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Local susceptibility and Kondo scaling ANDREAS WEICHSELBAUM, MARKUS HANL, Ludwig Maximilians University, Munich, Germany — The Kondo scale T_K for quantum impurity systems is typically assumed to guarantee universal scaling of physical quantities. In practice, however, not every definition of T_K necessarily supports this notion away from the strict scaling limit for finite bandwidth D. Various theoretical definitions of T_K are analyzed based on the inverse magnetic impurity susceptibility at zero temperature. While conventional definitions in that respect quickly fail to ensure universal Kondo scaling for all D, an altered definition of $T_K^{\rm sc}$ is presented which allows universal scaling of dynamical or thermal quantities for a given fixed Hamiltonian. If the scaling is performed with respect to an external parameter which directly enters the Hamiltonian, such as magnetic field, the corresponding $T_K^{\rm sc,B}$ for universal scaling may differ, yet becomes equivalent to $T_K^{\rm sc}$ in the scaling limit. The only requirement for universal scaling in the full Kondo parameter regime with a residual error of less than 1% is a well-defined isolated Kondo feature with $T_K \leq 0.01\,D$. By varying D over a wide range relative to the bare energies of the impurity, this allows a smooth transition from the Anderson to the Kondo model.

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