Crystallinity Control through Composition Engineering for High-Performance $MgIn_xO_y$ TFTs via Thermal Atomic Layer Deposition

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Supplemental Document

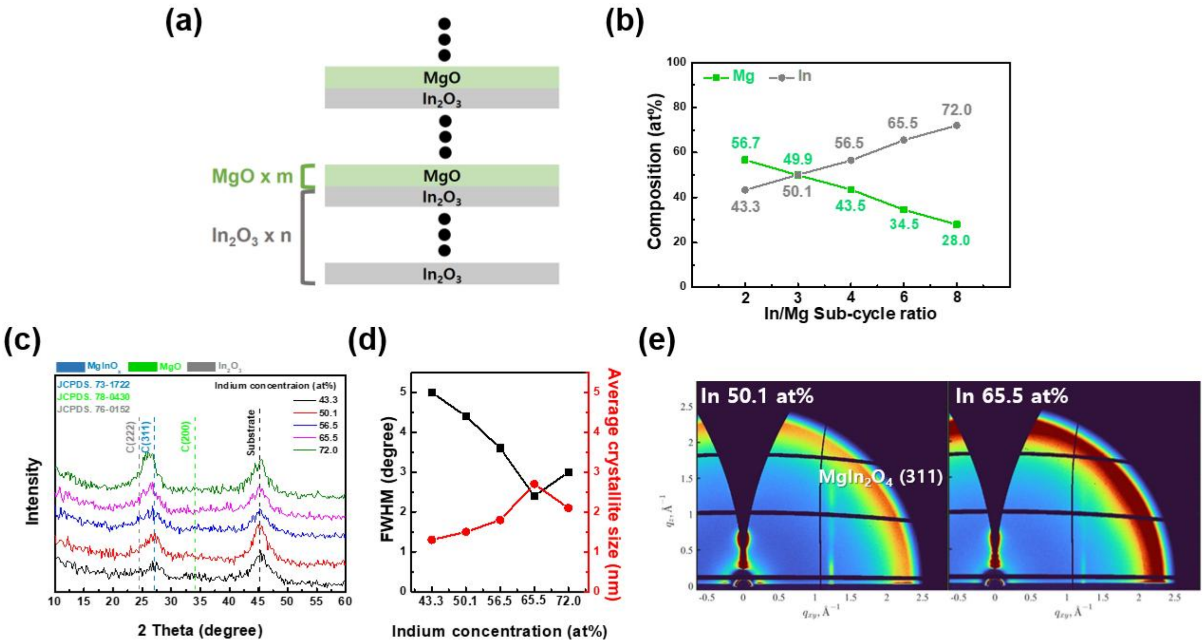

Figure 1. (a) Deposition process of $MgIn_xO_y$ films with various cation composition ratios involving sub-cycle ratio adjustments for In_2O_3 and MgO. (b) Cation composition ratio of $MgIn_xO_y$ films by XPS analysis. (c) Crystallinity evaluation (d) Full width at half maximum (FWHM) and crystalline size using XRD with different metal cation compositions. (e) GIWAXS patterns for $MgIn_xO_y$ films (In 50.1 at% and In 65.5 at%)

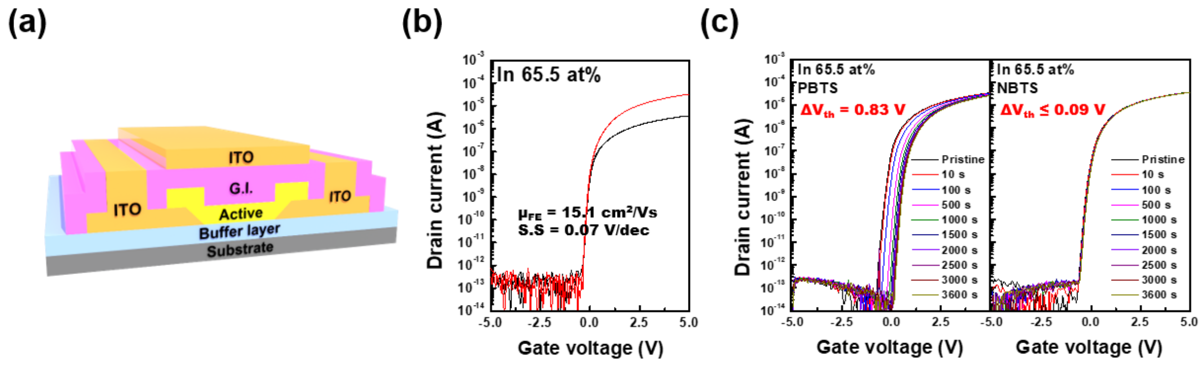

Figure 2. (a) Schematic illustration of fabricated top-gate bottom-contact structure TFTs with $MgIn_xO_y$ as active layer. (b) Transfer characteristics of the $MgIn_xO_y$ (In 65.5 at%) TFTs (c) Results of reliability evaluation (PBTS, NBTS) of the $MgIn_xO_y$ (In 65.5 at%) TFTs.

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