Abstract Submitted
for the MAR06 Meeting of
The American Physical Society

Spin Related Effects in Transport Properties of "Open" Quantum Dots YASHAR AHMADIAN, GIANLUIGI CATELANI[1], IGOR ALEINER, Columbia University — We study the interaction corrections to the transport coefficients in open quantum dots (i.e. dots connected to leads of large conductance $G \gg e^2/\pi\hbar$), via a quantum kinetic equation approach. The effects of all the channels of the universal (in the Random Matrix Theory sense) interaction Hamiltonian are accounted for at one loop approximation. For the electrical conductance we find that even though the magnitude of the triplet channel interaction is smaller than the charging energy, the differential conductance at small bias is greatly affected by this interaction. Furthermore, the application of a magnetic field can significantly change the conductance due to the Zeeman splitting, producing finite bias anomalies. For the thermal conductance we find that the Wiedemann-Franz law is violated by the interaction corrections, and we investigated the effect of magnetic field on the Lorentz ratio for contacts of finite reflection. The charge and triplet channel corrections to the electrical and thermal conductance vanish for reflectionless contacts. In the latter case the temperature and magnetic field dependence of the conductance is determined by the Maki-Thompson correction in the Cooper channel.

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Date submitted: 30 Nov 2005 Electronic form version 1.4