Abstract Submitted
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Epitaxial growth of In2O3(100) on Y-stabilised ZrO2(100) by O-plasma assisted molecular beam epitaxy: a study by HRTEM and XPS. ANNE BOURLANGE, DAVID PAYNE, RUSSELL EGDELL, JOHN FOORD, Dept. Chemistry, University of Oxford, OX1 3TA, PETER DOBSON, Begbroke Science park, University of Oxford OX5 1PF, JOHN HUTCHISON, Dept. Materials, University of Oxford OX1 3PH — Thin films of In2O3 have been grown on Y-stabilised ZrO2(100) by radiofrequency oxygen plasma assisted molecular beam epitaxy with a substrate temperature of 650 $^\circ$ C. Ordered epitaxial growth was confirmed by HRTEM and selected area electron diffraction taken across the interface between the substrate and the epilayer. Excellent crystalline order was preserved up to the surface of the films. The valence band onset in the X-ray photoemission spectra of the epitaxial films was found at 2.90 eV relative to the Fermi energy. The discrepancy between this value and the widely quoted value of 3.75 eV for the bandgap will be discussed in relation to recent theoretical work [1].
[1] A. Walsh *et al.*, Phys. Rev. Lett. submitted.

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