Scaling and relaxational dynamics near Kondo-destroying quantum critical points

JEDEDIAH PIXLEY, MATTHEW GLOSSOP, Rice University, STEFAN KIRCHNER, Max Planck Institute for the Physics of Complex Systems, QIMIAO SI, Rice University — We study the finite-temperature dynamical scaling in the vicinity of the Kondo-destroying quantum critical points in two quantum impurity models. For the pseudogap Anderson model, we use a combination of renormalization group, continuous time quantum Monte Carlo and large-N techniques to obtain the complete scaling functions of the local susceptibility and single-electron Green’s function both in the coherent ($\omega > T$) and relaxational ($\omega < T$) regime [1]. We establish that the relaxation rate is linear in temperature for both quantities. The result for the Green’s function is reminiscent of recent experimental findings in the Kondo-destroying quantum critical point of heavy fermion metals [2]. For the Bose-Fermi Kondo model, we report related results derived from the continuous time quantum Monte Carlo and large-N methods.