

## **Electrical properties of a-IGZO thin film transistors on glass**

**Jong-Woo Kim<sup>1,2</sup>, Min Kyu Yang<sup>1,3</sup>, HoSeop Yoon<sup>1,3</sup>, Byeong-Kwon Ju<sup>2</sup>, Jeon-Kook Lee<sup>1</sup>**

<sup>1</sup>Thin Film Materials Research Center, Korea Institute of Science and Technology(KIST)

<sup>2</sup>Display and Nanosystem Laboratory, College of Engineering, Korea University

<sup>3</sup>Department of Electrical and Electronics Engineering, Yonsei University

Amorphous-Indium-Gallium-Zinc-Oxide (a-IGZO) thin film transistors (TFTs) are one of the most likely candidates for the backplane of next-generation flat-panel displays, owing to their light insensitivity, stable electrical properties against current stress, low-temperature processes, and simple TFT processes. In this work, a-IGZO active layer were fabricated by rf magnetron sputtering at room temperature on glass. a-IGZO was deposited under various processing parameters by changing the plasma power, the chamber gas conditions, and the working pressure of the sputtering system. The bottom gate of an oxide TFTs was fabricated on a glass substrate using sputtered Mo as the metal gate. An insulating layer of  $Y_2O_3$  was deposited by rf sputtering system. The important TFT device parameters of the on/off current ratio, sub-threshold swing, threshold voltage, and electric field mobility were control by interface control between semiconductor and gate oxide.