

원자층 증착법을 통하여 유리 기판에 증착한 Ti-ZnO 박막의 전기적 광학적 특성  
Electrical and Optical Properties of Ti-ZnO Films Grown on Glass Substrate  
by Atomic Layer Deposition

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**초 록 :** Zinc-oxide (ZnO), II-VI semiconductor with a wide and direct band gap ( $E_g$ : 3.2-3.4 eV), is one of the most potential candidates to substitute for ITO due to its excellent chemical, thermal stability, specific electrical and optoelectronic property. However, the electrical resistivity of un-doped ZnO is not low enough for the practical applications. Therefore, a number of doped ZnO films have been extensively studied for improving the electrical conductivities.

In this study, Ti-doped ZnO films were successfully prepared by atomic layer deposition (ALD) techniques. ALD technique was adopted to careful control of Ti doping concentration in ZnO films and to show its feasible application for 3D nanostructured TCO layers. Here, the structural, optical and electrical properties of the Ti-doped ZnO depending on the Ti doping concentration were systematically presented. Also, we presented 3D nanostructured Ti-doped ZnO layer by combining ALD and nanotemplate processes.