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A COMPARISON STUDY OF ZnO, InZnO, GaZnO AND InGaZnO PHYSICAL PROPERTIES AND OPTICAL BANDGAP

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ABSTRACT- Comparison between ZnO, InZnO, GaZnO and InGaZnO (IGZO) thin films prepared using spin coating method were studied in detail to find out contribution of In and Ga towards changes in the physical properties. From FESEM, ZnO has revealed an uneven and non-uniform distribution of grains on the film. The addition of In has caused the grains to be more separated and inconsistent in sizes. Ga, on the other hand has transformed the grain to be more hexagonal in shapes and the surface was more packed with grains. AFM analysis has shown dissimilar topographies and surface roughness values to compliment FESEM results. Additionally, optical band gap of ZnO, InZnO, GaZnO and InGaZnO thin films were also calculated and discussed in this study.

Keywords: ZnO, InZnO, GaZnO, InGaZnO, Physical, Bandgap.