Electronic Supplementary Material (ESI) for Journal of Materials Chemistry C.

Supplementary Information

Understanding the temperature-dependent evolution of solution processed metal oxide transistor characteristics based on molecular precursor derived amorphous indium zinc oxide

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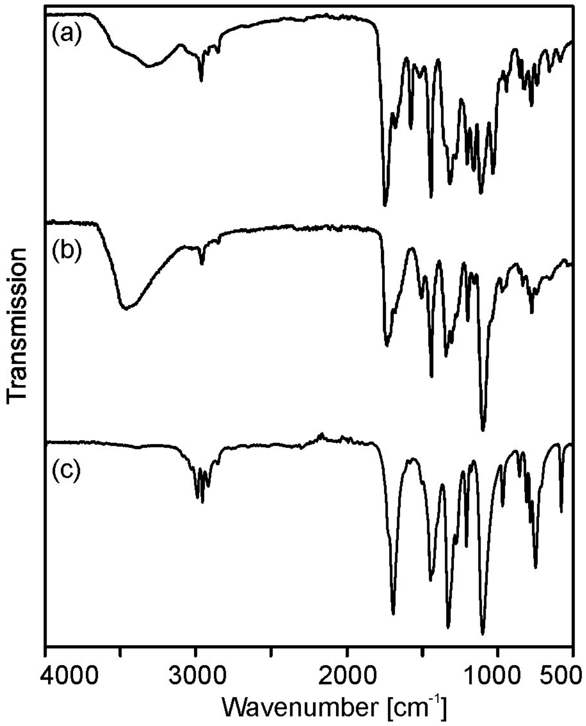

Figure S1: IR spectra of (a) dimethyl-2-nitromalonate[16], (b) $[Zn_3(OH)_4(dmm\text{-}NO_2)_2]$[16] and (c) $[In_3O_3(dmm\text{-}NO_2)_3]\cdot$toluene (**2**).

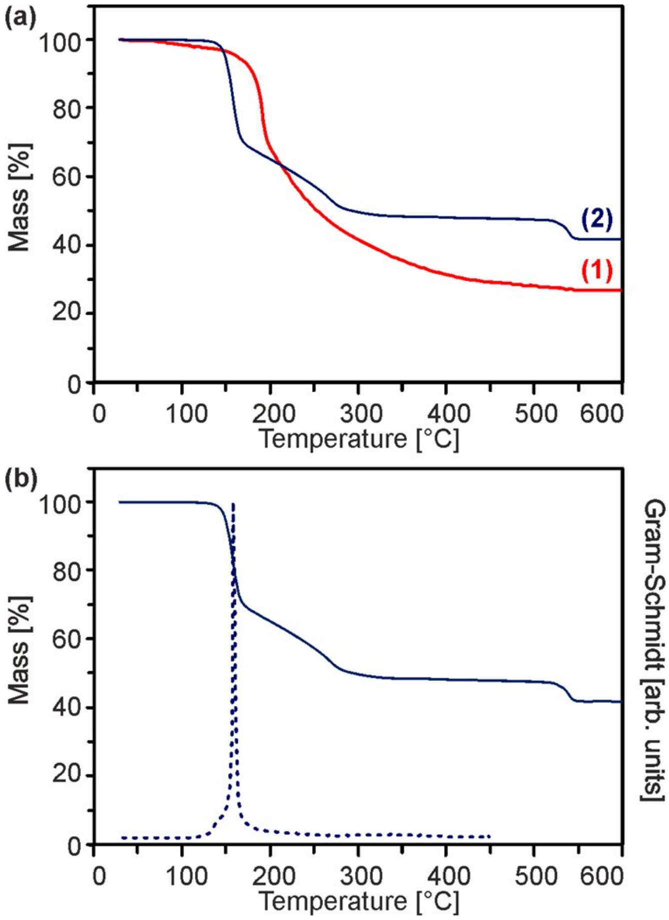

Figure S2: (a) Thermogravimetric mass loss curves of [Zn$_4$O(dmm-NO)$_6$] (**1**)and In$_3$O$_3$(dmm-NO$_2$)$_3$(**2**) in oxygen.(b)Thermogravimetric mass loss curve (straight line) and corresponding Gram– Schmidt signal (dotted line) of (**2**).

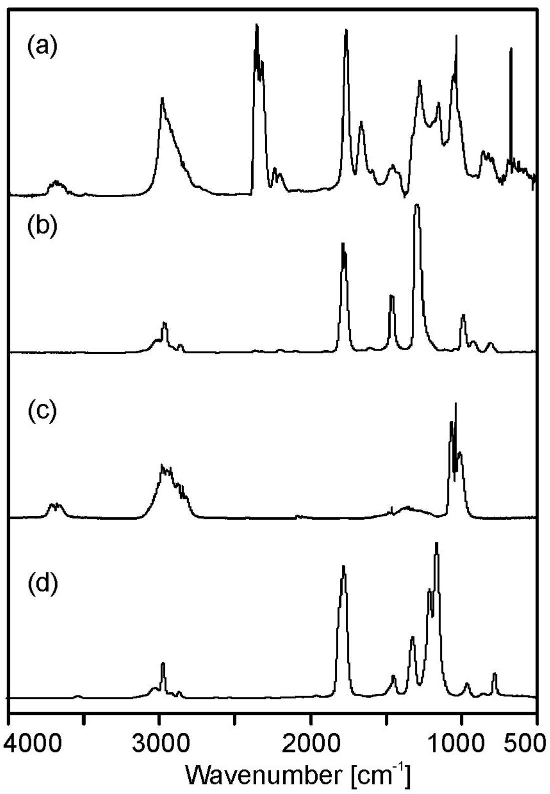

Figure S3: (a) Gas phase IR spectrum corresponding to the maximum of the Gram–Schmidt signal in Figure S1(b) from the decomposition of$In_3O_3(dmm\text{-}NO_2)_3$(**2**) as well as reference spectra of (b) dimethyl carbonate, (c) methanol and (d) dimethyl oxalate.

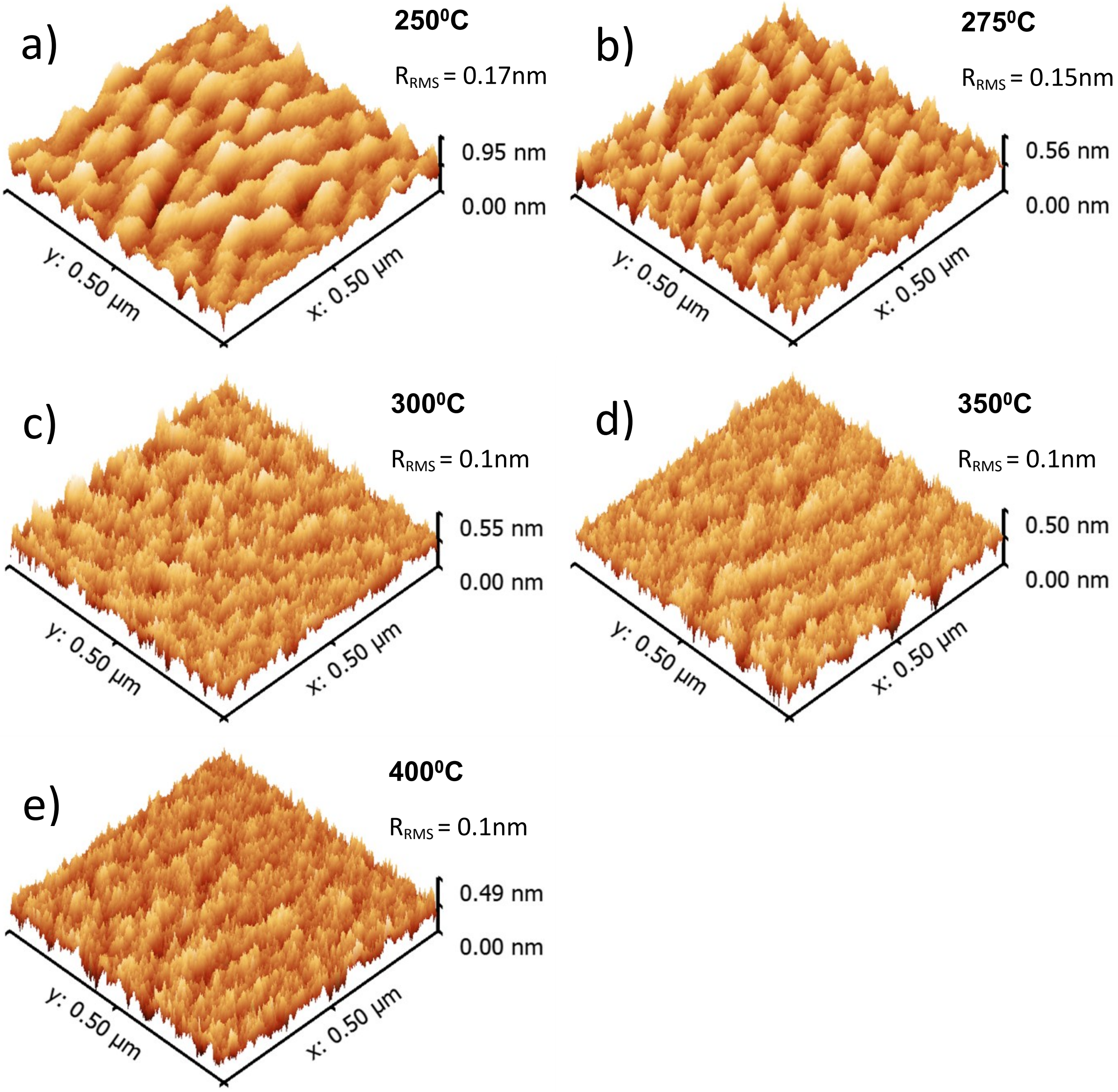

Figure S4: AFM micrographs and the obtained root mean square roughness (R_{RMS}) for the IZO films annealed at increasing temperatures from 250 to 400^{0}C.

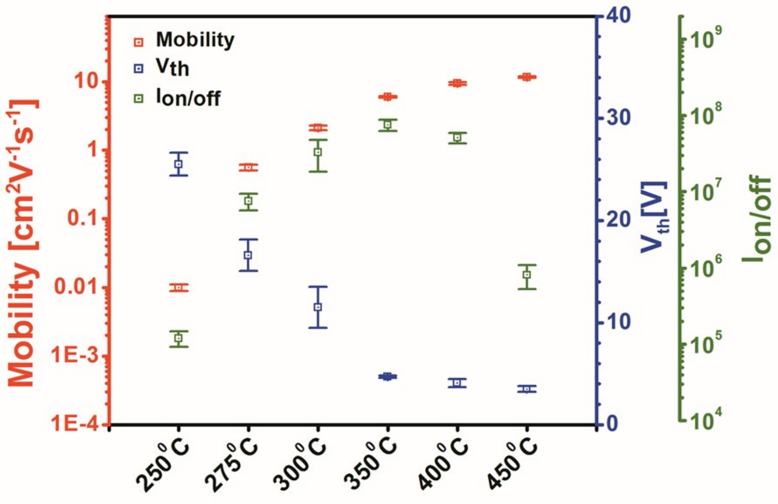

Figure S5: Averaged saturation field-effect mobility (μ_{SAT}), threshold voltage (V_{th}) and current on-off ratio ($I_{on/off}$) of eight devices with the corresponding standard deviations for the IZO TFTs annealed at increasing temperatures from 250 to 450^{0}C.

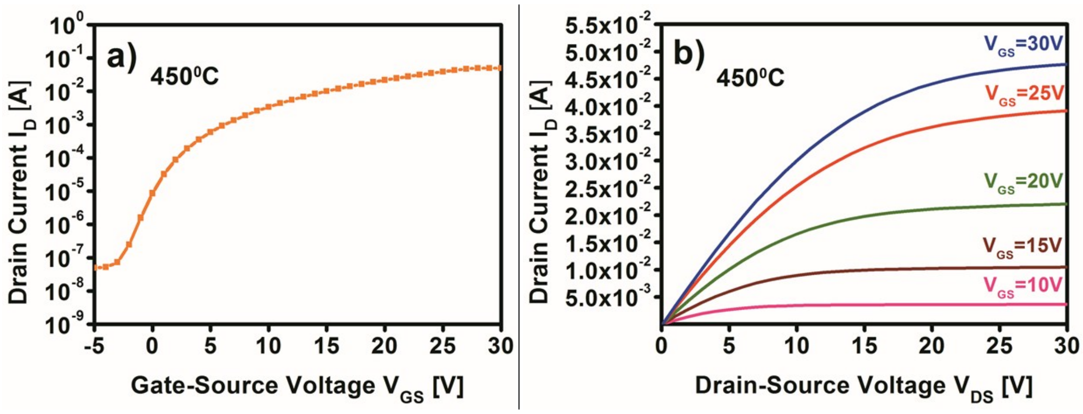

Figure S6: a) Transfer characteristics and b) Output characteristics of the TFT device for IZO films annealed at 450 °C.