

Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

Tunable Superconducting Order at the (111) $\text{LaAlO}_3/\text{SrTiO}_3$ Interface¹ SAMUEL DAVIS, VENKAT CHANDRASEKHAR, Northwestern University, ZHEN HUANG, KUN HAN, ARIANDO ARIANDO², THIRUMALAI VENKATESAN, National University of Singapore — Interfacial superconductivity in (001) $\text{LaAlO}_3/\text{SrTiO}_3$ (LAO/STO) heterostructures is well studied and is known to be tunable, coexists with ferromagnetism, and exhibits a superconductor-to-insulator transition. On the other hand, the (111) orientation of LAO/STO has only been shown relatively recently to play host to a 2DEG, and is particularly interesting due to its complex Fermi surface, and potential topological characteristics. We have previously reported detailed transport studies on (111) LAO/STO devices, conducted at 4.4K, which are strikingly different from results in the (001) heterostructures. In particular, these heterostructures exhibit strong anisotropy along two orthogonal, in plane crystal directions as a function of electrostatic back-gate voltage.¹ Here we report on the superconducting properties of PLD grown (111) LAO/STO heterostructures at mK temperatures. Specifically, we measure the low frequency transport properties along both two orthogonal, in-plane, crystal directions in response to an applied electrostatic back gate potential as well as post growth surface treatments. 1) S. Davis, V. Chandrasekhar, Z. Huang, K. Han, Ariando, T. Venkatesan, *Arxiv*, **2015** 1603.04538.

¹DOE Grant DE-FG02-06ER46346

²Professor Ariando has only a first name. Thus I have entered it twice

Samuel Davis
Northwestern Univ

Date submitted: 10 Nov 2016

Electronic form version 1.4