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Steady-state dynamics and effective temperatures of quantum criticality in open systems STEFAN KIRCHNER, FARZANEH ZAMANI, Max Planck Institute for Complex Systems, PEDRO RIBEIRO, Instituto Superior Tecnico, Lisboa, Portugal — The interest in the dynamics of strongly correlated systems beyond the linear response regime has recently grown tremendously. The limitation in techniques presently available to tackle this regime should be contrasted with the richness of behavior expected for the non-linear regime. The situation may be simpler for steady states near quantum criticality, where concepts like scaling and universality apply. We present our results for the steady-state –both thermal and non-thermal– scaling functions and steady-state dynamics in a quantum impurity model of local quantum criticality. Our model, the pseudogap Kondo model, allows us to study the concept of effective temperatures near fully interacting as well as trivial fixed points. In the vicinity of each fixed point we establish the existence of an effective temperature –different at each fixed point– such that the equilibrium fluctuation-dissipation theorem is recovered. Interestingly, steady-state scaling functions in terms of the effective temperatures coincide with the equilibrium scaling functions in terms of the temperature. This result extends to higher correlation functions as is explicitly demonstrated for the Kondo singlet strength. We also study the non-linear charge transport in terms of the effective temperatures

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