

The Microstructure of Aging ZnO, AZO, and GZO Films

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Abstract : RF magnetron sputtering is used on the ceramic targets, each of which contains zinc oxide (ZnO), zinc oxide doped with aluminum (AZO) and zinc oxide doped with gallium (GZO). The electric conduction mechanism of the AZO and GZO films came mainly from the Al and Ga, the oxygen vacancies, Zn interstitial atoms, and Al and/or Ga interstitial atoms. AZO and GZO films achieved higher conduction than did ZnO film, it being ion vacant and nonstoichiometric. The XRD analysis showed a preferred orientation along the (002) plane for ZnO, AZO, and GZO films.

Keywords : ZnO, AZO, GZO, doped, sputtering

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