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Charge transfer at $YBa_2Cu_3O_7/La_{0.7}Ca_{0.3}MnO_3$ interface[1] JIUNN-YUAN LIN, VU-THANH TRA, Institute of Physics, Natl Chiao Tung Univ, YING-HAO CHU, Department of Materials Science and Engineering, Natl Chiao Tung Univ — In this paper, the ferromagnetic (F) /$La_{0.7}Ca_{0.3}MnO_3$/superconducting (S) $YBa_2Cu_3O_7$ heterostructures of two distinct interfaces with atomically precise interface control have been fabricated to explore the coupling between these two functional layers. A new mechanism of charge transfer in these heterostructures was identified and confirmed by the results of the first principle calculations. This charge transfer, in addition to the previously considered F/S proximate effect, is critical to to the superconductivity and magnetism in these heterostructures. Direct observation of the charge transfer by x-ray absorption spectroscopy is presented. The results from resonant x-ray scattering is likely to be discussed for both type of interfaces.

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