

圖 5-1 不同基板溫度的氧化鋅薄膜厚度圖

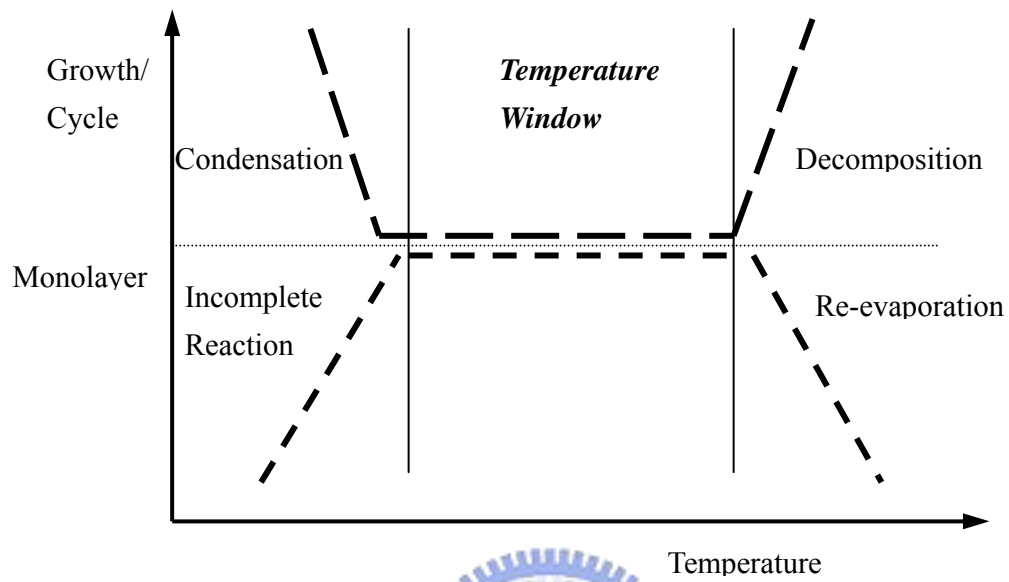


圖 5-2 ALCVD 基板溫度反應區間示意圖

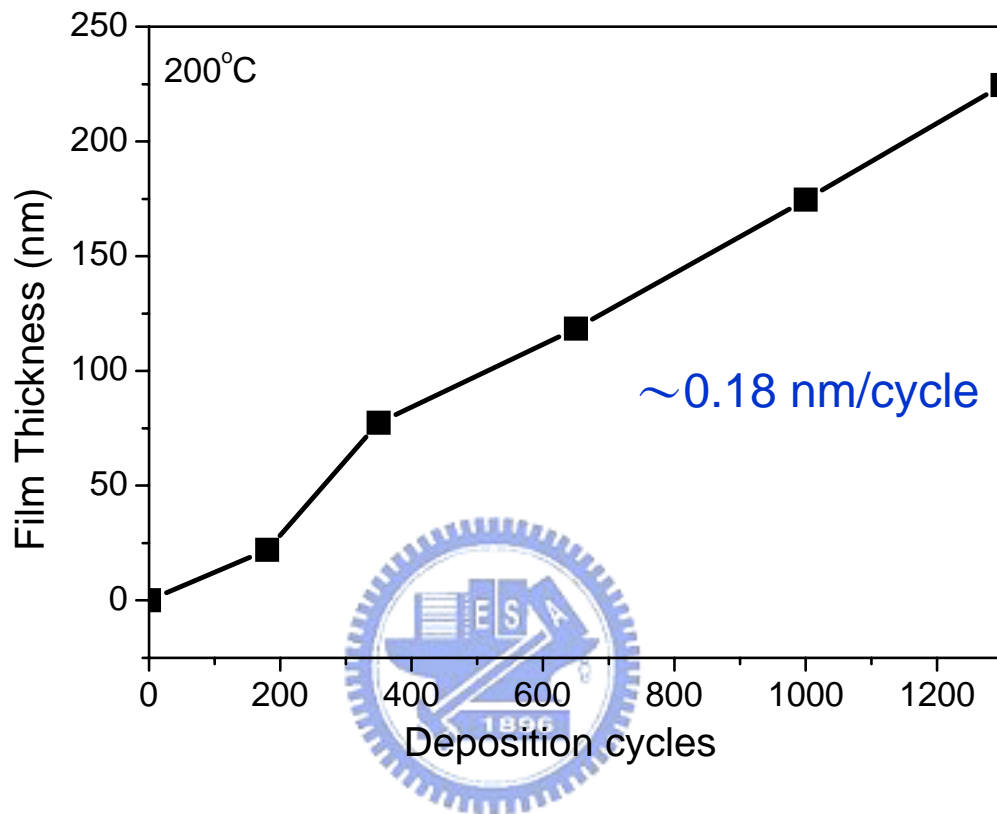


圖 5-3 鍍膜回合數與氧化鋅薄膜厚度圖

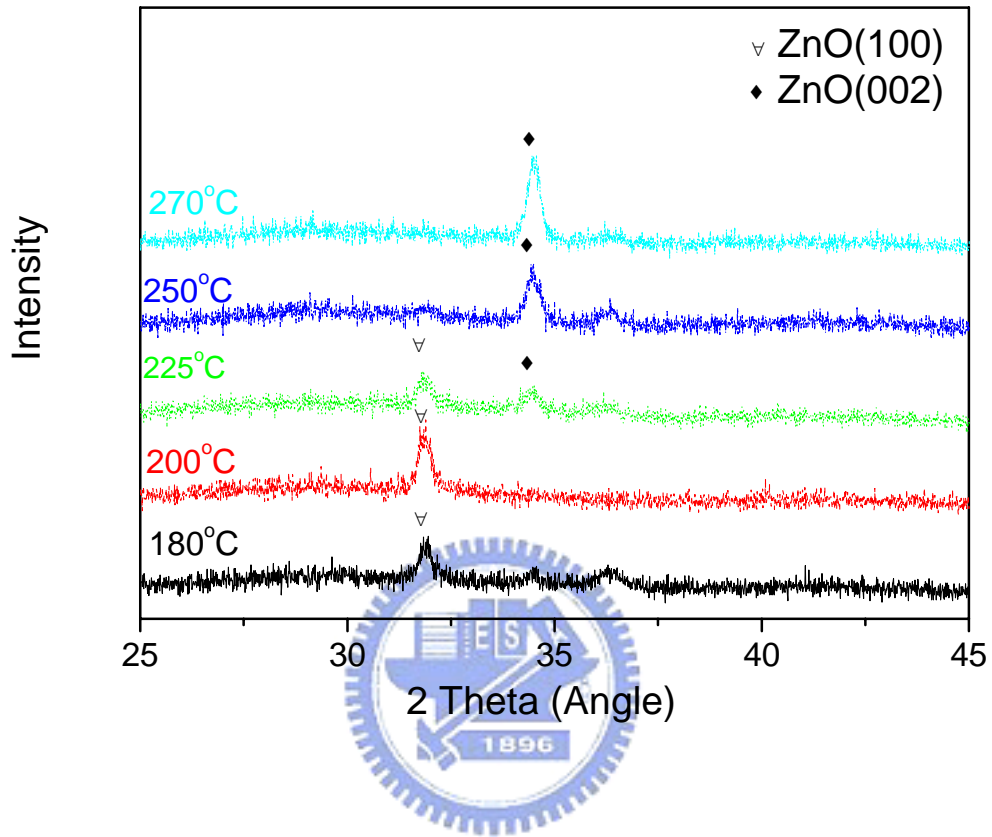


圖 5-4 不同基板溫度所鍍的氧化鋅薄膜之 XRD 圖

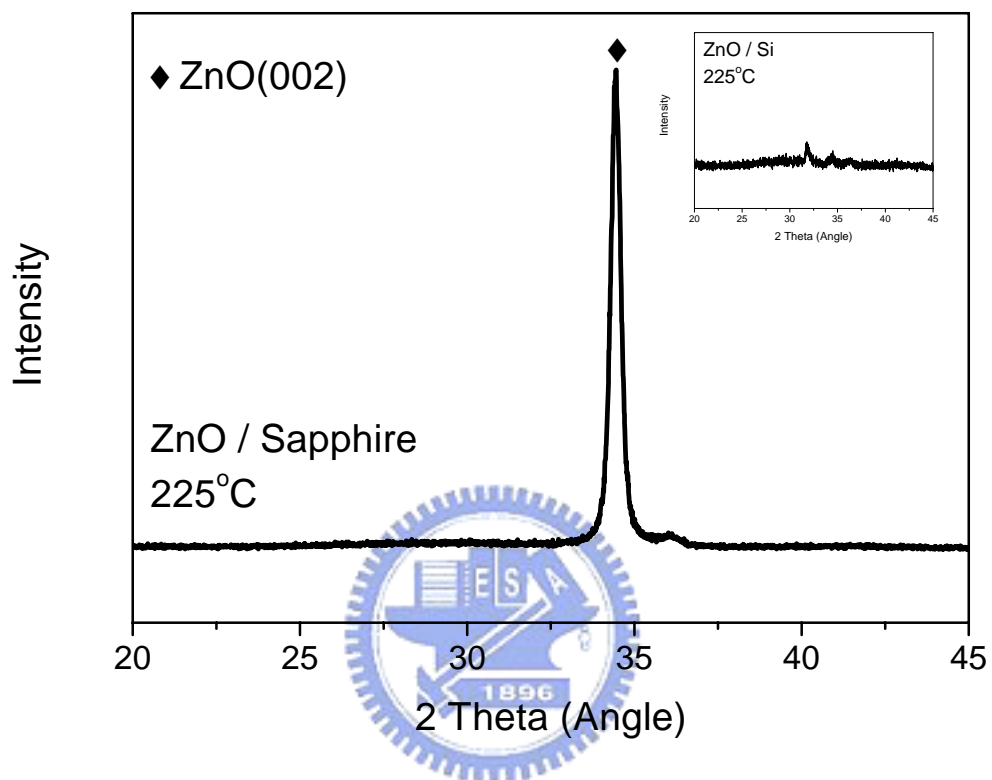


圖 5-5 鍍在單晶氧化鋁(Sapphire)基板上的氧化鋅薄膜之 XRD

圖

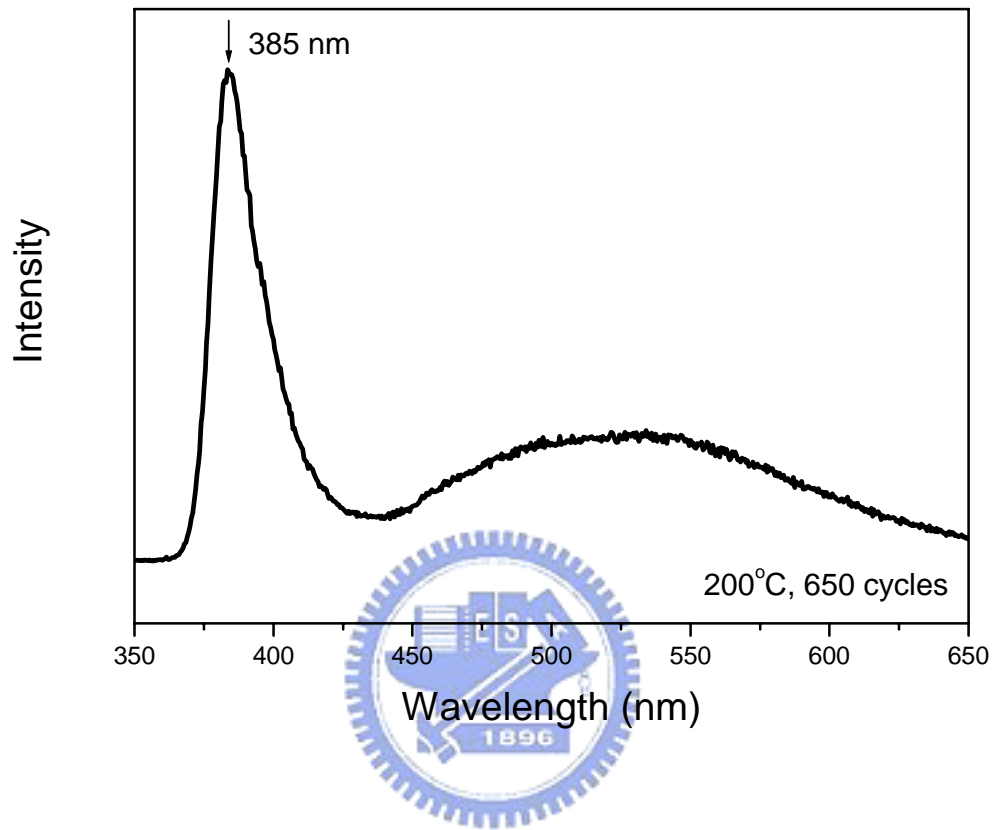


圖 5-6 200°C，650cycles 之氧化鋅薄膜之 PL 圖

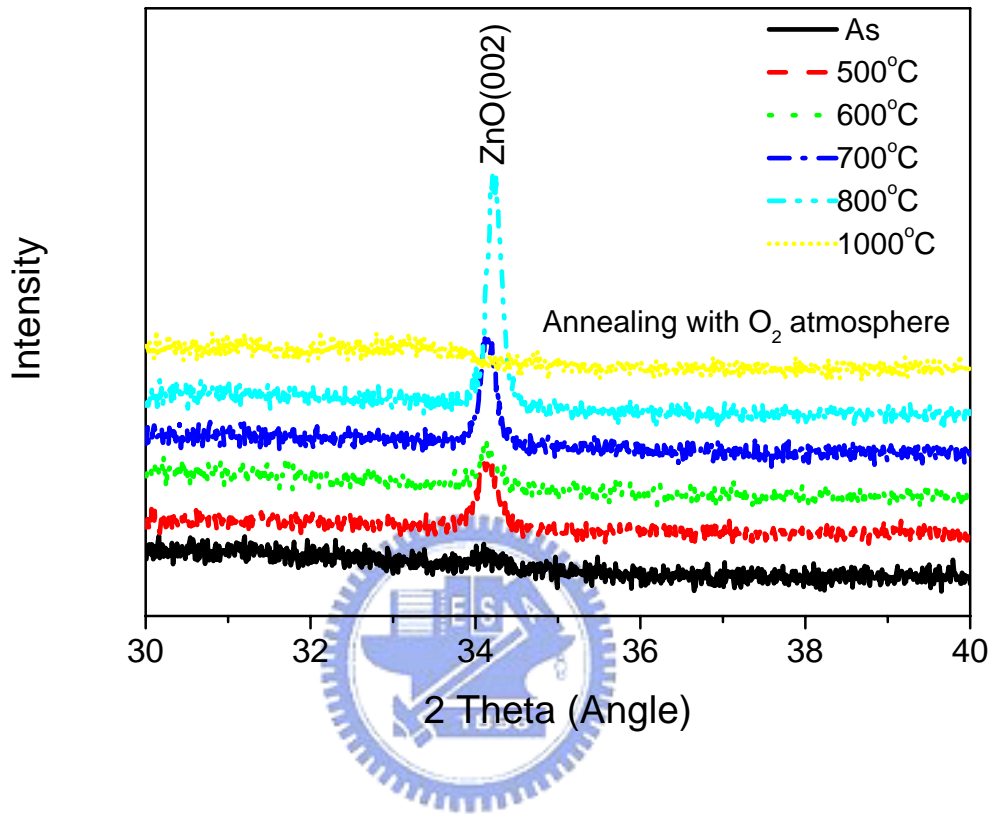


圖 5-7 通氧退火的氧化鋅薄膜之 XRD 圖

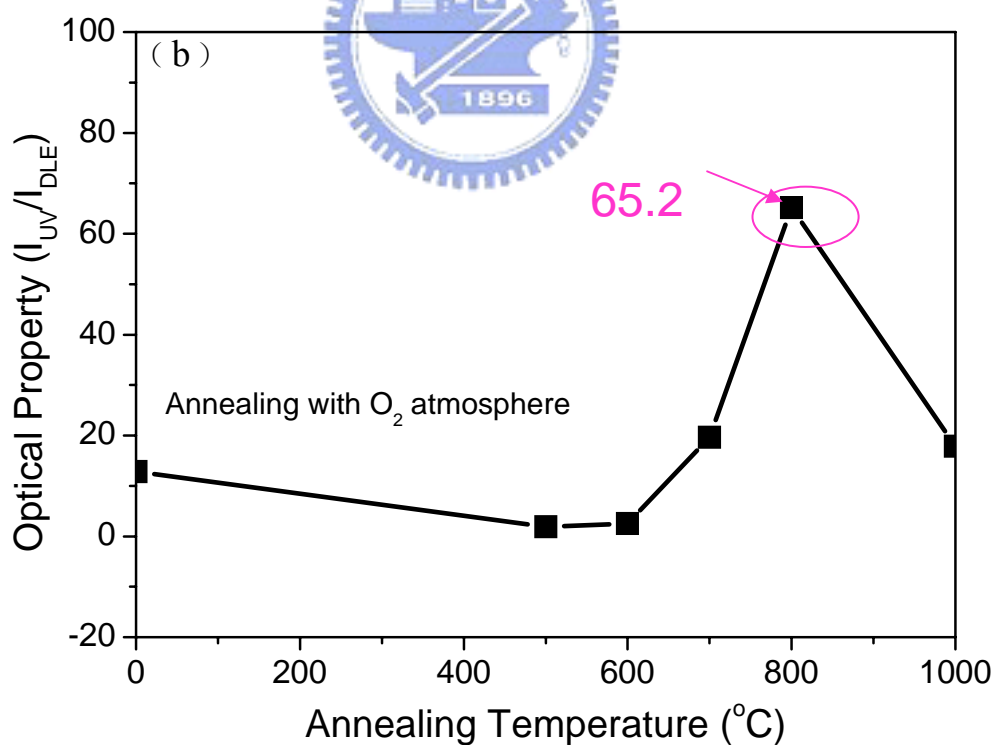
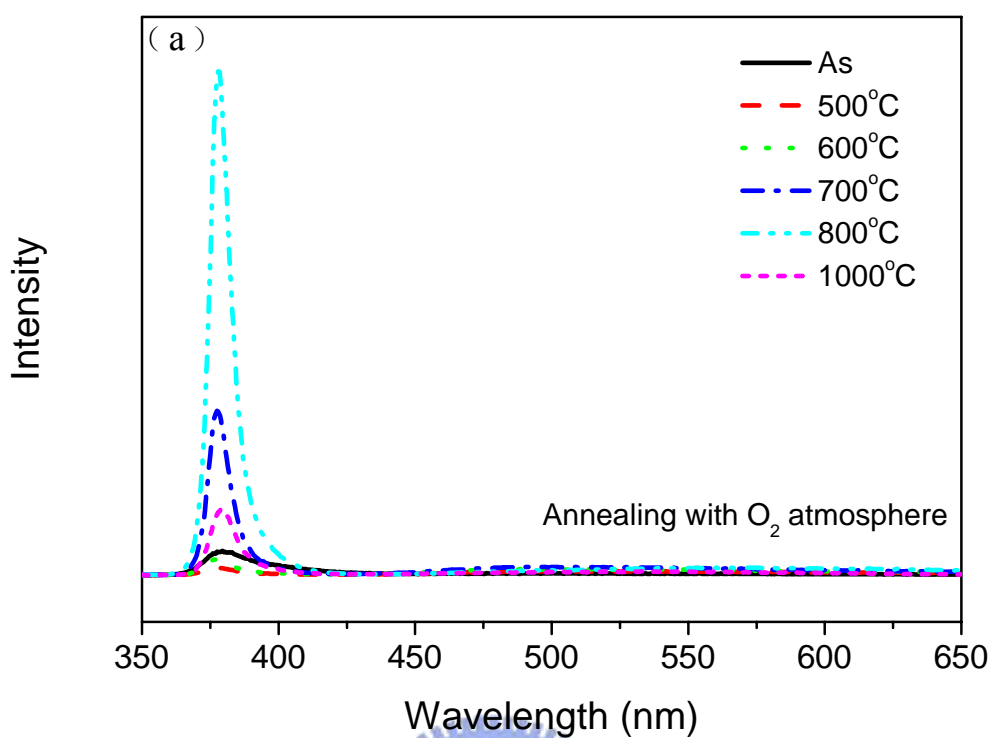


圖 5-8 (a) 通氧退火的氧化鋅薄膜室溫下的 PL 圖

(b) 紫外光放射強度(I_{UV})和可見光放射強度(I_{DLE})比值

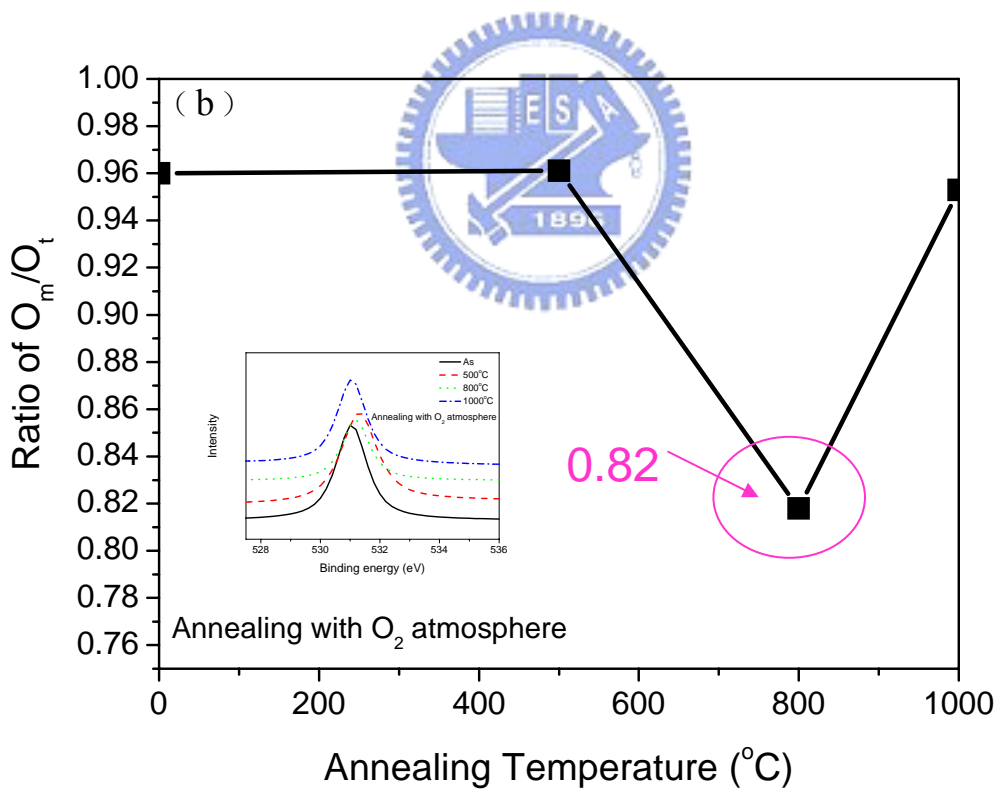
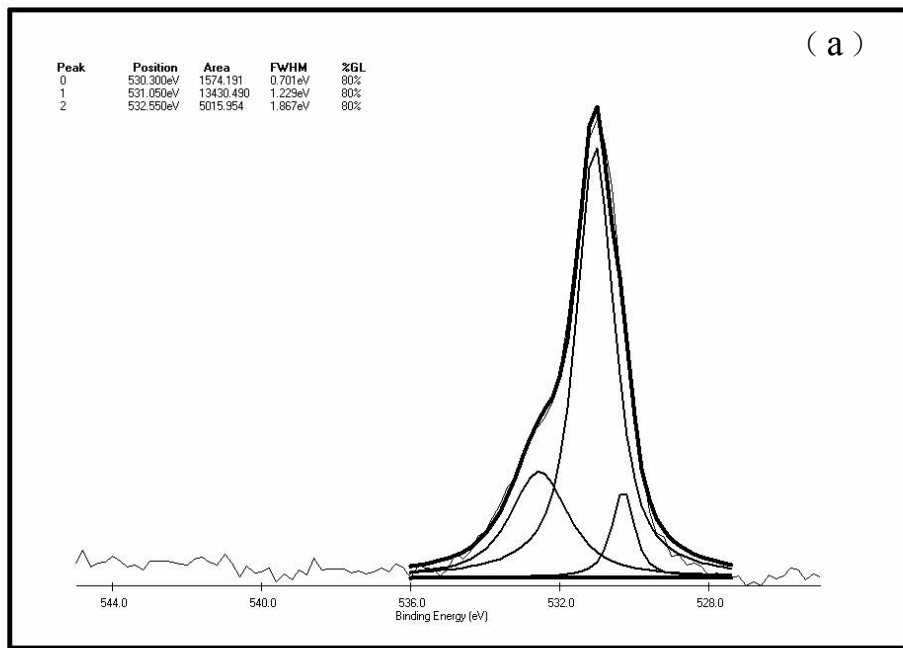


圖 5-9 (a) 通氧氣氛退火之 O_{1s} xps圖

(b) O_m (531.25 ± 0.20 eV) 與 O_t (total intensity) 的比值

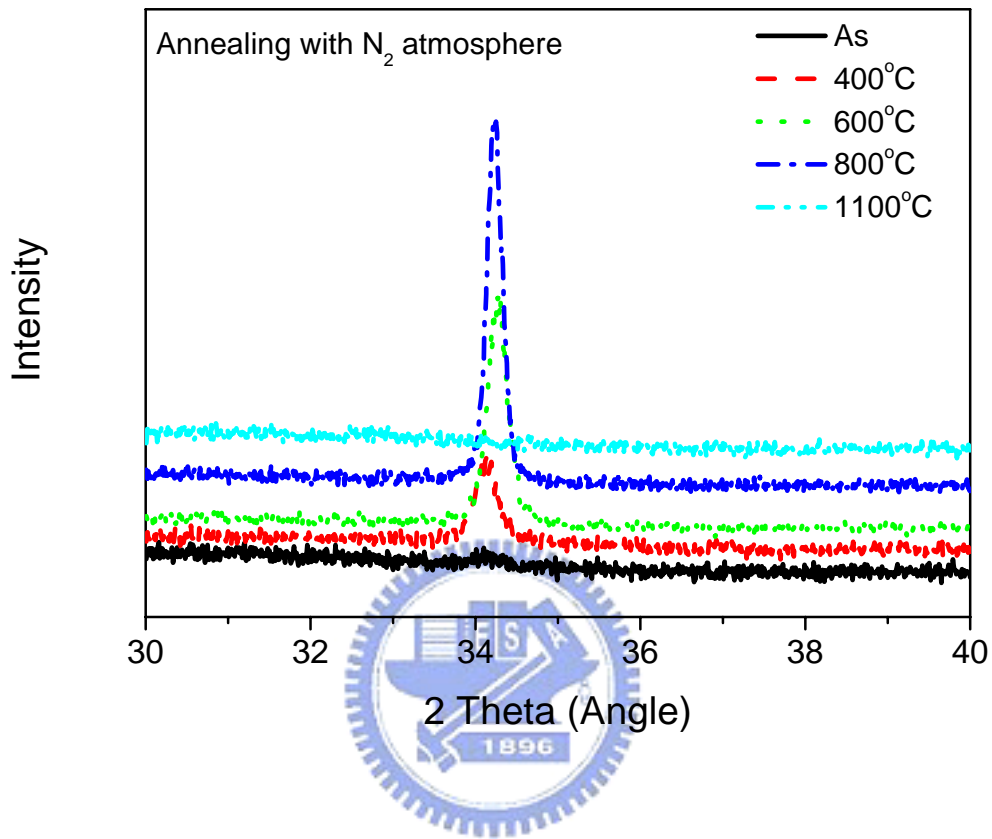


圖 5-10 通氮退火的氧化鋅薄膜之 XRD 圖

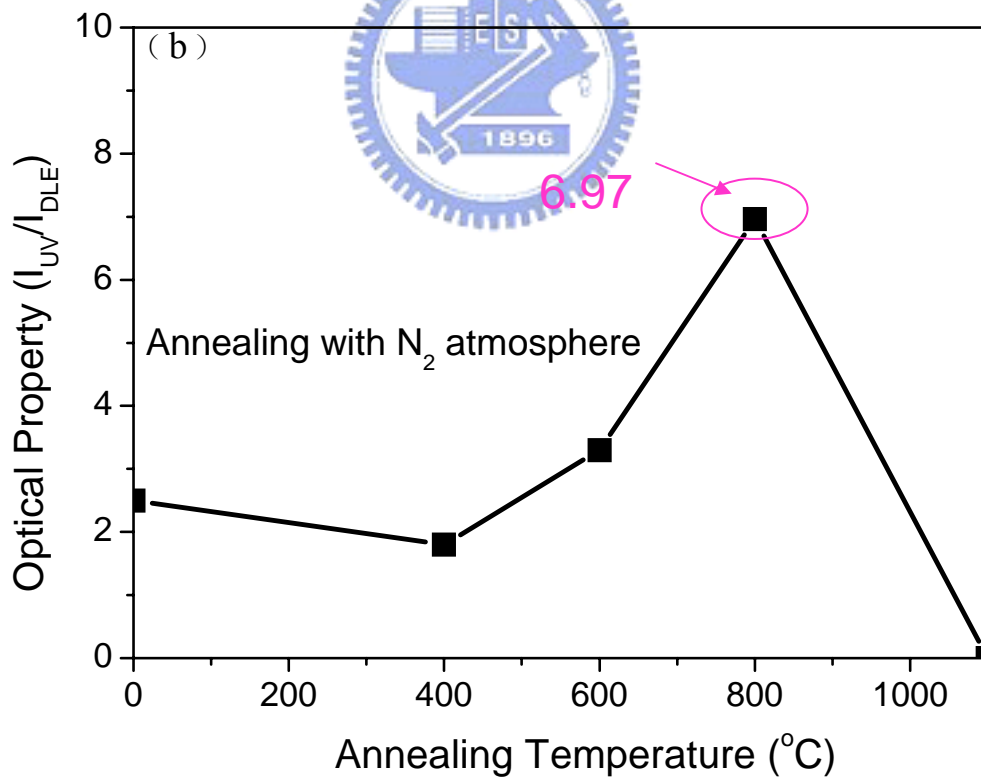
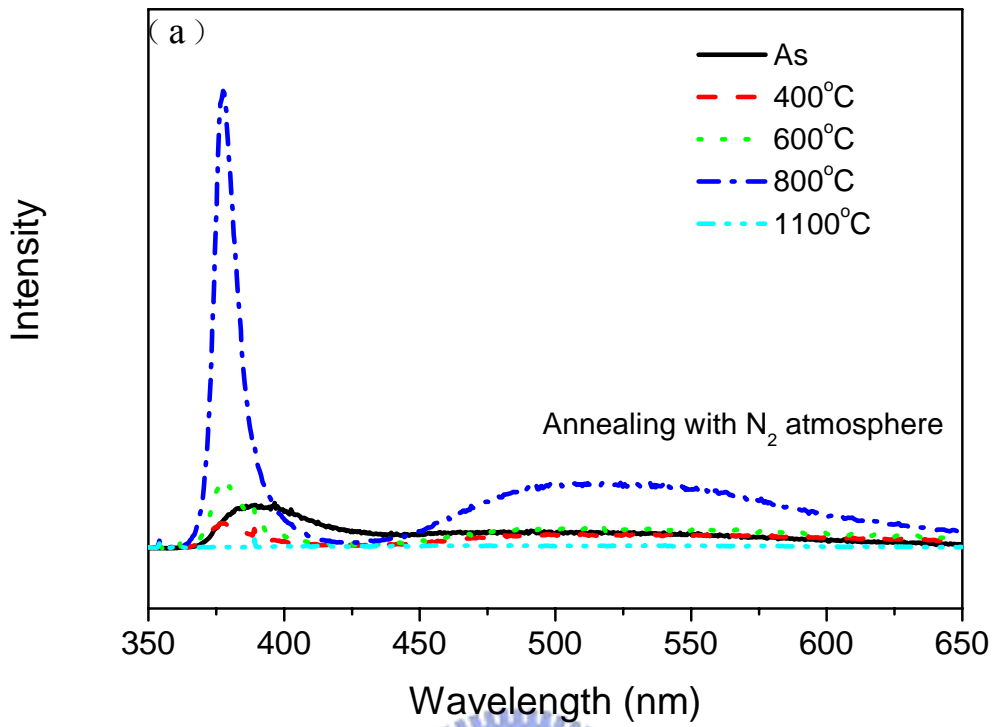


圖 5-11 (a) 通氮退火的氧化鋅薄膜室溫下的 PL 圖

(b) 紫外光放射強度(I_{UV})和可見光放射強度(I_{DLE})比值

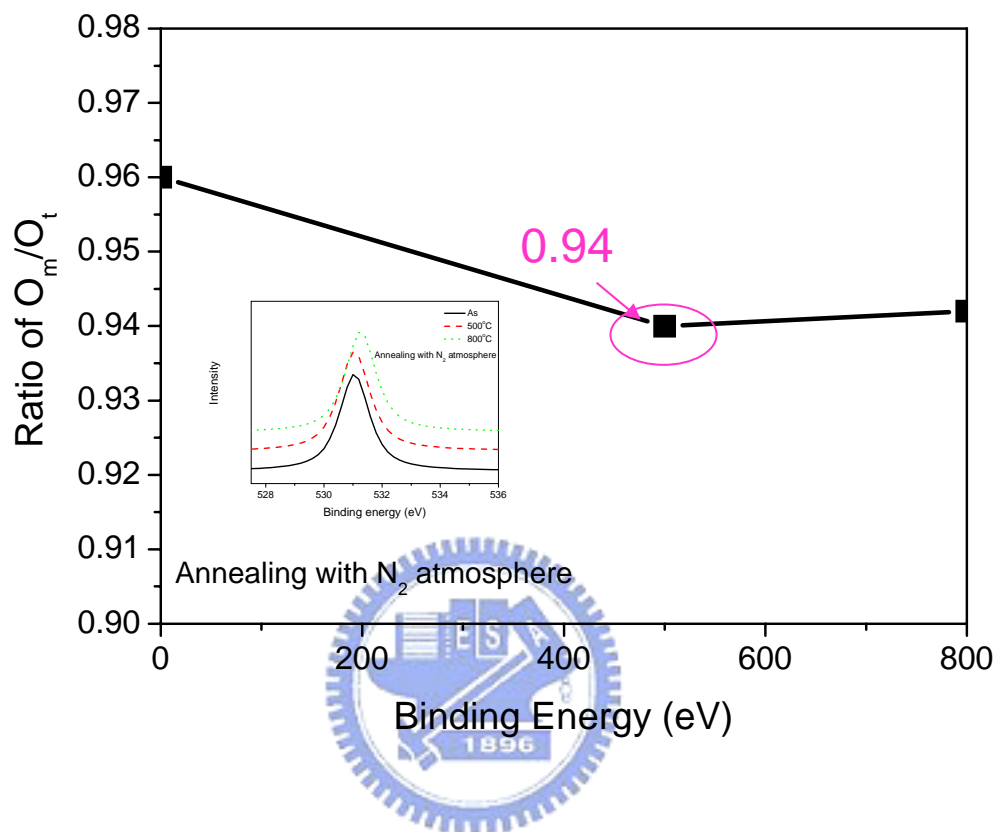


圖 5-12 通氮退火的氧化鋅薄膜之XPS圖的 O_m
 (531.25±0.20 eV) 與 O_t (total intensity) 的比值

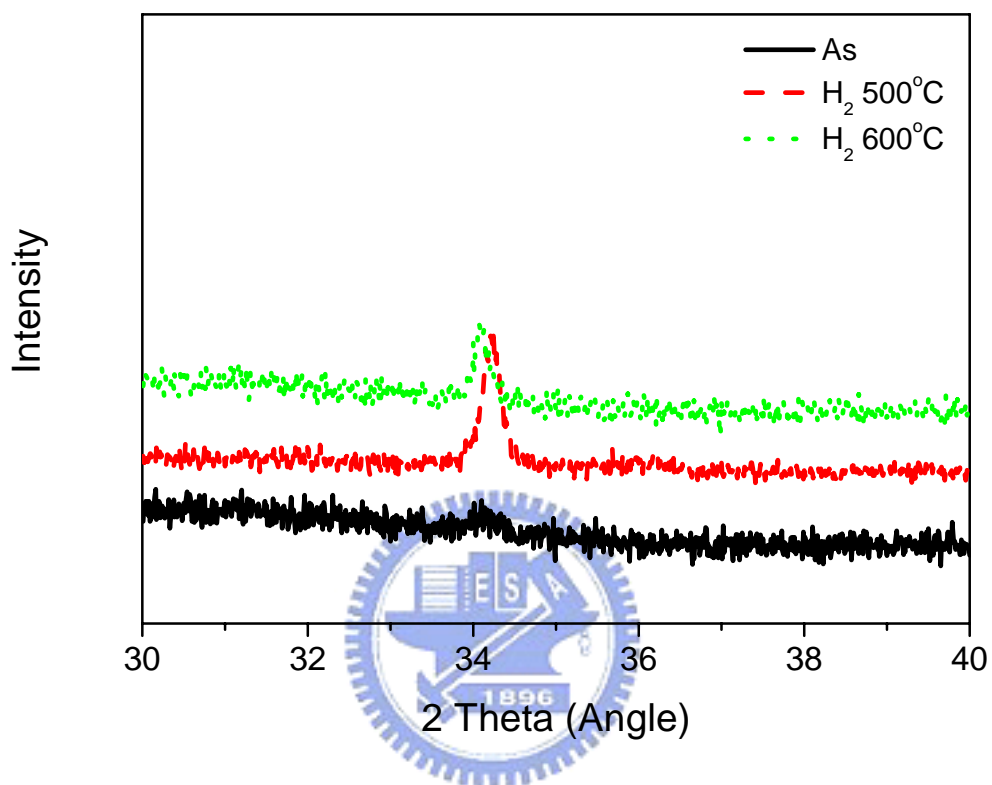


圖 5-13 通氫退火的氧化鋅薄膜之 XRD 圖

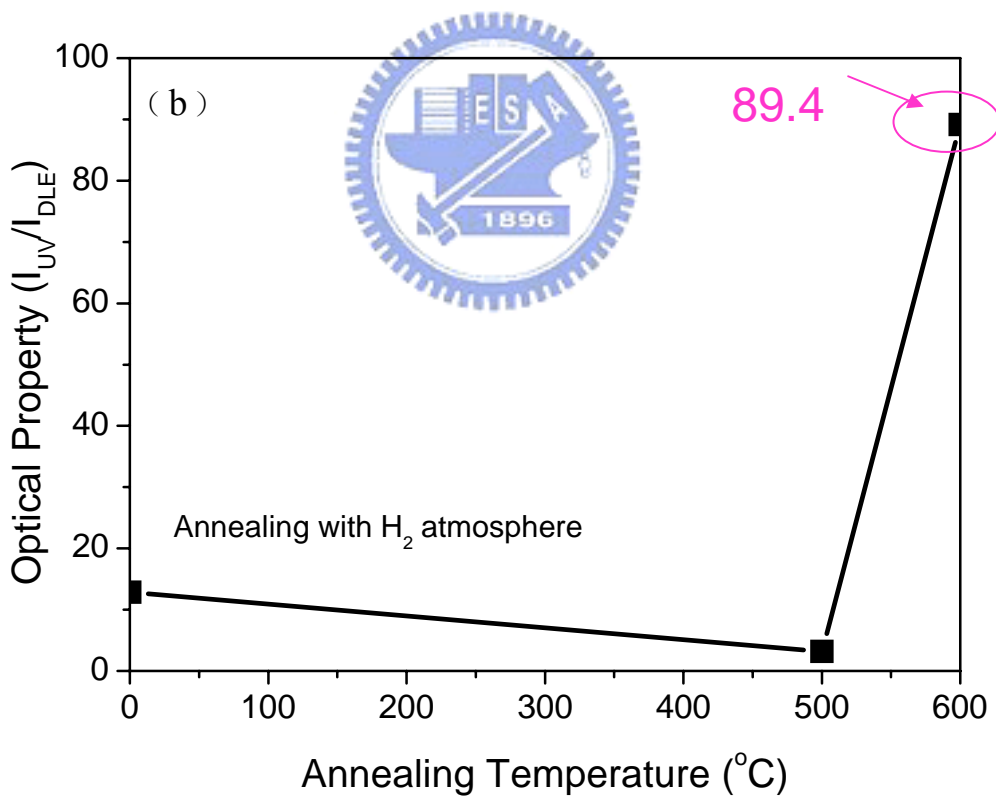
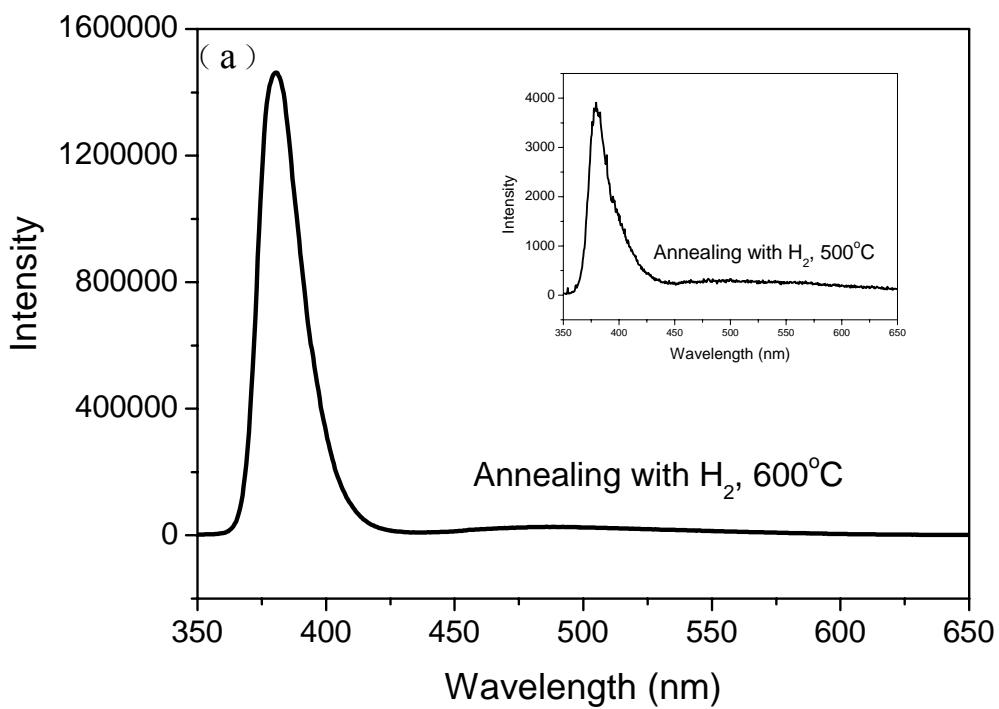


圖 5-14 (a) 通氫退火的氧化鋅薄膜室溫下的 PL 圖

(b) 紫外光放射強度(I_{UV})和可見光放射強度(I_{DLE})比值

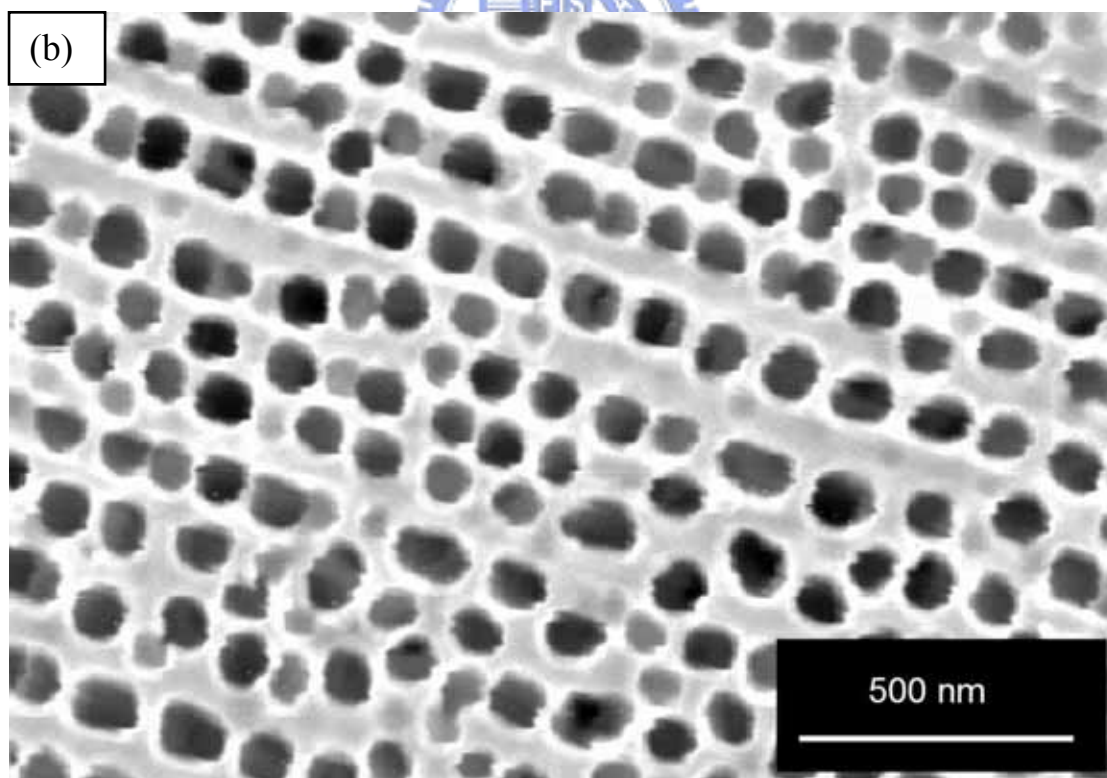
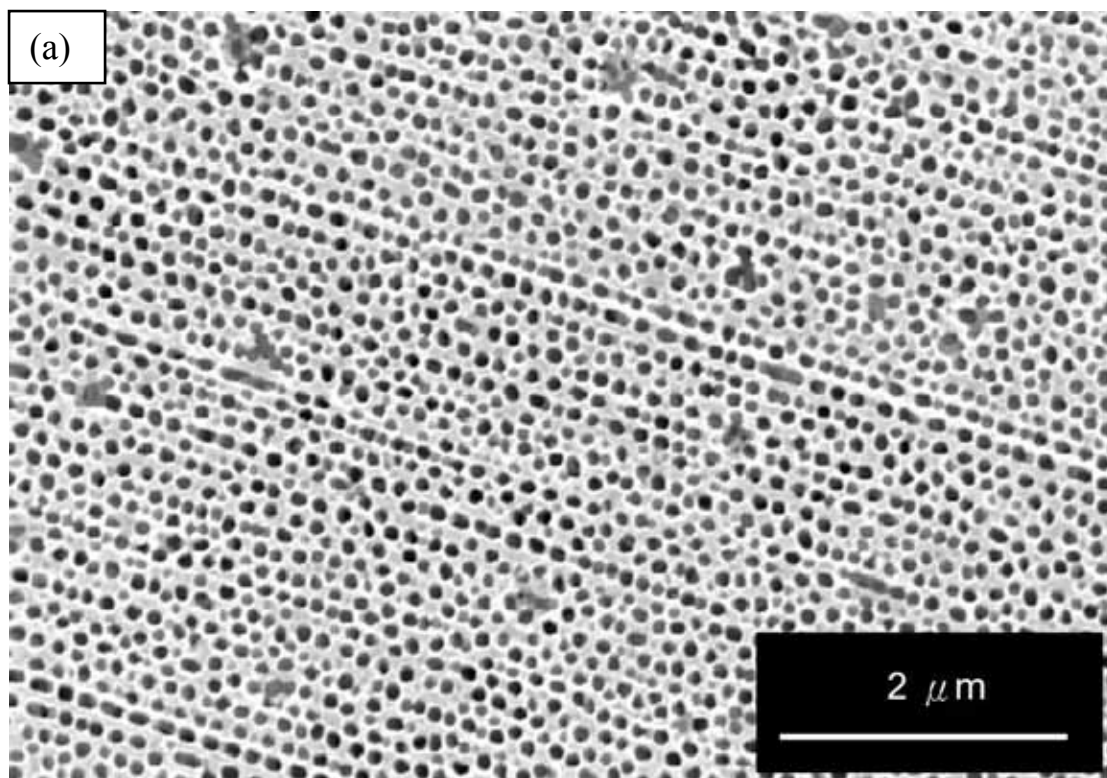


圖 5-15 AAO 模板之 SEM 圖

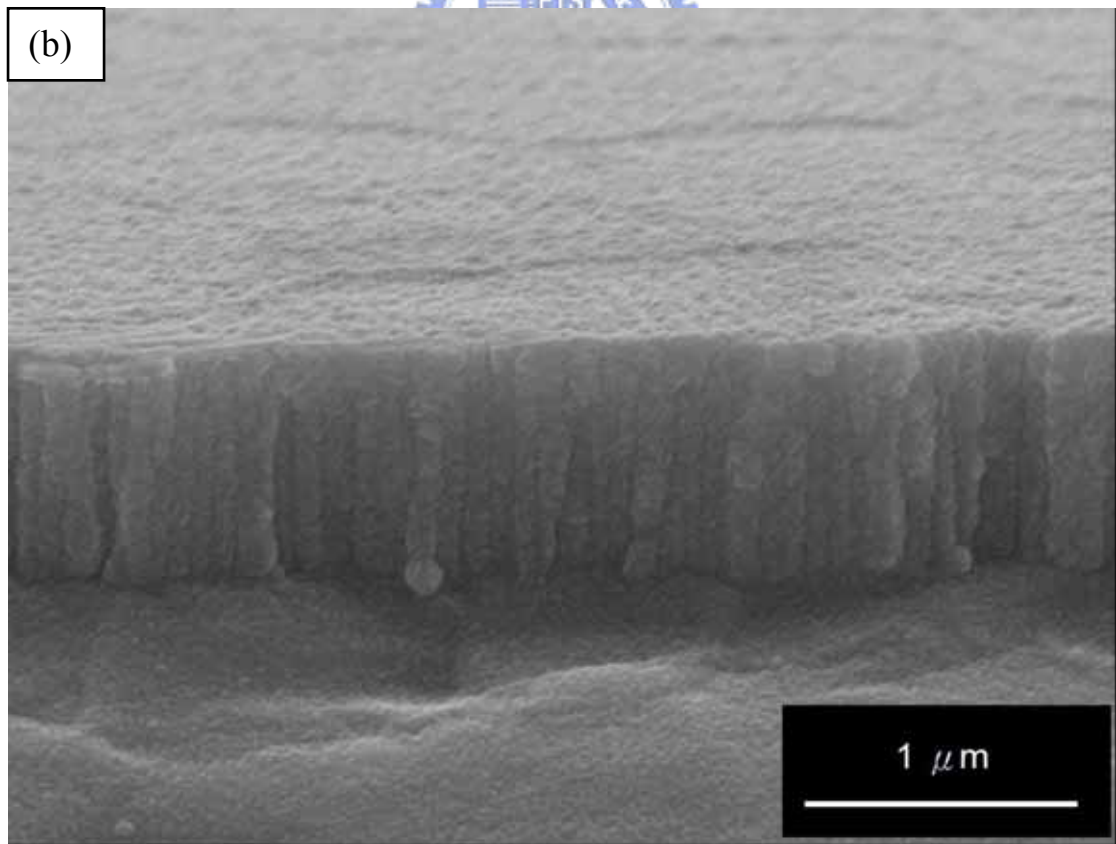
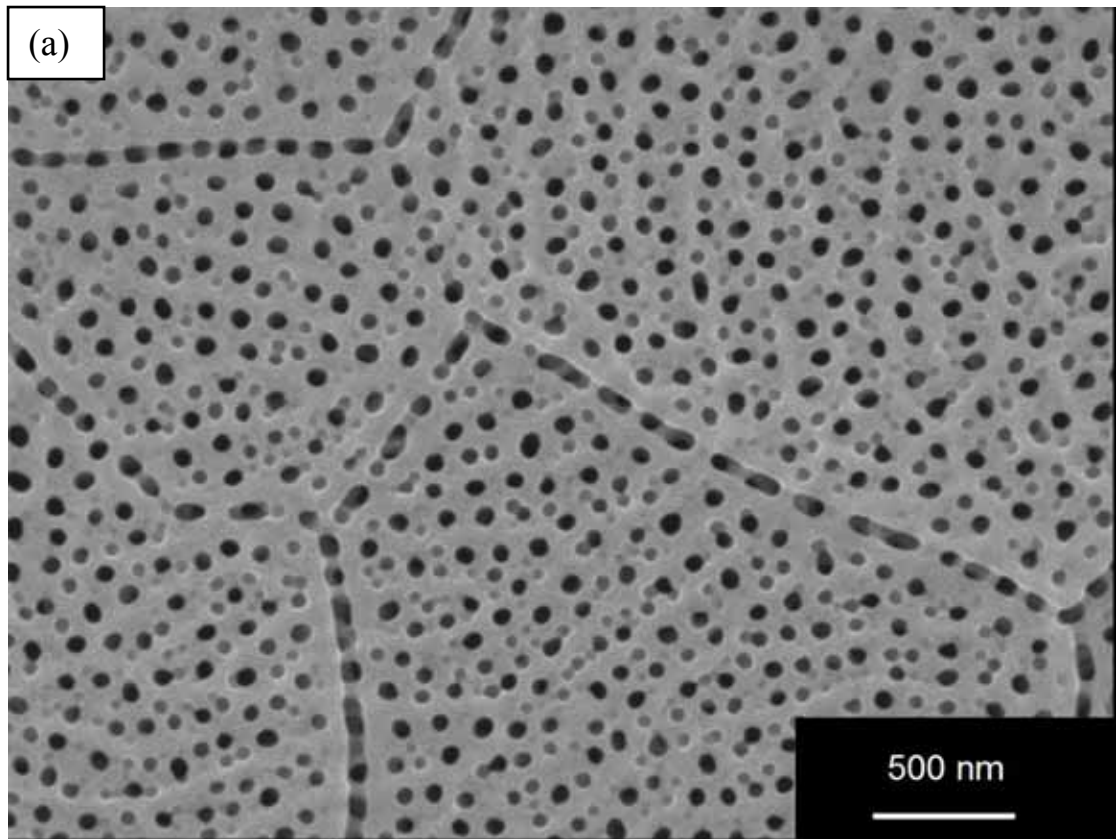


圖 5-16 AAO 內之氧化鋅奈米管之 SEM 圖

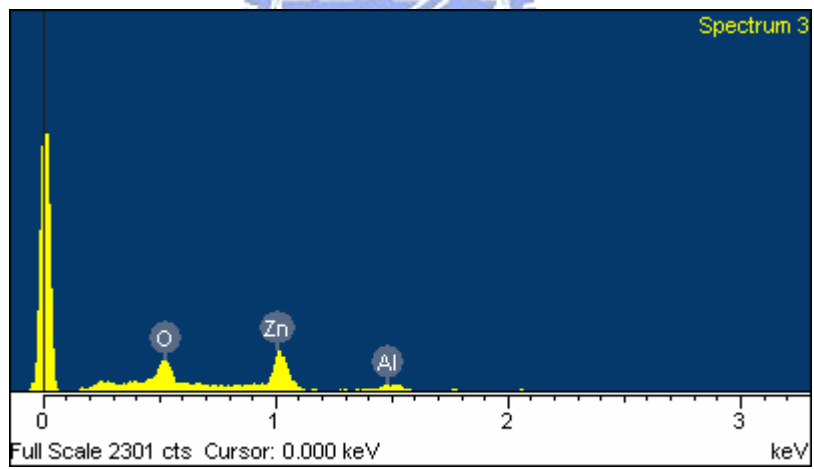
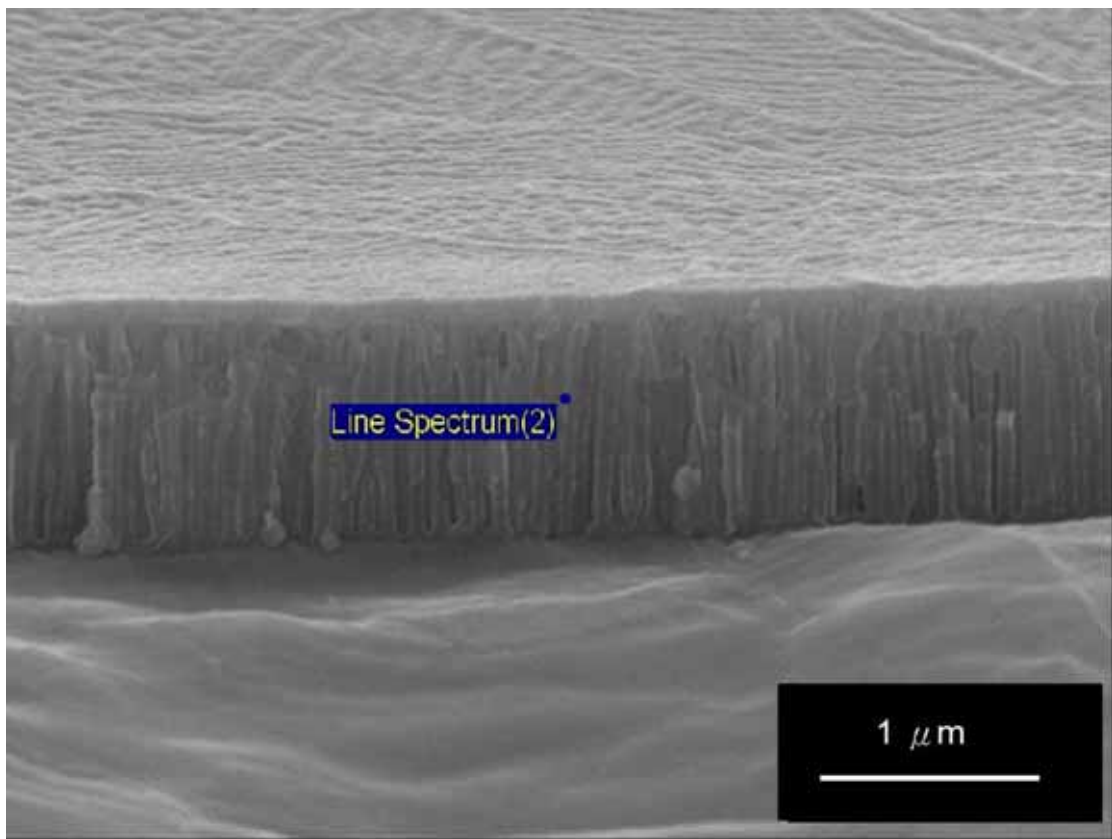


圖 5-17 位於 AAO 內之氧化鋅奈米管之 EDS 圖

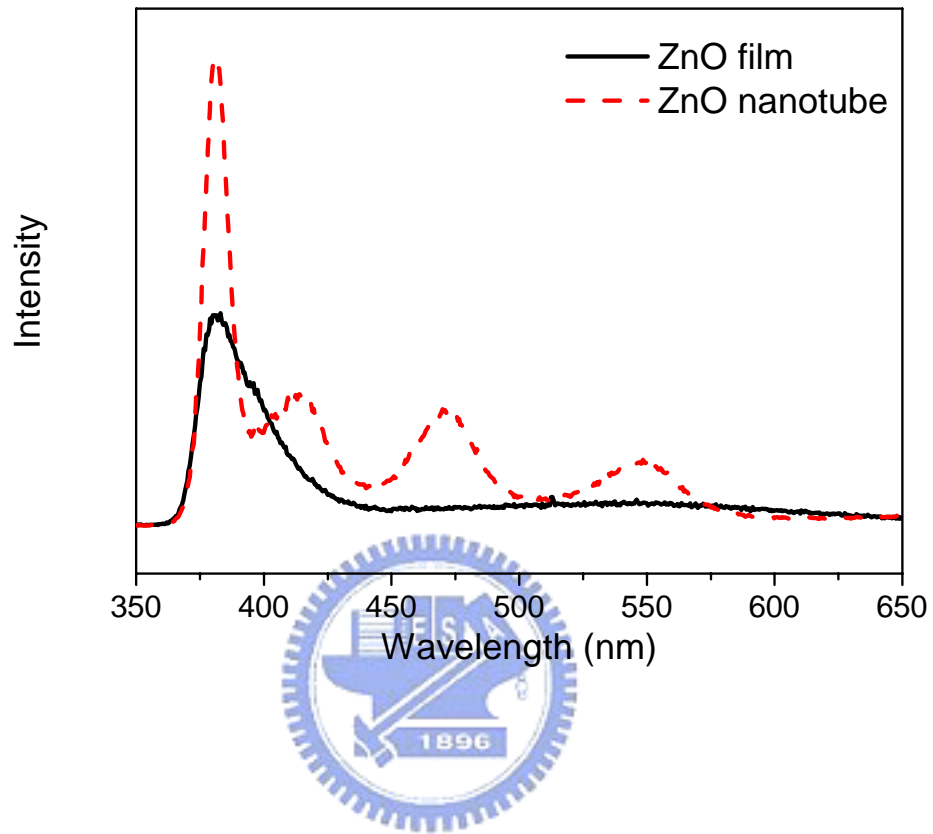


圖 5-18 氧化鋅奈米管與氧化鋅薄膜之光激發光譜圖

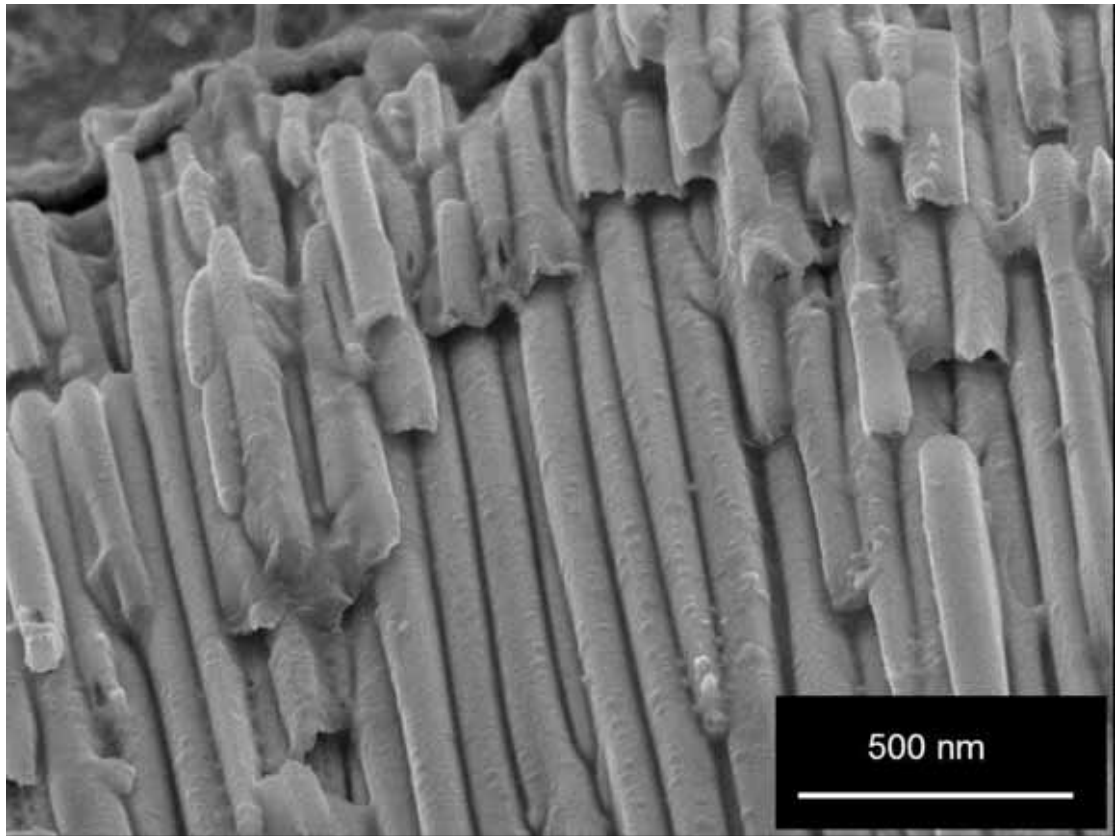


圖 5-19 去除 AAO 之氧化鋅奈米管之 SEM 圖

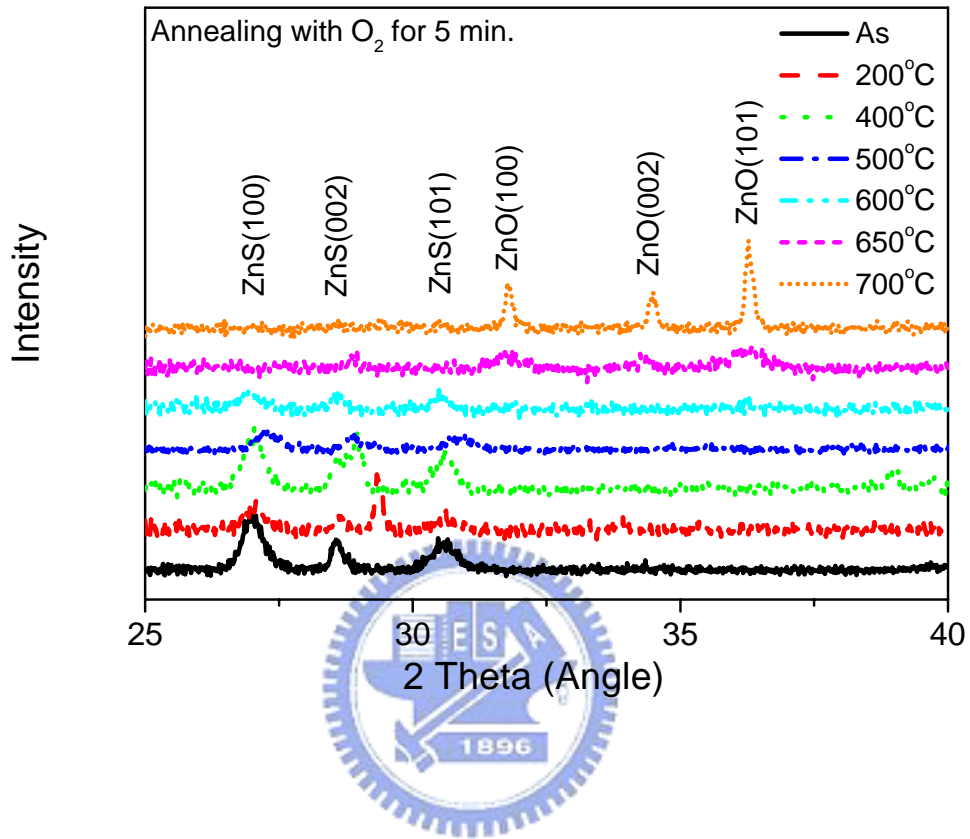


圖 6-1 不同溫度下對硫化鋅做通氧氣氛退火之 XRD 繞射圖

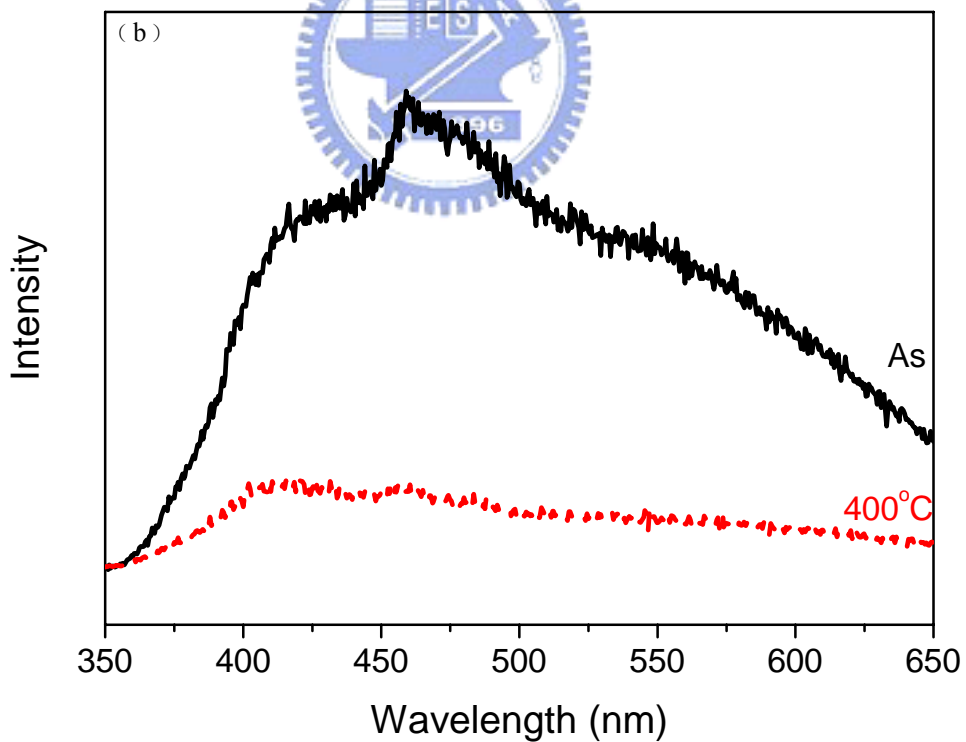
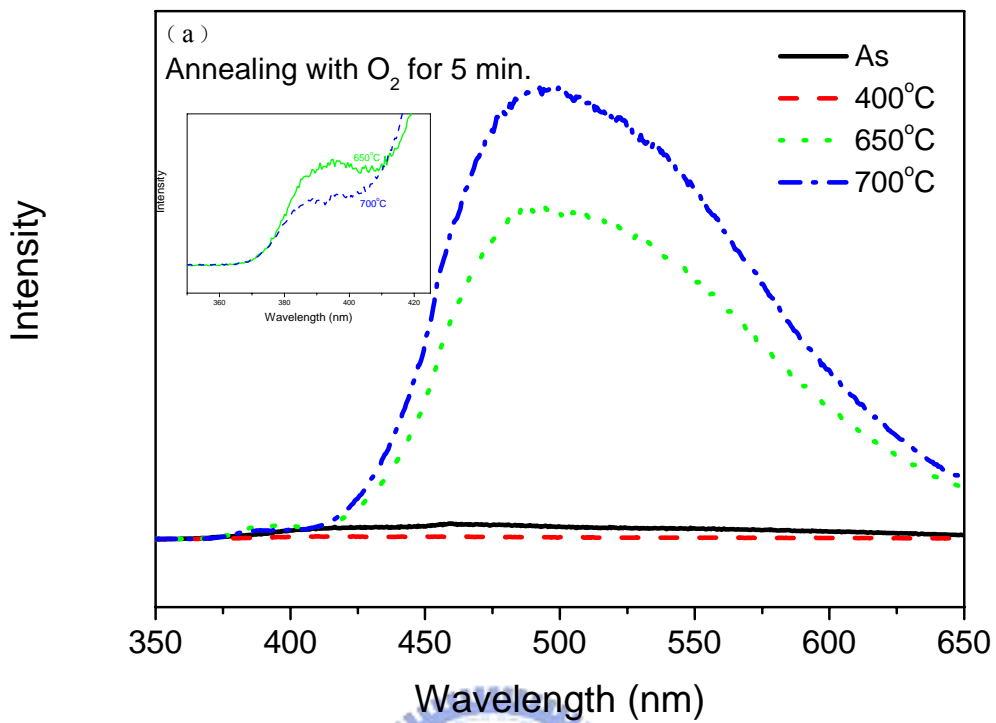


圖 6-2 (a) 不同溫度下對硫化鋅做通氧氣氛退火之 PL 圖

(b) 通氧氣退火前與退火 400°C 之 PL 圖

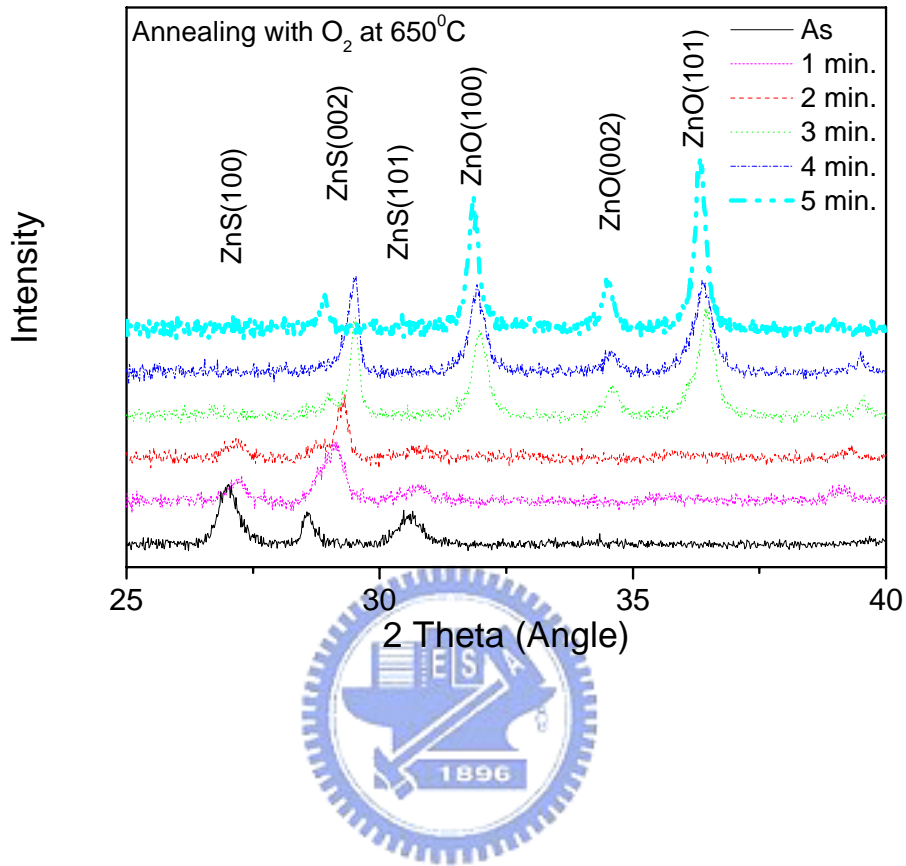


圖 6-3 對硫化鋅做不同退火時間通氧氣氛退火之 XRD 繞射圖

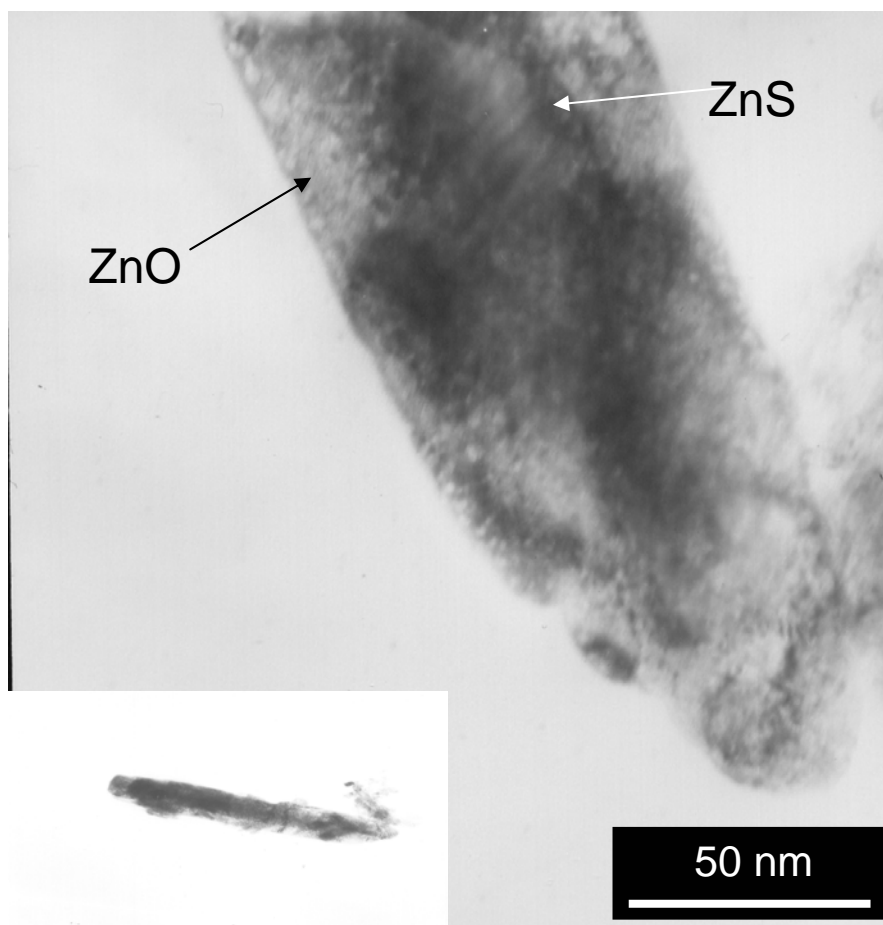


圖 6-4 (a) 硫化鋅與氧化鋅的核 - 殼結構

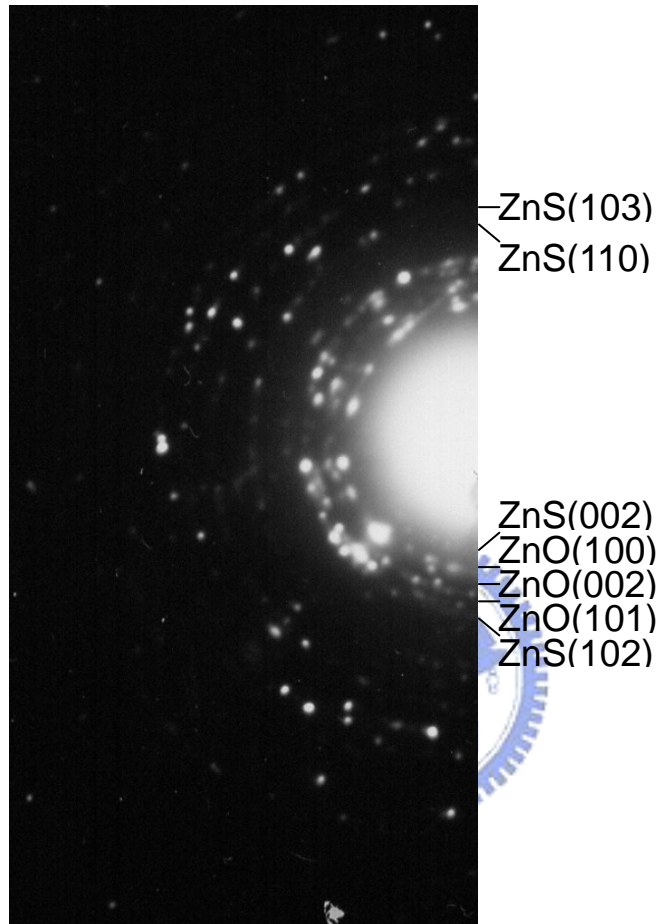


圖 6-4 (b) 硫化鋅與氧化鋅的核 - 殼結構之電子束繞射圖

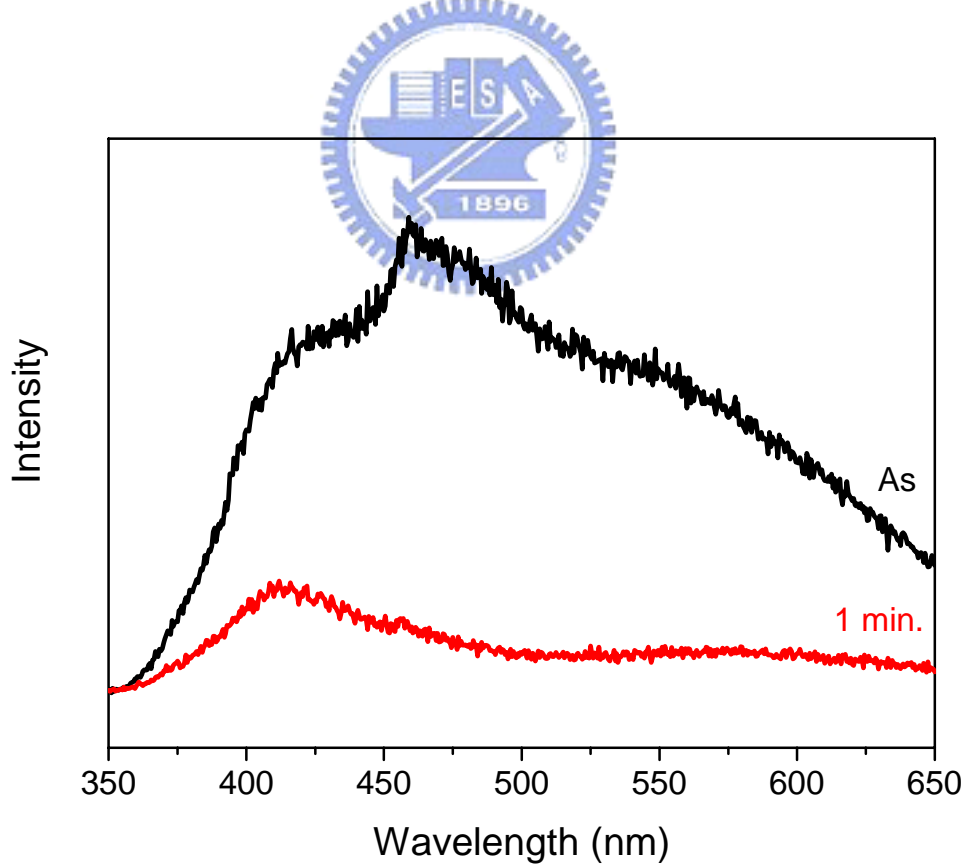
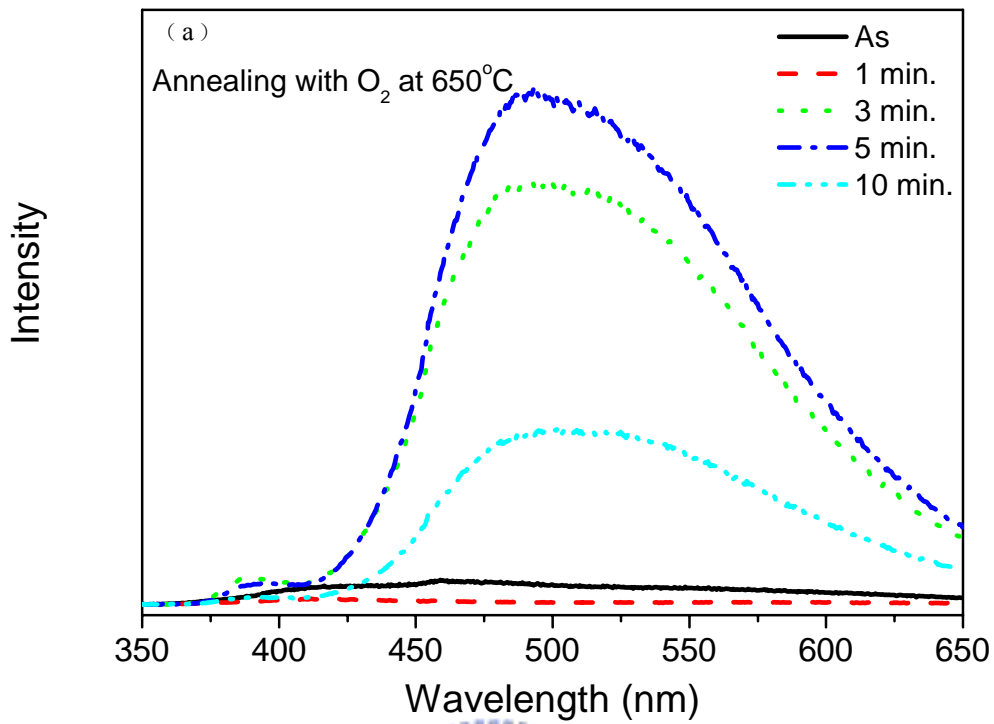


圖 6-5 (a) 不同溫度下對硫化鋅做通氧氣氦退火之 PL 圖

(b) 通氧氣退火前與退火一分鐘之 PL 圖

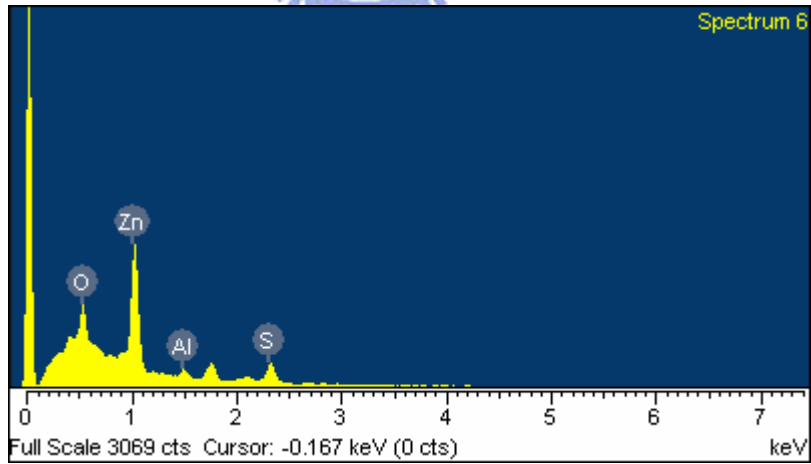
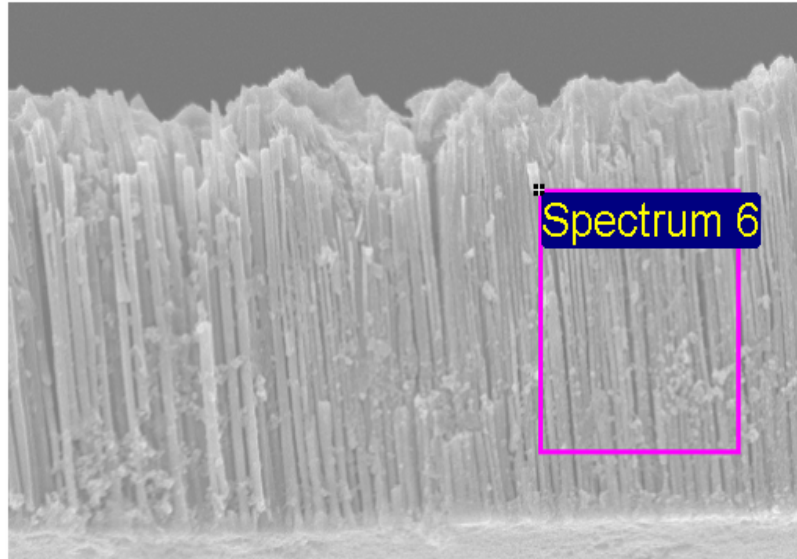


圖 6-6 「硫化鋅 - 氧化鋅」之「核 - 殼」結構之 SEM 圖與 EDS

圖

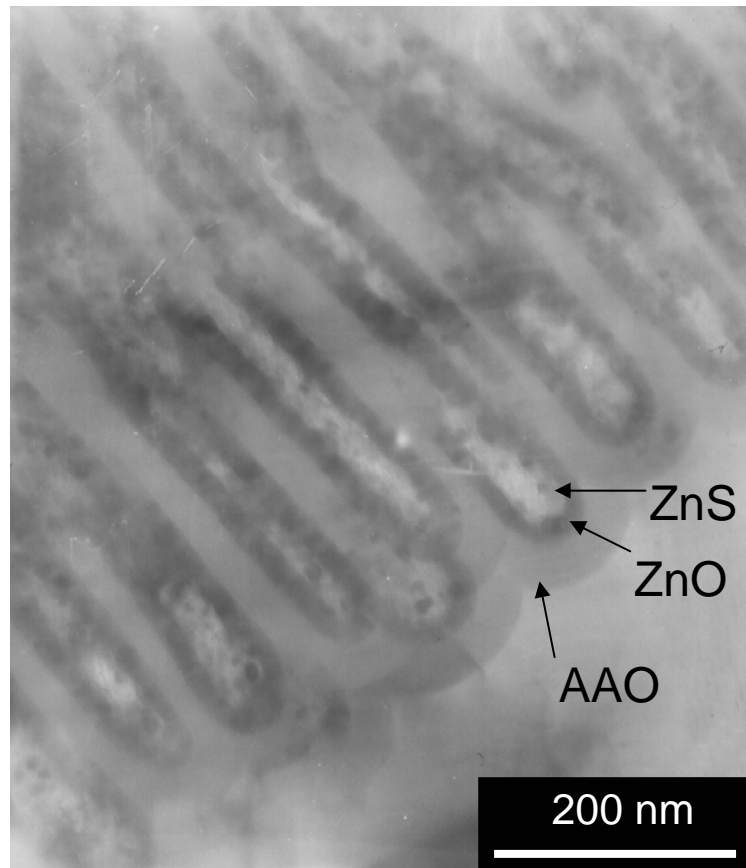


圖 6-7 (a) 存在於 AAO 中之硫化鋅與氧化鋅的核 - 殼結構

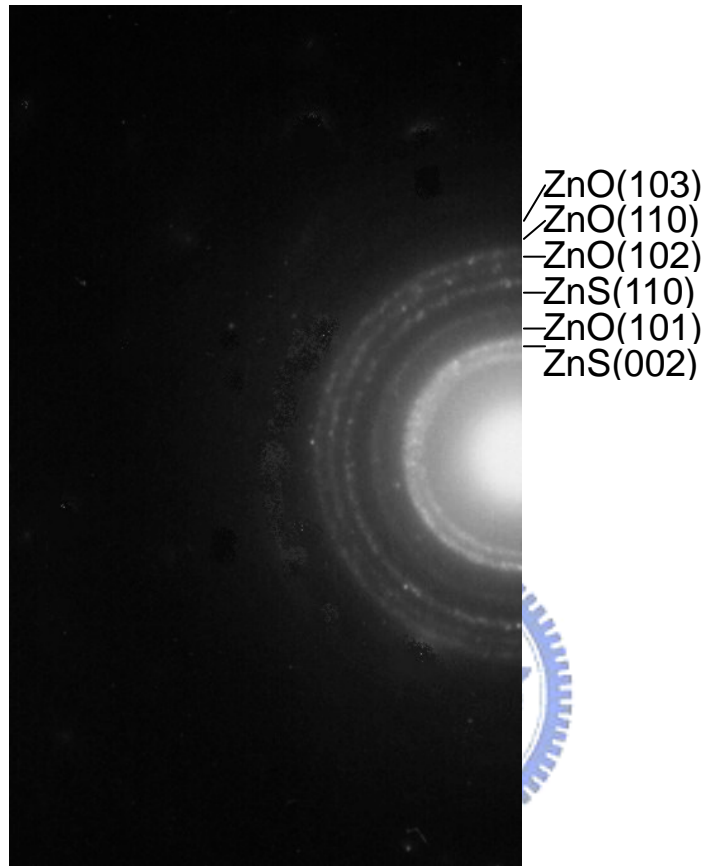


圖 6-7(b) AAO 模板中之硫化鋅與氧化鋅的核 - 殼結構之電子束繞射圖

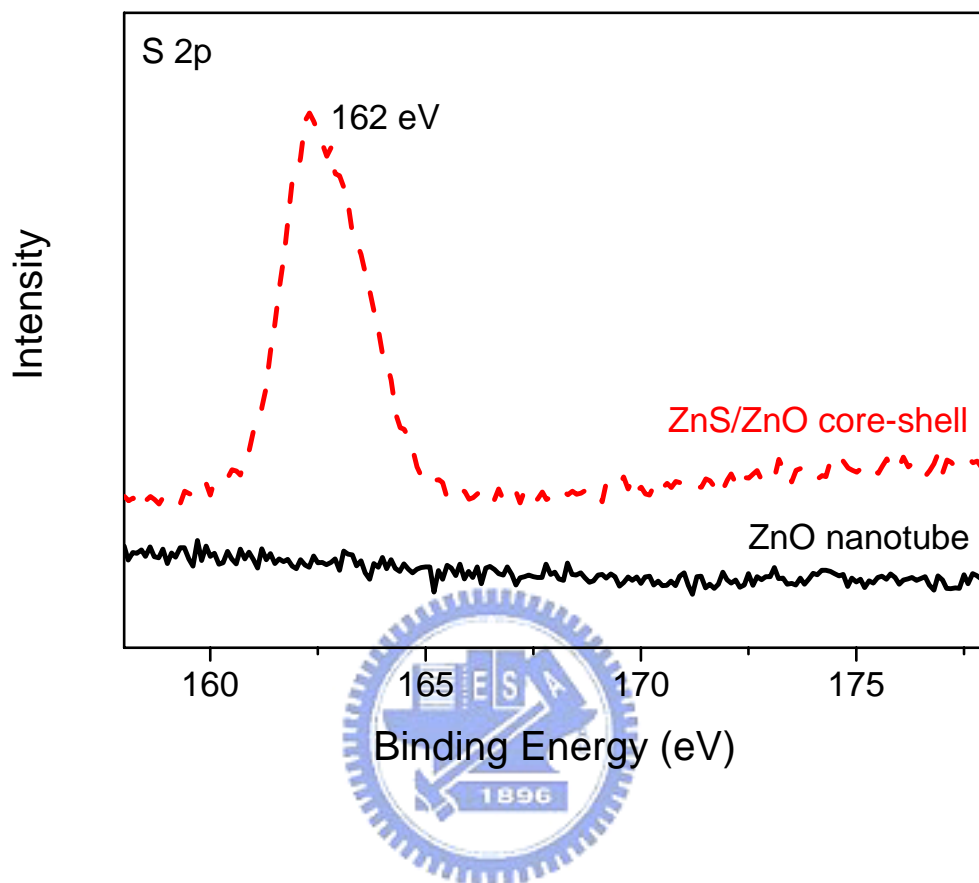


圖 6-8 硫化前後氧化鋅奈米管之 XPS S 2p 峰圖

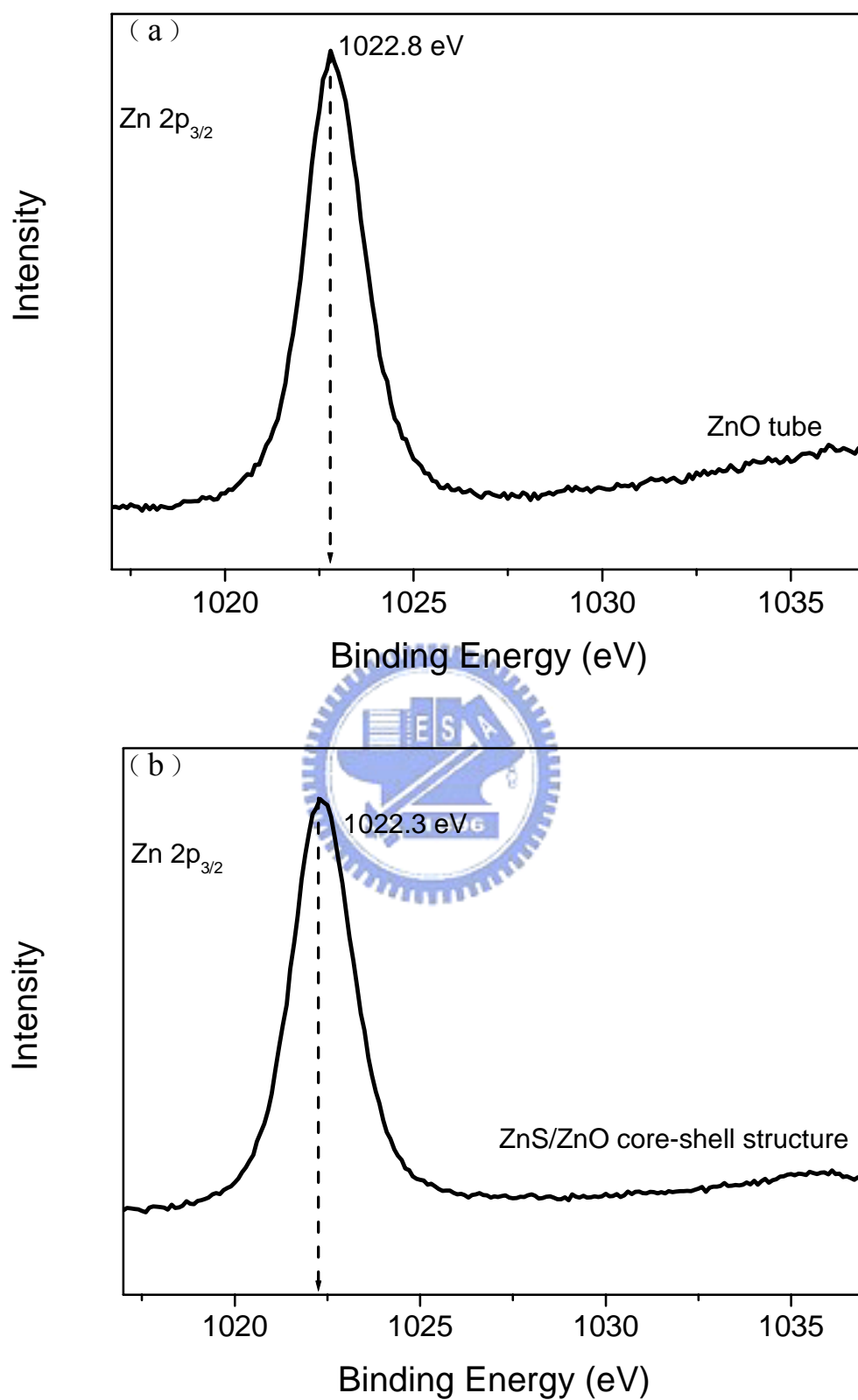


圖 6-9 硫化前後氧化鋅奈米管之XPS Zn 2p_{3/2}峰圖

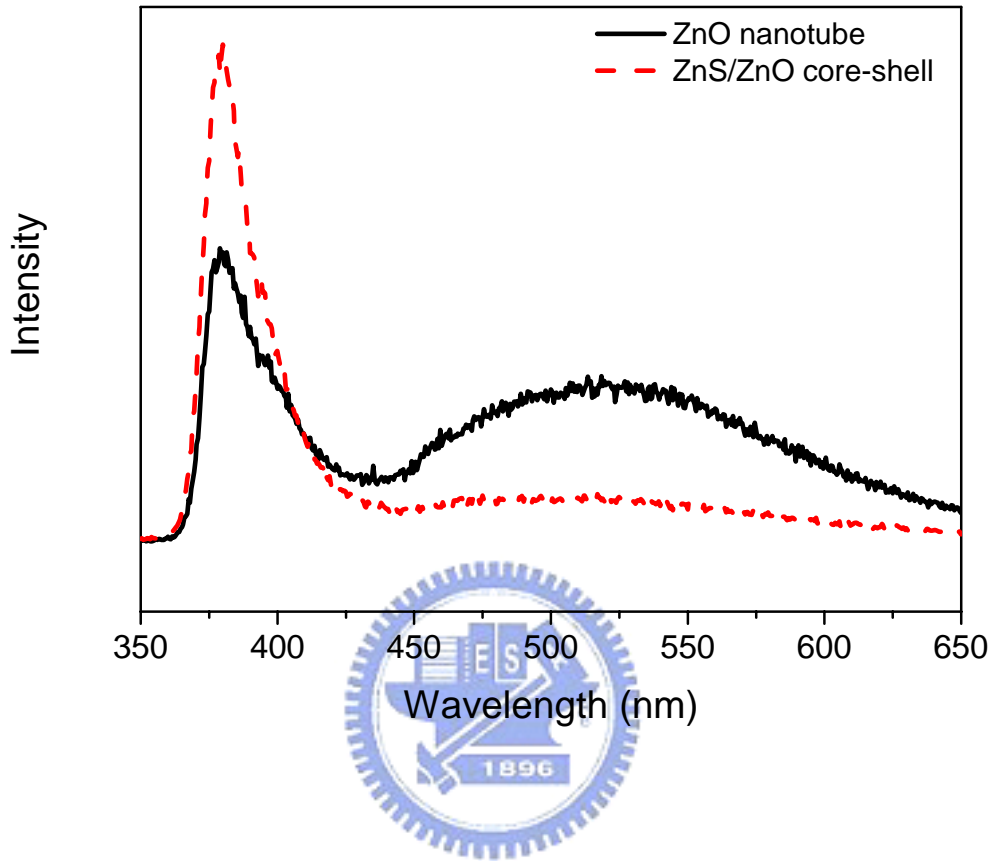


圖 6-10 硫化前後氧化鋅奈米管的 PL 圖