

Abstract Submitted
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Structure of Oxide Surfaces RONG YU, Tsinghua University — Surfaces of metal oxides are of crucial importance for a variety of technological applications such as heterogeneous catalysis, thin film growth, gas sensing, and corrosion prevention. Due to the complexities of oxides in crystal structure and electronic structure, however, the surface science of oxides lags far behind that of metals or semiconductors. Conventional surface-science techniques are usually limited to surfaces of single crystals of conductors. Metal oxides are usually good insulators, making them difficult for conventional surface science techniques. On the other hand, the complex atomic structures of oxides results in too many structural parameters to be determined by spectroscopy or diffraction methods. We will show that the surface structure of oxides can be directly imaged and measured at the sub-angstrom scale using aberration-corrected transmission electron microscopy. The atomic positions of oxide surfaces can be measured to an accuracy of picometers, comparable to that obtained by conventional surface science techniques on single crystals.

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Rong Yu
Tsinghua University

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