

## Amorphous indium gallium zinc oxide thin film optical characteristic using ellipsometry

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Amorphous oxide semiconductors are promising material as a channel layer in thin film transistor. Oxide semiconductors have many advantages for large-area application such as flexible display, transparent display, e-paper and solar cell. Recently, amorphous indium gallium zinc oxide (a-IGZO) has been investigated by applying channel material in thin film transistor. The a-IGZO has excellent characteristic such as high mobility, considerable transparent, and reasonable on-off ratio. These advantages make a-IGZO applied flexible display and transparent devices.

The growth of thin metal films with deposited conditions has become subject of great interest to those using physical vapor-deposition processes. In this study, we researched into optical characteristic of a-IGZO thin film. The a-IGZO thin films deposited on the silicon and glass using RF magnetron sputter. We were sputtering a-IGZO target with a molar ratio of In : Ga : Zn = 1 : 1 : 1. The a-IGZO thin films's optical characteristic were measured by ellipsometry. We found ellipsometry data such as psi and delta. The desired information must be extracted through a model-based analysis using equations to describe interaction of light and materials. In this study, we calculated film thickness, refractive index and extinction coefficient in the a-IGZO thin film.