



Figure 1. Piezoelectric effect and polarization in a thin film of ZnO doped with Mn (4.8 at.%), manufactured by supercycles ALD. (a) Topography and (b) surface potential before polarizing the sample. (c) Topography and (d) surface potential after polarizing the indicated 500×500 nm regions, scanning them in contact mode at 45°, and applying the indicated potential difference in each case (0.1, 0.5, 1.0 and 2.0 V). In addition to the variation of the surface potential produced by the polarization observed in (d), the coarsening of some grains can also be observed in the topographic image (c). Working modes: PeakForce Tapping (topography) and KPFM (surface potential).