

Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

Low Energy Conduction Band Structure of SrTiO₃ GURU KHALSA, Department of Physics - University of Texas at Austin, BHARAT JALAN, Materials Department, UCSB, S. JAMES ALLEN, Department of Physics - UCSB, SUSANNE STEMMER, Materials Department, UCSB, ALLAN MACDONALD, Department of Physics - University of Texas at Austin — The recent observation of a high mobility 2DEG, and truly two-dimensional superconductor, at oxide interfaces with SrTiO₃ (STO) and in delta-doped layers of STO have thus far gone without a clear theoretical description. The starting point for any quantitative theory of these systems is a reliable low energy parameterization of the Ti d-band in the bulk parent compound. Here we present a five parameter symmetry constrained model of the t_{2g} band in STO near the conduction band minimum. We use this model to describe a recent high field (up to 31 Tesla), low temperature, angular magneto-transport study of lightly La doped STO and compare our results with other available experimental data. We will also discuss the relation between orbital density and matrix element effects in photoemission experiments of d₀ Perovskites.

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Date submitted: 07 Dec 2010

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