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Charge confinement in manganite thin film on stepped substrate HOYOUNG JANG, SSRL, SLAC Nat. Acc. Lab., B. KIM, C. BELL, Y. HIKITA, SIMES. SLAC Nat. Acc. Lab., X.M. CHEN, P. ABBAMONTE, Department of Physics, UIUC, H.Y. HWANG, SIMES. SLAC Nat. Acc. Lab. & GLAM, Stanford University, J.-S. LEE, SSRL, SLAC Nat. Acc. Lab. — Technologies of fabricating the oxide films enable not only reproducing bulk properties even in the film form, but also generating new functionalities via the intrinsic interface effect in heterostructures. Beyond such aspects, nowadays, controlling a step terrace of single crystalline substrate that has been regarded as another playground of thin film research. We demonstrated resonant soft x-ray scattering (RSXS) experiment of thin  $La_{0.7}Sr_{0.3}MnO_3$  (LSMO) film grown on TiO<sub>2</sub> terminated SrTiO<sub>3</sub> (001) substrates which have the topographical step terrace. In this talk, we will present the site selective (i.e., step-edge sensitive) the RSXS results on the LSMO, showing the enriched  $Mn^{3+}$  state distribution along step-edge. We propose that this distribution is associated with the anisotropic conductivity in the plane of the LSMO film. The details will be touched in presentation.

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