）的單一分子對結合力”, OPT2004, Jhongli, Taiwan.

江惠華教授

1. Tsuei-Lian Wang, Fang-Ying Peng , Hui-Hsin Lu Yung-Ta Hung, Tung-Jing Fang, Huihua Kenny Chiang*, Surface Enhanced Raman Spectra in Biochemical Molecules and Cell detection, APBP 2004/ session W3B-T4.Spectroscopy for Biomedical Applications/ W4B-T4-7.
2. Kuang-Lan Chiang, Deng-Yuan, Huihua Kenny Chiang, “High Frequency V-Mode Ultrasound Imaging System,” Biomedical Engineering Society 2004 Annual Symposium, Taiwan, 2004
3. Sheng-Hong Yu, Cheng-Hau Chen, Huihua Kenny Chiang, ”Fiber Optic Evanescent Wave Biosensor for Biomolecular detection,” Biomedical Engineering Society 2004 Annual Symposium, Taiwan, 2004
4. Huihua Kenny Chiang, Cheng-Deng Kuo, Wen-Yi Chen, Min-Xuan Chang, Shu-Hua Kuo, “Research and Verification of Image Format 12-Lead ECG,” Biomedical Engineering Society 2004 Annual Symposium, Taiwan, 2004
5. Tsuei-Lian Wang, Fang-Ying Peng, Hui-Hsin Lu, Yung–Ta Hung, Tung-Jing Fang, Huihua Kenny Chiang, “Surface Enhanced Raman Spectra in Biochemical Molecules and Cell detection,” The Second Asian and Pacific Rim Symposium on Biophotonics, Taiwan, 2004
6. Chih-Er Wu, Shi-Hua, Huihua Kenny Chiang,” Monte Carlo Autofluorescence Modeling on Cervical Dysplasia,” The Second Asian and Pacific Rim Symposium on Biophotonics, Taiwan, 2004
7. Sheng-Hong Yu, Cheng-Hau Chen, Huihua Kenny Chiang, “Fiber optic evanescent wave bio sensor for biomolecular detection,” The Second Asian and Pacific Rim Symposium on Biophotonics, Taiwan, 2004
8. Chih Yen Chen, Hung Yu Cheng, Ko-Hua Chen, Huihua Kenny Chiang, “Dry Eye Diagnosis Using Infrared Thermal Image”, OPT 2005, Tainan, Taiwan.
9. Po Hsiang Hsu, Huihua Kenny Chiang, “Qualitative and Quantitative Analysis of Lactic Acid by Surface-Enhanced Raman Scattering (SERS) Spectroscopy Using Ag Colloidal Nanoparticles,” Biomedical Engineering Society 2005 Annual Symposium, Taiwan, 2005
10. Zi-Qiang Liu, Chih-Yen Chen, Yi-Ting Kuo, Hong-Jen Chiou, Huihua Kenny Chiang, "Computer-aided Diagnosis of Ultrasound Soft Tissue Neoplasm in Musculoskeletal System" , Biomedical Engineering Society 2005 Annual Symposium, Taiwan, 2005
11. Shu Wei Huang, Teng Yuan Lun , Huihua Kenny Chiang, "Synthetic Aperture Photoacoustic Imaging on Small Vessel Phantom Study" , Biomedical Engineering Society 2005 Annual Symposium, Taiwan, 2005
12. Feng Ying Pemg, Yen Shen Tsai, Hung You Cheng, Shih Jie Hong, Huihua Kenny Chiang, "Applying Raman Spectroscopy to Moniter Stem-Cell Development," Biomedical Engineering Society 2005 Annual Symposium, Taiwan, 2005

高甫仁教授

1. Peng-Hsiang Weng and Fu-Jen Kao, Modulation Based Time Resolved Laser Scanning Microscopy, The Second Asian and Pacific Rim Symposium on Biophotonics (APBP 2004) December 15-17, 2004, National Taiwan University, Taipei, Taiwan.
2. Yu-Chi Liao and Fu-Jen Kao “Time-Resolved Optical Beam Induced Current Mapping of Photonic Device”, OECC 2006, July 3-7, Kaohsiung, Taiwan.

BOOKS

1. PETER TÖRÖK AND FU-JEN KAO (EDS.), OPTICAL IMAGING AND MICROSCOPY-TECHNIQUES AND ADVANCED SYSTEMS, ISBN 3-540-43493-3, SPRINGER, BERLIN, 2007.

ISBN-10: 354069563X

ISBN-13: 978-3540695639

Optical Imaging and Microscopy: Techniques and Advanced Systems (Springer Series in Optical Sciences) by Peter Török and Fu-Jen Kao (Hardcover - Sep 2007)

2. HANRY YU, PING-CHIN CHENG, PAO-CHUN LIN, AND FU-JEN KAO (EDS.), MULTI-MODALITY MICROSCOPY, ISBN 9-812-56533-7, WORLD SCIENTIFIC PUBLISHING COMPANY, 1ST EDITION (MAY 8, 2006).

Multi-modality Microscopy by Hanry Yu, Ping-Chin Cheng, Pao-Chun Lin, and Fu-Jen Kao (Hardcover - May 8, 2006)

ISBN-10: 9812565337

2. PATENT LIST

Sub-Project1:

A. Coherent and THz Photonics

Seven Taiwan (ROC) patents granted, two disclosed and two being filed; two U.S. patents granted, one disclosed and four have been filed.

1. Ci-Ling Pan（潘犀靈）, Ru-Pin Chao（趙如蘋）, and Chao-Yuan Chen（陳昭遠）“利用磁場控制液晶雙折射現象之可調兆赫波相移器或相位延遲器”Taiwan (ROC) patent, No. 200186, 2004/04/11 - 2023/07/28.

2. Ci-Ling Pan（潘犀靈）, Ru-Pin Chao（趙如蘋）, and Yu-Ping Lan（藍玉屏）, “具數位及無跳模連續微調波長機制之多波長外腔雷射系統,” Taiwan (ROC) patent, No. I223484, granted November 1, 2004,

3. Ci-Ling Pan（潘犀靈）, Ru-Pin Chao（趙如蘋）, and Yu-Ping Lan（藍玉屏）; A multi-wavelength external-cavity laser with digital and mode-hop-free fine tuning mechanism,” US patents filed on Nov. 16, 2003, No. 10-738,893.

4. Gong-Ru Lin（林恭如）,“發明自耦同步調制技術以量測光接收機之等效靈敏度與誤碼率,” Taiwan (ROC) patent, No. I226762, Jan. 11, 2005.

5. J. Y.HUANG,（黃中垚）, 李建立,“可同時量測光學晶體厚度及光軸之影像式偏極光量測方法,” Taiwan (ROC) patent, No. I232294, May 11, 2005.

6. Ci-Ling Pan（潘犀靈）, Jin-Yuen Zhang（張景園）, Jung Y. Huang 黃中垚, and Chao-Kuei Lee（李晁逵）, “波長可調之藍光飛秒非共線式光參數放大器.” Taiwan (ROC) Patent, No. I239128, granted September 1, 2005.

7. Ci-Ling Pan（潘犀靈）、Yi-Chao Wang（王怡超）、Jia-Min Hsieh（謝嘉民）、Zun-Hao Chen（陳尊豪）、Bau-Tung Dai（戴寶通）, “近紅外波段飛秒雷射在非晶矽退火的應用方法, Near-infrared femtosecond laser-induced crystallization of amorphous silicon,” Taiwan (ROC) patent, No. I245321, granted December 11, 2005.

8. Ci-Ling Pan（潘犀靈）, Ru-Pin Chao（趙如蘋）, Min-Jay Huang（黃銘杰） and Yu-Ping Lan（藍玉屏）, “具多種功能之電控液晶式可調光多工器及光解多工器 Multi-functional electrically controlled Liquid crystal based tunable optical multiplexer and demultiplexer,” 中華民國專利公告，Taiwan (ROC) patent disclosed

August 16, 2006, No. 200628872.

9. Ci-Ling Pan（潘犀靈）, Jin-Yuen Zhang（張景園）, Jung Y. Huang 黃中垚, and Chao-Kuei Lee（李晁逵）, A blue-light generating Femtosecond wavelength-tunable Non-collinear Optical Parametric Amplifier,”US patent 7106498 B2, Sept. 12, 2006.

10. Ru-Pin Chao (趙如蘋)，王智杰，吳信穎，黃振昌，張劭儒，吳坤益，寇崇善，李安平，魏孝寬，「一種電漿液晶配向方法與設備」， ROC (Taiwan) patent filed, filing No., 095144561, Nov. 30, 2006.

11. Ru-Pin Chao (趙如蘋), Hsin-Ying Wu, Chih-Chieh Wang, Shao-Ju Chang, Jenn-Chang Hwang, Chwung-Shan Kou, Kuen-Yi Wu, An-Ping Lee, Hsiao-Kuan Wei,” Plasma Device for Liquid Crystal Alignment”, U. S. patent filed, January 17, 2007, Ref. No. 11/654,041.

12. Ru-Pin Chao (趙如蘋), Ci-Ling Pan (潘犀靈), and Chao-Yuan Chen (陳昭遠), “Tunable Terahertz Filter or Wavelength Selector Based on Magnetically Controlled Birefringence in Liquid Crystals,” U. S. patent filed, February 2007, Ref. No. 11/606217.

13. Teh-Ho Tao（陶德和）, Tze-An Liu（劉子安）, Zu-sho Chow（周儒修）, Sheng-Lung Wu（吳勝隆）, Ci-Ling Pan（潘犀靈）,“皮膚灼傷檢測系統,” Taiwan (ROC) patent, No. I276425, granted March 21, 2007.

14. Ru-Pin Chao（趙如蘋）, Hsin-Ying Wu（吳信穎）,“Tilted homeotropic and homogeneous alignments of liquid crystals employing magnetic thin films“ approved by NCTU patent office for U. S. patent application, April 26, 2007.

15. Ci-Ling Pan（潘犀靈）, Ru-Pin Chao（趙如蘋）, and Chao-Yuan Chen（陳昭遠）, “Liquid-Crystal-Based Retardation-Free Terahertz Phase Shifter,”US patents application published, No. US 2007/0188668 A1, Aug. 16, 2007.

16. 趙如蘋，吳信穎,「一種利用磁性薄膜對液晶分子進行有預傾角的水平及垂直配向之方法」ROC (Taiwan) patent filed, filing No.096135213, September 20, 2007.

17. Teh-Ho Tao（陶德和）, Tze-An Liu（劉子安）, Zu-sho Chow（周儒修）, Sheng-Lung Wu（吳勝隆）, Ci-Ling Pan（潘犀靈）,“System for Detecting the Burned Degree of a Skin,” US patent 7307258 B2, December 11, 2007.

18. Ru-Pin Chao（趙如蘋）, Ci-Ling Pan（潘犀靈）, and Chao-Yuan Chen（陳昭遠）,“利用液晶雙折射現象之可調兆赫波濾鏡或波長選擇器,” 中華民國專利公告 Taiwan (ROC) Patent disclosed, No. 200811486, 1 March, 2008, U. S. patent filed, February 2007, No. 11/606217.

B . Quantum (Photonic Crystal) structures and Enabling devices

1. S. C. Wang(王興宗), H. C. Kuo (郭浩中),G. S. Huang(黃根生)”_利用氮化鋁/氮化鎵超晶格成長無裂縫氮化鋁/氮化鎵的多層膜反射鏡”
2. 王興宗,郭浩中,黃根生,姚忻宏”Process for Fabricating Group III Nitride Based Reflectors”
3. 王興宗,郭浩中,黃根生,姚忻宏” III 族氮化物系反射鏡之製法”
4. Tien-Chang Lu （盧廷昌）, Chyong-Hua Chen （陳瓊華）, ”以啁啾式週期模態延展層實現 L 型近場光型之高功率高效率半導體雷射,”(申請中)
5. Hung-Wen Huang（黃泓文）, Tien-Chang Lu（盧廷昌）, Ching-Hua Chiu（邱清華）, Hao-Chung Kuo（郭浩中）, Shing-Chung Wang（王興宗）,” 利用光電化學氧化技術製作可電激發之奈米柱發光二極

體”（校內已申請過）

Sub-Project2:

[Optical Communication: 2004-2008]

[International]

1. 祁甦、陳南光,“雷射微加工處理全光纖型元件之製作方法” U. S. Patent 10-0713437, 2007.
2. 賴暎杰、陳南光、曾孝明、祁甦,“光放大器及雷射產生器” U. S. Patent 7170910B2, 2007.
3. 陳南光、曾孝明、祁甦, “MANUFACTURING METHOD AND APPARATUS OF FIBER COUPLER” U. S. Patent 6994481 B2, 2006.
4. 祁甦、陳南光,“寬頻可調式光纖濾波器” U. S. Patent 7155089, 2006.
5. 祁甦、曾孝明、蔡馥宇、陳南光, “FIBER-OPTIC TUNABLE FILTER AND INTENSITY MODULATER” U. S. Patent 7024072B2, 2006.
6. S. Chi, P.-C. Peng, and W.-P. Lin, “Self-healing fiber Bragg grating sensor system,” USA 7043103B2, 2006.
7. S. Chi, C.-C. Lee, and C.-H. Yeh, “Fast wavelength-tunable laser system using fabry-perot laser diode,” USA 7027471B2, 2006.
8. S. Chi, C.-C. Lee, and C.-H. Yeh, “Optical monitoring apparatus for use in wavelength division multiplexing network,” USA 7010189B2, 2006.
9. Jyehong Chen, et al. “Bi−directional cross connect,” U.S. Patent No. 7,058,304, B2, June 6, 2006
10. S. Chi, H.-Y. Tseng, P.-C. Peng, and J.-H. Lin, “Using intensity and wavelength division multiplexing for fiber Bragg grating sensor system,” US patent no. 6,879,742, 2005.
11. S. Chi, C.-C. Lee, and P.-W. Chiang, “Method of enhancing spatial resolution for distributed temperature measurement,” US patent no. 6,817,759, 2004.
12. S. Chi, C.-C. Lee, and P.-W. Chiang, “Method of utilizing a fiber for simultaneously measuring distributed strain and temperature,” US patent no. 6,698,919, 2004.

[Domestic]

1. 祁甦、陳南光,“雷射微加工處理全光纖型元件之製作方法” ROC patent I279601, 2007.
2. 賴暎杰、徐桂珠、許立根,“可用於窄頻濾波器之光纖光柵製作方法” ROC patent I282459, 2007.
3. 祁甦、李健仲、高大峻,“利用光程差法來監測光交接器內的光開關” ROC patent I269088, 2006.
4. 祁甦、陳南光,“寬頻可調式光纖濾波器” ROC patent I267668, 2006.
5. 賴暎杰、許立根、莊凱評、徐桂珠,“利用側向繞射法偵測參考光纖光柵之相位以製造另一光纖光柵的方法” ROC patent I258024, 2006.
6. N.-K. Chen, S. Chi, S.-M. Tseng, and Y. Lai, “光放大器及雷射產生器,” ROC patent no. I231076, 2005.
7. N.-K. Chen, S. Chi, and S.-M. Tseng, “光纖耦合器的製作方法及裝置,” ROC patent no. I240096, 2005.
8. N.-K. Chen, S. Chi, and J.-T. Shy, “太陽能光主動元件,” ROC patent no. I239658, 2005.
9. S. Chi, C.-C. Lee, and C.-H. Yeh, “利用法布里-珀羅(Fabry-Perot)雷射二極體之快速波長可調雷射系統,” ROC patent no. I236193, 2005.
10. S. Chi, C.-C. Lee, C.-H. Yeh, and C.-Y. Chen, “波長可調之光纖迴路雷射模組及其雷射共振腔裝置,” ROC patent no. I235534, 2005.
11. S. Chi, P.-C. Peng, and W.-P. Lin, “具有自我修復能力之光纖布拉格光柵感測系統,” ROC patent no. I235248, 2005.
12. S. Chi, H.-Y. Tseng, P.-C. Peng and J.-H. Lin, “一種光強度與分波多工之光纖布拉格光柵感測系統,” ROC patent no. I234668, 2005.
13. S. Chi, C.-C. Lee, and C.-H. Yeh, “分波多工網路中之光功率監測裝置,” ROC patent no. I227797, 2005.
14. 莊凱評，許立根，蔡孟璋，賴暎杰,“一種感光性光纖之曝照系統及方法,” ROC Patent no. I229207, 2005.

15. 莊凱評、許立根、賴暎杰, “利用控制偏振逐段曝照方法製作複雜的光纖光柵結構”, ROC Patent no. I229206, 2005.
16. S. Chi, S.-M. Tseng, N.-K. Chen, and F.-Y. Tsai, “光纖濾波器及光調變器,” ROC patent no. 00588162, 2004.

[Optical Storage: 2004-2008]
[international]

1. W. Hsu, Y. Chiu, and Y.R. Chang, “Fabrication method of self-aligned microlens and sub-micro aperture for optical components,” US Patent No. 7259034B2, 2007.
2. W. Hsu, Y.T. Sun and Han-Ping D. Shieh “Microelectro mechanical system for magneto-optic data storage apparatus,” US Patent No. 7002226, 2006.
3. W. Hsu, H.L. Chou, and C.H. Tien, “Method for manufacturing a combined solid immersion lens and submicron aperture and device”, USA patent No. 6809886, 2004.
4. T. S. Liu, “Adjusting Mechanism for Flying Pickup Head in Data Storage Devic,” US Patent No. 6,879,469, 2004..

[domestic]

1. 呂宗熙，薄膜式電磁線圈之製作方法，專利案號 I280594, 2006..
2. 徐文祥、孫翊庭、謝漢萍，磁光式近場光儲存元件，R.O.C. patent No. I260583, 2006.
3. 徐文祥、邱一、張育儒，光學元件中微透鏡與微孔自我對準的製作方法，R.O.C. patent No. I263816, 2006.
4. 呂宗熙，用於資料儲存裝置的飛行讀寫頭構造，專利案號 I223804, 2005.

Sub-Project3:

詹益仁教授

1 王文凱、許晉瑋、詹益仁, “氮化鎵場效電晶體之感測器”, 發明專利證書號：I 241716, 中華民國, 專利起迄日：2005/10/11-2024/09/09, 專利權人：國立中央大學。
2. 詹益仁、王文凱、李佑仁、林正國, “一種利用於氮化鎵/氮化鋁鎵高電子移導率場效電晶體且擁有高選擇性及低表面破壞性的乾蝕刻閘極堀入製程方法”, 發明專利證書號：I 243421, 中華民國, 專利起迄日：2005/11/11-2024/05/27, 專利權人：國立中央大學。
3. 詹益仁、謝孟緯, “具有主動偏壓電路之功率放大器”, 發明專利證書號：I231645, 中華民國, 專利起迄日：2005/04/21 - 2023/10/15, 專利權人：聯詠科技股份有限公司。

綦振瀛教授

1.含銻化合物之量子點光電元件 patent#200802941

辛裕明教授

1. Yue-ming Hsin, Chun-Ting Pan, Chen-Chung Fan, “Heterojunction Bipolar Transistor,” ROC patent #229452.
2. Yue-ming Hsin, Wei-kuo Huang , Shou-Chien Huang, “PIN photodetector,” ROC patent #237904.
3. Yue-ming Hsin, Hung-tsao Hsu, “Collector-up Heterojunction Bipolar Transistor and Fabrication,” ROC patent #276152.

許晉瑋教授

1. J.-W. Shi and C.-W. Liu, “Avalanche photodetectors having high saturation power and high gain-bandwidth product” U.S. Patent 6963089
2. 許晉瑋、劉致為，“高飽合輸出功率及高增益-頻寬乘積之累增崩潰光偵測器” Taiwan Patent I 228320
3. Yu-Min Hsu, J-W. Shi, Z. Pei, Yuan Fon, and Chee-Wee Liu, “Semiconductor Phototransistor” U.S. Patent 6759694.
4. 許晉瑋、許進恭 “具白光產生器與放大器之半導體結構” Taiwan Patent I 233704

5. J.-W. Shi and J.-K. Sheu, “Semiconductor apparatus for white light generation and amplification” U.S. Patent Application No. 10/948215.
6. 許晉瑋、謝鎮安 “致電吸光調制器” Taiwan Patent I 240424
7. J.-W. Shi and C.-A. Hsieh, “High-Speed Electro-absorption Modulator with low drive voltage” US Patent 7102807 B2
8. 許晉瑋、許弘錢 “光二極體之結構” Taiwan Patent, I 233705
9. 王文凱、許晉瑋、詹益仁,“氮化鎵場效電晶體之感測器” Taiwan Patent I 241716
10. 吳衍祥，吳忠諭，許晉瑋,“光二極體空乏區結構” Taiwan Patent, I251940
11. 吳衍祥，邱尉育，許晉瑋,“具階梯形狀之光波導結構” Taiwan Patent, I269083

張正陽教授

1. 光學系統及其製造方法申請號：92114668（矽基板薄膜微光學元件及其夾置具之製造方法）張正陽李建階張育誠邱千峰王智明黃裕龍紀國鐘.2004
2. 張正陽CHANG, JENQ YANG, 鄭邵家CHENG, CHAO CHIA, 龔立偉GONG, LI WEI, 藍孝晉LAN, HSIAO CHIN, 余能枋YU, NENG FANG, 王智明WANG, CHIH MING, 陳啟昌CHEN, CHII CHANG, “Free space grating multiplexer 自由空間光柵波長多工器,” ROC patent中華民國專利, I243921, 2005.
3. 張正陽, 伍茂仁, 許哲隆, 王智明, 劉勇志, 周昱宏, 蔡雅倫, 李建階, “Guided-mode resonantor and the method for the same (波導模態共振濾波器及其製作方法),” 中華民國專利申請中. 2006
4. 張正陽, 許進恭, 李建階, 李有璋, 許哲隆, 李韻芝, 杜昇翰, “LED emitting spectral reducing nano structure (LED 頻譜縮減微結構),” 中華民國專利申請中.

陳啟昌教授

1. Chii-Chang Chen, Hung-Ta Chien, Pi-Gang Luan, "Beamsplitter Utilizing A Periodic Dielectric Structure," US patent: 6,879,432B1, 2004.
2. 何世賢 HO, SHIH SHIAN, 蔡宏營 TSAI, HUNG YIN, 丁嘉仁 TING, CHIA JEN, 藍春發 LAN, CHUN FA, 陳啟昌 CHEN, CHII CHANG, 超薄單晶鐵電膜之複合晶圓製作方法, 中華民國專利, I235412, 2005.
3. 張正陽 CHANG, JENQ YANG, 鄭邵家 CHENG, CHAO CHIA, 龔立偉 GONG, LI WEI, 藍孝晉 LAN, HSIAO CHIN, 余能枋 YU, NENG FANG, 王智明 WANG, CHIH MING, 陳啟昌 CHEN, CHII CHANG, 自由空間光柵波長多工器, 中華民國專利, I243921, 2005.
4. 陳啟昌 CHEN, CHII CHANG, 羅仕守 LO, SHIH SHOU, 張正陽 CHANG, JENQ YANG, 李孝文 LEE, HSIAO WEN, 空氣式光波導及其製造方法, 中華民國專利, I246611, 2006.
5. Shih-Shou Lo, Chii-Chang Chen, “Hollow optical waveguide by omni-directional reflectors,” US patent: 7,239,786B2, 2007.
6. 陳啟昌 Chen Chii-Chang, 蕭輔力 Hsiao Fu-Li, 張正陽 Chang Jenq-Yang, 可調式光衰減器及其製造方法，中華民國專利, I292063, 2008.

Sub-Project4:

PATENTS (PENDING):

邱爾德教授 & 林奇宏教授

Arthur Chiou and Chi-Hung Lin：Integrated fiber-optical trapping, stretching, and simultaneous real-time monitoring of the dynamic of viscoelesticity of living cell, (USA)

Arthur Chiou and Chi-Hung Lin：微物質捕捉及延展裝置即其方法（Taiwan）

Arthur Chiou and Chi-Hung Lin：A Device for Trapping or Stretching Microscopic Substance and Method Thereof（USA）

PATENTS (GRANTED)

邱爾德教授 & 林奇宏教授

Arthur Chiou and Chi-Hung Lin：I262783 號專利, 即時偵測微粒變形的方法, 2006/10/01

林奇宏教授

Chi-Hung Lin：No. 00594011, Cell Observing Method and the System Thereof（USA）

高甫仁教授

Fu-Jen Kao：I222539 號專利, 共軛焦顯微光纖耦合系統, 2004/10/21.

Fu-Jen Kao：I266892 號專利, 速率可調整之掃瞄光致電流顯微裝置, 2006/08/01

Fu-Jen Kao：I257268 號專利, 時間解析電致發光影像顯微裝置, 2006/06/21

Fu-Jen Kao：I257204 號專利, 微弱訊號顯微裝置, 2006/06/21

Fu-Jen Kao：I252312 號專利, 即時粒子分類及／或操作系統, 2006/04/01

3. LIST OF WORKSHOPS/CONFERENCES HOSTED BY THE PROJECT

Sub-Project1:

1. Workshop On Global Perspectives In Frontiers Of Photonics: Computational Imaging, Biophotonics And Nanophotonics, May 18-19, 2005, Durham, USA.
2. Journey through Nanotechnology and Photonics（光電與奈米之旅）, NCTU, Hsinchu, Taiwan. a workshop designed to provide an overview for high school students, held on December 13, 2004 and December 16, 2005 and March 10, 2007 attended by ~ 500 10th and 11th grader from elite high schools.
3. Advanced Light Emitting Devices and Lasers, a workshop in honor of Prof. S. C. Wang, March 4, 2005.
4. Special Symposium on Liquid Crystal Science and Technologies, a workshop in Honor of Prof. Shu-Hsia Chen, April 15, 2005.
5. 光學發展的回顧和前瞻, April 29, 2005.
6. Mini-Workshop on Optical Information Processing in honor of Prof. Francis T. S. Yu Penn. State Univ., March 15-17, 2006
7. AP-THz 2006 (1st Asian-Pacific THz Photonics Workshop), Dec. 14, 2006, Hsinchu, Taiwan.
8. 建構兆位元紀元的光電科技, 2006 年研究成果發表會, March 17, 2007, NCTU, Hsinchu, Taiwan..
9. 2007 CSIC-NSC joint workshop on photonics, Nov. 5-6, 2007, NCTU, Hsinchu, Taiwan.
10. Photonic Science and Technology for the Tera-Era, 2008 Spring Workshop on X-Photonics, May 19-21, Hsinchu, Taiwan.

Sub-Project4:

(1) Time-Resolved Fluorescence and Microscopy Workshop “Biophotonics2005”, Taipei, Taiwan.
（2005/10/1~2005/10/5）

(2) 9th International Conference on Optics Within Life Sciences（OWLS9） “Biophotonics2006”, Taipei, Taiwan.
(2006/11/26~ 2006/11/29)

TRAINING COURSES

◆ Chandrasekhar Roychoudhuri, Ph.D.（Prof., University of Connecticut, Photonics Lab., Physics Department, Storrs, CT 06268/ OSA fellow / SPIE fellow）
開課名稱：SHORT COURSE ON SPECTROMETRY

開課時間：93/11/02～93/11/12

開課地點：國立陽明大學 實驗大樓 一樓會議室 110 室

◆ Yin Yeh, Ph.D.（Prof., UC Davis / Associate Director for Science, CBST）

開課名稱：Special Topics in Biophotonics

開課時間：94/03/24～94/04/21

開課地點：國立陽明大學 實驗大樓 一樓會議室 110 室

4. INVENTION LIST

Sub-Project3:

詹益仁教授

1. Member, Program Committee, 2004 International Solid State Device and Materials Conference, Japan.
2. Member, Program Committee, 2004 IEEE International InP and Related Materials Conference.
3. Member, Program Committee, 2005 International Topical Workshop on Heterostructure Electronics Meeting, Japan
4. Member, Program Committee, 2005 IEEE Bipolar Device and Circuit Conference.
5. 2005, Editor, IEEE Transaction on Electron Devices.
6. 2006,Co-chair, Technical committee, VLSI-TSA 2006, Hsinchu Apr. 2006.

受邀演講部分：

1."Printed RFID", International conference on Radio Frequency Integrated Technologies, Singapore, Nov. 2005.

講授題目	邀請機構	講授日期
GaN HEMT功率元件	韓國漢城大學	2004/09
GaN HEMT功率元件	韓國KAIST大學	2004/09
電子束微影在奈米電子元件之應用	比利時IMEC	2004/09
電信國家型計畫-RFIC的研究成果	英國，Mobile of Center for Excellence	2004/11
國內演講包括各大學、研究機構及學術會議，內容以高速、高頻元件、電路製作、電路設計及奈米技術為主。		

張正陽教授

1. Jenq-Yang Chang was invited to deliver a talk in Workshop on Global Perspectives in Frontiers of Photonics, Duke University, USA, May 18, 2005.
2. Jenq-Yang Chang was invited to deliver a talk in The Chinese University of Hong Kong, Workshop on Frontiers in Nanophotonics, Development of Nano/Micro Optics in National Central University, Oct. 29 2005.
3. Jenq-Yang Chang was invited to deliver a talk in OPT TAIWAN'05, National Cheng-Kung University, Feb. 2005.

5. LIST OF PERSONAL ACHIEVEMENTS OF THE PIS

Sub-Project1:

I. FAUCLTY AWARD AND RECOGNITIONS

A. Coherent and THz Photonics

Prof. Ci-ling Pan:

1. 2004 OSA Fellows;
2. 2004 SPIE Fellow;
3. 2004 Engineering Medal 工程獎章 of the ROCOES 中華民國光學工程學會;
4. 2004 Outstanding Scholar Award of the Ministry of Education 教育部第 48 屆學術獎;
5. 2005 PSROC Fellow 中華民國物理學會會士;
6. 2006 Outstanding Engineering Professor Award, Chinese Institute of Engineers 中國工程師學會傑出工程教授獎
7. 2007 Research Excellence Award 研究傑出獎 of 潘文淵文教基金會 Pan Wen Yuen Foundation.

Prof. Gong-Ru Lin, 林恭如

1. 2005 NCTU Young Scholar Research Award 交大年輕學者研究獎
2. 2005 **年中國電機工程學會優秀青年工程師獎**
3. **2005 年第十九屆宏碁龍騰知識經濟論文優等獎**

4. 2008 SPIE Fellow

Prof. Chao-Kuei Lee 李晁逵

1. Young scientist traveling support Award. 2005 Advanced Solid-State Photonics Meeting, Vienna, Austria, Feb. 6-9, 2005

B. Quantum (Photonic Crystal) structures and Enabling devices

1. IEEE Life member (2006)
2. 潘文淵考察研究獎(2007)
3. 吳大猷先生研究紀念獎(2007)
4. 錸德青年獎章(2007)
5. 美國 IEEE and LEOS William Striefer 獎章遴選委員 2004

C. Volume Holographic Materials, Technology and Enabling devices

Prof. Ken Y. Hsu 許根玉

1. 2004 OSA Fellow

II. STUDENT AWARD AND RECOGNIZATION:

A. Coherent and THz Photonics

1. Sheng-Lung Wu (吳勝隆), Tze-An Liu, Zu-sho Chow, Jia-Huey Tsao, Teh-Ho Tao, and Ci-Ling Pan, "Burn-Depth Detection Of Pork With T-Ray Technology," PF-SA2-02, presented at OPT2004, , Dec.18-19, 2004, Taipei, Taiwan, （2004 年台灣光電科技研討會壁報論文獎）.
2. Yu-Huang Lin and Gong-Ru Lin, "Reduction of Mode Beating Noise in Erbium-Doped Fiber Laser by Mutual Injection-Locking with a Laser Diode at below Threshold Condition", IEEE Photonics Technology Letters, Vol. 16, No. 8, pp. 1819-1821, August 2004. (林鈺晃榮獲 2004 中華民國光學工程學會碩士論文獎).

3. Kuen-Chie Yo, Yung-Cheng Chang, and Gong-Ru Lin, “An OC-48 transmission based on a mutual injection-locked Fabry-Perot laser diode and Erbium doped fiber amplifier link,” Optics Express, submitted, July 2005. (游昆潔榮獲九十三年度國科會大專學生參與專題研究計畫研究創作獎)
4. Gong-Ru Lin, Yu-Huang Lin, and Yung-Cheng Chang, “Theory and Experiments of a Mode Beating Noise Suppressed and Mutually Injection-Locked Fabry-Perot Laser Diode and Erbium-Doped Fiber Amplifier Link,” IEEE Journal of Quantum Electronics, Vol. 40, No. 8, pp. 1014-1022, August 2004. (林鈺晃榮獲 2004 中國電機工程師學會青年論文獎)
5. Yung-Cheng Chang, Yu-Huang Lin, J. H. Chen, and Gong-Ru Lin, “All-optical NRZ-to-PRZ format transformer with an injection-locked Fabry-Perot laser diode at unlasing condition”, Optics Express, Vol. 12, No. 19, pp. 4449-4456, September 2004. (張詠誠榮獲財團法人徐有庠基金會第三屆通信光電類科技論文獎 2005)
6. Ching-Wei Chen (陳晉瑋), Wen-Jr Jiang and Ci-Ling Pan, “Phase Retrieval Of Ultrafast Optical Pulses From Interferometric Autocorrelation Measurement By Population-Split Genetic Algorithm (PSGA)”, C-FR-V2-7, presented at OPT2005 (Optics and Photonics Taiwan), Dec. 9-10, 2005, Tainan, Taiwan.(2005 年光電科技研討會學生論文獎)
7. Ching-Wei Chen（陳晉瑋）, Yu-Kuei Hsu, J. Y. Huang, C. S. Chang, Ci-Ling Pan, Jing-Yuan Zhang, “Intense picosecond infrared pulses tunable from 2.4 m to 38 m for nonlinear optics applications”, paper # CFI3-1, IQEC/CLEO-PR 2005, Tokyo, Japan, July 11-15, 2005 (Student Travel Support Award).
8. 2005 年指導張峻源同學榮獲 2005 年光電科技研討會學生論文獎
9. 2006 年, 林螢聰同學獲得中國光學工程學會碩士論文獎.
10. 2006 年, 林螢聰同學獲得中國電機工程學會青年論文獎第二名.
11. 2006 年 廖育聖與游昆潔同學參加教育部通信競賽榮獲優等獎
12. Chao-Yuan Chen 陳昭遠, Recipient of The 2005 Bor-Uei Chen Memorial Scholarship Award of the Photonic Society of Chinese Americans (PSC，華人光電學會). This is the first time a Ph.D. student from outside of U.S. has been awarded this prestigious award.
13. Yu-Ping Lan 藍玉屏, Recipient of 九十四年優秀青年工程師獎, the 2006 Iizuka Prize for Young Metrologist, Asia Pacific Metrology Programme 亞太計量組織(http://www.apmpweb.org/)優秀青年計量學家獎, see news story in (http://140.113.100.134/news/news_detail.php?Cp=82&NID=9916).
14. C.W. Chen (陳晉瑋) and C.J. Hsu (許哲睿) and C.L. Pan (潘犀靈) , “兆赫波於硒化鎵晶體中光參數放大之研究,” paper CO-001, Optics and Photonics in Taiwan, Nov. 30-Dec.1, 2007, Taichung, Taiwan. (Best Student Paper Award, OPT 2007, 2007 年光電科技研討會學生論文獎)
15. Y.T. Li (黎宇泰) and W.W. Wang (王韋文) and C.L. Pan (潘犀靈) and K.J. Chen (陳克堅) and J.T. Chen (陳錦泰), “低溫成長砷化鎵與多重氧離子佈植砷化鎵光導天線之 THZ 輻射特性之比較,” paper CO-004, ibid. (Best Student Paper Award, OPT 2007, 2007 年光電科技研討會學生論文獎)
16. Tsong-Ta Tang（湯宗達）, recipient of the 2007 NSC Graduate Student Study Abroad Program (GSSAP) Scholarship 國科會千里馬獎學金 for studying at University of California, Berkeley, California, USA for a year.
17. Cho-Fan Hsieh（謝卓凡）, recipient of the 2007 NSC Graduate Student Study Abroad Program (GSSAP) Scholarship 國科會千里馬獎學金 for studying at Osaka University, Osaka, Japan for 10 months.
18. Sung-Hui Lin (林松輝), Chao-Kuei Lee (李晁逵), Yi-Sheng Lin (林易聲), Shin-Cheng Liu (劉信成), and Ci-Ling Pan (潘犀靈), “A Study of Excitation Dynamics of Saturable Bragg Reflector: A Possible Alternative Approach for High Repetition Rate Mode-Locked Laser,” paper PE-29, 2008 中華民國物理學會年會及學術研討會 Annual Meeting of the Physical Society of Republic of China, Jan. 28-30, 2008, Hsinchu, Taiwan (Best Poster Paper Award, Honorable Mention 壁報論文佳作獎).

19. **2006** 年指導游昆潔同學獲得中國光學工程學會碩士論文獎
20. **2006** 年指導游昆潔同學獲得中國電機工程學會青年論文獎第一名

B. Quantum (Photonic Crystal) structures and Enabling devices

1. 指導劉子維同學榮獲 2007 年台灣光電科技研討會學生論文獎
2. 指導李昀恬同學榮獲 2007 年台灣光電科技研討會學生論文獎
3. 指導陳士偉同學榮獲 2007 年台灣光電科技研討會學生論文獎
4. 指導學生高志強榮獲中華民國光學工程學會最佳論文獎 2007
5. 指導學生林立凡榮獲第十二屆 科林論文獎 2007
6. 指導學生李亞儒榮獲教育部千里馬計畫補助出國研究一年 2006
7. 指導學生劉瑞農榮獲朱順一合勤學業優異獎學金 2006
8. 指導學生劉瑞農通過教育部公費留學考 2006
9. 指導學生柯宗憲榮獲第一屆國立交通大學奈米科技中心成果發表會暨奈米攝影競賽特優第一名 2006
10. 指導學生高宗鼎榮獲第十一屆 科林論文獎 2006
11. 指導學生林立凡榮獲 2006 年台灣光電科技研討會學生論文獎
12. 指導學生高宗鼎榮獲 2005 年台灣光電科技研討會學生論文獎
13. 指導學生曾國峰榮獲 2004 年台灣光電科技研討會學生論文獎
14. 指導學生賴芳儀榮獲 94 學年聯發科獎學金
15. 指導學生彭裕鈞榮獲 94 學年度朱順一合勤學業優異獎學金
16. 指導學生高宗鼎榮獲 95 學年光電工程學會碩士論文獎
17. 指導學生彭裕鈞榮獲 94 學年光電工程學會碩士論文獎

III. International Invited Papers and Presentations:

A. Coherent and THz Photonics

1. Gong-Ru Lin and Yu-Sheng Liao, “A Synchronous Modulation and Inter-Mixing Technique for Sensitivity and Error-Rate Analysis of Sonet PIN-TIA”, *2003 Asia-Pacific Optical and Wireless Communications Conference and Exhibition (APOC 2003)*, Session SC1, Wuhan, China, November 2-6, 2003.
2. Ci-Ling Pan, “NCTU Photonics Programs: an Overview,” invited talk, presented at the 2005 NRC-IME-ITRI Trilateral Photonics Workshop, Ottawa, Canada, Sept. 27-29, 2004.
3. Ci-Ling Pan, Ru-Pin Pan, Chao-Yuan Chen, T. R. Tsai, C. H. Wang, Cho-Fan Hsieh, “Liquid Crystal THz Optics,” invited talk, presented at the Croucher Advanced Study Institute on “Frontiers of Photonics Research: Nanophotonics, Femtosecond Photonics and Biophotonics,” Hong Kong, December 6-10, 2004.
4. Ci-Ling Pan, “Ultra-broadband THz field detection by Ion-implanted III-V PC Antenna,” invited talk, presented at the Photonics West 2005, San Jose, California, USA, Jan. 22-27, 2005.
5. Ci-Ling Pan, “An Overview of THz Research Activities in Taiwan,” invited talk, presented at the Photonics West 2005, San Jose, California, USA, Jan. 22-27, 2005.
6. Ci-Ling Pan, “Progress in Liquid Crystal THz Optics,” keynote speech, presented at Workshop On Global Perspectives In Frontiers Of Photonics: Computational Imaging, Biophotonics And Nanophotonics,” Durham, North Carolina, USA, May 18-19, 2005.

7. Ci-Ling Pan, “Recent Progress in Liquid Crystal THz Optics,” invited paper, presented at "Frontiers of Laser and Optical Sciences", October 1 - 2, 2005, Faculty of Science, Hongo Campus, The University of Tokyo, Tokyo, Japan.
8. Gong-Ru Lin, “Retrospect on the Research of Silicon Nanocrystal Embedded Silicon Oxide Materials and Light-Emitting Devices in NCTU/IEO”, ***3rd Symposium on Nanophotonics Science and Technology***, Hwalian, Taiwan, September 13-17, 2005
9. Gong-Ru Lin, “All-Optical NRZ-to-RZ Data Format Conversion with Optically Injected Laser Diodes orSemiconductor Optical Amplifiers”, *2006 Asia-Pacific Optical and Wireless Communications Conference and Exhibition (APOC 2006)*, Invited paper, Gwangju Korea, September 3-7, 2006.
10. Ci-Lin Pan and Ru-Pin Pan, “Recent progress in liquid crystal THz optics,” invited talk, presented at Photonics West 2006, San Jose, California, USA, Jan. 21-26, 2006, invited paper to be published in Proceedings of SPIE Vol. #6135, Liquid Crystal Materials, Devices, And Applications XI, Liang-Chy Chien, ed..
11. Ci-Lin Pan and Ru-Pin Pan, “Recent progress in liquid crystal THz optics,” **invited talk**, presented at Photonics West 2006, San Jose, California, USA, Jan. 21-26, 2006, invited paper, in Proceedings of SPIE -- Volume 6135 Liquid Crystal Materials, Devices, and Applications XI, Liang-Chy Chien, Editor, pp. 61350D-1 to -13 (Feb. 23, 2006).
12. Ci-Ling Pan, “An Overview of NCTU Photonics Programs and Selected THz Topics,” **invited talk**, presented at the NSC-UPM Workshop On Optoelectronics, Sala De Juntas, Edificio A, Etsi Telecomunicacion, Universidad Politechnica Madrid, Madrid, Spain, May 22, 2006.
13. Ci-Ling Pan, “Nonlinear optical studies of Si-O polar nanostructures,” **invited talk**, presented at the 13th Laser Physics Workshop, Zhang Jia Jie, China, Oct. 20-25, 2006.
14. Ru-Pin Pan, and Ci-Ling Pan, “Control of enhanced THz transmission through metallic hole arrays using liquid crystals”, **invited talk,** presented at the 13th laser physics workshop, Changziajie, Sanxi, China, 20-25, October, 2006,
15. Shiuan-Huei Lin and Ken Y. Hsu, “Holographic memory and applications using doped photopolymer”, (**invited talk**) 5th International Conference on Optics-Photonics Design & Fabrication, Nara, Japan, December 6-8, 2006.
16. Gong-Ru Lin, “Nanocrystallite Si Photonics”, ***2006 First NTU-LAAS Joint Workshop on Micro/Nano Systems (NTU-LAAS WMNS 2006)***, Invited talk, Taipei, Taiwan, Nov. 13,2006.
17. Gong-Ru Lin, “White-light and near-infrared electroluminescence of furnace or CO2 laser annealed Si-rich SiO2 with structural defects and Si nanocrystals”, *2006 SPIE Symposium on Photonics Europe (PE 2006)*, paper 6195-32, Strasbourg, France, April 3-6, 2006.
18. Ru-Pin Pan and Ci-Ling Pan, “Liquid-Crystal-based Electrically Tunable THz Optical devices,” invited talk, presented at Photonics West 2007, San Jose, California, USA, Jan. 20-35, 2007, invited paper published in Proceedings of SPIE -- Volume 6487 Emerging Liquid Crystal Technologies II, Liang-Chy Chien, Editors, item 648709 (Feb. 9, 2007).
19. Ci-Ling Pan, “THz Photonic Elements with Liquid-Crystal-Enabled Functionalities,” invited talk, presented at the SURA THz Applications Workshop, Washington, D. C., June 6 – 8, 2007.
20. Ci-Ling Pan, “Overview of NCTU Photonics Programs and Selected Topics in Laser Technology and Optics of Structured Materials,” invited talk, presented at the 2nd Cross-Strait Workshop on Optical Microstructures and Laser Technology, Nanjing, China, Sept. 11 – 16, 2007.

21. Ci-Ling Pan, Hyeyoung Ahn, Chun-Hao Chuang and Yi-Chao Wang, “Optical-Pump-THz-Probe studies of femtosecond-laser annealed amorphous silicon,” invited talk, presented in Terahertz Photonics, Conference PA120, SPIE Photonics Asia Conferences, also the 2nd Asian-Pacific Workshop on THz Photonics (AP-THz2007), 11 - 15 November 2007Beijing International Convention Centre, Beijing China.
22. Gong-Ru Lin, “Semiconductor Laser and Amplifier Based 10 Gbit/s All Optical NRZ-to-RZ Data FormatConverter”, *2007 Symposium on Electro-Optical Engineering*, Invited talk, National Taipei University ofTechnology, Taipei, Taiwan, July 6, 2007.
23. Gong-Ru Lin and Chun-Jung Lin, “Silicon Nanocrystal Based MOSLED on Silicon Nanopillar Array”, *7thIEEE International Conference on Nanotechnology (IEEE-NANO2007)*, invited paper, Hong Kong,China, Aug. 2-5, 2007.
24. Gong-Ru Lin, “Enhanced Electroluminescence from Nanocrystallite Si Based MOSLED by Interfacial Si Nanopyramids”, *OSA Topical Conference on Nanophotonics (NANO2007)*, Hangzhou, China, June 18-21,2007.
25. Gong-Ru Lin, “All-Optical 10Gbit/s Data Format Conversion in Temporally Gain Shaped SemiconductorOptical Amplifier Based”, *2007 Symposium on Next-Generation Lightwave Communications*, Invited talk, Chinese University of Hong Kong (CUHK), Hong Kong, June 11-13, 2007.
26. Gong-Ru Lin, “All-in-one Amplified Compressor for Sub-50fs Soliton Generation from Mode-Locked FiberLasers”, *2007 Asia-Pacific Microwave Photonics Conference (AP-MWP 2007)*, Jeju Island, Korea, April 25-27, 2007
27. Gong-Ru Lin, “Nanocrystallite Si Based MOS light Emitting Diodes”, *4th U.S. Air Force-Taiwan Nanoscience Initiative Workshop* , Invited Talk, Houston TX, USA, February 8-9, 2007.
28. Ci-Ling Pan, Ru-Pin Pan, I-Chen Ho, Cho-Fan Hsieh and Chao-Yuan Chen, “Birefrient Terahertz filters using nematic liquid crystals,” invited talk, presented at Photonics West 2008, San Jose, California, USA.
29. Ru-Pin Pan, Hsin-Ying Wu, and Cho-Fan Hsieh “Liquid crystal surface alignments by using films composed of magnetic nanoparticles“ ,invited talk, presented at Photonics West 2008 , Jan 19-24, 2008, San Jose, California, USA.

B. Quantum (Photonic Crystal) structures and Enabling devices

1. S.C.Wang, invited talk, 2004 US Airforce & Taiwan Nanoscience Initiative Workshop, “Fabrication and emission characteristics of p-GaN and GaN multiple quantum well nanorods” 2004.
2. T. C. Lu ,H. C. Kuo, S.C.Wang, invited talk, 2006 US Airforce & Taiwan Nanoscience Initiative Workshop, “Nano-fabrication technigue in GaN-based devices” 2006.
3. H. H. Yao, G. S. Huang, T.C. Lu, H. C. Kuo and S. C. Wang, invited talk “Effects of growth interruption time on InGaN/GaN quantum dots size grown by metal organic chemical vapor deposition”, in Gallium Nitride materials and devices, Vol 6121, part of SPIE’s Integrated Optoelectronics Devices, 2006 San Jose, CA, USA
4. Hao-chung Kuo *et al.* "Dynamic Characteristics of InAs/GaAs Quantum Dot VCSELs grown by MBE" invited speaker MBE Taiwan 2006 & High-k Materials Workshop

5. Tien-chang Lu, C. C. Kao, G. S. Huang, H. C. Kuo, and S. C. Wang "Recent progress on GaN-based vertical cavity surface emitting lasers," *Invited talk*, 6766-15, SPIE Optics East, Seaport World Trade Center, Boston, Massachusetts USA, Sept. 9-12, 2007
6. Tien-chang Lu, C. C. Kao, G. S. Huang, H. C. Kuo, and S. C. Wang "Optically and Electrically Pumped GaN-based VCSELs," *Invited talk*, WA2-1, The 7th Pacific Rim Conference on Lasers and Electro-Optics (CLEO/PR 2007), COEX, Seoul, Korea Aug. 26-31, 2007

C. Volume Holographic Materials, Technology and Enabling devices

1. Ken Y. Hsu, Shiuan-Huei Lin, Yi-Nan Hsiao, and Po-Lin Chen, "Fabrication and Characterization of poly (methyl methacrylate) photopolymer doped with quinone-based photosensitive molecules for volume holographic recording," (invited talk) Paper ThH1-1, The 7th Pacific Rim Conference on Lasers and Electro-Optics, Seoul, Korea, August 26 - 31, 2007.
2. Shiuan-Huei Lin and Ken Y. Hsu," Low-Shrinkage Doped PMMA Photopolymer for Holographic Data Storage Applications", (invited talk), conference proceeding, p. 86, 6th International Syposium on Modern Optics and its applications, Bandung, August, 6-10, 2007.

IV. Editorial Activities

1. Ken Yuh Hsu（許根玉）, Editor, Optical Memory & Neural Network (Information Optics).
2. Ken Yuh Hsu（許根玉）, Advisory Editor, Optics Letters (2002-2006).
3. Ci-Ling Pan (潘犀靈), Member, Advisory Editorial Board, Asia Materials, Part of Nature Asia-Pacific, 2008 -
4. Proceeding guest editor, 2005 IEEE International Microwave Photonics, (Hao-chung Kuo 郭浩中)

V. International Committee Activities:

1. Ci-Ling Pan (潘犀靈), Chair, 2009 Charles Townes Award Committee, OSA.
2. Ci-Ling Pan (潘犀靈),Member, Program Committee, Emerging Liquid Crystal Technologies IV (OE26), Part of the SPIE International Symposium on Integrated Optoelectronic Devices 2009, Photonics West 2009 (SPIE), San Jose, California, USA.
3. Ci-Ling Pan (潘犀靈), Member, the Member & Education Services Council, OSA January 1, 2007 to December 31, 2009.
4. Ci-Ling Pan (潘犀靈), Member, Program Committee, Emerging Liquid Crystal Technologies III, Photonics West 2008 (SPIE), San Jose, California, USA.
5. Ci-Ling Pan (潘犀靈), Member, 2008 Charles Townes Award Committee, OSA.
6. Ci-Ling Pan (潘犀靈), Member, Organizing Committee, 6th International Conference on Optics-Photonics Design and Fabrication, 2008 (ODF'08), June 9-11, 2008, Taipei, Taiwan.
7. Ci-Ling Pan (潘犀靈), Co-chair, the program sub-committee on THz Waves in Biophotonics, the 10th International Conference on Laser Applications in Life Sciences (LALS), December 04 through 06, 2008, Taipei, Taiwan.
8. Ci-Ling Pan (潘犀靈), Member, Technical Program Committee, Emerging Liquid Crystal Technologies II, Photonics West 2007 (SPIE), January 20-25, 2007, San Jose, California, USA.
9. Ci-Ling Pan (潘犀靈), Member, Technical Program Committee, 2007 Asia-Pacific Microwave Photonics Conference (AP-MWP 2007), April 25 - 27, 2007, Jeju Island, Korea.
10. Ci-Ling Pan (潘犀靈), Member, Program Committee, Terahertz Photonics, Conference PA120, SPIE Photonics Asia Conferences, also the 2nd Asian-Pacific Workshop on THz Photonics (AP-THz2007), 11 - 15 November

2007Beijing International Convention Centre, Beijing China.

11. Ci-Ling Pan (潘犀靈), Member, Local Program Comm., The 9th International Conference on Optics Within Life Sciences (OWLS9), Nov. 26-29, 2006, Taipei.
12. Ci-Ling Pan (潘犀靈), Member, International Advisory Comm., International Forum on Systems and Mechatronics, 2006, December 6-8, 2006, NCKU, Tainan, Taiwan.
13. Ci-Ling Pan (潘犀靈), Chair, 1st Asian-Pacific Workshop on THz Photonics, to be held on Dec. 14, 2006, NCTU Campus, Hsinchu, Taiwan.
14. Ci-Ling Pan (潘犀靈), Member, Technical Program Committee, Emerging Liquid Crystal Technologies II, Photonics West 2007 (SPIE), San Jose, California, USA.
15. Ci-Ling Pan (潘犀靈), Member, Technical Program Committee, 2007Asia-Pacific Microwave Photonics Conference (AP-MWP 2007), April 25 - 27, 2007, Jeju Island, Korea.
16. Gong-Ru Lu (林恭如), 2006 Asia-Pacific THz Photonics Workshop (AP-2006) Local Organizing Committee Member
17. Gong-Ru Lu (林恭如), 2006 First NTU-LAAS Joint Workshop on Micro/Nano Systems (NTU-LAAS-2006) TPC Co-Chair
18. Gong-Ru Lu (林恭如), 2006 Vice Chair of the International Society for Optical Engineering (SPIE), Taiwan Chapter
19. Gong-Ru Lu (林恭如), 2006 Advisor of the SPIE Student Chapter of National Chiao Tung University.
20. S. C. Wang, Member, Technical Program Committee, Micooptics Conference (MOC), Kagawa, Japan.
21. S C Wang, Member, Technical Program Committee, The 7th Pacific Rim Conference on Lasers and Electro-Optics (CLEO-PR 2007)
22. S C Wang, Member, Technical Program Committee and short course, Photonics West 2007 (SPIE), San Jose, California, USA.
23. H. C. Kuo, Member, Technical Program Committee, 2007Asia-Pacific Microwave Photonics Conference (AP-MWP 2007), April 25 - 27, 2007, Jeju Island, Korea.
24. H. C. Kuo, Member, Technical Program Committee, 212th Electrochemical Society Meeting, Washington, DC, Oct. 7-12, 2007
25. Ken Yuh Hsu（許根玉）, Program Committee, The 7th Pacific Rim Conference on Lasers and Electro-Optics, Seoul, Korea, August 26 - 31, 2007.
26. Ken Yuh Hsu（許根玉）, Program Committee, Symposium on Photorefractives XI, SPIEs 52th Annual Meeting, San Diego, USA, August, 2007.
27. Shiuan Huei Lin（林烜輝）, Program Committee, 6th International Conference on Optics-Photonics Design & Fabrication, June, 2008

Sub-Project2:

1.祁甦教授：獲選為2007年教育部第十一屆國家講座主持人之一

Sub-Project3:

詹益仁教授

2006 年：以「BCB-Bridged Distributed Wideband SPST Switch Using 0.25-μm In0.5Al0.5As-In0.5Ga0.5As Metamorphic HEMTs」獲頒 94 年度財團法人徐有庠先生紀念基金會第四屆有庠通訊光電類科技論文獎。

綦振瀛教授

1. Distingushied Professor Award of the Chinese Institute of Electrical Engineering, 2004.

2, Distinguished Lecturer of IEEE EDS, 2004.

JOURNAL EDITORS

1. Associate Editor of Japanese Journal of Applied Physics, 2004-2006.

辛裕明教授

1. 2006 INTERNATIONAL ELECTRON DEVICES & MATERIALS SYMPOSIA (IEDMS2006) BEST PAPER AWARD.
2. 2007 NCU ANNUAL RESEARCH EXCELLENCE AWARD 辛裕明教授榮獲校 年度 「學術研究傑出獎」。
3. 2007 NCU ANNUAL PATENT EXCELLENCE AWARD.
4. 2007 ANNUAL CHINESE INSTITUTE OF ELECTRICAL ENGINEERING YOUTH THESIS AWARD 3RD PLACE.

許晉瑋教授

1. 2007 CIEE Young Research Award (中國電電機工程學會優秀青年工程師).
2. 2007 校內傑出研究獎

張正陽

中央大學 95 學年度學術研究傑出獎.

陳啟昌教授

1. National Science Council Wu Ta-You award, 2006. (國科會吳大猷先生紀念獎)
2. National Central University excellent research award, 2006. (中央大學研究傑出獎)
3. National Central University excellent patent award, 2007. (中央大學績優專利獎)
4. National Cnetral University excellent technology transfer award, 2007. (中央大學出技轉貢獻獎)
5. National Central University excellent research award, 2007. (中央大學研究傑出獎)

Sub-Project4:

邱爾德教授

Honor and Award

1. NASA "Recognition for Innovative Technical Achievement" Award, 1982.
2. SPIE's 1989 Rudolph Kingslake Medal & Award, 1990.
3. Senior Member, IEEE, since 1992
4. Fellow, Optical Society of America (OSA), since1993
5. Fellow, SPIE, since1993
6. Fellow, Photonics Society of Chinese Americans, since 1997
7. National Science Council (NSC) Visiting Chair Professor, National Chiao Tung University, Taiwan (02/97 to 07/97)

Personal Activity

International

1. President, Photonics Society of Chinese-Americans (1993)
2. Chairman of the Board, Photonics Society of Chinese-Americans (1994)
3. Symposium Co-Chair, SPIE's Photonics China (1998)
4. Board of Director, SPIE - International Society of Optical Engineering (2000, 2002 to 2004)
5. Symposium Co-Chair, SPIE's Photonics Asia (2004)
6. Strategic Planning Committee, SPIE (2002, 2006)
7. Presidential Advisory Committee, SPIE (2004 to date)
8. Fellowship Committee, SPIE（2006 to date）
9. President, Optical Society of America (OSA) Taiwan Chapter (2002, 2003)
10. Swinburne University of Technology, Australia, Center for Micro-Protonics, International Advisory Committee （2003 to date）

Local

理監事

1. 中華民國物理學會理事(2000 至 2004)

2. 國際光電光程學會董監事 (2000, 2002 至 2004)
3. 中華民國光學工程學會常務理事 (2003 至今)

委員

4. 台大生醫光電中心評鑑委員（2004）
5. 國衛院奈米醫學中心諮詢顧問委員（2004-2007）
6. 國衛院醫工組諮詢顧問委員（2005-2006）
7. 國科會工程處 93 年度諮議委員(2004-2005)
8. 國衛院資格審查委員會委員（2007 至今）
9. 科學工業園區管理局之新竹生物醫學園區計畫諮詢委員(2007 至今)

召集人

10. 2004 年台灣光電年會（OPT2004）生醫光電組召集人

Journal Editor

1. IEEE/LEOS (Journal of Selected Topics in Quantum Electronics; Special Issue on Biophotonics)/ Guest Editor / 2004~2005
2. 光學工程會刊/編輯委員 & 生醫光電專題編輯 / 2003 至今
3. 台灣奈米會刊/編輯委員 & 奈米生物醫學專題編輯 / 2005 至今
4. Progress in Biomedical Optics and Imaging （Vol. 5, No 33）（ISSN：1605-7422）/ Co-Editor / 2004
5. Handbook of Biophotonics / Co-Editer / 2007~2008
6. Journal of Biophotonics / Co-Editer / 2007~2008

6. List of Technology Transfers

1. Technology transfer to CMC corp. for NT$ 1,000,000, “Fabrication on PQ:PMMA Holographic disk”.
2. GOC 全球光通: Tapped Fiber Splicing Process for Reduction Splicing Loss between Single-Mode & Erbium-Doped Fibers
3. 聖威光電: Sensitive Evaluation of Fiber-Optic SONET OC-48 PIN-TIA Receivers Using Sweep-Frequency Modulation and Inter-Mixing Diagnostics

7. List of Technology Services

8. Papers selected by AIP Virtural Journals

1. Sub femto-joule sensitive single-shot OPA-XFROG and its application in study of white-light supercontinuum generation
   Jing-Yuang Zhang, Chao-Kuei Lee, Jung Y. Huang and Ci-Ling Pan
   Optics Express., Vol. 12, No. 4, pp. 574-581, February 23, 2004
   Virtual Journal of Ultrafast Science, April 2004

2. Magnetically Tunable Room-Temperature 2p Liquid Crystal Terahertz Phase Shifter Chao-Yuan Chen, Cho-Fan Hsieh, Yea-Feng Lin, Ru-Pin Pan, and Ci-Ling Pan
   Opt. Express, Vol. 12, No. 12, pp. 2625-2630, June 14, 2004
   Virtual Journal of Ultrafast Science, September 2004

3. Ultrabroadband terahertz field detection by photoconductive antennas based on proton-bombarded InP
   Tze-An Liu, Masahiko Tani, Makoto Nakajima, Masanori Hangyo, Kiyomi Sakai, Shin-ichi Nakashima, and

Ci-Ling Pan
Opt. Express, Vol. 12, No.13, pp. 2954-2959, June 28, 2004
Virtual Journal of Ultrafast Science, August 2004

4. Near-Infrared Femtosecond Laser-induced Crystallization of Amorphous Silicon
Jia-Min Shieh, Zun-Hao Chen, Bau-Tong Dai, Yi-Chao Wang, Alexei Zaitsev, and Ci-Ling Pan

Appl. Phys. Lett., Vol. 85, Issue 7, pp. 1232-1234, August 16, 2004
Virtual Journal of Ultrafast Science, September 2004

5. Theoretical and Experimental Studies of tunable UV/Blue Femtosecond Pulses in a 405nm-pumped Type-I b-BBO Non-collinear Optical Parametric Amplifier
Chao-Kuei Lee, Jin-Yuan Zhang, J. Y. Huang and Ci-Ling Pan
J. Opt. Soc. Am. B, Vol. 21, Issue 8, pp. 1494-1499, August 2004
Virtual Journal of Ultrafast Science, Vol. 3, No. 9, September 2004

6. Freezing phase scheme for fast adaptive control and its application to characterization of femtosecond coherent optical pulses reflected from semiconductor saturable absorber mirrors
Ming C. Chen, Jung Y. Huang, Qiantso Yang, C. L. Pan, and Jen-Inn Chyi
Journal of the Optical Society of America B, Vol. 22, No. 5, pp. 1134-1142, May 2005
Virtual Journal of Ultrafast Science, Vol. 4, No. 6, June 2005

7. Multi-Energy Arsenic-Ion-Implanted GaAs Photoconductive THz Spiral Antenna with Suppressed Dark Current and Trailing Edge
Tze-An Liu, Gong-Ru Lin, Yen-Chi Lee, Shing-Chung Wang, M. Tani, Hsiao-Hua Wu, and Ci-Ling Pan
J. Appl. Phys., Vol. 98, 013711-1 to -4, July 15, 2005
Virtual Journal of Ultrafast Science, Vol. 4, No. 8, August 2005

8. Time-Resolved Photoluminescence Analysis of Multidose Si-Ion-Implanted SiO_2
Chun-Jung Lin, Chao-Kuei Lee, Eric Wei-Guang Diau, and Gong-Ru Lin
J. Electrochem. Soc. 153, E25-E32, (2006)
Virtual Journal of Ultrafast Science, Vol. 5, No. 1, January 2006

9. Path-dependent human identification using a pyroelectric infrared sensor and fresnel lens arrays
Jian-Shuen Fang, Qi Hao, David J. Brady, Mohan Shankar, Bob D. Guenther, Nikos P. Pitsianis, Ken Y. Hsu
Optics Express, Vol. 14, Issue 2, pp. 609-624, January 2006
Virtual Journal of Biomedical Optics, Vol. 1, No. 2, Feb.10, 2006

10. Path-dependent human identification using a pyroelectric infrared sensor and Fresnel lens arrays,
Jian-Shuen Fang, Qi Hao, David J. Brady, Mohan Shankar, Bob D. Guenther, Nikos P. Pitsianis, and Ken Y. Hsu,
Optics Express Vol. 14, 609-624, 2006.
Virtual J. for Biomedical Optics, Vol. 1, Issue2, Feb. 10, 2006.

11. A Liquid-Crystal-Based Terahertz Tunable Lyot Filter
Chao-Yuan Chen, Cho-Fan Hsieh, Yea-Feng Lin, Ci-Ling Pan and Ru-Pin Pan
Appl. Phys. Lett., Vol. 88, 101107, March 6, 2006
Virtual Journal of THz Science and Technology, March 2006

12. Supermode-noise-free eighth-order femtosecond soliton from a backward dark-optical-comb-injection mode-locked semiconductor optical amplifier fiber laser
Gong-Ru Lin, Ci-Ling Pan, and I-Hsiang Chiu

Opt. Lett. Vol. 31, No. 6, pp. 835-837, March 15, 2006
Virtual Journal of Ultrafast Science, Vol. 5, No. 6, June 2006

13. Dopant Profile Engineering by Near-Infrared Femtosecond Laser Activation
Yi-Chao Wang, Ci-Ling Pan, Jia-Min Shieh and Bau-Tong Dai
Appl. Phys. Lett., Vol. 88, 1311104, March 27, 2006
Virtual Journal of Nanoscale Science and Technology, Vol. 13, No. 14, April 10, 2006
Virtual Journal of Ultrafast Science, Vol. 5, No. 4, April 2006

14. Dynamic characteristics of long-wavelength quantum dot vertical-cavity surface-emitting lasers with light injection
P. C. Peng, H. C. Kuo, W. K. Tsai, Y. H. Chang, C. T. Lin, S. Chi, S. C. Wang, G. Lin, H. P. Yang, K. F. Lin, H. C. Yu, and J. Y. Chi
Opt. Express 14, 2944-2949, April 3, 2006
Virtual Journal of Nanoscale Science and Technology, Vol. 13, No. 20, May 22, 2006

15. Voltage-controlled liquid crystal terahertz phase shifter and quarter wave plate
Cho-Fan Hsieh and Ru-Pin Pan, Tsung-Ta Tang, Hung-Lung Chen, and Ci-Ling Pan
Optics Letters, Vol. 31, No. 8, pp. 1112-1114, April 15, 2006
Virtual Journal of THz Science and Technology, April 2006
OSA Virtual Journal for Biomedical Optics, Vol. 1, No. 5, May 2006

16. Fabrication of magnesium-doped gallium nitride nanorods and microphotoluminescence characteristics
Fang-I Lai, S. Y. Kuo, Y. H. Chang, H. W. Huang, C. W. Chang, C. C. Yu, C. F. Lin, H. C. Kuo, and S. C. Wang
J. Vac. Sci. Technol. B 24, 1123-1126, May 2006
Virtual Journal of Nanoscale Science and Technology, Vol. 13, No. 17, May 1, 2006

17. All-optical pulse data generation in a semiconductor optical amplifier gain-controlled by a reshaped optical clock injection,
Gong-Ru Lin, Kun-Chieh Yu, Yung-Cheng Chang,
Applied Physics Letters, Vol. 88, No. 19, 191114, May 2006.
Virtual Journal of Ultrafast Science, Vol. 5, No. 6, June 2006.

18. Dual-Stage Soliton Compression of a Self-Started Additive Pulse Mode-Locked Erbium-Dope Fiber Laser for 48-fs Pulse Generation,
Ying-Tsung Lin and Gong-Ru Lin,
Optics Letters, Vol. 31, No. 10, pp. 1382-1384, May 2006.
Virtual Journal of Ultrafast Science, Vol. 5, No. 7, June 2006.

19. 10 Gbit/s All-Optical NRZ-to-RZ Data Format Conversion Based on a Backward Dark-Optical-Comb Injected Semiconductor Optical Amplifier
Gong-Ru Lin, Kun-Chieh Yu, and Yung-Cheng Chang,
Optics Letters, Vol. 31, No. 10, pp. 1376-1378, May 2006
Virtual Journal of Ultrafast Science, Vol. 5, No. 7, June 2006

20. Trap-state density in continuous-wave laser-crystallized single-grain-like silicon transistors
Yu-Ting Lin and Chih Chen, Jia-Min Shieh and Yao-Jen Lee, Ci-Ling Pan, Ching-Wei Cheng, Jian-Ten Peng, and Chih-Wei Chao
Appl. Phys. Lett., 88, 233511, June 5, 2006
Virtual Journal of Nanoscale Science and Technology, Vol. 13, No. 24, June 19, 2006

21. Erbium doped GaSe crystal for mid-IR applications

Yu-Kuei Hsu, Ching-Wei Chen, Jung Y. Huang, Ci-Ling Pan, Jing-Yuan Zhang, Chen-Shiung Chang
Optics Express, Vol. 14, No. 12, pp. 5484-5491, June 12, 2006
Virtual Journal of Ultrafast Science, Vol. 5, No. 8, August 2006
OSA Virtual Journal for Biomedical Optics, Vol. 1, No. 7, July 2006

22. Observation of strong red photoluminescence with broadband in indium oxynitride nanoparticles
T. S. Ko, C. P. Chu, H. G. Chen, T. C. Lu, H. C. Kuo, and S. C. Wang
J. Vac. Sci. Technol. A 24, 1332-1335, July 2006
Virtual Journal of Nanoscale Science and Technology, Vol. 14, No. 1, July 4, 2006

23. Electrically Tunable Room-Temperature 2π Liquid Crystal Terahertz Phase Shifter
Hsin-Ying Wu, Cho-Fan Hsieh, Tsung-Ta Tang, Ru-Pin Pan, and Ci-Ling Pan
IEEE Photon. Technol. Lett., Vol. 18, No. 14, pp. 1488-1490, July 15, 2006
Virtual Journal of THz Science and Technology, July 2006

24. Fabrication and photoluminescence of InGaN-based nanorods fabricated by plasma etching with nanoscale nickel metal islands
H. W. Huang, J. T. Chu, T. H. Hsueh, M. C. Ou-Yang, H. C. Kuo, and S. C. Wang
J. Vac. Sci. Technol. B 24, 1909-1912, July 2006
Virtual Journal of Nanoscale Science and Technology, Vol. 14 No. 4, July 24, 2006

25. Real-time human identification using a pyroelectric infrared detector array and hidden Markov models
Jian-Shuen Fang, Qi Hao, David J. Brady, Bob D. Guenther, Ken Y. Hsu
Optics Express, Vol. 14, Issue 15, pp. 6643-6658, July 2006
Virtual Journal of Biomedical Optics, Vol. 1, No. 8, August 7, 2006

26. Rapid Self-Assembly of Ni Nanodots on Si Substrate covered by a Less-Adhesive and Heat-Accumulated SiO2 Layer,
Gong-Ru Lin, Hao-Chung Kuo, Huang-Shen Lin, and Chi-Chiang kao,
Applied Physics Letters, Vol. 89, No. 7, pp. 073108, August 2006.
Virtual Journal of Nanoscale Science & Technology, Vol. 14, No. 9, August 2006.

27. Tunable optical group delay in quantum dot vertical-cavity surface-emitting laser at 10 GHz
P.C. Peng, C.T. Lin, H.C. Kuo, G. Lin, W.K. Tsai, H.P. Yang, K.F. Lin, J.Y. Chi, S. Chi, and S.C. Wang
Electron. Lett. 42, 1036-1037, August 31, 2006
Virtual Journal of Nanoscale Science and Technology, Vol. 14, No. 11, Sep. 11, 2006

28. Synthesis of Si Nano-Pyramids at SiOx/Si Interface for Enhancing Electroluminescence of Si-Rich SiOx Based MOS Diode,
Gong-Ru Lin, Chi-Kuan Lin, L.-J. Chou, and Y.-L. Chueh,
Applied Physics Letters, Vol. 89, No. 9, 093126, September 2006.
Virtual Journal of Nanoscale Science & Technology, Vol. 14, No. 12, September 2006.

29. Generation Properties of Coherent Infrared Radiation in the Optical Absorption Region of GaSe
Ching-Wei Chen, Yu-Kuei Hsu, Jung Y. Huang, and Chen-Shiung Chang, Jing-Yuan Zhang, Ci-Ling Pan
Optics Express, Vol. 14, Issue 22, pp. 10636-10644, Oct. 30, 2006
Virtual Journal of Ultrafast Science, Vol. 6, No. 1, January 2007
Virtual Journal of THz Science and Technology, October 2006

30. Pulse retrieval from interferometric autocorrelation measurement by use of the population-split genetic algorithm
Ching-Wei Chen, Jung Y. Huang and Ci-Ling Pan

Optics Express, Vol. 14, No. 22, pp. 10930-10938, Oct. 30, 2006
Virtual Journal of Ultrafast Science, Vol. 6, No. 1, January 2007

31. InGaN/GaN nanostripe grown on pattern sapphire by metal organic chemical vapor deposition
T. S. Ko, T. C. Wang, R. C. Gao, Y. J. Lee, T. C. Lu, H. C. Kuo, S. C. Wang, and H. G. Chen
Appl. Phys. Lett. 90, pp. 013110, January 4, 2007
Virtual Journal of Nanoscale Science and Technology, Vol. 15, No. 3, January 22, 2007

32. Enhanced photoresponse of a Metal-Oxide-Semiconductor photodetector with Si nanocrystals embedded in the oxide layer
Jia-Min Shieh, Yi-Fan Lai, and Wei-Xin Ni, Hao-Chung Kuo, Chih-Yao Fang, Jung Y. Huang, and Ci-Ling Pan
Appl. Phys. Lett., Vol. 90, art. 051105, January 30, 2007
Virtual Journal of Nanoscale Science and Technology, Vol. 15, No. 6, February 12, 2007

33. A pyroelectric infrared biometric system for real-time walker recognition by use of a maximum likelihood principal components estimation (MLPCE) method
Jian-Shuen Fang, Qi Hao, David J. Brady, Bob D. Guenther, Ken Y. Hsu
Optics Express, Vol. 15, Issue 6, pp. 3271-3284, March, 2007
Virtual Journal of Biomedical Optics, Vol. 2, No. 4, April 10, 2007

34. Anomalous microphotoluminescence of high-aspect-ratio Si nanopillars formatted by dry-etching Si substrate with self-aggregated Ni nanodot mask
Gong-Ru Lin, Chun-Jung Lin, Hao-Chung Kuo, Huang-Sheng Lin, and Chi-Chiang Kao
Appl. Phys. Lett. 90, 143102, April 2, 2007
Virtual Journal of Nanoscale Science and Technology, Vol. 15, No. 15, April 16, 2007

35. High quality factor microcavity lasers realized by circular photonic crystal with isotropic photonic band gap effect
Po-Tsung Lee, Tsan-Wen Lu, Jyun-Hao Fan, and Feng-Mao Tsai
Appl. Phys. Lett. 90, 151125, April 13, 2007
Virtual Journal of Nanoscale Science and Technology, Vol. 15, No. 17, April 30, 2007

36. Optical properties of InGaN quantum dots grown by SiN_x nanomasks
L. L. Huang, H. J. Chang, Y. Y. Chou, C. H. Wang, T. T. Chen, Y. F. Chen, J. Y. Tsai, S. C. Wang, and H. C. Kuo
J. Appl. Phys. 101, 083501, April 16, 2007
Virtual Journal of Nanoscale Science and Technology, Vol. 15, No. 17, April 30, 2007

37. Investigation on spectral loss characteristics of subwavelength terahertz fibers
Hung-Wen Chen, Yu-Tai Li,Ci-Ling Pan, Jeng-Liang Kuo, Ja-Yu Lu, Li-Jin Chen, and Chi-Kuang Sun
Opt. Lett. Vol. 32, No. 9, pp. 1017-1019, May 1, 2007
Virtual Journal of THz Science and Technology, May 2007

38. Low refractive index Si nanopillars on Si substrate
Gong-Ru Lin, Ya-Chung Chang, En-Shao Liu, Hao-Chung Kuo, and Huang-Shen Lin
Appl. Phys. Lett. 90, 181923, May 3, 2007
Virtual Journal of Nanoscale Science and Technology, Vol. 15, No. 19, May 14, 2007

39. Optical characteristics of *a*-plane InGaN/GaN multiple quantum wells with different well widths
T. S. Ko, T. C. Lu, T. C. Wang, M. H. Lo, J. R. Chen, R. C. Gao, H. C. Kuo, S. C. Wang, and J. L. Shen
Appl. Phys. Lett. 90, 181122, May 3, 2007
Virtual Journal of Ultrafast Science, Vol. 6, No. 6, June 2007

40. Near-infrared femtosecond laser crystallized poly-Si thin film transistors
Yi-Chao Wang, Jia-Min Shieh, Hsiao-Wen Zan and Ci-Ling Pan
Opt. Exp., Vol. 15, No. 11, pp. 6981-6986, May 28, 2007
Virtual Journal of Ultrafast Sciences, Vol . 6, No. 7, July 2007

41. Synthesis of In_2O_3 nanocrystal chains and annealing effect on their optical properties
T. S. Ko, C. P. Chu, J. R. Chen, Y. A. Chang, T. C. Lu, H. C. Kuo, and S. C. Wang
J. Vac. Sci. Technol. A 25, 1038, 2007
Virtual Journal of Nanoscale Science and Technology, Vol. 16, No. 3, July 16, 2007

42. Highly Strained InGaAs/GaAs Quantum Well Vertical-Cavity Surface-Emitting Lasers
Hung-Pin D. Yang, I-Liang Chen, Chen-Hong Lee, Chih-Hong Chiou, Tsin-Dong Lee, I-Chen Hsu, Fang-I Lai, Gray Lin, Hao-Chung Kuo, and Jim Y. Chi
Jpn. J. Appl. Phys., Part 2 46, L509-L511, June 25, 2007
Virtual Journal of Nanoscale Science and Technology, Vol. 16, No. 3, July 16, 2007

43. Sub- THz Photonic- Transmitters Based on Separated- Transport- Recombination Photodiode and Micromachined Slots Antenna
Yu-Tai Li, J.-W. Shi, Ci-Ling Pan, C.-H. Chiu, W.- S. Liu, C. -K. Sun, and J. -I. Chyi
IEEE Photon. Technol. Lett., Vol. 19, No. 11 pp. 840-842, June 1, 2007
Virtual Journal of THz Science and Technology, June 2007

44. All-Optical Decision-Gating of 10-Gb/s RZ Data in a Semiconductor Optical Amplifier Temporally Gain-Shaped With Dark-Optical-Comb
Gong-Ru Lin, Kun-Chieh Yu, Ci-Ling Pan and Yu-Sheng Liao
Journal of Lightwave Technology, Vol. 25, No. 7, pp. 1651 – 1658, July 2007
Virtual Journal of Ultrafast Science Vol. 6, No. 12, December 2007

45. Lasing characteristics of a GaN photonic crystal nanocavity light source
Chun-Feng Lai, Peichen Yu, Te-Chung Wang, Hao-Chung Kuo, Tien-Chang Lu, Shing-Chung Wang, and Chao-Kuei Lee
Appl. Phys. Lett. 91, 041101, July 23, 2007
Virtual Journal of Nanoscale Science and Technology, Vol. 16, No. 6, August 6, 2007

46. Improving carrier transport and light emission in a silicon-nanocrystal based MOS light-emitting diode on silicon nanopillar array
Gong-Ru Lin, Chun-Jung Lin, and Hao-Chung Kuo
Appl. Phys. Lett. 91, 093122, August 29, 2007
Virtual Journal of Nanoscale Science and Technology, Vol. 16, No. 11, Sep. 10, 2007

47. Anisotropy of light extraction from two-dimensional photonic crystal light-emitting diodes
Chun-Feng Lai, H. C. Kuo, C. H. Chao, H. T. Hsueh, J.-F. T. Wang, W. Y. Yeh, and J. Y. Chi
Appl. Phys. Lett. 91, 123117, Sep. 29, 2007
Virtual Journal of Nanoscale Science and Technology, Vol. 16, No. 14, October 1, 2007

48. Terahertz emission from vertically aligned InN nanorod arrays
H. Ahn, Y.-P. Ku, Y.-C. Wang, C.-H. Chuang, S. Gwo, and Ci-Ling Pan
Appl. Phys. Lett. 91 (13), 132108, Sep. 27, 2007
Virtual Journal of THz Science and Technology, September 2007

49. Dynamic chirp control of all-optical format-converted pulsed data from a multi-wavelength inverse-optical-comb injected semiconductor optical amplifier

Gong-Ru Lin, Ci-Ling Pan and Kun-Chieh Yu
Opt. Exp., Vol. 15, Issue 20, pp. 13330-13339, October 1, 2007
Virtual Journal of Ultrafast Science, Vol. 6, No. 12, December 2007

50. Terahertz spectroscopic study of vertically aligned InN nanorods
H. Ahn, Y.-P. Ku, Y.-C. Wang, C.-H. Chuang, S. Gwo, and Ci-Ling Pan
Appl. Phys. Lett. 91 (16), 163105, October 16, 2007
Virtual Journal of THz Science and Technology, October 2007

51. GaN-based two-dimensional surface-emitting photonic crystal lasers with AlN/GaN distributed Bragg reflector
Tien-Chang Lu, Shih-Wei Chen, Li-Fan Lin, Tsung-Ting Kao, Chih-Chiang Kao, Peichen Yu, Hao-Chung Kuo, Shing-Chung Wang, and Shanhui Fan
Appl. Phys. Lett. 92, 011129, January 11, 2008
Virtual Journal of Nanoscale Science and Technology, Vol. 17, Iss. 3, January 21, 2008

52. THz interferometric imaging using subwavelength plastic fiber based THz Endoscopes Ja-Yu Lu, Chung-Chiu Kuo, Chui-Min Chiu, Hung-Wen Chen, Yuh-Jing Hwang, Ci-Ling Pan, and Chi-Kuang Sun
Optics Express, Vol. 16, Issue 4, pp. 2494-2501, February 18, 2008
Virtual Journal for Biomedical Optics, Vol. 3, Iss. 3, March 31, 2008

53. TERAHERTZ AIR-CORE MICROSTRUCTURE FIBER
JA-YU LU, CHIN-PING YU, HUNG-CHUNG CHANG, HUNG-WEN CHEN, YU-TAI LI, CI-LING PAN, AND CHI-KUANG SUN
APPL. PHYS. LETT. 92, 064105 (2008)
Virtual Journal of THz Science and Technology, February 2008

54. TERAHERTZ SCANNING IMAGING WITH A SUBWAVELENGTH PLASTIC FIBER
JA-YU LU, CHUI-MIN CHIU, CHUNG-CHIU KUO, CHIH-HSIEN LAI, HUNG-CHUNG CHANG, YUH-JING HWANG, AND CI-LING PAN
ANALYTICAL CHEM. 92, 084102 (2008)
Virtual Journal of THz Science and Technology, February 2008

55. INTENSE TERAHERTZ EMISSION FROM A-PLANE INN SURFACE
H. AHN, Y.-P. KU, C.-H. CHUANG, C.-L. PAN, H.-W. LIN, Y.-L. HONG, AND S. GWO
APPL. PHYS. LETT. 92, 102103 (2008)
Virtual Journal of THz Science and Technology, March 2008

56. RESONANCE-ENHANCED DIPOLAR INTERACTION BETWEEN TERAHERTZ PHOTONS AND CONFINED ACOUSTIC PHONONS IN NANOCRYSTALS
TZU-MING LIU, JA-YU LU, HUNG-PING CHEN, CHUNG-CHIU KUO, MENG-JU YANG, CHIH-WEI LAI, PI-TAI CHOU, MING-HAO CHANG, HSIANG-LIN LIU, YU-TAI LI, CI-LING PAN, SHIH-HUNG LIN, CHIEH-HSIUNG KUAN, AND CHI-KUANG SUN,
APPL. PHYS. LETT. 92, 093122 (2008)
Virtual Journal of THz Science and Technology, March 2008

VIII. APPENDIX III: LIST OF PUBLICATIONS IN "TOP"JOURNALS AND CONFERENCES

Sub-Project1:

1. The criteria for top journals and conferences should be defined and stated briefly at the beginning of this section.
2. Please provide electronic files for these publications

"Top" journals are defined by their SCI Impact factor ranking in 2006. Those ranked in the top 1/3 of their catergory are listed as top journals.

Partial List of "Top" Journals (journals that the P.I. published in the period of Apr. 2004 – Feb. 2006) in alphabetical order:

1. Appl. Phys. B [impact factor: 2.023, ranked 20/84 (Physics, Applied), 10/56 (Optics)]
2. Appl. Phys. letters. [impact factor: 3.977, ranked 6/84 (Physics, Applied)]
3. Eelctrochemistry and Solid State Letters [impact factor: 2.009, ranked 35/176 (Materials, Multidisciplinary)]
4. IEEE J. of Lightwave Technology [impact factor: 2.824, ranked 7/206 (EE), 6/56 (Optics)]
5. IEEE Journal of Quantum Electronics [impact factor: 2.262, ranked 18/206 (EE), 16/84 (Physics, Applied)]
6. IEEE Journal of Sel. Top. In Quantum Electron. [impact factor: 2.842, 5/206 (EE), 5/56 (Optics)]
7. IEEE Photonics Technology Letters [impact factor: 2.353, ranked 16/206 (EE), 8/56 (Optics)]
8. Journal of Applied Physics [impact factor: 2.316, ranked 14/84 (Physics, Applied)]
9. Journal of Electrochemical Society [impact factor: 2.387, ranked 1/16 (Materials, Coating and Films)]
10. Journal of Optical society of America B [impact factor: 2.002, ranked 11/56 (Optics)]
11. Nanotechnology [impact factor: 3.307, ranked 9/84 (Physics, Applied), 22/176 (Materials, Multidisciplinary)]
12. Optics Express [impact factor: 4.009, ranked 1/56 (Optics)]
13. Optics Letters [impact factor: 3.598, ranked 2/56 (Optics)]
14. Semiconductor Science and Technology [impact factor: 1.586, ranked 37/206 (EE), 47/176 (Materials, Multidisciplinary)]

Those Conferences with a high reputation and high rejection ratio are considered "top" conferences.

1. CLEO/QELS/IQEC
2. MRS
3. OFC
4. Ultrafast phenomena

A partial list of publications in top journals (less than 5 per area) are list below:

A. Coherent and THz Photonics

1. Wei-Jan Chen, Jhi-Ming Hsieh, Shu Wei Huang, Hao-Yu Su, Chien-Jen Lai, Tsung-Ta Tang, Chuan-Hsien Lin, Chao-Kuei Lee, Ru-Pin Pan, Ci-Ling Pan, and A. H. Kung, "Sub-Single-Cycle Optical Pulse Train with Constant Carrier Envelope Phase," Phys. Rev. Lett., Vol. 100, art. 163906, April 25, 2008.
2. Gong-Ru Lin, Ci-Ling Pan, and I-Hsiang Chiu, "Supermode-noise-free eighth-order femtosecond soliton from a backward dark-optical-comb-injection mode-locked semiconductor optical amplifier fiber laser," Opt. Lett. Vol. 31, No. 6, pp. 835-837, March 15, 2006, selected by Virtual Journal of Ultrafast Science, Vol. 5, No. 6, June 2006.
3. Yi-Chao Wang, Ci-Ling Pan, Jia-Min Shieh and Bau-Tong Dai, "Dopant Profile Engineering by Near-Infrared

Femtosecond Laser Activation," Appl. Phys. Lett., Vol. 88, 1311104, March 27, 2006, selected by Virtual Journal of Nanoscale Science and Technology, Vol. 13, No. 14, April 10, 2006 and Virtual Journal of Ultrafast Science, Vol. 5, No. 4, April 2006.

4. Cho-Fan Hsieh and Ru-Pin Pan, Tsung-Ta Tang, Hung-Lung Chen, and Ci-Ling Pan, "Voltage-controlled liquid crystal terahertz phase shifter and quarter wave plate," Optics Letters, Vol. 31, No. 8, pp. 1112-1114, April 15, 2006, selected by Virtual Journal of THz Science and Technology, April 2006 and OSA Virtual Journal for Biomedical Optics, Vol. 1, No. 5, May 2006.
5. Yu-Kuei Hsu, Ching-Wei Chen, Jung Y. Huang, Ci-Ling Pan, Jing-Yuan Zhang, Chen-Shiung Chang, "Erbium doped GaSe crystal for mid-IR applications," Optics Express, Vol. 14, No. 12, pp. 5484-5491, 12 June, 2006, selected by Virtual Journal of Ultrafast Science, Vol. 5, No. 8, August 2006, and OSA Virtual Journal for Biomedical Optics, Vol. 1, No. 7, July 2006.

B. Quantum (Photonic Crystal) Structures and Enabling Devices

1. C. H. Chiu, T. C. Lu, H. W. Huang, C. F. Lai, C. C. Kao, J. T. Chu, C. C. Yu, H. C. Kuo, and S. C. Wang, C. F. Lin, T. H. Shueh, "Fabrication of InGaN/GaN MQW nanorods LED by ICP-RIE and PEC oxidation process with self-assembly Ni metal islands", Nanotechnology, V18, N.44, p445201, Nov. 7, 2007
2. C. E. Lee, Y. J. Lee, H. C. Kuo, M. R. Tsai, B. S. Cheng, T. C. Lu, S. C. Wang, C. T. Kuo, **"**Enhancement of Flip-Chip Light-Emitting Diodes With Omni-Directional Reflector and Textured Micropillar Arrays**",** IEEE Photon. Tech. Lett., V19, No16, pp1200-1202, Aug. 15, 2007.
3. Chun-Feng Lai, Peichen Yu, Te-Chung Wang, Hao-Chung Kuo, Tien-Chang Lu, Shing-Chung Wang and Chao-Kuei Lee "Lasing Characteristics of a GaN Photonic Crystal Nanocavity Light Source", Appl. Phys. Lett., V91, 041101, Jul. 23, 2007.
4. YS Liao, JW Shi, YS Wu, HC Kuo, M Feng, GR Lin," Optically heterodyne diagnosis of a high-saturation-power undoped InP sandwiched InGaAs p-i-n photodiode grown on GaAs" Optics Express 14 (12): 5031-5037 JUN 12 2006.
5. PC Peng, WR Peng, KM Feng, HY Chiou, J Chen, HC Kuo, SC Wang, S Chi," OCDMA light source using directly modulated Fabry-Perot laser diode in an external injection scheme" IEEE Photonics Technology Letters 18 (9-12): 1103-1105 MAY-JUN 2006.

C. Volume Holographic Materials, Technology and Enabling Devices

1. Shiuan-Huei Lin, Po-Lin Chen, Yi-Nan Hsiao and Wha-Tzong Whang, "Fabrication and Characterization of poly (methyl methacrylate) photopolymer doped with 9,10-Phenanthrenequinone (PQ) based derivatives for volume holographic data storage", Optics Communications, Vol. 281, pp. 559-566, 2008.
2. V. Marinova, D. Petrova, S. H. Lin and K.Y. Hsu, "Light-induced and holographic properties of Fe+Mn doubly-doped $Bi_4Ge_3O_{12}$ crystals", Optics Communications, Vol. 281, pp. 37-43, 2008.
3. Shiuan-Huei Lin, Yi-Nan Hsiao, Ken Y. Hsu and Wha- Tzong Whang, "Poly (methyl methacrylate-co-hydroxyethyl methacrylate) photopolymer doped with photoinitiator system Eosin Y Spirit Soluble/Triethanolamine for holographic data storage," in press, J. Optical Memory & Neural Networks, 2008.
4. Shiuan Huei Lin, Po-Lin Chen, Jung-Hwa Lin, Yi-Nan Hsiao and Ken Y. Hsu, "Phenanthrenequinone-doped copolymers for volume holographic data storage applications," submitted to Optical Engineering, 2008.

D. Petrova, V. Marinova, R. C. Liou, S. H. Lin and K.Y. Hsu, "Characterization of doped $Bi_4Ge_3O_{12}$ single crystals by light-induced, electrical and photoelectrical measurements" J. of optoelectronics and advanced material, Vol. 9, No. 2, p.

282 – 285, February 2007.

Sub-Project2:

Summary:

Top Journals:

Optics Letters-- 11

Optics Express-- 24

IEEE Photonics Technology Letters-- 27

IEEE Journal of Lightwave Technology--5

IEEE Journal OF Selected Topics in Quantum Electronics--1

IEEE Transactions--8

Physical Review--6

International Journal papers:

[Optical Communication: 2004-2008]

[Accepted]

1. C.-C. Wei, J. Chen, and Y. Chen, “Evaluation the Performance Improvement of DPSK Signals by Amplitude Regeneration and Phase Noise Suppression”, to be published at Optics Lett., 2008.
2. C.-T. Lin, Y.-M. Lin, J. Chen, S.-P. Dai, P. T. Shih, P.-C. Peng, and S. Chi, “Optical Direct-Detection OFDM Signal Generation for Radio-Over-Fiber Link Using Frequency Doubling Scheme with Carrier Suppression”, to be published at Optics Express, 2008.
3. C.-T. Lin, S.-P. Dai, J. Chen, P. T. Shih, P.-C. Peng, S. Chi, “A Novel Direct Detection Microwave Photonic Vector Modulation Scheme for Radio-Over-Fiber System”, to be published at IEEE Photon. Technol. Lett., 2008
4. C.T. Lin, P. T. Shih, J. Chen, W.-Q Xue, P.-C. Peng, S. Chi, “Optical Millimeter-Wave Signal Generation Using Frequency Quadrupling Technique and No Optical Filtering”, to be published at IEEE Photon. Technol. Lett., 2008
5. C.T. Lin, P. T. Shih, J. Chen, P.-C. Peng, S.-P. Dai, W.-J. Jiang, W.-Q Xue, and S. Chi, “Cost-Effective Multi-Services Hybrid Access Networks with no Optical Filter at Remote Nodes”, to be published at IEEE Photon. Technol. Lett., 2008

[Published]

1. C.H. Yeh, F.Y. Shih, C.H. Wang, C.W. Chow , S. Chi, “Cost-effective wavelength-tunable fiber laser using self-seeding Fabry-Perot laser diode,” OPTICS EXPRESS, Vol:16, Pages: 435-439, 2008.
2. N.K. Chen, C.M. Hung, S. Chi, Y. Lai, “Towards the short-wavelength limit lasing at 1450 nm over I-4(13/2)-> I-4(15/2) transition in silica-based erbium-doped fiber,” OPTICS EXPRESS, Vol: 15, Pages: 16448-16456, 2007. (selected into *Virtual Journal for Biomedical Optics*, Vol. 3, Issue 1, January, 2008)
3. N.K. Chen, C.L. Lee, S. Chi, “Wideband tunable wavelength-selective coupling in asymmetric side-polished fiber coupler with dispersive interlayer,” OPTICS EXPRESS, Vol: 15, Pages: 17747-17753, 2007.
4. C.H. Yeh, F.Y. Shih, C.T. Chen, S. Chi, "Triple-wavelength erbium fiber ring laser based on compound-ring scheme", OPTICS EXPRESS, Vol: 15, Pages: 17980-17984, 2007.
5. N.K. Chen, D.Y. Hsu, S. Chi,“Widely tunable asymmetric long-period fiber grating with high sensitivity using optical polymer on laser-ablated cladding” OPTICS LETTERS, 32 (15): 2082-2084 AUG 1, 2007.
6. W.R. Peng, S. Chi, “Quantum limit of optimum four-level ASK signals with direct detection optically preamplified receivers,” OPTICS EXPRESS, 15 (11): 6790-6797 MAY 28, 2007.
7. C.H. Yeh, D.Z. Hsu, S. Chi, “Upstream power equalization in a gigabit passive optical network Source,” OPTICS EXPRESS, 15 (8): 5191-5195 APR 16, 2007.
8. C.H. Yeh, T.T. Huang, H.C. Chien, C.H. Ko, S. Chi, “Tunable S-band erbium-doped triple-ring laser with

single-longitudinal-mode operation," OPTICS EXPRESS, 15 (2): 382-386 JAN 22, 2007,

9. M. F. Huang, J. Chen, J. Yu, S. Chi and G.-K. Chang "A Novel Dispersion-free Interleaver for Bi-directional DWDM Transmission Systems," IEEE J. Lightwave Technol., Vol. 25, No. 11, pp. 3543- 3554, 2007.
10. C. C. Wei and J. Chen,, "Convergence of phase fluctuation induced by intrachannel four-wave mixing in differential phase-shift keying transmission systems via phase fluctuation averaging", Optics Lett., no. 10, pp. 1217-1219, May, 2007.
11. C. T. Lin, J. Chen,, P. Peng, C. Peng, W. Peng, B. Chiou and S. Chi, "Hybrid optical access network integrating fiber-to-the home and radio-over-fiber systems", IEEE Photon. Technol. Lett., vol. 19, pp. 610-612, Apr., 2007.
12. C. T. Lin, W. R. Peng, P. C. Peng, J. Chen, C. F. Peng, B. S. Chiou, and S. Chi, "Simultaneous Generation of Baseband and Radio Signals Using Only One Single-Electrode Mach–Zehnder Modulator With Enhanced Linearity," IEEE Photon. Technol. Lett., vol. 18, pp. 2481-2483, 2006.
13. C.C. Wei, J. Chen, "Convergence of phase noise in DPSK transmission systems by novel phase noise averagers", Optics Express, vol. 14, No. 21, pp. 9584-9593, 2006.
14. H.C. Chien, C.C. Lee, C.T. Lin CT, et al., "EDFA-free all-optical 2R regeneration using a compact self-seeded Fabry-Perot laser diode", IEEE PHOTONICS TECHNOLOGY LETTERS 18 (9-12): 1112-1114, 2006.
15. H.C. Chien, C.C. Lee, S. Chi, "An all-optical 2R regenerator using a compact self-seeded Fabry-Perot laser diode incorporated in a bidirectional EDFA", IEEE PHOTONICS TECHNOLOGY LETTERS 18 (9-12): 1344-1346, 2006.
16. H.C. Chien, C.C. Lee, Y.M. Chen, et al., "All-optical 2R regeneration based on a compact self-seeded Fabry-Perot laser diode with an embedded fiber Bragg grating", IEEE PHOTONICS TECHNOLOGY LETTERS 18 (1-4): 559-561, 2006.
17. M.-F. Huang, K.-M. Feng, J. Chen, T.-Y. Lin, C.-C. Wei, S. Chi, "Wavelength-Interleaving Bidirectional Transmission System Using Unidirectional Amplification in a 5x100 km Recirculating Loop", IEEE Photonics Technol. Lett., pp. 1326-1328, 2006.
18. M.F. Huang, J. Chen, K. M. Feng, et al., "210-km Bidirectional transmission system with a novel four-port interleaver to facilitate unidirectional amplification", IEEE PHOTONICS TECHNOLOGY LETTERS 18 (1-4): 172-174, 2006.
19. W.R. Peng, W.P. Lin, S. Chi, "Improved fiber Bragg grating array OFFH-CDMA system using a novel frequency-overlapping multigroup method", JOURNAL OF LIGHTWAVE TECHNOLOGY 24 (3): 1072-1081, 2006.
20. P.-C. Peng, W.-R. Peng; K.-M. Feng, H.-Y. Chiou, J. Chen; H.-C. Kuo, S.-C. Wang, S. Chi, "OCDMA light source using directly modulated Fabry-Perot laser diode in an external injection scheme", IEEE Photonics Technol. Lett., pp. 1103-1105, 2006.
21. C.H. Yeh, M.C. Lin, T.T. Huang, et al., "S-band gain-clamped grating-based erbium-doped fiber amplifier by forward optical feedback technique", OPTICS EXPRESS 14 (7): 2611-2617, 2006.
22. N. K. Chen, K. C. Hsu, S. Chi, and Y. Lai, "Tunable Er3+-doped fiber amplifiers covering S and C + L bands over 1490-1610 nm based on discrete fundamental-mode cutoff filters," Opt. Lett. 31, 2842-2844, 2006.
23. N. K. Chen and S. Chi, "Influence of a holey cladding structure on spectral characteristics of side-polished endlessly single-mode photonic crystal fibers," Opt. Lett. 31, 2251-2253, 2006.
24. C.H. Yeh, M.C. Lin, S. Chi, "A tunable erbium-doped fiber ring laser with power-equalized output", Optics Express 14 (26): 12828-12831, 2006.
25. W. -W. Hsiang, C. -Y. Lin, and Y. Lai, "Stable new bound soliton pairs in a 10 GHz hybrid frequency modulation mode-locked Er-fiber laser," Opt. Lett. 31, 1627-1629, 2006.
26. W.-W. Hsiang, C.-Y. Lin, N.-K. Sooi, Y. Lai, "Long-term stabilization of a 10 GHz 0.8 ps asynchronously

mode-locked Er-fiber soliton laser by deviation-frequency locking," Optics Express 14, 1822-1828, 2006.

27. P.C. Peng, C.T. Lin, H.C. Kuo, W.K. Tsai, J.N. Liu, S. Chi, S.C. Wang, G. Lin, H.P. Yang, K.F. Lin, J.Y. Chi, "Tunable slow light device using quantum dot semiconductor laser", Optics Express 14 (26): 12880-12886, 2006.
28. P.C. Peng, H.C. Kuo, W.K. Tsai, et al., "Dynamic characteristics of long-wavelength quantum dot vertical-cavity surface-emitting lasers with light injection", OPTICS EXPRESS 14 (7): 2944-2949, 2006.
29. C.T. Lin, B.S. Chiou, S. Chi, "Cost-effective optoelectronic packages using powder metallurgy", IEEE JOURNAL OF SELECTED TOPICS IN QUANTUM ELECTRONICS 12 (5): 970-982, 2006.
30. Y.-C. Lu, J. Chen, K.-M. Feng, P.-C. Yeh, T.-Y. Huang, W.-R. Peng, M.-F. Huang, and C.-C. Wei, "Improved SPM Tolerance and Cost-Effective Phase-Modulation Duobinary Transmission over 230 km Standard Single-Mode Fiber Using a Single Mach-Zehnder Modulator", IEEE Photonics Technol. Lett., vol.17, 2754-2756, Dec. 2005.
31. C.-C. Wei and J. Chen, "Study of Differential Cross-Polarization Modulation in Semiconductor Optical Amplifier", Optics Express, vol. 13, No. 21, pp. 8442-8451, Oct. 2005.
32. W.-R. Peng, Y.-C. Lu, J. Chen, S. Chi, "Encoding ASK labeled CSRZ-DPSK payload by using only one dual-drive Mach-Zehnder Modulator with enhanced label performance", IEEE Photonics Technol. Lett., vol.17, p. 2227-2229, Oct. 2005.
33. C.C Wei, M. F. Huang, J.H. Chen, "Enhancing the Frequency Response of Cross Polarization Wavelength Conversion", IEEE Photonics Technol. Lett., vol.17, pp. 1683-1685, Aug. 2005.
34. K. M Feng, M. F Huang, C. C. Wei, C. Y Lai, T. Y. Lin, J. H. Chen and S. Chi, "Metro Add/Drop Network Applications of Cascaded Dispersion-Compensated Interleaver Pairs Using a Re-circulating loop", IEEE Photonics Technol. Lett., vol.17, pp.1349-1351, June 2005.
35. G. R. Lin, Y. C. Chang, Y. H. Lin, and J. H. Chen, "All Optical Data Format Conversion in Synchronously Modulated Single-Mode Fabry-Perot Laser Diode Using External Injection-Locking Induced Nonlinear Threshold Reduction Effect", IEEE Photonics Technol. Lett., vol.17, pp. 1307-1309, March 2005.
36. C.-C. Lee, T.-C. Kao, H.-C. Chien, and S. Chi, "A novel supervisory scheme for OXC based on different time-delay recognition," IEEE Photon. Technol. Lett., vol. 17, no. 12, p. 2745, 2005.
37. W.-P. Lin, "A robust fiber-radio architecture for bidirectional WDM ring access network," IEEE/OSA Journal of Lightwave Technology, vol. 23, no. 9, pp. 2610-2620, Sept. 2005.
38. W.-P. Lin and J.-Y. Chen, "Implementation of a new ultrawide-band impulse system," IEEE Photonics Technology Letters, vol. 17, no. 11, pp. 2418-2420, Nov. 2005.
39. W.-R. Peng, P.-C. Peng, Y.-T. Hsueh, and S. Chi, "Performance comparisons of external modulated hybrid analog-digital signals in electrical and optical domains," IEEE Photon. Technol. Lett., vol. 17, no. 11, p. 2496, 2005.
40. C.-H. Yeh, and S. Chi, "Optical fiber-fault surveillance for passive optical networks in S-band operation window," Optics Express, vol. 13, no. 14, p. 5494-5498, 2005.
41. C.-H. Yeh, M.-C. Lin, and S. Chi, "Stabilized and wavelength-tunable S-Band erbium-doped fiber ring laser with single-longitudinal-mode operation," Optics Express, vol. 13, no. 18, p. 6828, 2005.
42. N.-K. Chen, S. Chi, and S.-M. Tseng, "An efficient local fundamental-mode cutoff for thermo-optic tunable Er3+-doped fiber ring laser," Optics Express, vol. 13, no. 18, p. 7250, 2005.
43. C.-H. Yeh, and S. Chi, "A broadband fiber ring laser technique with stable and tunable signal-frequency operation," Optics Express, vol. 13, no. 17, p. 6668, 2005.
44. W.-W. Hsiang, C.-Y. Lin, M.-F. Tien, and Y. Lai, "Direct generation of 10 GHz 816 fs pulse train from an erbium-fiber soliton laser with asynchronous phase modulation," Opt. Lett. 30, 2493-2495, 2005.
45. R.-K. Lee, Y. Lai, and B. A. Malomed, "Photon-number fluctuation and correlation of bound soliton pairs in mode-locked fiber lasers," Opt. Lett. 30, 3084-3086, 2005.

46. K.-C. Hsu, L.-G. Sheu, K.-P. Chuang, S.-H. Chang and Y. Lai, “Fiber Bragg grating sequential UV-writing method with real-time interferometric side-diffraction position monitoring,” Optics Express vol.13, No.10, p.3795, 2005.
47. Y. C. Liu and Y. Lai, “Optical birefringence and polarization dependent loss of square- and rectangular-lattice holey fibers with elliptical air holes: numerical analysis”, Optics Express, Vol.13, No.1, 225-235, 2005.
48. R.-K. Lee, Y. Lai, and B. Malomed, "Generation of photon-number entangled soliton pairs through interactions," Phys. Rev. A 71, 013816, 2005.
49. R.-K. Lee, Y. Lai, and Yu. S. Kivshar, “Quantum correlations in soliton collisions,” Phys. Rev. A 71, 053801 (2005).
50. B.-C. Cheng, H.-Y. Tseng, and S. Chi, “Self-induced transparency with transverse variations in resonant media by the power series approximation method,” Physical Review E, vol. 71, no. 1, p. 016609 Part 2, 2005.
51. R.-K. Lee, E. A. Ostrovskaya, Y. S. Kivshar, and Y. Lai, "Quantum-noises of matter-wave gap solitons," Phys. Rev. A 72, 033607, 2005.
52. Y.-C. Chang, Y.-H. Lin, J. Chen and G.-R. Lin, “All optical NRZ-to-PRZ format transformer with an injection-locked Fabry-Perot laser diode at unlasing condition”, Optics Express, vol. 12, no. 19, pp. 4449-4456, Sept. 2004
53. J. Chen, “Dispersion-Compensating Optical Digital Filters for 40-Gb/s Metro Add–Drop Applications”, IEEE Photonic Technol. Lett., pp. 1310- 1312, 2004.
54. S. Cao, J. Chen, J.N. Damask, C.R. Doerr, L. Guiziou, G. Harvey, Y. Hibino, H. Li, S. Suzuki, K.-Y. Wu, P. Xie, “Interleaver Technology: Comparisons and Applications Requirements”, IEEE J. Lightwave Technol., pp. 281- 289, 2004
55. W. R. Peng, P. C. Peng, W. P. Lin, and S. Chi “A cost-effective fast frequency-hopped code-division multiple-access light source using self-seeded Fabry-Perot laser with fiber Bragg grating array,” IEEE Photonics Technology Letters, vol. 16, pp. 2550-2552, 2004.
56. P. C. Peng, W. R. Peng, J. H. Lin, and S. Chi “Generation of wavelength-tunable optical pulses using EDFA as external-injection light source and amplifier for Fabry-Perot laser diode,” IEEE Photonics Technology Letters, vol. 16, pp. 2553-2555, 2004.
57. N. K. Chen, S. Chi, and S. M. Tseng, “Wideband tunable fiber short-pass filter based on side-polished fiber with dispersive polymer overlay,” Optics Letters, vol. 29, pp. 2219-2221, 2004.
58. C. H. Yeh, C. C. Lee, and S. Chi, “120-nm bandwidth erbium-doped fiber amplifier in parallel configuration,” IEEE Photonics Technology Letters, vol. 16, pp. 1637-1639, 2004.
59. P. C. Peng, J. H. Lin, and S. Chi, “Generation of wavelength-tunable optical pulses using a linear-cavity fiber laser scheme with a Fabry-Perot laser diode,” IEEE Photonics Technology Letters, vol. 16, pp. 1023-1025, 2004.
60. K.-P. Chuang, L.-G. Sheu, and Y. Lai, “Complex fiber grating structures fabricated by sequential writing with polarization control”, Optics Letters 29, pp.340-342 2004.
61. K.-P. Chuang, L.-G. Sheu, and Y. Lai, “Pure apodized phase-shifted fiber Bragg gratings fabricated by a two-beam interferometer with polarization control”, IEEE Photon. Technol. Lett., vol. 16, pp. 834-836, 2004.
62. R.-K. Lee and Y. Lai, "Amplitude-squeezed fiber-Bragg-grating solitons," Phys. Rev. A 69, 021801(R) 2004; also as part of Virtual Journal of Nanoscale Science& Technology 9, Issue 8, 2004.
63. R.-K. Lee, Y. Lai, and B. Malomed, "Quantum correlations in bound-soliton pairs and trains in fiber lasers," Phys. Rev. A 70, 063817 2004; also as part of Virtual Journal of Quantum Information 5, Issue 1, 2005.

[Optical Storage: 2004-2008]

[Published]

1. J.-Y. Fang, C.-H. Tien, and H.-P. D. Shieh, “Hybrid-effect transmission enhancement induced by oblique

illumination in nano-ridge waveguide," Opt. Exp., 15, 11741, 2007.

2. J.-Y. Fang, C.-H. Tien, and H.-P. D. Shieh, "Dual-probe near-field fiber head with gap servo control for data storage applications," Opt. Exp., 15, 14619, 2007.
3. C.H. Tien, C.H. Hung, "Micromachined Polarization Beam Splitter With Adjustable Leak Ratio for Optical Pickup," IEEE Photon. Technol. Lett., 19, 1109, 2007.
4. J.-Y. Fang, C.-H. Tien, P. Herget, J. A. Bain, T.E. Schlesinger and H.-P. D. Shieh, "Optical Feedback Height Control System Using Laser Diode Sensor for Near-Field Data Storage Applications," J. Lightwave Technol., 25, 3704, 2007.
5. C.S. Chang and T.S. Liu, "LQG Controller for Active Vibration Absorber in Optical Disk Drive," Vol. 43, No. 2, IEEE Trans. Magnetics, pp.799-801, 2007.
6. H.C. Wang, M.S. Huang, and T.S. Liu, "Slider Dynamics with Adhesive Force in Near-Field Recording," Vol. 43, No. 2, IEEE Trans. Magnetics, pp.796-798, 2007.
7. H.S. Yu, and T.S. Liu, "Output Feedback Sliding Mode Control for a Linear Focusing Actuator in Digital Video Cameras," Vol.43, No.11, IEEE Trans. Magnetics, pp.4048-4050, 2007.
8. C.H. Tien, C.H. Hung, C.H. Lee, "Aberrations measurement of fiber-end microlens by free-space microoptical ronchi interferometer," IEEE Photon. Technol. Lett., 18, 1768, 2006.
9. Y.-C. Chen, J.-Y. Fang, C.-H. Tien, and H.-P. D. Shieh, "High-transmission hybrid-effect-assisted nanoaperture," Opt. Lett., 31, 655, 2006.
10. Z.H. Liang, Y.T. Cheng, W. Hsu, Y.W. Lee, "A Wafer-Level Hermetic Encapsulation for MEMS Manufacture Application, IEEE Trans. on Adv. Packaging," Vol.29, No.3, pp.513-519, 2006.
11. C.M. Chang and T.S. Liu, "A Wavelet Network Control Method for Disk Drives," pp. 63-68, Vol.14, No.1, IEEE Trans. Control System Technology, 2006.
12. W.C. Wu and T.S. Liu, "Frequency-Shaped Sliding Mode Control for Flying Height of Pickup Head in Near-Field Optical Disk Drives," pp. 1061-1063, Vol.41, No.2, IEEE Trans. Magnetics, 2005.
13. C.W. Chen and T.S. Liu, "H∞ Repetitive Control for Pickup Head Flying Height in Near-Field Optical Disk Drives," pp. 1067-1069, Vol.41, No.2, IEEE Trans. Magnetics, 2005.
14. H.C. Wang, T.S. Liu, and C.S. Chang, "Study of Air Bearing with Grooved Disk Surface in Near-Field Disk Drives," pp.1047-1049, Vol.41, No.2, IEEE Trans. Magnetics, 2005.

Sub-Project3:

詹益仁教授

"TOP" JOURNALS

1. IEEE Transactions on Electron Devices (TED), IEEE Electron Device Letters (EDL)
2. 2.W.Y. Chiu, J.W. Shi, W.K. Wang, Y.S. Wu, Y.J. Chan, Y.L. Huang, and R. Xuan "Leaky-Wave Photodiodes with a Partially p-Doped Absorption Layer and a Distributed-Bragg-Reflector (DBR) for High-Power and High-Bandwidth Responsivity Product Performance" *IEEE Photon. Technol. Lett.*, Vol. 18, No. 11, pp.1267-1269 Jun. 2006.
3. F.H. HUANG, C.K. LIN, Y.S. WU, Y.C. WANG, AND Y.J. CHAN, "A *W*-BAND INJECTION-LOCKED FREQUENCY DIVIDER USING GAAS PHEMTS AND CASCODE CIRCUIT TOPOLOGY", *IEEE MICROWAVE AND WIRELESS COMPONENTS LETTERS*, VOL. 17, NO. 12, PP. 885-887, DEC. 2007.
4. F.H. HUANG, AND Y.J. CHAN, "A *V*-BAND CMOS INJECTION-LOCKED OSCILLATOR USING FUNDAMENTAL HARMONIC INJECTION", *IEEE MICROWAVE AND WIRELESS COMPONENTS LETTERS*, VOL. 17, NO. 12, PP. 882-884, DEC. 2007.
5. W.Y. CHIU, T.W. HUANG, Y.H. WU, Y.J. CHAN, C.H. HOU, H.T. CHIEN, AND C.C. CHEN, "A PHOTONIC

CRYSTAL RING RESONATOR FORMED BY SOI NANO-RODS", *OPT. EXPRESS,* VOL. 15, NO. 23, PP. 15500-15506, NOV. 2007.

6. W.Y. CHIU, J.W. SHI, Y.S. WU, F.H. HUANG, W. LIN, AND Y.J. CHAN, "THE MONOLITHIC INTEGRATION OF A WAVELENGTH-DEMULTIPLEXER WITH EVANESCENTLY COUPLED UNI-TRAVELING CARRIER PHOTODIODES", *IEEE PHOTON. TECHNOL. LETT.,* VOL. 19, NO. 19, PP. 1433-1435, OCT. 2007.
7. Y.J. CHAN, C.F. HUANG, C.C. WU, C.H. CHEN, AND C.P. CHAO, "PERFORMANCE CONSIDERATION OF MOS AND JUNCTION DIODES FOR VARACTOR APPLICATION", *IEEE TRANS. ELECTRON DEVICE.*, VOL. 54, NO. 9, PP. 2570-2573, 2007.
8. D.M. LIN, C.K. LIN, F.H. HUANG, J.S. WU, W.K. WANG, Y.Y. TSAI, Y.J. CHAN, AND Y.C. WANG, "DUAL-GATE E/E- AND E/D-MODE ALGAAS/INGAAS PHEMTS FOR MICROWAVE CIRCUIT APPLICATIONS", *IEEE TRANS. ELECTRON DEVICE.*, VOL. 54, NO. 8, PP. 1818-1824, AUG. 2007.
9. K.H. LIANG, H.Y. CHANG, AND Y.J. CHAN, "A 0.5-7.5 GHZ ULTRA LOW-VOLTAGE LOW-POWER MIXER USING BULK-INJECTION METHOD BY 0.18-MU M CMOS TECHNOLOGY", *IEEE MICROWAVE AND WIRELESS COMPONENTS LETTERS*, VOL. 17, NO. 7, PP. 531-533, 2007.
10. H.T. LIN, Z.W. PEI, AND Y.J. CHAN, "CARRIER TRANSPORT MECHANISM IN A NANOPARTICLE-INCORPORATED ORGANIC BISTABLE MEMORY DEVICE", *IEEE ELECTRON DEVICE LETT.*, VOL. 28, NO. 7, PP. 569-571, 2007.

"TOP" CONFERENCES

1. International Electron Device Meeting (IEDM), International Conference on InP and Related Materials (IPRM).
2. C.H. Lin, K.H. Liang, H.Y. Chang, Y.J. Chan, C.C. Chiong, and Eric Bryerton, "A Q-band low phase noise voltage controlled oscillator using balanced π-feedback in 2-μm GaAs HBT process", *IEEE RFIC Symposium*, Hawaii, USA, June 2007.

蔡振瀛教授

1. T.-P. Hsieh, N.-T. Yeh, P.-C. Chiu, W.-H. Chang, T.-M. Hsu, W.-J. Ho, and J.-I. Chyi , "1.55 m m Emission from InAs Quantum Dots Grown on GaAs", Appl. Phys. Lett. 87, 151903, 2005
2. W.-H. Chang, W.-Y. Chen, H.-S. Chang, T.-P. Hsieh, J.-I. Chyi, and T. M. Hsu, "Efficient Single Photon Sources Based on Low Density Quantum Dots in Photonic Crystal Nanocavities", Phys. Rev. Lett. 96. 117401, 2006.
3. C. K. Chao, J.-I. Chyi, C. N. Hsiao, C. C. Kei, S. Y. Guo, and K. N. Lee, "Catalyst-Free Growth of InN Nanorods by Chemical Beam Epitaxy", Appl. Phys. Lett. 88, 233111, 2006.
4. T.-P. Hsieh, P.-C. Chiu, J.-I. Chyi, H.-S. Chang, W.-Y. Chen, T. M. Hsu, and W.-H. Chang "Enhancing Luminescence Efficiency of InAs Quantum Dots at 1.5 m Using a Carrier Blocking Layer'' Appl. Phys. Lett. 89, 053110, 2006.
5. W.-S. Liu, David M. T. Kuo, J.-I. Chyi, W.-Y. Chen, H.-S. Chang and T. M. Hsu, "Enhanced thermal stability and emission intensity of InAs quantum dots covered by an InGaAsSb strain-reducing layer'' Appl. Phys. Lett. 89, 053110, 2006.
6. T.-P. Hsieh, H.-S. Chang, W.-Y. Chen, T.-M. Hsu, W.-H. Chang, and J.-I. Chyi , "Single Photon Emission from an InGaAs Quantum Dot Precisely Positioned on a Nano-Plane", Appl. Phys. Lett., 90, 073105, 2007.
7. Pei-Chin Chiu, Wei-Sheng Liu, Meng-Jie Shiau, Wen-Yen Chen, Hsing-Szu Chang, Tzu-Min Hsu and Jen-Inn Chyi "Enhancing the Optical Properties of InAs Quantum Dots by an InAlAsSb Overgrown Layer", Appl. Phys. Lett., 91, 153106, 2007

李佩雯教授

"TOP" JOURNALS

1. G. L. Chen, D. M. T. Kuo, W. T. Lai, and P. W. Li, 2007, "Tunneling spectroscopy of germanium quantum-dot in

single-hole transistors with self-aligned electrodes," Nanotechnology, vol. 18, p. 475402.

2. T. -H. Lee, C. -H. Huang, Y. -Y. Yang, T. Suryasindhu, and P. W. Li, 2007, "Nanoscale thick layer transfer of hydrogen-implanted wafer by using polycrystalline silicon sacrificial layer," Applied Physics Letters, vol. 91, p.203119.
3. T. -H. Lee, Y. -Y. Yang, C. -H. Huang, P. W. Li, and T. Suryasindhu, 2007, "Fabrication of a Nano-scale Single Crystalline Silicon Thin Film on Insulator," Electrochemical and Solid-State Letters, vol. 10, K17-19.
4. W. T. Lai and P. W. Li, 2007, "Growth kinetics and related physical/electrical properties of Ge quantum-dots formed by thermal oxidation of $Si_{1-x}Ge_x$-on-insulator," Nanotechnology, vol. 18, p. 145402.
5. P. W. Li, M. T. Kuo, and Y. C. Hsu, 2006, "Photo-excitation effects on carrier transports in Germanium quantum dot resonant tunneling diodes," Applied Physics Letters, vol. 89, p.133105.
6. P. W. Li, M. T. Kuo, W. M. Liao, and W. T. Lai, 2006, "Study of tunneling currents through germanium quantum dot single-hole and -electron transistors," Applied Physics Letters. vol. 88, p. 213117.
7. *Also selected for the June 12, 2006 issue of Virtual Journal of Nanoscale Science & Technology.*
8. W. M. Liao, P. W. Li, M. T. Kuo and W. T. Lai, 2006, "Room-temperature transient carrier transports in germanium single-electron/-hole transistors," Applied Physics Letters, vol. 88, p. 182109.
9. *Also selected for the June 12, 2006 issue of Virtual Journal of Nanoscale Science & Technology.*
10. P. W. Li, W. M. Liao, M. T. Kuo, S. S. Tseng, P. S. Chen, and M. –J. Tsai, 2004, "Optical and electronic properties of Ge quantum dots formed by selective oxidation of SiGe/Si-on-Insulator," Japanese Journal of Applied Physics, vol. 43, no. 11 A, p. 7788-7792.
11. P. W. Li, W. M. Liao, M. T. Kuo, S. W. Lin, P. S. Chen, S. C. Lu, and M. –J. Tsai, 2004, "Fabrication of a germanium quantum-dot single electron transistor with large Coulomb-blockade oscillations at room temperatures," Applied Physics Letters, vol. 85, p. 1532.

Also selected for the Sep. 13, 2004 issue of Virtual Journal of Nanoscale Science & Technology.

"TOP" CONFERENCES

1. S. Tseng and P. W. Li, 2007, "Photoresponse enhancement of metal-oxide-semiconductor near ultraviolet photodetector with multi-stack germanium quantum dots embedded in oxide," oral presentation in 2007 International Conference on Solid-State Devices and Materials, Japan.
2. W. T. Lai and P. W. Li, 2007, "Transient Behavior of Germanium Quantum-dot Resonant Tunneling Diode," oral presentation in to 2007 International Conference on Solid-State Devices and Materials, Japan.
3. S. H. Hsu, W. T. Lai, and P. W. Li, "High performance Germanium Quantum-dot Single-hole Transistors with Self-aligned Electrodes," oral presentation in 2007 International Conference on Solid-State Devices and Materials, Japan.
4. G. L. Chen, W. T. Lai, M. T. Kuo, and P. W. Li, "Room-temperature Observation of Large Coulomb-blockade Oscillations from Germanium Quantum-dot Single-hole Transistors with Self-aligned Electrodes," oral presentation in 2007 IEEE Nanotechnology Conference, Hong Kong.
5. W. T. Lai and P. W. Li, 2006, "Fabrication of Ge quantum-dots by oxidation of $Si_{1-x}Ge_x$-on-insulator nanowires and its applications to resonant tunneling diodes and single-electron/-hole Transistors," oral presentation in 2006 International Conference on Solid-State Devices and Materials, Yokohama, Japan.
6. S. Maikap, P. Tzeng, S. Tseng, C. Lin, H. Lee, C. Wang, L. Lee, T. Tien, S. Lo, P. W. Li, M. Tsai, "High density and uniform ALD TiN nanocrystal flash memory devices with large memory window and good retention," oral presentation in 2006 International Conference on Solid-State Devices and Materials, Yokohama, Japan.
7. Y. C. Hsu, P. W. Li, and David M. T. Kuo, 2006, "Room temperature observation of current bistability and find structures in germanium quantum dits/SiO_2 resonant tunneling diodes," oral presnetation in European Material Research Symposium, Nice, France.

8. R. H. Wu and P. W. Li, 2006, “Ge nanocrystal Metal-oxide-semiconductor capacitors formed by oxidation of poly-$Si_{0.88}Ge_{0.12}$”, oral presentation in the 3rd International Silicon Germanium Device and Technology Meeting, Princeton, USA.
9. W. T. Lai, P. W. Li, and David M. T. Kuo, 2006, “Room-temperature steady-state and transient carrier transport properties of Germanium single electron/hole transistors,” presentation in the 3rd International Silicon Germanium Device and Technology Meeting, Princeton, USA.
10. S. S. Tseng, W. T. Lai, and P. W. Li, 2006, “Metal-insulator-metal photodetectors with Ge quantum dots formed by selective oxidation of single crystalline-$Si_{0.85}Ge_{0.15}$/Si-on-insulator,” oral presentation in the 3rd International Silicon Germanium Device and Technology Meeting, Princeton, USA.
11. C. H. Huang, C. L. Chang, Y. Y. Yang, T. Suryasindhu, W. C. Liao, Y. H. Su, P. W. Li, C. Y. Liu, C. S. Lai, J. H. Ting, C. S. Chu, and T. H. Lee, 2006, “Nanothick Layer Transfer of Huydrogen-implanted Wafer Using Polysilicon Sacrificial Layer,” presented in 2006 Material Research Symposium Spring Meeting, San Francisco, USA.
12. W. T. Lai, W. M. Laio, P. W. Li and M. T. Kuo, 2005, “Effects of Parasitic MOSFETs and Traps on Charge Transport Properties of Germanium Quantum Dot Single Electron/Hole Transistors,” oral presentation in 2005 IEEE International Conference on Electronic Devices and Solid-State Circuits, HongKong.
13. W. M. Liao, W. T. Lai, P. W. Li, M. T. Kuo, P. S. Chen, and M. –J. Tsai, 2005, “Strong Quantum Confinement and Coulomb Blockade Effects in Ge Quantum Dots/SiO_2 system,” Proceeding of 5th IEEE Nanotechnology Conference, Nagoya, Japan.
14. W. T. Lai, W. M. Liao, M. T. Kuo, and P. W. Li, 2005, “Quantum Confinement Effects on the Electronic Structure of Ge Quantum-Dots Formed by Selective Oxidation of SiGe-on-Insulator,” present in the International Conference on Silicon Epitaxy and Heterostructures, Hyogo, Japan.
15. W. M. Liao, P. W. Li, M. T. Kuo, P. S. Chen, and M. –J. Tsai, “Electrical and Optical properties of Ge Quantum-dots Formed by Selective Oxidation of SiGe-on-Insulator and Room-Temperature Ge Single-Electron Transistors,” presented in the 2nd International SiGe Technology and Device Meeting, Frankfurd, Germany, 2004.
16. P. W. Li, W. M. Liao, P. S. Chen, S. C. Lu, and M. –J. Tsai, “Fabrication and Characterization of Ge Quantum-dot Transistor Formed by Selective Oxidation of SiGe/Si-on-Insulator,” presented in 2004 Material Research Symposium Spring Meeting.

辛裕明教授

1. Che-ming Wang, Yue-Ming Hsin, Haijun Zhu, J. M. Kuo, and Y. C. Kao, “Temperature dependent study of InAlAs-InP/GaAsSb/InP double heterojunction bipolar transistors,” 90, 232102, Applied Physics Letters 2007
2. Kuang-Po Hsueh, Shou-Chian Huang, Ching-Tai Li, Yue-Ming Hsin, Jinn-Kong Sheu, Wei-Chih Lai, and Chun-Ju Tun, “Temperature dependent study of *n*-ZnO/*p*-GaN junction diodes,” 90, 132111, Applied Physics Letters March 2007
3. Wei-Kuo Huang, Yu-Chang Liu and Yue-Ming Hsin, “A high speed and high responsivity photodiode in standard CMOS technology,” IEEE Photonics Technology Letters, Vol. 19, No. 4, pp. 197-199, 2007
4. Wei-kuo Huang, Yu-An Liu, Che-ming Wang, Yue-ming Hsin, Cheng-Yi Liu, and Tsung-Jung Yeh,”Flip-Chip Assembled GaAs pHEMT Ka-band Oscillator.” IEEE Microwave and Wireless Components Letters, Vol. 17, No. 1, pp. 67-69, 2007
5. Kuang-Po Hsueh, Kuo-Chun Chiang, Yue-Ming Hsin and Charles J. Wang, “Investigation of Cr- and Al-based metals for the reflector and Ohmic contact on n-GaN simultaneously in GaN flip-chip light-emitting diodes,” Applied Physics Letters, Vol.89, No.19, pp. 191122 Nov. 2006
6. Wen-Bin. Tang, Che-Ming. Wang and Yue-ming Hsin, “A New Extraction Technique for the Complete Small-Signal Equivalent Circuit Model of InGaP/GaAs HBT Including Base Contact Impedance and AC Current

Crowding Effect", IEEE Microwave Theory and Techniques, Vol. 54, No. 10, pp. 3641-3647, 2006.

7. Wei-kuo Huang, Shou-chian Huang, Hsiao-wen Chung, Yue-ming Hsin, Jin-Wei Shi, Yung-Chung Kao and Jenn-Ming Kuo, "37 GHz Bandwidth Monolithically Integrated InP HBT/Evanescently Coupled Photodiode," IEEE Photonics Technology Letters, Vol. 18, No. 12, pp. 1323-1325, 2006
8. Meng-Wei Hsieh, Yue-Ming Hsin, Kung-Hao Liang, Yi-Jen Chan, Chwan-Ying Lee and Denny Tang, "The RF Power Characteristics of SiGe HBTs at Cryogenic Temperatures," IEEE Trans. Electron Devices, Vol. 53, No. 6, pp. 1452-1458, 2006.
9. Kuang-Po Hsueh, Yue-Ming Hsin, and Jinn-Kong Sheu, "Low Schottky barrier to etched p-GaN using regrown AlInGaN and InGaN contact layer," Journal of Applied Physics, 99, 026106, 2006
10. Kuang-Po Hsueh, Hung-Tsao Hsu, Che-Ming Wang, Shou-Chian Huang, Yue-Ming Hsin, and Jinn-Kong Sheu, "Effect of Cl_2/Ar dry etching on p-GaN with Ni/Au metallization characterization," Applied Physics Letters, 87, 252107, 2005
11. Che-ming Wang, Hung-Tsao Hsu, Hsiu Chuan Shu, and Yue-ming Hsin, "High Linearity InGaP/GaAs Power HBTs by Collector Design," Vol. 25, No. 2, pp. 58-60, IEEE Electron Device Letter 2004.

張正陽教授

1. C. C. Chen, Y. L. Tsai. C. L. Hsu and J. Y. Chang, "Propagation loss reduction of photonic crystalslab waveguides by microspheres," OPTICS EXPRESS, 12 (17): 3934-3939, (2004).
2. Jenq-Yang Chang, Chih-Ming Wang, Chien-Chieh Lee, Hsi-Fu Shih, Mount-Learn Wu, " Realization of free-space optical pickup head with stacked Si-based phase elements," IEEE
3. Photonics Technology Letters, 17 (1): 214-216, (2005).
4. W.-Y. Chen, W.-H. Chang, H.-S. Chang, T. M. Hsu, Chien-Chieh Lee, Chii-Chang Chen, P. G.Luan, J.-Y. Chang, T.-P. Hsieh, and J.-I. Chyi, "Enhanced light emission from InAs quantumdots in single-defect photonic crystal microcavities at room temperature," Appl. Phys. Lett. 87,071111 (2005).
5. De-Hao Chien, Chang-Heng Tsai, Shih-Shou Lo, Chii-Chang Chen, Jenq-Yang Chang, "Solid immersion lenses in planar waveguides," IEEE Journal of Lightwave Technology, 23(9), 2746-2748(2005).
6. Che-Lung Hsu, Yue-Hong Chou, Chih-Ming Wang, Mount-Learn Wu, Chien-Chieh Lee,
7. Yung-Chih Liu and Jenq-Yang Chang, "Bulk Micromachined Optical Filter Based on Guided-Mode Resonance in Silicon Nitride Membrane," IEEE Journal of Lightwave Technology, vol. 24, no. 4, 1922-1928, Apr. 2006.
8. Che-Lung Hsu, Yung-Chih Liu, Chih-Ming Wang, Mount-Learn Wu, Ya-Lun Tsai, Yue-Hong Chou, Chien-Chieh Lee, and Jenq-Yang Chang, "Bulk Micromachined Optical Filter Based on Guided-Mode Resonance in Silicon Nitride Membrane," IEEE J. Lightwave Tech., vol. 24, no. 4,1922-1928, Apr. 2006. (2005 SCI impact factor: 2.077)
9. Li-Ming Chang, Chia-Hung Hou, Yu-Chen Ting, Chii-Chang Chen, Che-Lung Hsu, Jenq-Yang Chang, Chien-Chieh Lee, Guan-Ting Chen, and Jen-Inn Chyi, 2006, Aug., "Laser emission from GaN photonic crystals," Appl. Phys. Lett., vol. 89, 071116. (2005 SCI impact factor: 4.127)
10. Mount-Learn Wu, Che-Lung Hsu, Yung-Chih Liu, Chih-Ming Wang, and Jenq-Yang Chang,"Silicon-Based and Suspended Membrane Type of Guided-Mode Resonance Filters with the Spectrum-Modifying Layer Design," Opt. Lett., vol. 31, no. 22, 3333-3335, Nov. 2006. (2005 SCI impact factor: 3.599)
11. Che-Lung Hsu, Mount-Learn Wu, Yung-Chih Liu, Yun-Chih Lee, and Jenq-Yang Chang, "Flattened Broad-Band Notch Filters Using Guided-Mode Resonance Associated with Asymmetric Binary Gratings," IEEE Photo. Tech. Lett., vol. 18, no. 24, 2572-2574, Dec. 2006. (2005 SCI impact factor: 2.266)
12. C. M. Wang, H. I Huang, C. C. Chao, and J. Y. Chang and Y. Sheng, "Transmission enhancement through a trench-surrounded nano metallic slit by bump reflectors," accepted by Opt. Express. 2007. (SCI/EI)
13. Mount-Learn Wu, Che-Lung Hsu, Hsiao-Chin Lan, Hung-I Huang, Yung-Chih Liu, Zong-Ru Tu, Chien-Chieh Lee,

Jian-Shian Lin, Chih-Chieh Su, and Jenq-Yang Chang, “Authentication labels based on guided-mode resonant filters,” Opt. Lett., 32, 1614-1616 (2007)

陳啟昌教授

1. Chii-Chang Chen*, Ya-Lun Tsai, Che-Lung Hsu, Jenq-Yang Chang, “Propagation loss reduction of photonic crystal slab waveguides by microspheres”, Optics Express, vol. 12, p. 3934, 2004.
2. Hung-Ta Chien, Hui-Ting Tang, Chao-Hsien Kuo, Chii-Chang Chen, Zhen Ye*, “Directed diffraction without negative refraction,” Phys. Rev. B. vol. 70, p. 113101, 2004.
3. Shih-Shou Lo*, Mou-Sian Wang, Chii-Chang Chen, "Semiconductor hollow optical waveguides formed by omni-directional reflectors," Optics Express Vol. 12, 6589, 2004.
4. Chii-Chang Chen*, Chih-Yu Chen, Wen-Kai Wang, Fan-Hsiu Huang, Cheng-Kuo Lin, Wei-Yu Chiu, Yi-Jen Chan, "Photonic crystal directional couplers formed by InAlGaAs nano-rods," Optics Express, vol. 13, p. 38, 2005.
5. Chia-Hua Chan*, Chii-Chang Chen, Chih-Kai Huang, Wei-Hsiang Weng, Hung-Sen Wei, Hui Chen, Hsiao-Tsung Lin, Hsiang-Szu Chang, Wen-Yen Chen, Wen-Hao Chang, Tzu-Min Hsu, “Self-assembly free-standing photonic crystals,” Nanotechnology 16, 1440, 2005.
6. Chii-Chang Chen*, Thomas Pertsch, Rumen Iliew, Falk Lederer, Andreas Tünnermann, "Directional emission from photonic crystal waveguides," Optics Express, vol. 14, 2423, 2006.
7. Li-Ming Chang, Chia-Hung Hou, Yu-Chen Ting, Chii-Chang Chen*, Che-Lung Hsu, Jenq-Yang Chang, Chien-Chieh Lee, Guan-Ting Chen, Jen-Inn Chyi, "Laser emission from GaN photonic crystals," Appl. Phys. Lett. vol. 89, 071116, 2006.
8. Hung-Ta Chien and Chii-Chang Chen*, “Focusing of electromagnetic waves by periodic arrays of air holes with gradually varying radii,” Opt. Express. Vol. 14, 10759, 2006.
9. Chii-Chang Chen, Wei-Chi Ku, Sung-Kay Chiu, Chi-Meng Tzeng*, “Deoxyribonucleic acid hybridization acceleration by photovoltaic effect,” Appl. Phys. Lett. vol. 89, 233902, 2006.
10. Fu-Li Hsiao, Chia-Hua Chan*, Chii-Chang Chen, "Optical properties of metallo-dielectric opals," Appl. Phys. Lett. vol. 89, 253123, 2006.
11. C. L. Lin*, P. H. Chen, C. H. Chan, C. C. Lee, Chii-Chang Chen, J. Y. Chang, C. Y. Liu, “Light enhancement by the formation of an Al-oxide honeycomb nano-structure on the n-GaN surface of thin-GaN LED,“ Appl. Phys. Lett. vol. 90, p. 242106, 2007.
12. Shih-Shou Lo, Chii-Chang Chen*, “1x2 Multimode Interference Couplers by SHOW-ODR,” Optics Letters, vol. 32, p. 1803, 2007.
13. Chih-Kai Huang, Chia-Hua Chan, Chia-Yin Chen, Yen-Ling Tsai, Chii-Chang Chen, Jin-Lin Hane and Kuo-Huang Hsieh*, "Rapid fabrication of 2- and 3-D photonic crystals and their inversed structures," Nanotechnology. Vol. 18, 265305, 2007.
14. Wei-Yu Chiu, Tai-Wei Huang, Yen-Hsiang Wu, Yi-Jen Chan, Chia-Hung Hou, Hung-Ta Chien, Chii-Chang Chen*, “A photonic crystal ring resonator formed by SOI nano-rods,” Optics Express. Vol. 15, p. 15500, 2007.
15. Fu-Li Hsiao*, Abdelkrim Khelif, Hanane Moubchir, Abdelkrim Choujaa, Chii-Chang Chen, Vincent Laude, “Waveguiding in a complete band gap phononic crystal slab,” Phys. Rev. E, vol. 76, p. 056601, 2007.
16. Guan-Ting Chen, Jen-Inn Chyi*, Chia-Hua Chan, Chia-Hung Hou, Chii-Chang Chen, Mao-Nan Chang, “Crack-free GaN grown on AlGaN/(111)Si micropillar array fabricated by polystyrene microsphere lithography,” Appl. Phys. Lett. vol. 91, p. 261910, 2007.
17. Chih-Kai Huang, Chia-Hung Hou, Chii-Chang Chen, Yen-Ling Tsai, Li-Ming Chang, Hung-Sen Wei, Kuo-Huang Hsieh, Chia-Hua Chan*, “Magnetic SiO2/Fe3O4 Colloidal Crystal,” Nanotechnology, vol. 19, 055701, 2008.

Sub-Project4:

*Optics Express: Impact Factor = 4.009; Ranking = 1/55 (top 1.8% in Optics category)

*Journal of Biological Chemistry: Impact Factor = 5.808; Ranking = 39/262 (top 14.89% in Biochemistry & Molecular Biology category)

*Analytical Chemistry: Impact Factor = 5.646; Ranking = 1/68 (top 1.5% in Chemistry, Analytical category)

*Journal of Biomedical Optics: Impact Factor = 2.870; Ranking = 4/55 (top 7.27% in Optics category)

*Appl. Phys. Lett: Impact Factor = 3.977; Ranking = 6/84 (top 7.14% in Physics, Applied category)

1. Ming-Tzo Wei and Arthur Chiou*, “Three-dimensional tracking of Brownian motion of a particle trapped in optical tweezers with a pair of orthogonal tracking beams and the determination of the associated optical force constants”, Optics Express 2005；13(15), 5798-5806. （SCI）（number of citations：5）
2. M. -T. Wei, K. -T. Yang, A. Karmenyan, and A. Chiou*, “Three-dimensional optical force field on a Chinese hamster ovary cell in a fiber-optical dual-beam trap”, Opt. Express 2006; 14, 3056-3064 .（SCI）（number of citations：8）
3. Chia-Fen Hsieh, Bo-Jui Chang, Chyi-Huey Pai, Hsuan-Yi Chen, Jin-Wu Tsai, Yung-Hsiang Yi, Yi-Ting Chiang, Da-Wei Wang, Sien Chi, Long Hsu, and Chi-Hung Lin. (2006) Stepped Changes Of Monovalent Ligand-Binding Force During Ligand-Induced Clustering Of Integrin aIIBb3. Journal of Biological Chemistry. 2006 Sep 1;281(35):25466-74 (SCI)
4. Cheng-Chung Chang, Jen-Fei Chu, Fu-Jen Kao, Yi-Chun Chiu, Pei-Jen Lou, Huei-Chin Chen, Ta-Chau Chang, 2006, Verification of Antiparallel G-Quadruplex Structure in Human Telomeres by Using Two-Photon Excitation Fluorescence Lifetime Imaging Microscopy of the 3,6-Bis(1-methyl-4-vinylpyridinium)carbazole Diiodide Molecule, Analytical Chemistry, Vol. 78, pp. 2810-15 (2006) (SCI) （number of citations：13）
5. Chien Chou, Hsien-Yeh Hsu, Hsieh-Ting Wu, Arthur Chiou, Chih-Jen Yu, Kai-Yu Tseng, Zheng-Yuan Lee and Tsu-Shin Chan. Fiber-optic biosensor for detection of C-reactive protein and monitor of protein binding kinetics, Journal of Biomedical Optics 2007, Vol. 12(2), 024025(1-9). (SCI) （number of citations：1）
6. Ming-Tzo Wei, Kuo-Feng Hua, Jowey Hsu, Artashes Karmenyan, Kai-Yu Tseng, Chi-Huey Wong, Hsien-Yeh Hsu, and Arthur Chiou*, “The interaction of lipopolysaccharide membrane receptors on macrophages pretreated with extract of Reishi polysaccharides measured by optical tweezers”, Optics Express 2007, Vol. 15, No. 17, p.11020-11032. (SCI)
7. Guan-Bo Liao, Paul B. Bareil, Yunlong Sheng, and Arthur Chiou*, "One-dimensional jumping optical tweezers for optical stretching of bi-concave human red blood cells ", Optics Express 2008, Vol. 16, No. 3, p. 1996-2004.（SCI）
8. Shi-Wei Chu, Shih-Peng Tai, Chi-Kuang Sun and Chi-Hung Lin. (2007) Selective imaging in second-harmonic-generation microscopy by polarization manipulation. Appl. Phys. Lett. 2007 Sep; 91:103903.（SCI）
9. Vladimir Ghukasyan, Yueh-Ying Hsu and Szu-Hao Kung and Fu-Jen Kao*, 2007, Application of fluorescence resonance energy transfer resolved by fluorescence lifetime imaging microscopy for the detection of enterovirus 71 infection in cells, J. Biomedical Optics, Vols. 12, pp. 024016-23.（SCI）

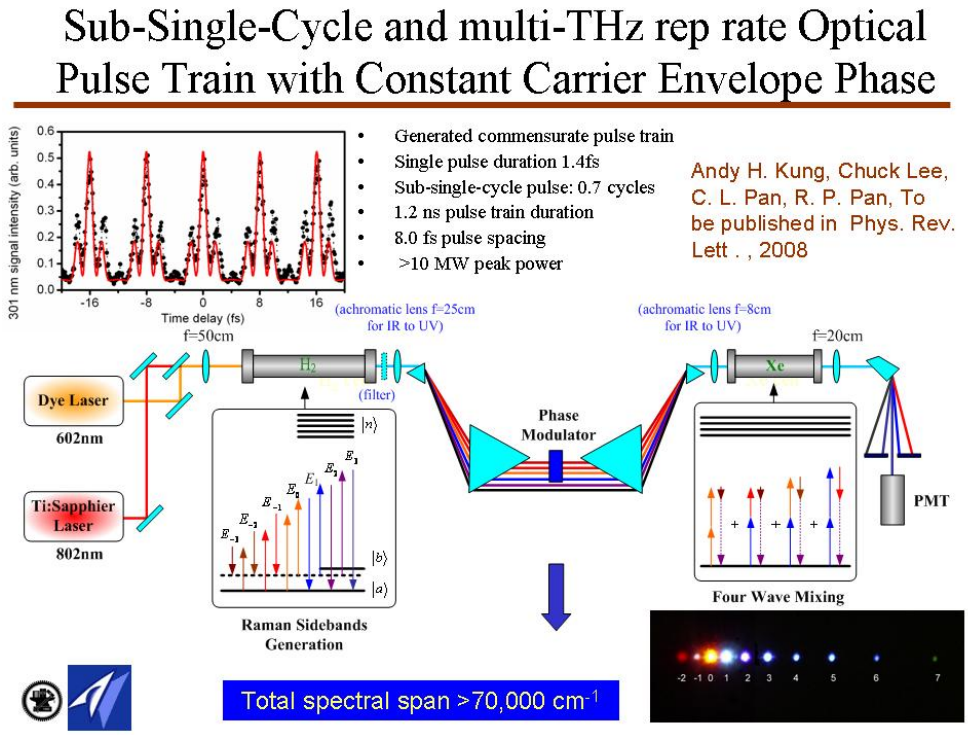
IX. APPENDIX IV: SLIDES ON SCIENCE AND TECHNOLOGY BREAKTHROUGHS

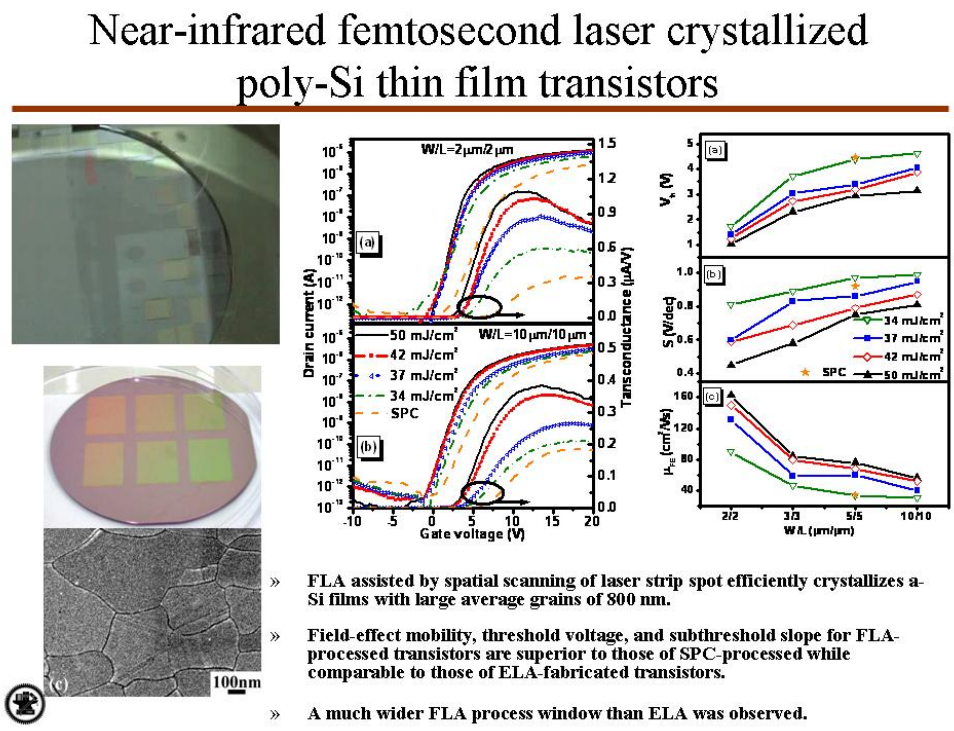
(TWO SLIDES FOR EACH BREAKTHROUGH)

Sub-Project1:

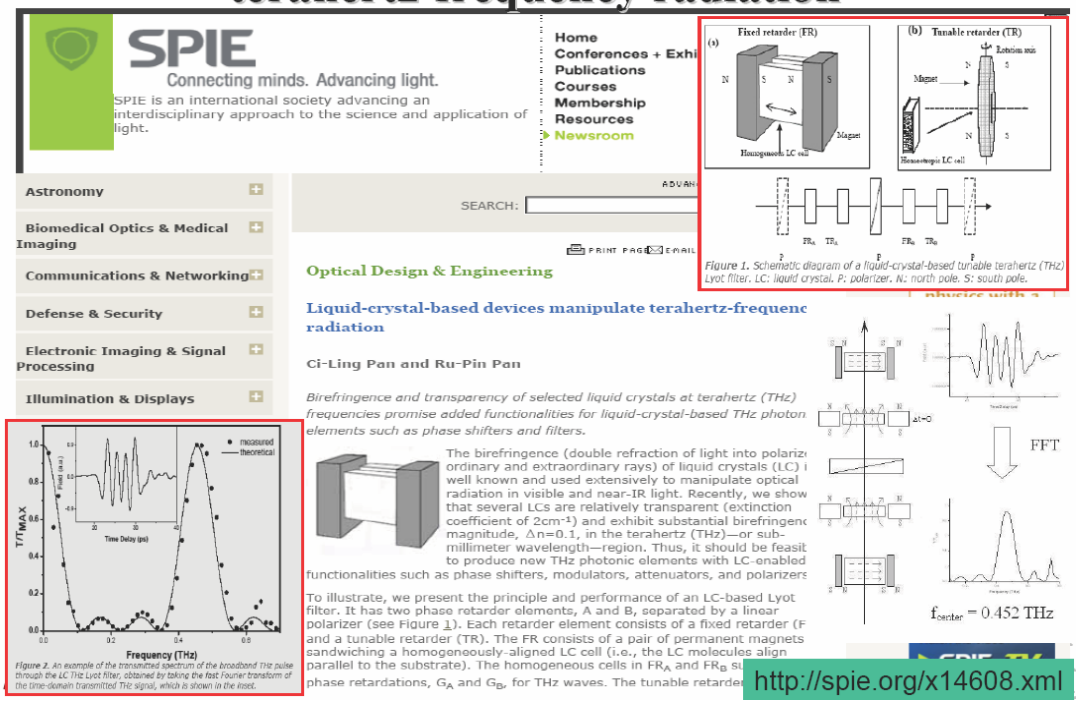
Slides on Science And Technology Breakthroughs (Two Slides for each Breakthrough)

SUB-I :

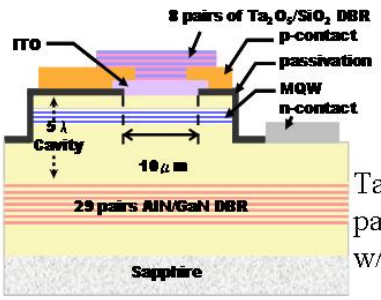




Liquid-crystal-based devices manipulate terahertz-frequency radiation

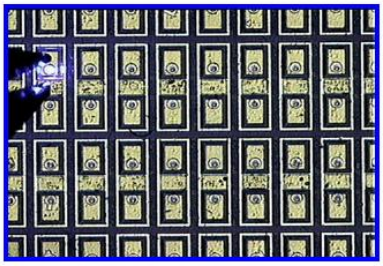


Electrically pumped GaN VCSEL @ 77K

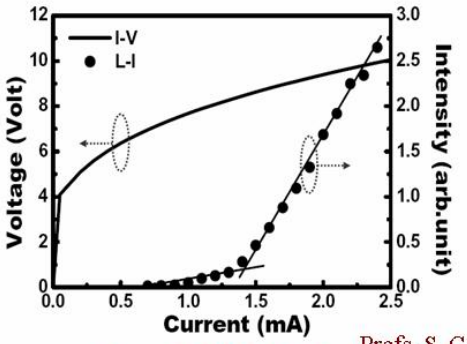


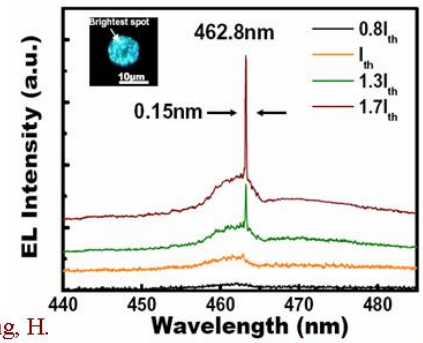
1st such devices reported to date!

Taiwan and US patents filed w/NCTU



1480 devices/cm^2

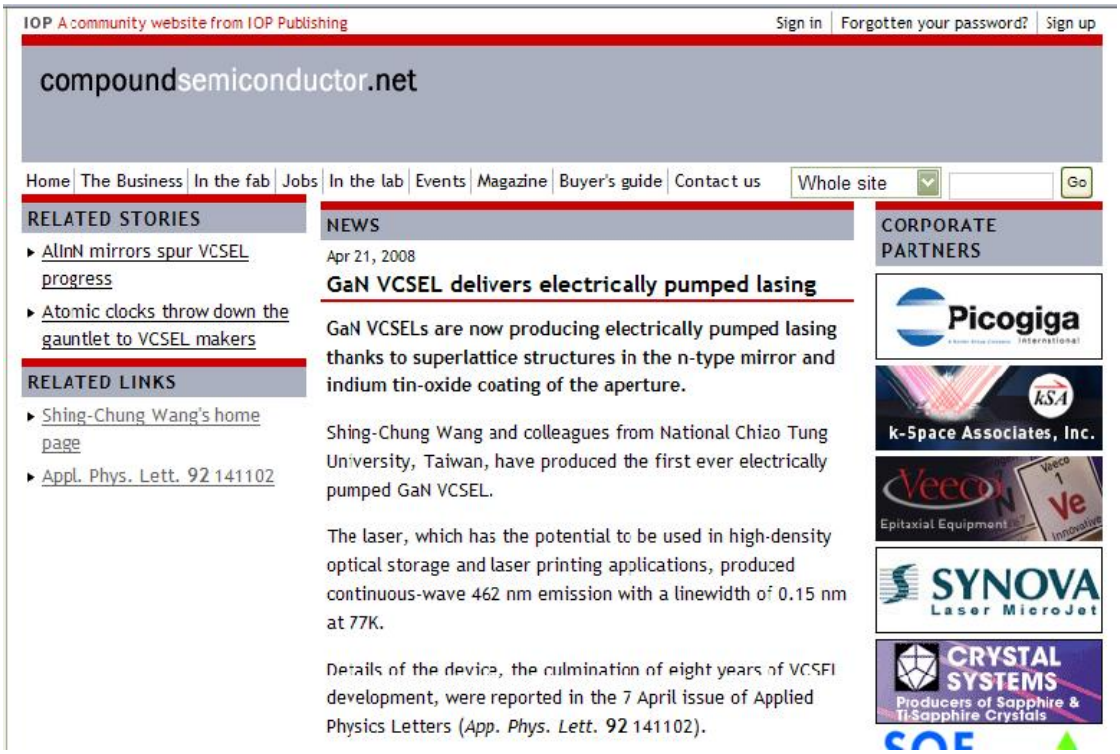




NCTU J_{th} ~ 1.8 KA/cm^2

Profs. S. C. Wang, H. C. Kuo and T. C. Lu

Excellence in Photonics



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NEWS

Apr 21, 2008

GaN VCSEL delivers electrically pumped lasing

GaN VCSELs are now producing electrically pumped lasing thanks to superlattice structures in the n-type mirror and indium tin-oxide coating of the aperture.

Shing-Chung Wang and colleagues from National Chiao Tung University, Taiwan, have produced the first ever electrically pumped GaN VCSEL.

The laser, which has the potential to be used in high-density optical storage and laser printing applications, produced continuous-wave 462 nm emission with a linewidth of 0.15 nm at 77K.

Details of the device, the culmination of eight years of VCSEL development, were reported in the 7 April issue of Applied Physics Letters (*App. Phys. Lett.* **92** 141102).

CORPORATE PARTNERS

Picogiga International

k-Space Associates, Inc.

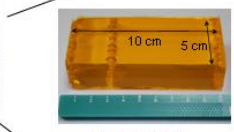
Veeco Epitaxial Equipment

SYNOVA Laser MicroJet

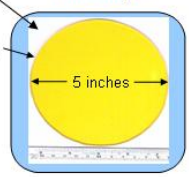
CRYSTAL SYSTEMS Producers of Sapphire & Ti:Sapphire Crystals

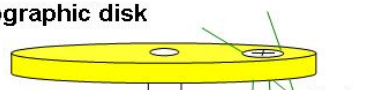
Holographic disk for 3D volume storage: Advances in New Materials

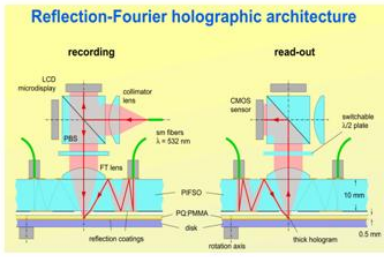
1. **Storage capability ~> 420GB/disk**
2. **Storage speed: ~ 117 Mb/sec**
3. **X 10s of times of Blu-DVD**



Bulk sample







The Optical Storage Open Laboratory
Left: Photopolymer Fabrication Laboratory
Right: Holographic storage test platform

1. J. of Non. Opt. Phys. and Mats., Vol. 15(2), 239, 2006.
2. Jpn. J. Appl. Phys., 45(11), 8699-8704, 2006.
3. J. of optoelectronics and advanced material, 2006.
4. Proc. DGaO (2007), p. 47 (2007)

Technology transfer: CMC 中環

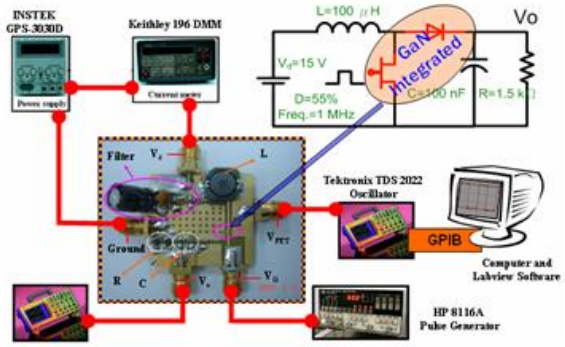
NCTU *Matthias Gruber---Fern University in Hagen,Germany Excellence in Photonics 卓越

A Biometric optoelectronic system for real-time walker recognition

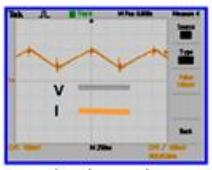
Sub-Project3:

詹益仁教授

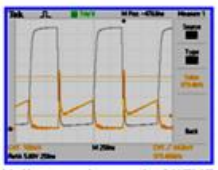
Fig. 2 The measurement system of the DC to DC converter .



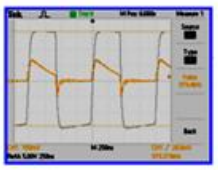
Tab. 2 The measured result of the DC to DC converter.



Input current



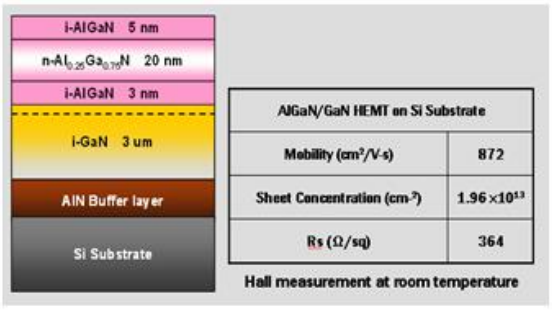
Voltage and current of HEMT



Voltage and current of diode

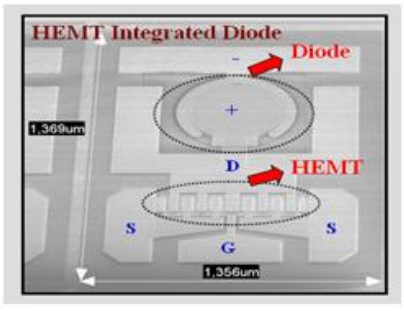
1MHz D=55% R=1.5 KΩ	V_d	GaN HEMT Tr / Tf	GaN Diode Tr / Tf	V_o	Ripple	Efficiency
	15 V	24 ns/13.6 ns	16.8 ns/11.2 ns	30.8 V	3.96% (1.2 V)	72.7%

Fig. 1 The structure and top view of the integration of a GaN HEMT with a schottky diode.



AlGaN/GaN HEMT on Si Substrate	
Mobility ($cm^2/V·s$)	872
Sheet Concentration (cm^{-2})	$1.96×10^{13}$
Rs (Ω/sq)	364

Hall measurement at room temperature



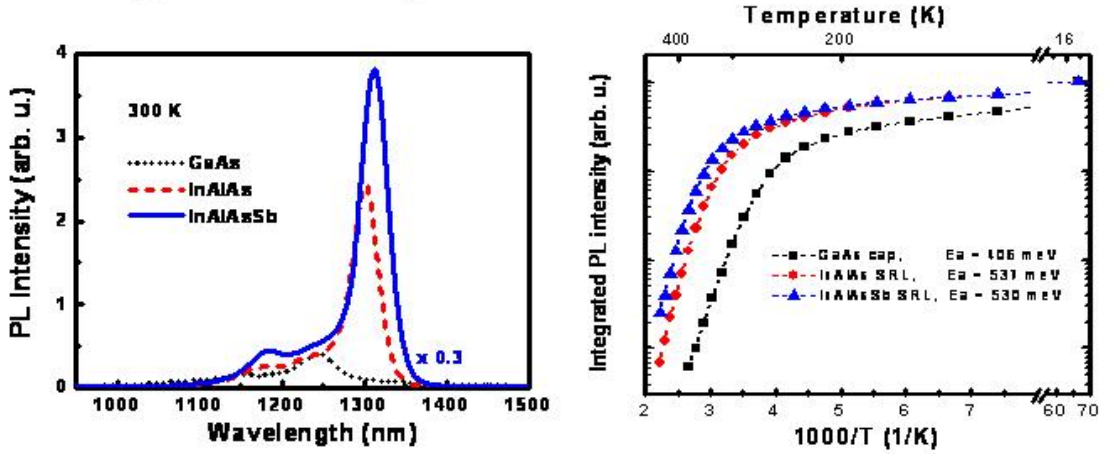
Tab. 1 DC and RF characteristics of the GaN HEMT and Schotty diode.

GaN HEMT (1 mm)	DC	I_{DSS}	299 mA/mm	gm	98 mS/mm
		V_{th}	-4 V	R_{DS_on}	8.97 mΩ · cm^2
		Breakdown Voltage	55 V		
	RF	f_t / f_{max}	5.7 GHz / 10.1 GHz	Power Gain	11.5 dB (@V_{DS}=13 V)
		Maximum Output Power	1.11 W (@V_{DS}=14 V)	PAE	33.4% (@V_{DS}=13 V)
GaN Schottky Diode	DC	V_{turn_on}	0.8 V (1 mA/mm)	R_{D_on}	15.1 mΩ · cm^2
		Breakdown Voltage	41.5 V	Ideal factor	2.21

蔡振瀛教授

National Central University

Enhanced Luminescence Efficiency of Long-Wavelength Emitted Quantum Dots



- High optical quality of InAs QDs capped with InAlAsSb overgrown layer is observed.
- InAs QDs capped with an InAlAsSb SRL exhibit a large state separation of 103 meV and thermal activation energy of 530 meV.

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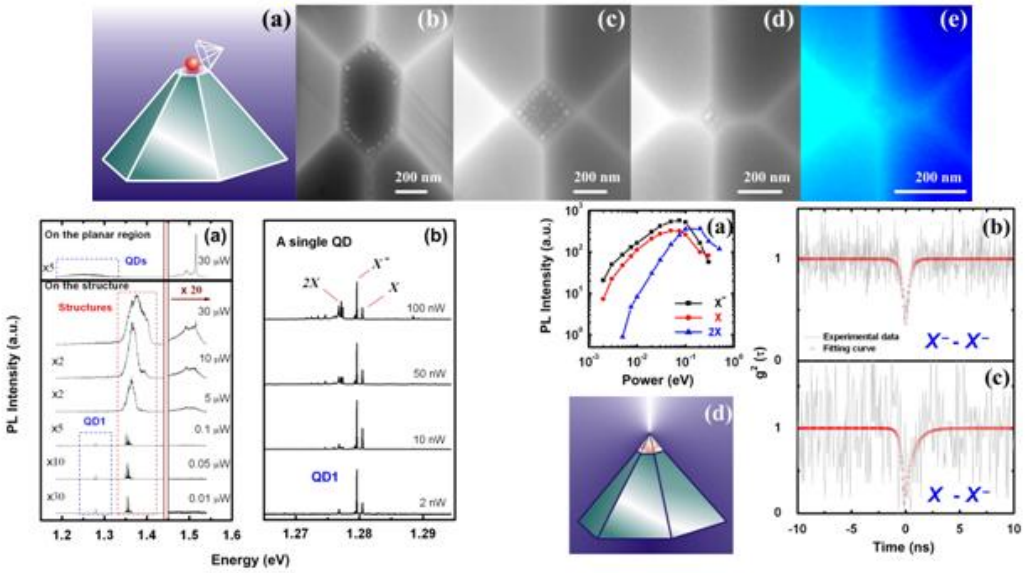
Single Photon Emission from an InGaAs QD Precisely Positioned on a Nano-Plane



- Realization of high quality, and self-constructed nano-plane
- Precise positioning of an InGaAs QD for single photon sources

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Fig. 3 Schematics and TEM images of Ge QDs single charge storage memory devices.

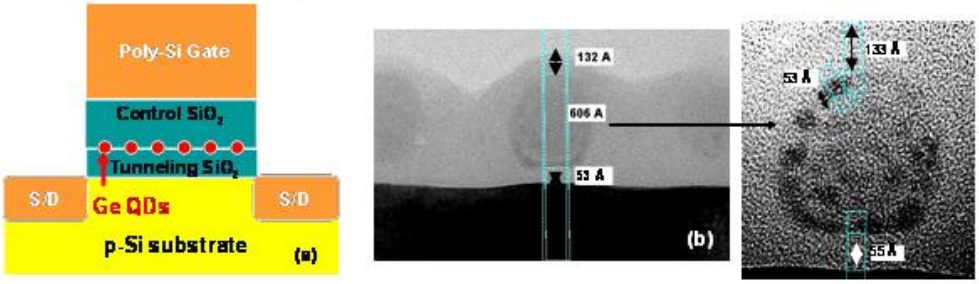


Fig. 4 (a) *I-V* and (b) retention characteristics of Ge-QD MOSFETs.

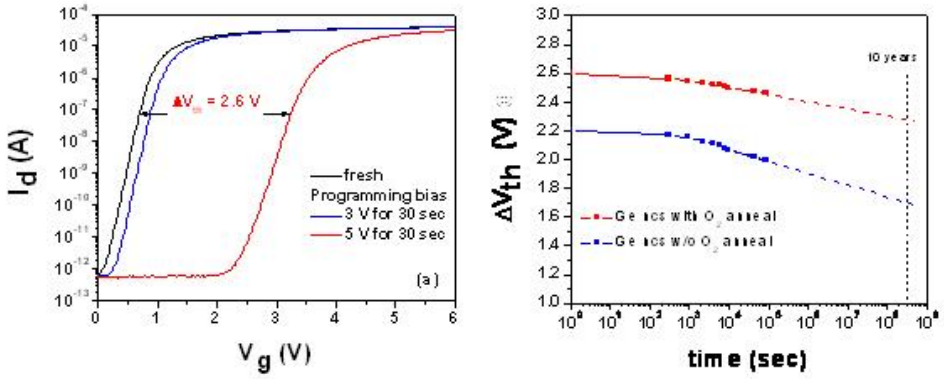


Fig. 1 SEM/TEM images of Ge-QD SHT with self-aligned electrodes.

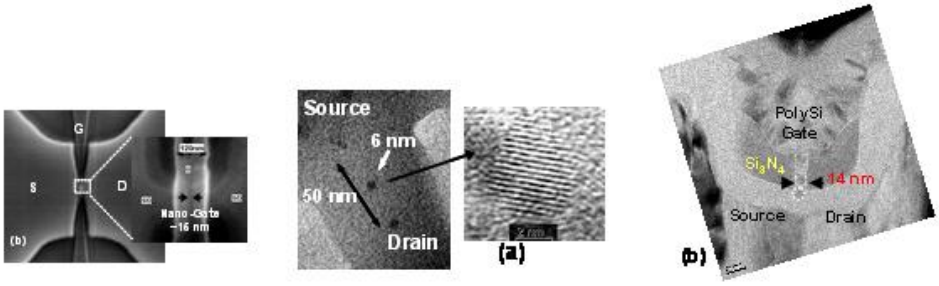
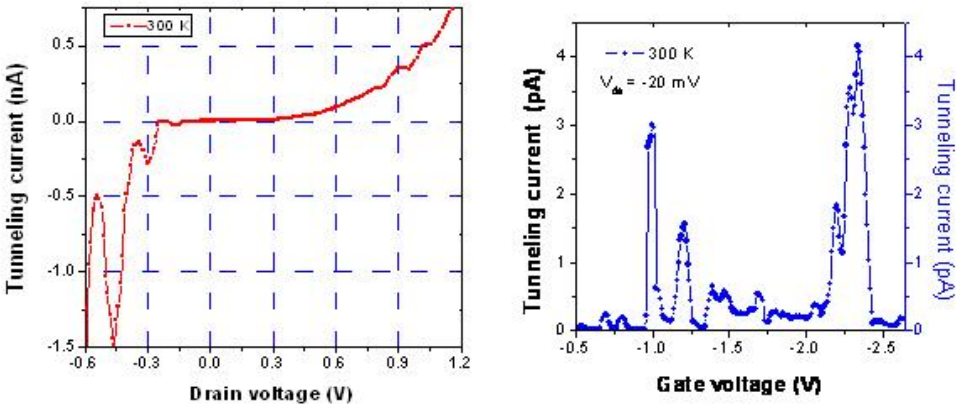
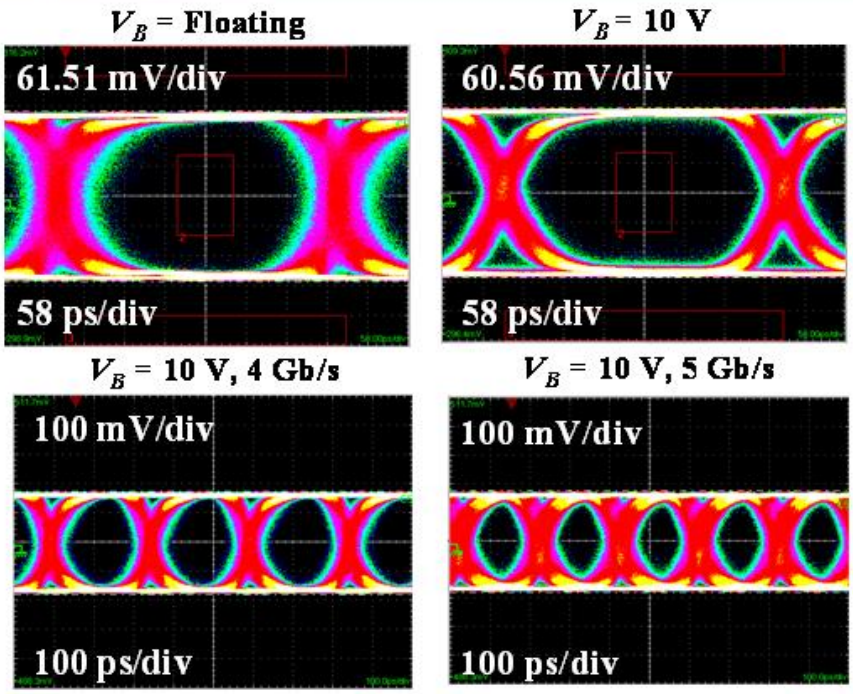
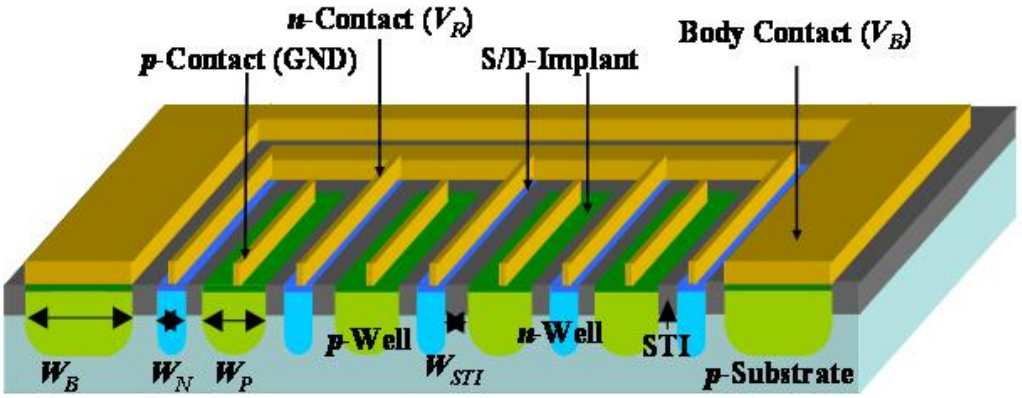


Fig. 2 Tunneling current of a Ge-QD SHT versus applied voltages at T = 250 and 300 K.



辛裕明教授

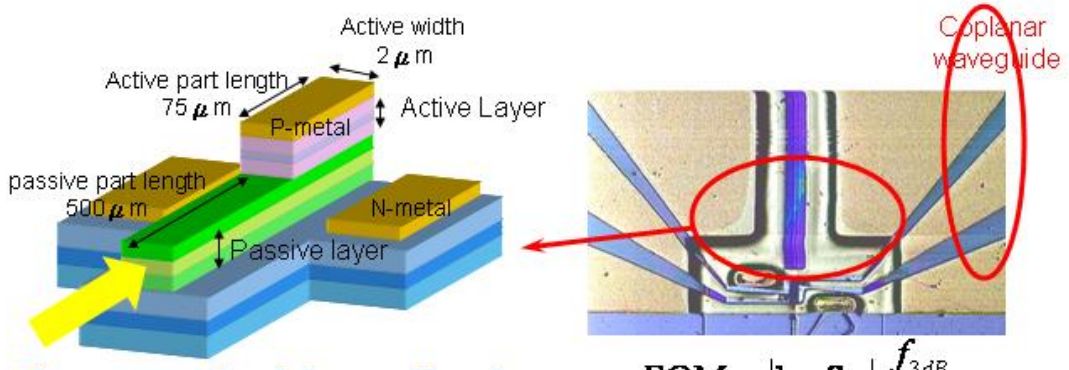

V_B = Floating
61.51 mV/div
58 ps/div
V_B = 10 V
60.56 mV/div
58 ps/div
V_B = 10 V, 4 Gb/s
100 mV/div
100 ps/div
V_B = 10 V, 5 Gb/s
100 mV/div
100 ps/div


n-Contact (V_B)
p-Contact (GND)
S/D-Implant
Body Contact (V_B)
p-Well
n-Well
STI
W_B
W_N
W_P
W_{STI}
p-Substrate

許晉瑋教授

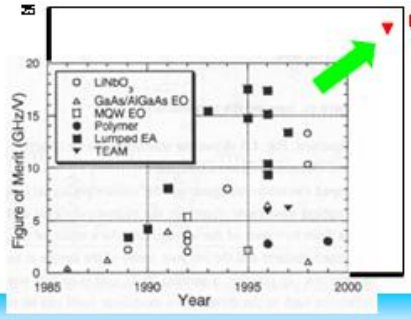
National Central University

Dual-Depletion-Region Electro-Absorption Modulator with Evanescently Coupling Waveguide



The cross-sectional view, and top-view

$$FOM = \left|1 - S_{11}\right| \frac{f_{3dB}}{V_{20dB}}$$



The Figure of merit of our device

Our device

f_{3dB}	43GHz
V_{20dB}	1.7V
S_{11}	-17dB
FOM	**24.7**

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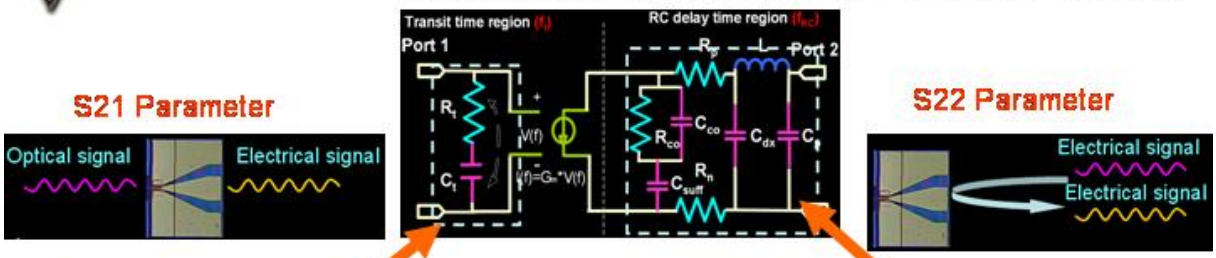
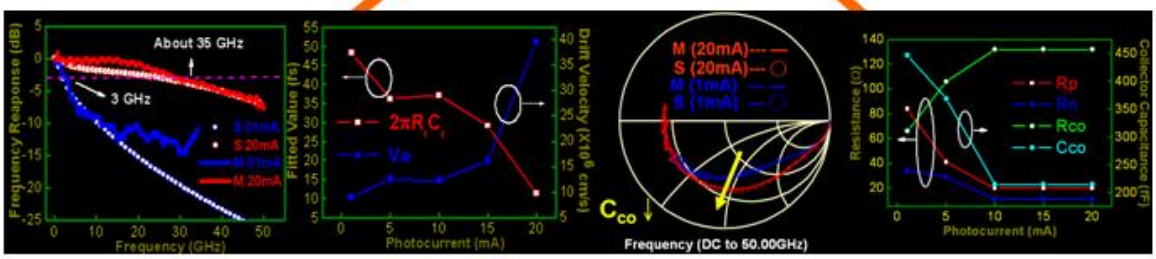
Modeling for Bandwidth Enhancement of NBUTC-PD

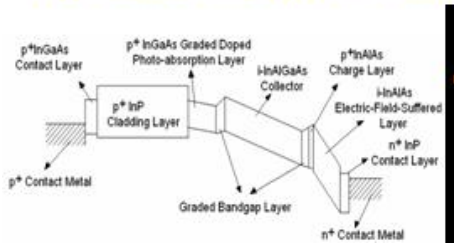


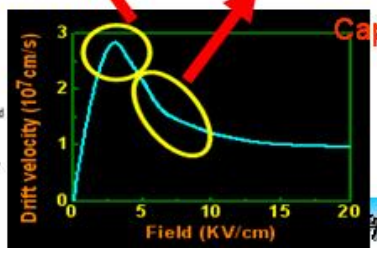


Near-Ballistic Transport Phenomenon !!!

Reduction of AC Capacitance!!!

Capacitance= $I_C X (d\tau_C / dV_{ac})$





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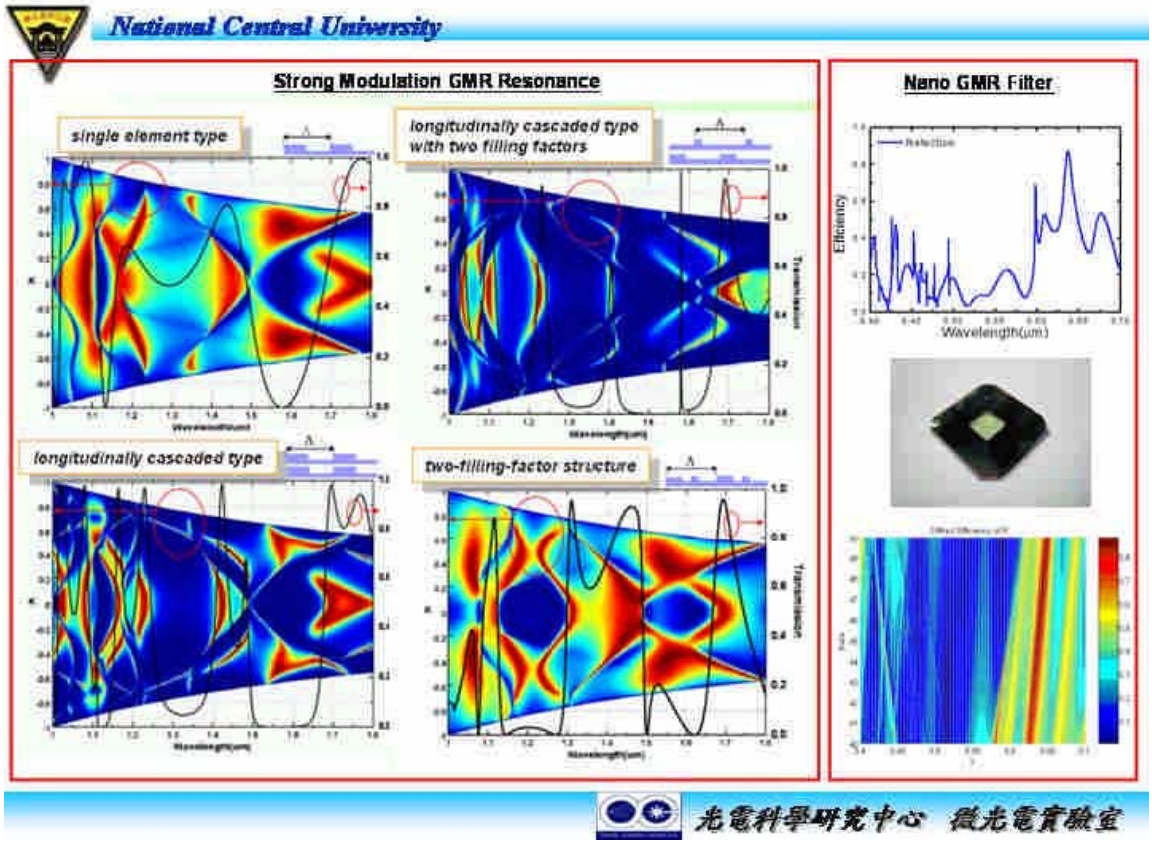
張正陽教授


National Central University
Strong Modulation GMR Resonance
single element type
longitudinally cascaded type with two filling factors
longitudinally cascaded type
two-filling-factor structure
Nano GMR Filter
Efficiency
Wavelength(um)
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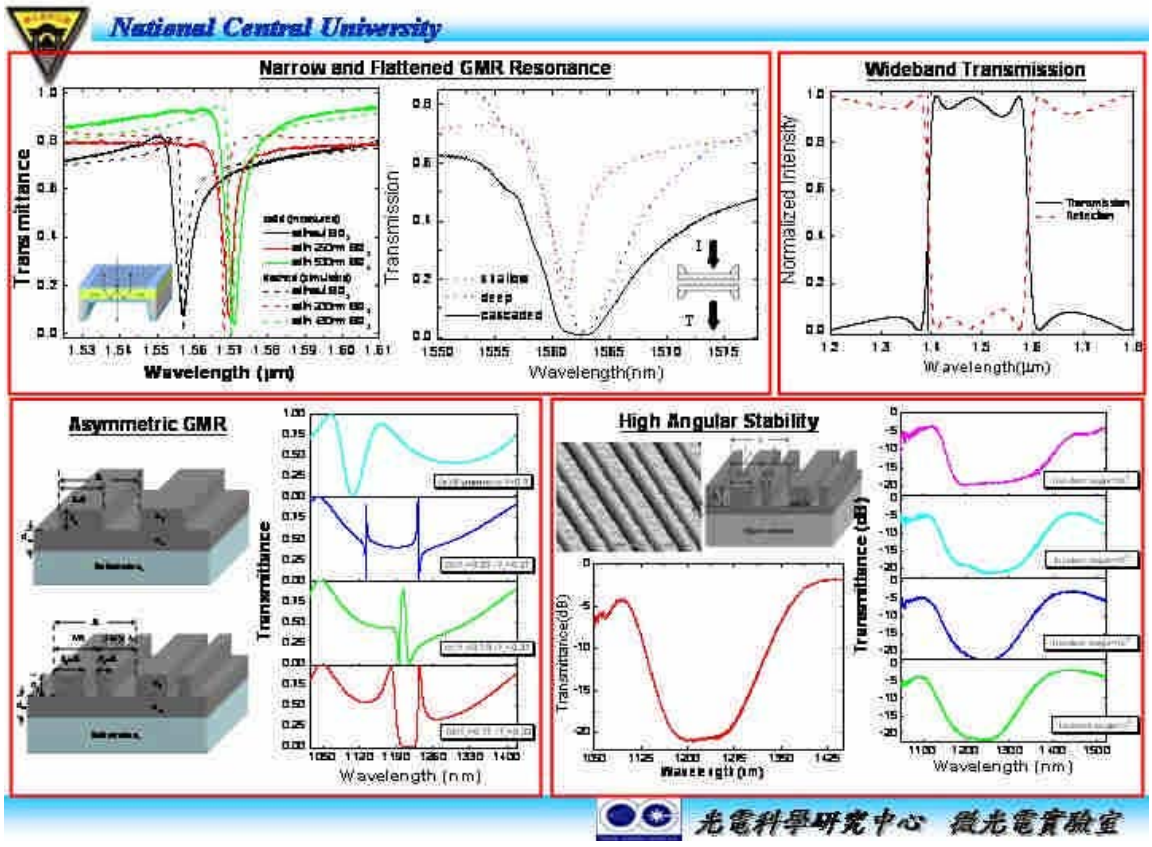
National Central University
Narrow and Flattened GMR Resonance
Transmittance
Wavelength (μm)
Transmission
Wavelength(nm)
Wideband Transmission
Normalized Intensity
Wavelength(μm)
Asymmetric GMR
Transmittance
Wavelength (nm)
High Angular Stability
Transmittance(dB)
Wavelength (nm)
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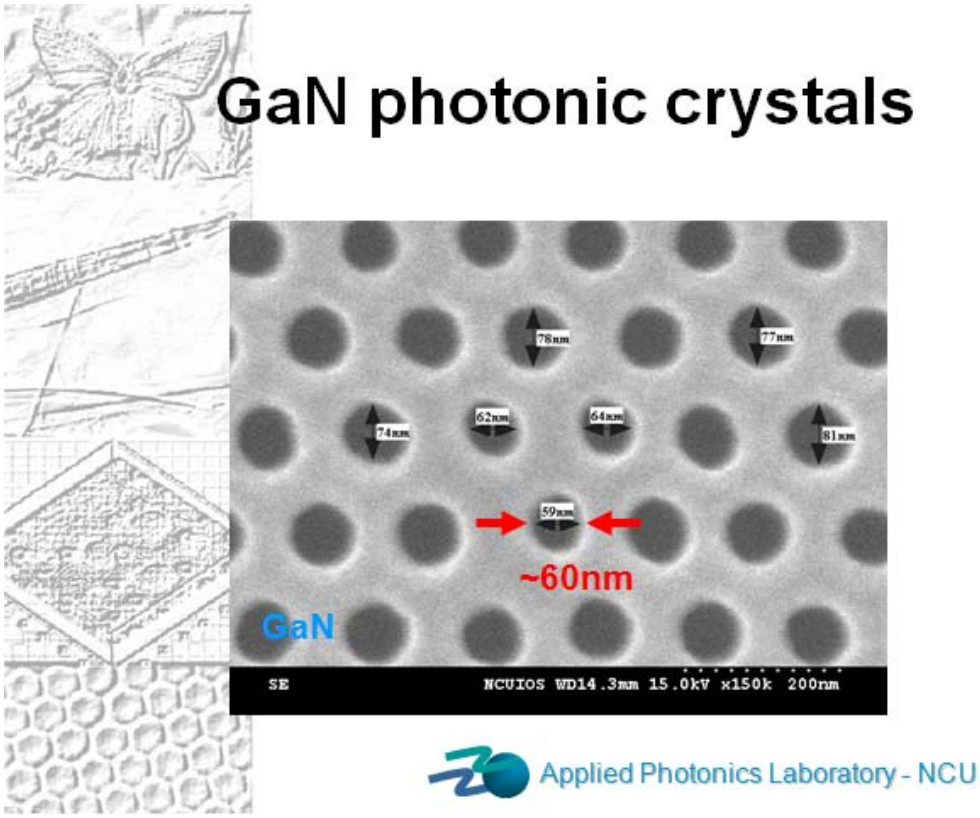
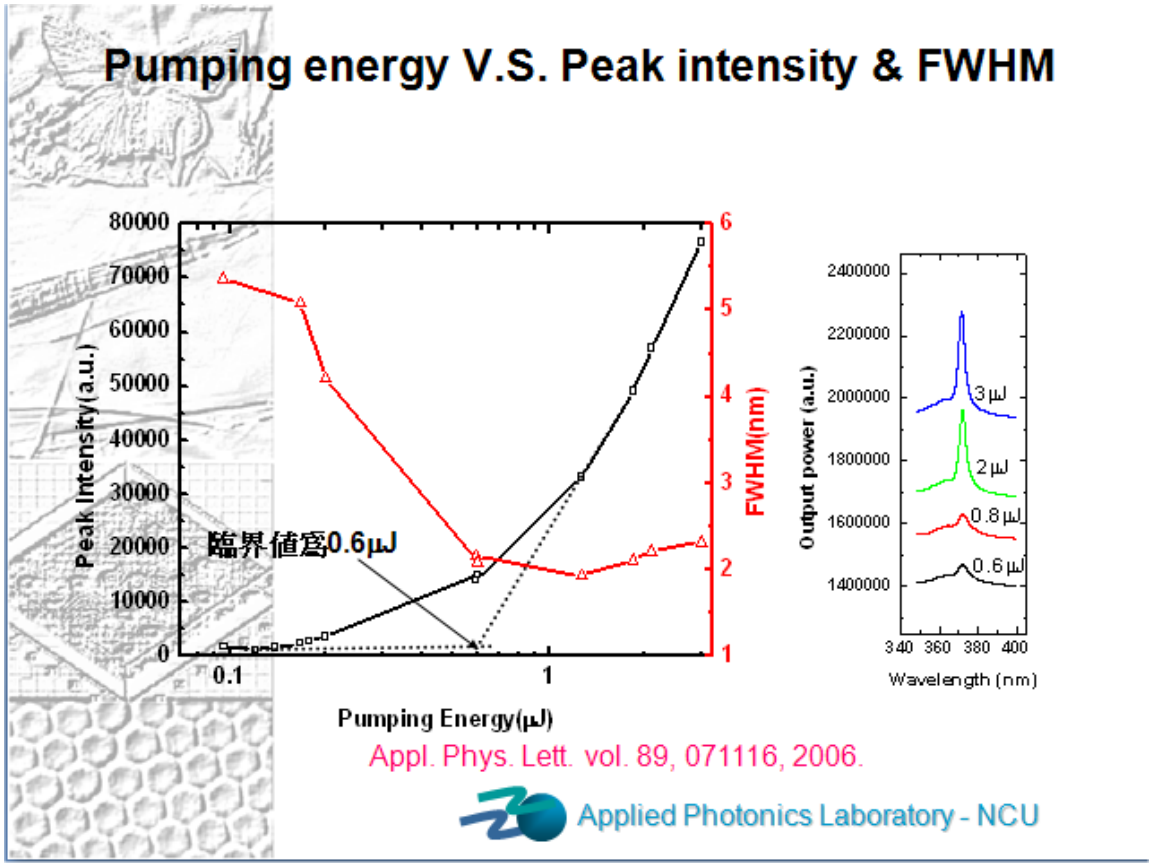
陳啟昌教授

FOR GAN PHOTONIC CRYSTAL LASERS





Sub-Project4:

As per attached.

X. APPENDIX V: FINAL SELF-ASSESSMENT

PROGRAM TITLE: 總計畫-建構兆位元紀元的光電科技(II)

Main Project-Photonic Science and Technology for the Tera-Era (II)

	ASSESSMENT SUBJECT	SCORE （1~5, LOW TO HIGH）
PROGRAM'S CONTENTS & PERFORMANCE	Importance & Innovation of the Program's Major Tasks	**5**
	Clarity and Presentation of the Report	**5**
	Viability of the Program's Approaches & Methodologies	**5**
	Principal Investigator's Competence for Leading the Program	**5**
	Interface & Integration between Overall & Sub-Project(s)	**4**
	Interface & Integration among All Sub-Projects	**4**
	Manpower & Expenditures	**5**
PROGRAM'S RESULTS	Contribution in Enhancing the Institute's International Academic Standing	**5**
	Impact on Advancing Teaching or on Technology Development	**4**
Total Score		**42**

REVIEWER'S COMMENTS & SUGGESTION:

This is the summary of six viewers' comments and suggestions.

1. The project has been executed successfully with total 686 international journal publications, 553 international conference publications and 324 domestic conference publications. 5 book chapters, 47 domestic patents granted and 29 international patents granted and good educational outreach. Overall evaluation is very high, further support is suggested to maintain the level of the output.
2. The budget table did not give a total sum of either the entire program or the projects. An inclusion of such information would help the reviewer a lot to spot the major figures.
3. The project has built several unique platforms for further researches. This helped greatly to put some of the Taiwan's photonics R and D efforts in a high-visibility regime even internationally. However, the description of impact on the industry was not given.
4. The relation of the results and program objective was not clear. There was not much program objective description given.
5. The achievement of this project was more from individual professors rather than from team work.
6. A better interface and integration among all sub-projects is really needed as the synergy among the sub-projects could enhance the overall impact of this interdisciplinary program. In the future, Biophotonics (subproject 4) should probably be a major research program by itself, and not part of this Nano- and Tera-photonics program due to the very different nature of the research goals, focus and research methodologies.
7. Considered the budget and manpower this project has been supported, more active participating in the international societies and serving on major conference committee was expected.

Program Reviewer's Signature: Cheng-Chung Lee 2008/05/30

PRINCIPLE INVESTIGATOR'S FEEDBACK: (AVAILABLE)

1. The project has been executed successfully with total 686 international journal publications, 553 international conference publications and 324 domestic conference publications. 5 book chapters, 47 domestic patents granted and 29 international patents granted and good educational outreach. Overall evaluation is very high, further support is suggested to maintain the level of the output.

Reply: We would like to thank the reviewers for their kind comments. Unfortunately, there are no follow-up projects for PPAEU-II. In my opinion, the PPAEU as a vehicle is better than that of the current so called "5 yr 5 B" plan. Although we have published a lot of papers in top journals and conferences, I am more proud of the world-class results that were recognized internationally, e.g., > 400 Gb optical storage, first electrically-pumped GaN VECSEL, slow-light devices with highest bandwidth-delay product, a Biometric optoelectronic system for real-time walker recognition, etc.

2. The budget table did not give a total sum of either the entire program or the projects. An inclusion of such information would help the reviewer a lot to spot the major figures.

Reply: The report has been revised to include budget information of the whole project and the three topical areas.

3. The project has built several unique platforms for further researches. This helped greatly to put some of the Taiwan's photonics R and D efforts in a high-visibility regime even internationally. However, the description of impact on the industry was not given.

Reply: The co-PIs of the projects have conducted ~ 20 industrial co-op projects over the four years. This is an indication of the level of interaction between the co-PIs and the industry. The photopolymer technology for volume holographic storage was transferred to 中環 CMC corporation. The storage capacity and speed are more than 10 times those of state-of-art Blu-DVD. At a later stage, electrically-pumped GaN blue laser diode first developed by the project team can be integrated into the optical head for the holographic disk. This could leap-frog the current technology. Solid-state lighting is shaping up as a major industry in the world. GaN LED technology developed was transferred to 晶元 Epistar and others.

4. The relation of the results and program objective was not clear. There was not much program objective description given.

Reply: The report has been modified to include a brief description of program objectives.

In this project, we propose to conduct cutting-edge research to selected areas of photonic science and technology, widely recognized as the enabling technology for the transmission and processing of information at rate of Tb/s as well as for the storage of information density approaching Tbytes/in^2.

In addition to the generation of new knowledge, the output of this program is expected to provide highly-trained photonics professionals and core technologies that are needed for the build up of the information infrastructures. For these three objectives, I think we have acquitted ourselves well. Cutting-edge research is always a moving target. My concern has always been that we achieve results of high impact. In my opinion, our team consists of many of the top researchers in Taiwan. They should be allowed as much leverage to pursue first-rate research. The core laboratories were maintained so that the PIs and co-workers can have the resources to compete with top research teams in the world.

Please also note that the program was re-organized after it was approved. The funding level was less than one third of what we requested (about 36M/year). Therefore, we merge fundamental studies with material and devices (including volume holographi materials) into SP-1; optical communication and near-field storage into SP-2; micro-optics and OEIC into SP-3. The biophotonics project, SP-4 was left alone but supported at a minimum level. Needless to say, some of our more ambitious objectives were scrapped.

5 The achievement of this project was more from individual professors rather than from team work.

Reply: We list several collaboration projects that results from team work.

a). Using the adaptive coherent control technique, Profs. Jung Y. Huang and C. L. Pan (SP-1) studied semiconductor saturable absorber mirrors fabraicated by Prof. Jen-Inn Chyi (SP-3) and achieved a three-time increase in image contrast on regions with photoluminescent wavelength of InAs quantum dots differing only 18 nm by using coherent control nonlinear optical microscopy [JOSA B 22:1134 (2005), selected by the Virtual J. Ultrafast Sci., 2005]. Saturable absorber mirrors are key devices for modelocking of ultrafast lasers. The novel microscopic technique also allows more insights into the InA quantum dots.

b). A few types of THz antennas and photonic transmitters that were fabricated on epi-layers grown in Prof. Jen-Inn Chyi's lab and fabricated by Prof. Jin-Wei Shi. [IEEE Photon. Technol. Lett., Vol. 19, No. 11 pp. 840-842, June 1, 2007, to be published ,2008].

c). Within SP-1, Profs. H. C. Kuo, Jung Y. Huang, and C. –L. Pan collaborated in the development and elucidation of mechanisms of Enhanced photoresponse by a Metal-Oxide-Semiconductor photodetector with Si nanocrystals embedded in the oxide layer [Appl. Phys. Lett., Vol. 90, art. 051105, January 30, 2007]. Further, semiconductor THz quantum cascade laser (QCL) is a promising candidate for THz sources for the next-generation. Especially, QCLs with GaN-based quantum well structures have significant advantages over the currently demonstrated THz lasers in the GaAs-based material system. From the understanding of the fundamental material properties, we are

working on the development of such high-performance THz QCLs.

d) SP-1 and SP-2 collaborated to achieve slow-light devices. It boasted the largest bandwidth-delay product of semiconductor-based slow-light devices.

. A better interface and integration among all sub-projects is really needed as the synergy among the sub-projects could enhance the overall impact of this interdisciplinary program. In the future, Biophotonics (subproject 4) should probably be a major research program by itself, and not part of this Nano- and Tera-photonics program due to the very different nature of the research goals, focus and research methodologies. Unfortunately, there are no follow-up projects for PPAEU-II. To my knowledge, at least a couple of proposals were submitted taking advantage of the strengths and synergy of the sub-projects. Firstly, members of SP-1, SP-2 and SP-3 propose to demonstrate certain milestones of multi-service THz Radio-over-fiber communication and sensing network for future ultra-broadband media, data and biomedical applications. In collaboration with Prof. C. T. Lee (NCKU), several of us (Profs. Jung Y. Huang, Ci-Ling Pan, Hao-Chung Kuo, and Dr. Jia-Min Shieh) have submitted a proposal to the National Nanoscience Program, entitled, "Photovoltaic technology with self-assembled nanostructures of silicon quantum-dots in mesoporous silica". It has just been approved.

Biophotonics is of course an important field. It is an interdisciplinary field that can be explored from many angles, from the ultrafast to device and nanotechnology.

7. Considered the budget and manpower this project has been supported, more active participating in the international societies and serving on major conference committee was expected.

The budget of the whole project is about 36 M/year. The level of support per co-PI is not larger than many of the basic science or nano-projects. There are already a decent level of participation in international societies and committee work. Please refer to the reports. On the other hand, excess committee work would hamper the time faculties can devote to conduct first-rate research.

PI's Signature: Pan Ci-Ling 潘犀靈