Rare Earth Oxide Thin Films

Introduction.- ALD, MOCVD, and MBE deposition of rare earth oxides. - Requirements of precursor for MOCVD and ALD of rare earth oxides.- Models for ALD and MOCVD growth of rare earth oxides.- Growth of oxides with complex stoichiometry by ALD, e.g. La1-xCaxMnO3.- Fabrication and characterization of rare earth scandate thin films prepared by pulsed laser deposition.- Film and interface layer composition of rare earth (Lu, Yb) oxides deposited by ALD.- Local atomic environment of high-k oxides on silicon probed by X-ray absorption spectroscopy, and advanced transmission electron microscopy techniques (TEM-EELS).- Strain-relief at internal dielectric interfaces in high-k gate stacks with transition metal and rare earth atom oxide dielectrics.- Electrical characterization of rare earth oxides grown by ALD.- Dielectric properties of rare-earth oxides: general trends from theory.- Charge traps in high-k dielectrics: ab initio study of defects in Pr-based materials.- Experimental determination of the band offset of rare earth oxides on various semiconductors.- Band edge electronic structure, and band offsets of transition metal/rare earth oxide dielectrics.- Rare earth oxides in microelectronics.- Requirements of oxides as gate dielectrics for CMOS devices, and ultimate scaling.- The magneto-electric properties of RMnO compounds.- Sesquioxides as host materials for rare-earth-doped bulk lasers and active waveguides. EAN/ISBN : 9783540357971 Publisher(s): Springer, Berlin Format: ePub/PDF Author(s): Fanciulli, Marco - Scarel, Giovanna

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