Solution-processed amorphous indium-gallium-zinc-oxide thin-film transistors on a flexible plastic substrate

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In this talk, flexible amorphous indium-gallium-zinc-oxide(a-IGZO) thin-film transistors (TFTs) on a polyimide (PI) substrate are demonstrated using sol-gel based solution process. Top gate structure with polymethyl methacrylate (PMMA) gate insulator was employed. To avoid thermal budget of the PI substrate, annealing temperature of active layers was limited under 400 °C. It is shown that the performance of a-IGZO TFT is sensitively dependent on the molecular concentration (0.03 to 0.1 M) of the a-IGZO precursor solution, which indicates very narrow process window. Electrical and mechanical characteristics of the a-IGZO TFTs fabricated under different process parameters are analyzed.

This research was supported by a National Research Foundation of Korea (NRF) grant funded by the Korea government (MSIP) (No. NRF-2017R1D1A1B03035271). This research was also supported by the Ministry of Science and ICT (MSIT), Korea, under the Information Technology Research Center (ITRC) support program (IITP-2017-2015-0-00448) supervised by the Institute for Information & Communications Technology Promotion (IITP).