Abstract Submitted
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Nonequilibrium quantum many-body transport in multiple lead quantum dot devices[1] JONG HAN, SUNY at Buffalo — Recently proposed imaginary-time formalism of steady-state nonequilibrium is extended to three reservoir systems and discuss their interference effects. We first consider a quantum dot coupled to three non-interacting leads in the context of the Anderson impurity model driven by source-drain bias. We discuss the difference between the two and three reservoir systems. We then consider the system of interacting leads, used as a prototype for two-channel Kondo model in quantum dot device.[2] We rewrite the charging interaction on the large dot via a gauge transformation to a correlated tunneling and perform quantum Monte Carlo simulation for equilibrium and nonequilibrium using the Matsubara-voltage formalism. We discuss the cross-over from local Fermi liquid to non-Fermi liquid as a function of the Coulomb parameter in the large dot in the electron self-energy and the magnetic susceptibility. We discuss the nonequilibrium spectral evolution of local Fermi liquid.

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[2]R. M. Potok et al, Nature **446**,167 (2007)

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