

증착조건에 따른 ZnO 나노와이어의 성장 및 photoluminescence 특성

오원석, 장건익
충북대학교 신소재공학과

Growth and photoluminescence characteristics of ZnO nanowire depending on deposition condition

Won-Seok Oh and Gun-Eik Jang
Department of Advanced Materials Engineering, Chungbuk National Univ.

Abstract : By thermal evaporation method, well-aligned ZnO nanowires were synthesized on sapphire substrate at 1000 °C with different oxygen flow rate by using pure ZnO powder (99.999 %). The as-synthesized ZnO nanowires were characterized by field emission scanning electron microscopy (FESEM) and transmission electron microscopy (TEM). The well-aligned nanowires are single crystalline in nature and perpendicularly grown along the *c*-axis. Also the growth rate of nanowires, such as diameter and length, had a tendency to increase as oxygen flow rate increased. Based on the PL measurement of ZnO nanowires, we found that the near band edge of emission redshifted with the increasing intensity of the defect-related green emission in proportion to the increase of oxygen flow rate. "This research was supported by the Korea Research Foundation Grant funded by the Korean Government(MOEHRD)" (The Regional Research Universities Program/Chungbuk BIT Research-Oriented University Consortium)