

Abstract Submitted
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Metallic interface in non-SrTiO₃ based titanate superlattice¹ XI-AORAN LIU, Department of Physics, University of Arkansas, Fayetteville, Arkansas 72701, USA, D. CHOUDHURY, Department of Physics, Indian Institute of Technology, Kharagpur 721302, India, YANWEI CAO, M. KAREEV, S. MIDDEY, J. CHAKHALIAN, Department of Physics, University of Arkansas, Fayetteville, Arkansas 72701, USA, UNIVERSITY OF ARKANSAS TEAM, INDIAN INSTITUTE OF TECHNOLOGY TEAM — We report on the fabrication of all perovskite Mott insulator/band insulator YTiO₃/CaTiO₃ superlattices by pulsed laser deposition. The combination of *in-situ* reflection high energy electron diffraction, X-ray diffraction and X-ray reflectivity confirms the high quality of the films grown in a layer-by-layer mode. Electrical transport measurements reveal that a non-SrTiO₃ based two-dimensional electron gas system has formed at the YTiO₃/CaTiO₃ interface. These studies offer another route in the pursuit of complex oxide two-dimensional electron gas systems which allows to obtain greater insights into the exotic many-body phenomena at such interfaces.

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