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Short-Range
Charge Transfer Between Oxide Based Superconductor-Ferromagnetic Metal Interfaces TE-YU CHIEN, Univ of Wyoming, L.F. KOURKOUTIS, Cornell University; Kavli Institute at Cornell for Nanoscale Science, J. CHAKHALIAN, University of Arkansas, D. MULLER, Cornell University; Kavli Institute at Cornell for Nanoscale Science, J.W. FREELAND, Argonne National Laboratory — Unlike the conventional superconductor (S) and ferromagnetic metal (F) interface, the understanding of the proximity effect between oxide-based S and F is still unclear. One particular question relates to the charge transfer length scale between S and F layers, which resulted from the lack of an appropriate experimental tool. In this talk, we show that by combining the cross-sectional scanning tunneling microscopy and spectroscopy (XSTM/S) along with scanning transmission electron microscopy (STEM) and electron energy loss spectroscopy (EELS), the charge transfer length scale at the interfaces between YBa Cu O $_{-\delta}$(YBCO) and La_3Ca_3MnO (LCMO) was revealed to have upper limit of 1 nm.

[1] Teyu Chien, et al., Nature Commun.4, 2336 (2013).

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