Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Positive correlation in multi-level transport through a tunable quantum dot[1] YIMING ZHANG, LEONARDO DICARLO, DOUGLAS MCCLURE, Harvard University, MICHIHISA YAMAMOTO, University of Tokyo and SORST-JST, SEIGO TARUCHA, University of Tokyo and ICORP-JST, CHARLES MARCUS, Harvard University, MICAH HANSON, ART GOSSARD, University of California, Santa Barbara — We report measurements of shot noise auto- and cross-correlation in a tunable quantum dot with two or three leads. As the Coulomb blockade is lifted at finite source-drain bias, the current noise evolves from super-Poissonian to sub- Poissonian in the two-lead case, and the cross-correlation evolves from positive to negative in the three-lead case. The observed super-Poissonian noise and positive cross-correlation are shown to be consistent with transport through excited states.

[1]We acknowledge support from the NSF through the Harvard NSEC, PHYS 01-17795, DMR-05-41988, DMR-0501796, as well as support from NSA/DTO and Harvard University.

Yiming Zhang
Harvard University

Date submitted: 20 Nov 2006 Electronic form version 1.4