

Synthesis and characterization of highly dense ZnO Nanosheets grown on FTO via chemical bath deposition technique

김은비, Sadia Ameen, 압둘라, 신형식, 서형기<sup>†</sup>

전북대학교

(hkseo@jbnu.ac.kr<sup>†</sup>)

ZnO is one of the most useful metal oxide. The low temperature chemical bath deposition method was employed to grow zinc oxide (ZnO) nanosheets (NS) on fluorine doped tin oxide (FTO) glass substrate at 90°C. The highly dense thin ZnO NS were grown perpendicular to the FTO substrate surface with mutually interwoven net-shaped nanostructures which formed a continuous nanosheet film with a unique surface morphology possessing a high surface-to-volume ratio. The thickness and diameter of ZnO NS thin film were ~50nm and ~3µm, respectively. It was characterized by XRD, FESEM, PL and UV. X-ray diffraction patterns (XRD) and field emission scanning electron microscope (FESEM) images confirmed that ZnO NS consisted of polycrystalline structures. Room temperature photoluminescence spectra (PL) of ZnO NS exhibited prominent band-edge ultraviolet (UV) and weak visible emission (blue), indicated the excellent optical properties of ZnO NS.