Examination of exchange fields at LaSrMnO$_3$/BiFeO$_3$ interfaces
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The complex oxide materials are providing a vast playground of interesting material properties that couples spin, orbital, and charge degrees of freedom. We examine the presence of significant magnetization within the antiferromagnetic layer of BiFeO$_3$ (BFO) between ferromagnetic (FM) LaSrMnO$_3$ layers. Using a classical exchange field to account for orbital reconstruction and possible inter-layer mixing, we quantify the energy scale for the interface exchange based on polarized neutron reflectivity measurements. Furthermore, we estimate the critical layer thickness in which the magnetization will be reduced to zero (or close to zero).

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