Abstract Submitted
for the MAR15 Meeting of
The American Physical Society

Non-equilibrium Hybridization Expansion Impurity-solver[1] QIAOYUAN DONG[2], Univ of Michigan - Ann Arbor — The study of non-equilibrium phenomena in strongly correlated systems has developed into one of the most active and exciting branches of condensed matter physics. Meanwhile, quantum impurity models play a prominent role as mathematical representations of quantum dots, single-molecule devices, and effective models for the dynamical mean field theory. We show results for a generalization of the hybridization expansion diagrammatic Monte Carlo technique for the Anderson impurity model. And we perform non-equilibrium calculations on the full Keldysh contour, where a dynamical sign problem vastly increases the complexity of real-time simulation. By further combining this method with a non-crossing approximation, our "bold-line" Monte Carlo can reach substantially longer times out of equilibrium than previously accessible, and provides an accurate description of quench and driven dynamics of correlated systems.

[1]Sponsored by the Department of Energy
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Date submitted: 12 Nov 2014 Electronic form version 1.4