Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Fermi-liquid versus non-Fermi-liquid behavior in triple quantum dots JANEZ BONCA, FMF, University of Ljubljana, J. Stefan Institute, Ljubljana, Slovenia, ROK ZITKO, J. Stefan Institute, Ljubljana, Slovenia — We study the effect of electron hopping in triple quantum dots modelled by the three-impurity Anderson model. In a wide interval around the particle-hole symmetric point, the triple quantum dot system has a FL ground state with high conductance at $T = 0$. The different regimes exhibit different approaches to this fixed point. The most likely candidate for observing non-Fermi-liquid (NFL) behavior is the cross-over regime with competing magnetic ordering and Kondo screening, $J \sim T_K$. In this regime the NFL behavior occurs in a wide temperature range and it is fairly robust against various perturbations that do not additionally increase the channel asymmetry. As the crossover regime is entered from the above, the conductance through the side dots increases to a half of the conductance quantum, while the conductance through the system remains small. At lower temperatures the conductance through the system increases to the unitary limit as the system crosses over to the Fermi-liquid ground state. The signature of the NFL behavior can be detected by measuring different conductances in a three terminal configuration. Our findings suggest, that properly choosing parameters of the triple quantum dot system that set it into the crossover regime, represents a road map for observation of NFL behavior.

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Date submitted: 26 Nov 2006 Electronic form version 1.4