Indium Tin Oxide Thin Filmes Fabricated on m-plane Sapphire by Pulse Laser Deposition

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Abstract

Indium tin oxide (ITO) thin films have been deposited on the m-plane sapphire by using pulse laser deposition with varied growth temperature and oxygen pressure. The domination of the (110) orientated ITO film growth was observed with increasing growth temperature. Crystalline quality of ITO thin film was identified by the X-ray diffraction and X-ray reflectivity measurements. The in-plane epitaxial relations between the ITO films and substrates were identified by X-ray azimuthal ϕ-scan, and the electrical properties were determined by Hall effect measurement.

ITO, Pulse Laser Deposition, X-ray Diffraction, X-ray Reflectivity