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In situ GISAXS investigation of sputtering IZO thin film for optoelectronic applications

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Transparent conducting oxide (TCO) thin films have been studied intensively for optoelectronic devices, such as photodetectors, photovoltaics and light emitting diodes (LEDs). Among the several TCO thin films, zinc doped indium oxide (IZO) has received much attention as interface layer in optoelectronic devices due to its excellent electrical conductivity, optical transmittance, high thermal/chemical stability, low cost and low deposition temperature. Here, ITO glass and spin coated ZnO on ITO glass are used as the templates for IZO thin film deposition via DC magnetron sputtering technique. The growth dynamics of IZO film on these two templates are respectively investigated via grazing small angle x-ray scattering (GISAXS) characterization, and the morphology and optoelectrical properties of final films are further investigated.

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