

Abstract Submitted
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XPS and ARPES study of the metal-insulator transition in Mn-substituted $\text{Sr}_3\text{Ru}_2\text{O}_7$ ZHIHUI ZHU, G. LEVY DE CASTRO, M.A. HOSSAIN, UBC, U. MANJU, ICTP Trieste, J.L. MCCHEYNEY, A. BOSTWICK, E. ROTENBERG, ALS, Y. YOSHIDA, AIST, I.S. ELFIMOV, UBC, G. PANACCIONE, TASC Trieste, A. DAMASCELLI, UBC — We have studied the metal-insulator transition in Mn-substituted $\text{Sr}_3\text{Ru}_2\text{O}_7$ by core-level x-ray photoemission (XPS) and angle-resolved photoemission spectroscopy (ARPES). In XPS, both the surface- and bulk-sensitive spectra show a two-peak structure, corresponding to the well screened and the unscreened excitations. The intensity of the well-screened peak is suppressed upon increasing the concentration of Mn, reflecting a metal-to-insulator transition induced by Mn impurities. In ARPES, changes in Fermi surface topology and band dispersions are observed as the system crosses over from a metal to a - possibly Mott - insulator. We observed a variation and enhancement of the Fermi-surface nesting upon Mn substitution, which might be connected to the emergence of the magnetic superstructure revealed by our resonant elastic soft x-ray scattering results [1].

[1] M.A. Hossain *et al.*, arXiv:0906.0035 (2009).

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