

Abstract Submitted
for the MAR06 Meeting of
The American Physical Society

Interface Induced Ferroelectric Phase Transformation in SrTiO₃.

DAWN BONNELL, University of Pennsylvania, RUI SHAO, GERD DUSCHER, North Carolina State University, MATTHEW CHISOLM, Oak Ridge National Lab — The transport properties across bicrystal interfaces in SrTiO₃ are quantified with 4-pt probe, Hall measurements, scanning impedance microscopy and scanning tunneling microscopy. The properties are related to the structure determined by transmission electron microscopy, energy loss spectroscopy and first principles calculations. An anomaly in the temperature dependence of the transport properties arises from the charge trapped at the interface, which induces dipole ordering adjacent to the boundary. This represents the first observation of interface induced ferroelectricity in SrTiO₃.

Dawn Bonnell
University of Pennsylvania

Date submitted: 30 Nov 2005

Electronic form version 1.4