Abstract Submitted
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Conducting band structure in LaTiO3/SrTiO3 interfaces[1] YOUNG JUN CHANG, Advanced Light Source (ALS), LBNL & Fritz-Haber-Institut, LUCA MORESCHINI, AARON BOSTWICK, Advanced Light Source (ALS), LBNL, ANDREW L. WALTER, Advanced Light Source (ALS), LBNL & Fritz-Haber-Institut, KARSTEN HORN, Fritz-Haber-Institut, ELI ROTENBERG, Advanced Light Source (ALS), LBNL — Oxide interfaces between insulating hosts show unexpected conducting carriers, which can be useful for next-generation electronic applications. However, the fundamental understanding of the conducting interfaces remains elusive. Here we report *in situ* angle-resolved photoemission spectroscopy (ARPES) studies in the LaTiO3/SrTiO3 heterostructures, of which layer thicknesses were precisely prepared by pulsed laser deposition in the BL7.0, ALS. We found that the interface generates a high-density electron gas over few unit cells from the junction. We further discuss the orbital characteristics of the interface electronic states with comparison to the recent theoretical calculations. Based on the unit-cell layer resolved electronic structure of the LaTiO3/SrTiO3 interface, we discuss the conducting carriers comparing to the LaAlO3/SrTiO3 interfaces.

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