

Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

2D quantum oscillations in the normal state of a superconducting oxide heterostructure MINU KIM, YUSUKE KOZUKA, University of Tokyo, CHRIS BELL, University of Tokyo, JST, BOG G. KIM, University of Tokyo, Pusan National University, YASUYUKI HIKITA, University of Tokyo, HAROLD Y. HWANG, University of Tokyo, JST — We present a novel system showing 2D superconductivity and 2D Shubnikov-de Haas (SdH) oscillations, realized in a SrTiO₃ heterostructure using the delta-doping technique [1]. As the thickness of the dopant layer (1 at.% Nb:SrTiO₃) inserted between insulating SrTiO₃ layers decreases, a 3D to 2D crossover in the superconducting state is observed from the anisotropy and temperature dependence of the upper critical field. In the normal state, the thinnest sample (5.5 nm) shows SdH oscillations that scale with the perpendicular magnetic field. These results demonstrate a new possibility to explore the interplay of quantum transport and superconductivity.

[1] Y. Kozuka *et al.*, *Nature*, in press.

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Date submitted: 05 Jan 2010

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