Electronic Supplementary Information **(ESI)**

Synthesis and characterization of textured Al-doped zinc oxide films prepared by template-directed deposition

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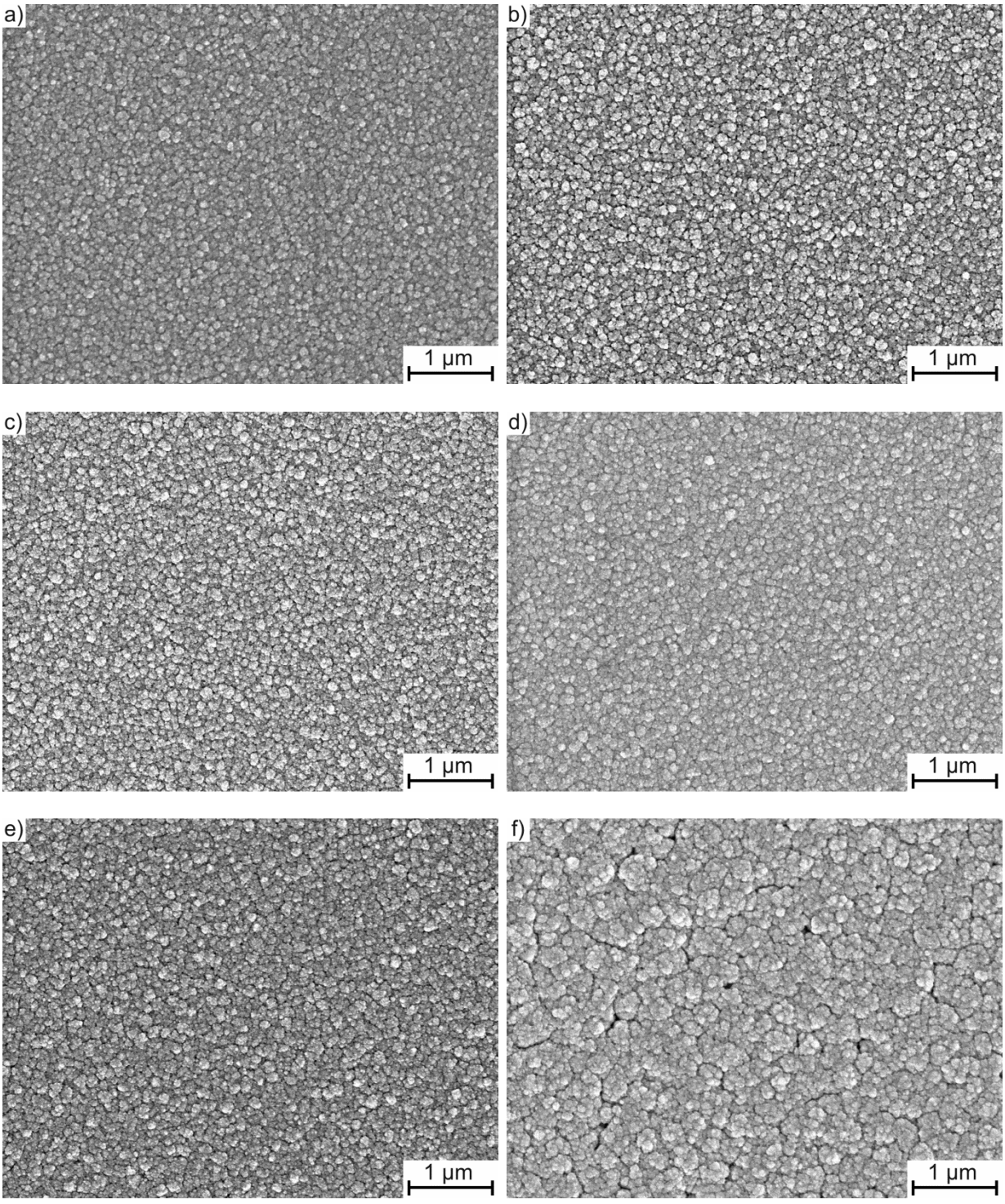


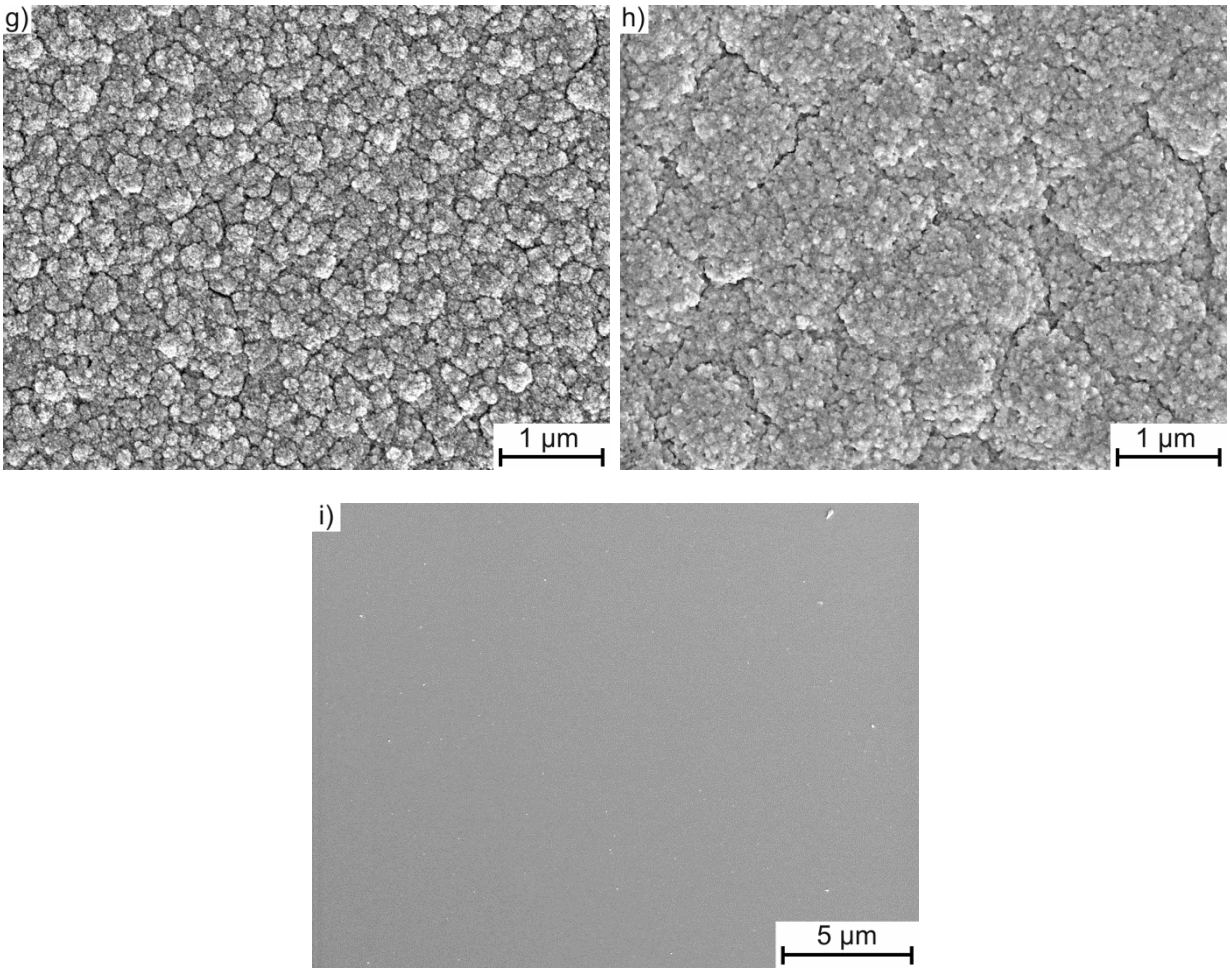
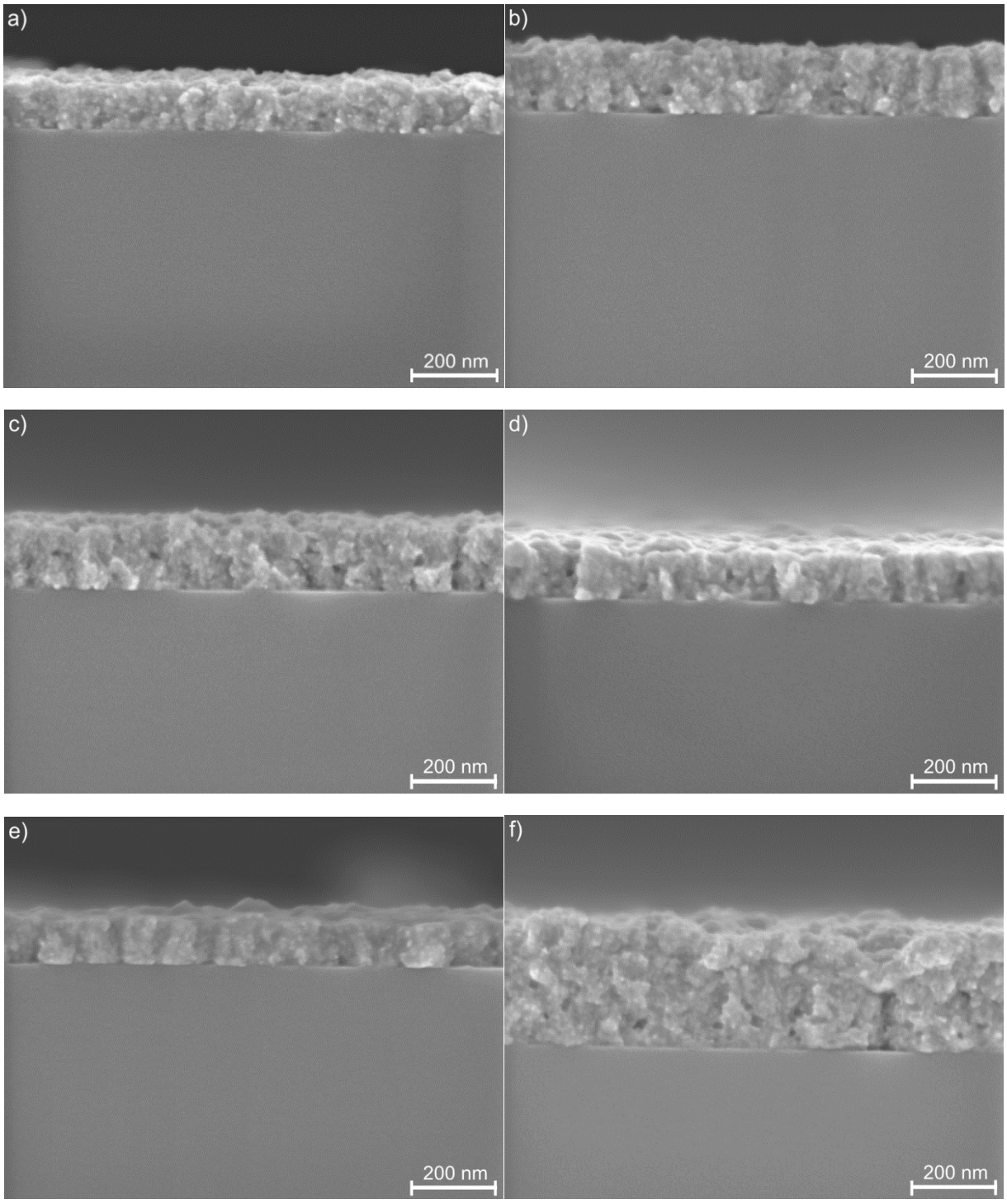


Figure S1 SEM images of the deposited ZnO/AZO films for a) 0 mol%, b) 2 mol%, c) 4 mol%, d) 5 mol%, e) 10 mol%, f) 15 mol%, g) 20 mol% and h) 30 mol% Al in the reaction solution. The samples for 0 – 30 mol% Al reveal homogeneous films with a smooth surface consisting of small ZnO/AZO aggregates. The aggregate size increases from 15 mol% Al onwards. For 50 mol% Al no film can be observed on the functionalized substrate. Please note that the observed cracks in figure f)-h) can be traced back to the energy input during SEM measurement.



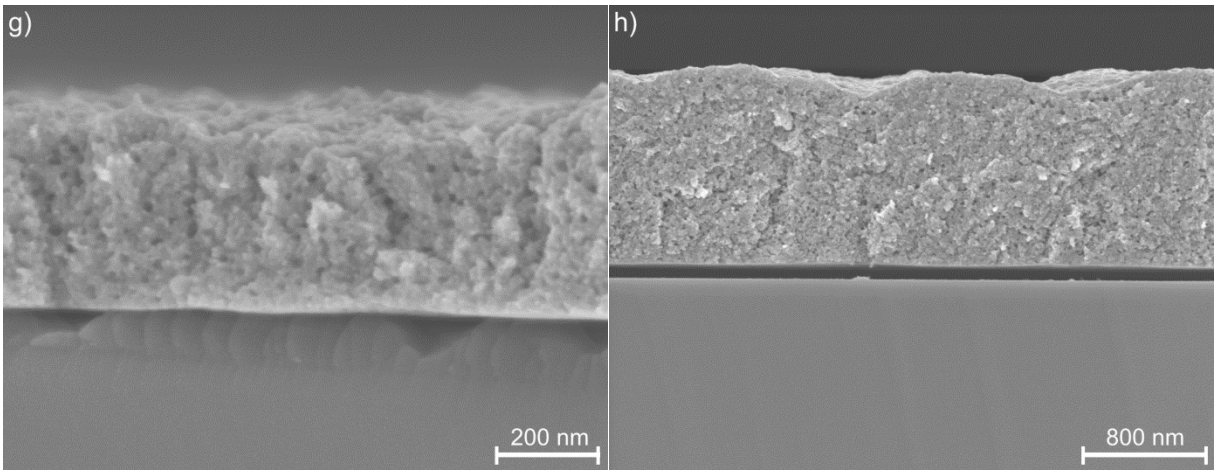
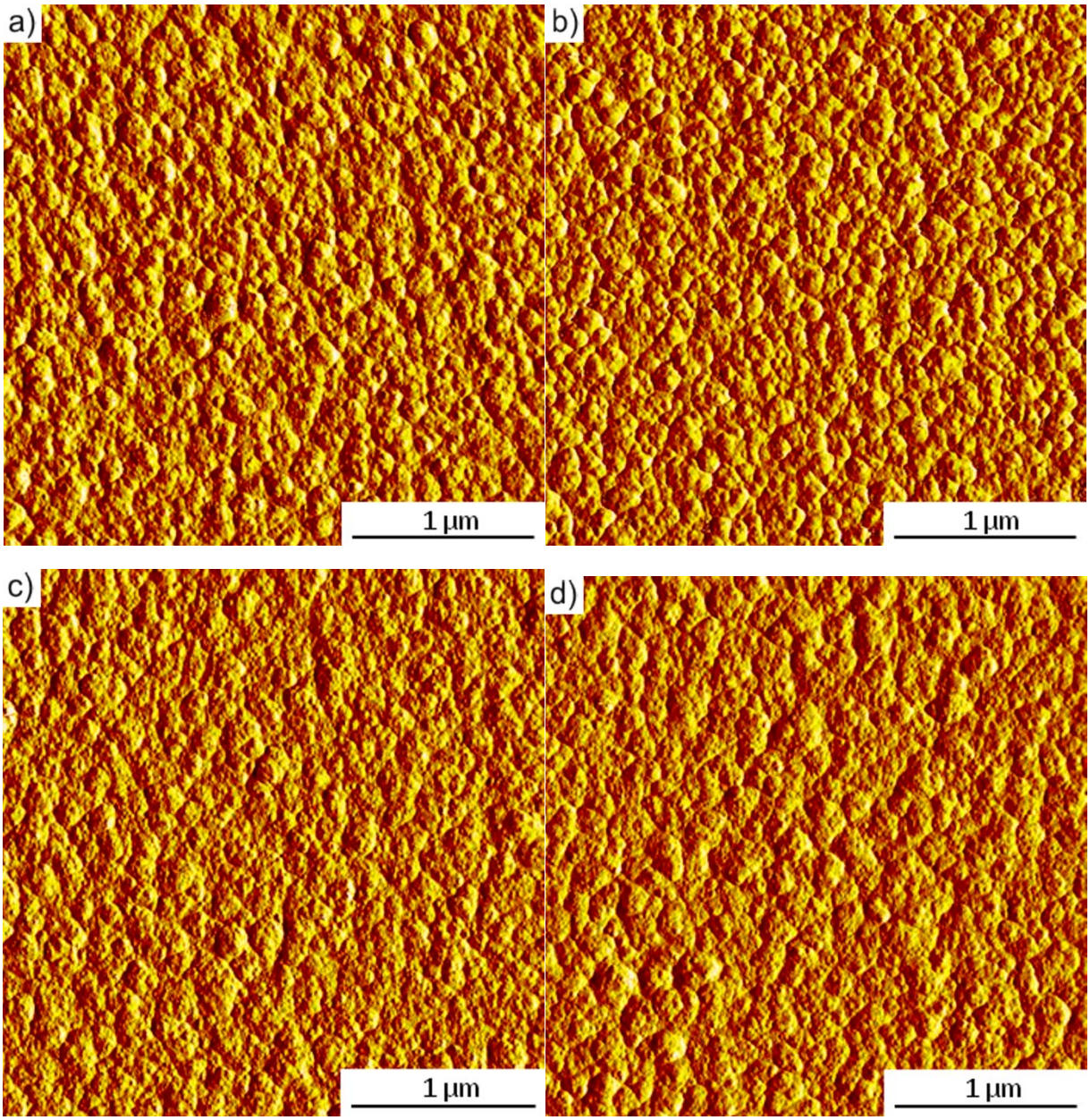
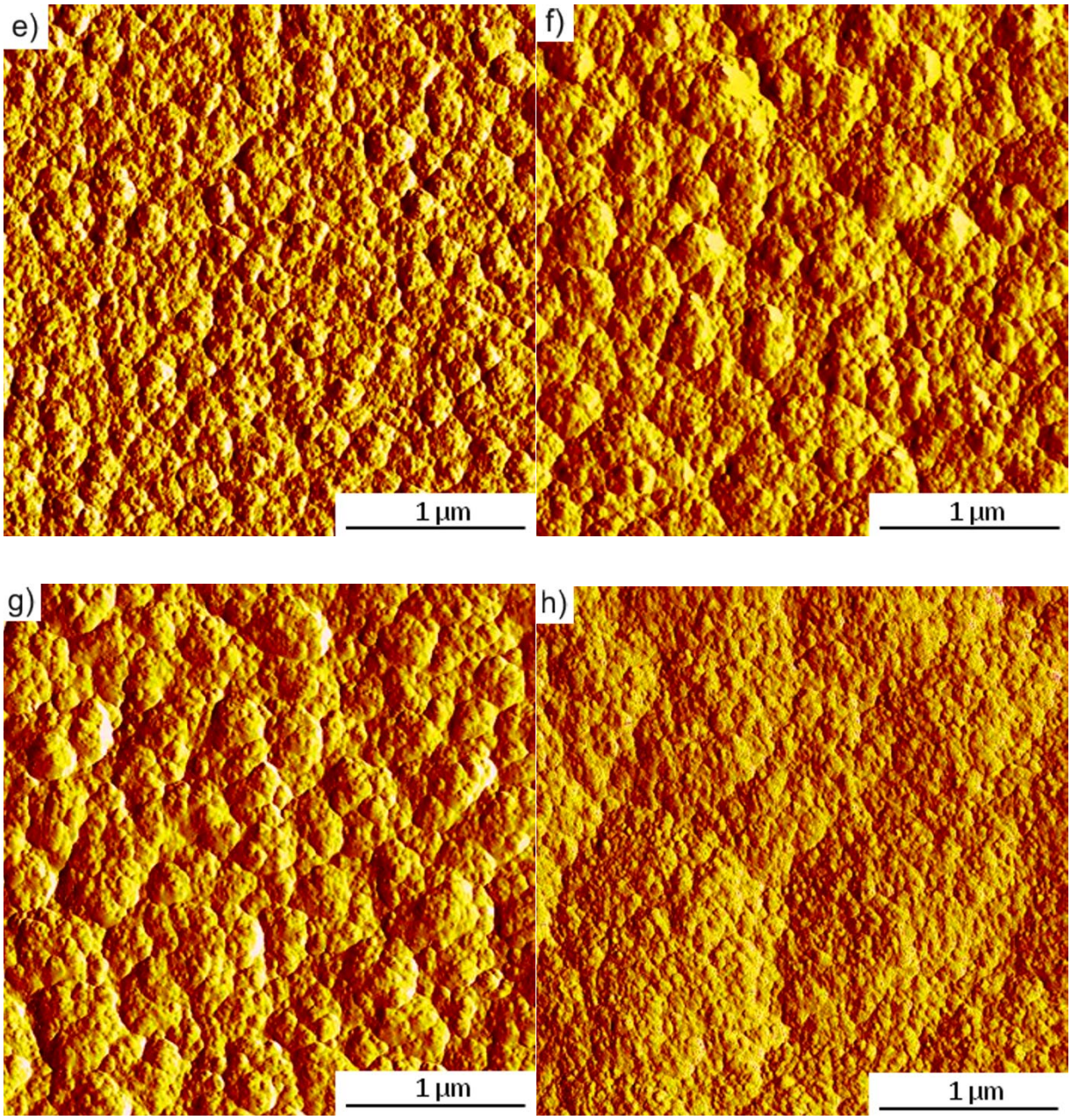


Figure S2 The SEM images show the cross section of the deposited ZnO/AZO films for a) 0 mol%, b) 2 mol%, c) 4 mol%, d) 5 mol%, e) 10 mol%, f) 15 mol%, g) 20 mol% and h) 30 mol% Al in the reaction solution. The films for 0 – 10 mol% Al reveal a thickness of approximately 120 nm. From 15 mol% Al onwards the thickness increases from 260 nm to 1161 nm for 30 mol% Al.





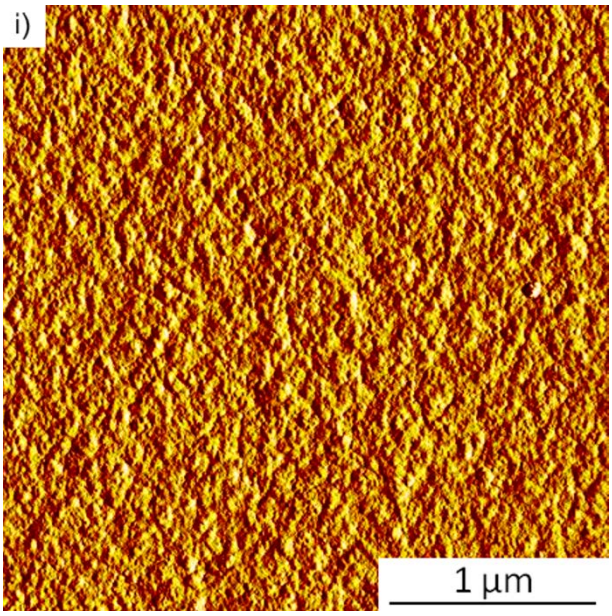


Figure S3 AFM images of the deposited ZnO/AZO films for a) 0 mol%, b) 2 mol%, c) 4 mol%, d) 5 mol%, e) 10 mol%, f) 15 mol%, g) 20 mol%, h) 30 mol% and i) 50 mol% Al in the reaction solution. The films reveal RMS values of a) 11 nm, b) 10 nm, c) 10 nm, d) 10 nm, e) 12 nm, f) 21 nm, g) 23 nm, h) 26 nm and i) 3 nm. From 15 mol% onwards up to 30 mol% Al an increasing RMS roughness and aggregate size can be observed.