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투명 산화물 트랜지스터

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Transparent electronics has attracted many interests, for it can open new applications for consumer electronics, transportation, business, and military. Among them, display backplane, thin film transistor (TFT) array would be the most attractive application. Many researchers have been investigating oxide semiconductors for transparent channel material of TFT since the report for transparent amorphous oxide semiconductor (TAOS) TFT by Hosono group and ZnO TFT by Wager group. Especially, oxide TFTs have been intensively investigated during a couple of years since the first demonstration of ZnO-TFT driving AM-OLED. Many papers regarding the fabrication and performance of oxide TFTs, and active matrix display driven by oxide TFTs have been reported. Now lots of people have confidence in the competitiveness of oxide TFTs for the backplane of AM-Display. Especially, high mobility, uniformity, fairly good stability, and low cost process make oxide TFTs applied even to a large size AM-OLED. Last year, Samsung mobile display, former SID, reported 12" AM-OLED driven by IZGO-TFT and it seems that the remained issue for the mass production is the bias temperature stability. Here, we will introduce the application of oxide TFT and important issue for oxide TFT to be used for the direct printing.

Keywords: oxide TFT, display, ALD, flexible

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Experimental Investigation of Electrostatic Dripping and Atomization Mode through Non-MEMs based Nozzle Design

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Electrostatic printing either it is drop-on-demand or continuous has immense applications in non-contact printing systems such as solar cells, flexible printed circuits, RFIDs and bio applications. In this paper a laboratory manufactured nozzle has been designed for the experimental investigation of electrostatic dripping and atomization of liquid. Dripping and atomization conditions such as voltage, nozzle tip diameter, distance between counter electrode and flowrate has been indentified for the designed nozzle. Furthermore it is also demonstrated that the diameter of a generated droplet could be reduced from a significantly large size to a narrow size distribution which can be controlled by volumetric flow rate and applied voltage. This study will help in classify the conditions between different electrostatic dripping mode such as drop-on-demand formation, jet mode and finally the atomization mode based on the laboratory fabricated nozzle head.

Keywords: Electrostatic atomization, electrostatic printing; drop-on-demand, Flexible Printing