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Role of defects in the interfacial conductivity at interfaces in Pt/ SrTiO3/Pt heterostructures NAGA PHANI AETUKURI, Stanford University/IBM Almaden Research, GUENOLE JAN, IBM Almaden Research/Magic, MAHESH SAMANT, KEVIN ROCHE, STUART PARKIN, IBM Almaden Research
— Oxides exhibit a wide variety of diverse phenomena including ferromagnetism, anti-ferromagnetism, ferroelectricity, superconductivity and multiferroicity. Furthermore, they display complex phase diagrams which result from the sensitivity of their properties to subtle changes in structure, doping, temperature and pressure. We will present the effect of interfaces and interface defects on the electrical switching properties of metal-insulator-metal (MIM) structures where the insulator is strontium titanate (STO) grown by pulsed laser deposition. The role of growth temperature and pressure and the effect of intentionally created oxygen vacancies on MIM device characteristics will be discussed. An attempt will be made to rationalize the role of intrinsic mechanisms and interface effects on the variability seen in device properties.

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