

Abstract Submitted
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Local Octahedral Distortions and Magnetic Properties Controlled by Substrate Symmetry at Perovskite Oxide Interfaces¹ JUN HE, Vanderbilt University, ALBINA BORISEVICH, SERGEI KALININ, STEPHEN PENNYCOOK, Oak Ridge National Laboratory, SOKRATES PANTELIDES, Vanderbilt University — We have investigated the oxygen octahedral distortions and local magnetism at the interfaces of magnetic perovskite oxide heterostructures using first principles calculations. The studied prototype oxide heterostructures include $\text{La}_{0.7}\text{Sr}_{0.3}\text{MnO}_3$, SrRuO_3 , and BiFeO_3 . The results show that the symmetry mismatch at interfaces between two perovskite oxides imposes an interfacial layer with distortion modes that do not exist in either bulk material, creating new interface properties by symmetry alone. The thickness of such interface layer depends on the resistance of the octahedra to deformation.

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