

Abstract Submitted
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Energy Range of State Conservation for Coulomb Interaction Effects in $La_{1.28}Sr_{1.72}Mn_2O_7$ ¹ DANIEL MAZUR, K. E. GRAY, Argonne National Laboratory, J. F. ZASADZINSKI, Illinois Institute of Technology, L. OZYUZER, Izmir Institute of Technology, I. BELOBORODOV, H. ZHENG, J. F. MITCHELL, Argonne National Laboratory — Tunneling data on $La_{1.28}Sr_{1.72}Mn_2O_7$ crystals confirm Coulomb interaction effects through the \sqrt{E} dependence of the density of states (DOS). Importantly, the data and analysis at high energy, E , show conservation of states: those removed from near E_F are found between ~ 30 and 70 meV from E_F . This quantum correction to the DOS agrees in magnitude with the \sqrt{T} dependence of the bulk conductivity. Combining our results, with published theory and quantum interference data, we find a scattering time and Fermi velocity that agree reasonably well with recent ARPES results.

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