

Abstract Submitted
for the MAR06 Meeting of
The American Physical Society

Tunneling evidence for weak localization in layered manganites¹

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 $\text{La}_{1.28}\text{Sr}_{1.72}\text{Mn}_2\text{O}_7$ (bi-layered LSMO $x=0.36$) at low temperatures reveals a \sqrt{V} low bias anomaly in the tunneling conductance. This anomaly 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.

¹Contributed by UofC under U.S. DoE contract no. W-31-109-ENG-38.

Daniel Mazur
Illinois Institute of Technology

Date submitted: 04 Jan 2006

Electronic form version 1.4