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Tunneling evidence for weak localization in layered manganites[1]
DANIEL MAZUR, Illinois Institute of Technology, KEN E. GRAY, Argonne National Laboratory, JOHN F. ZASADZINSKI, Illinois Institute of Technology, HONG ZHENG, JOHN MITCHELL, Argonne National Laboratory — Our point contact tunneling experiments on $La_{1.28}Sr_{1.72}Mn_2O_7$ (bi-layered LSMO x=0.36) at low temperatures reveals a $\sqrt{V}$ low bias anomaly in the tunneling conductance. This anomally qualitatively matches the $\sqrt{E}$ predictions of the weak localization effect on the electronic DOS. The data could provide an important corroboration of the weak localization hypothesis, which was concluded previously from low-temperature conductivity and magnetoresistance data.

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