

Abstract Submitted
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Atomically-resolved mapping of polarization and electric fields across ferroelectric-oxide interfaces by Z-contrast imaging¹ ALBINA BORISEVICH, HYE JUNG CHANG, SERGEI KALININ, Oak Ridge National Laboratory, ANNA MOROZOVSKA, NAS Ukraine, YING-HAO CHU, PU YU, RAMAMOORTHY RAMESH, University of California Berkeley, STEPHEN PENNYCOOK, Oak Ridge National Laboratory — Polarization, electric field, charge and potential across ferroelectric-oxide interfaces are obtained from direct atomic position mapping by aberration corrected scanning transmission electron microscopy combined with Ginsburg-Landau-Devonshire theory. We compare two antiparallel polarization orientations, which allows separation of the polarization and intrinsic interface charge contributions. Using the Born effective charges, the complete interface electrostatics is obtained in real space, providing an alternative method to holography. The results provide new microscopic insight into the thermodynamics of polarization distribution at the atomic level.

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