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# Fusion of energy scales on the approach to a local quantum critical point

A.C. Hewson[1], D.J.G. Crow[1], Y. Nishikawa[2]

[1] *Dept. of Mathematics, Imperial College, London SW7 2AZ, UK.*

[2] *Graduate School of Science, Osaka City University, Osaka 558-8585, Japan*

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We consider a two impurity Anderson model which has transitions to a local singlet and to a local charged ordered state as a function of an inter-impurity exchange interaction $J$ and direct interaction $U_{12}$. The low energy behavior of the model can be described in terms of renormalized parameters, which can be deduced from a numerical renormalization group (NRG) calculations. We show that on the approach to the transition points, where the quasiparticle weight factor $z \to 0$, the renormalized parameters can be expressed in terms of a single energy scale $T^*$, where $T^* \to 0$ at the transition. The values of the renormalized interaction parameters in terms of $T^*$ can be predicted from the condition of continuity of the spin and charge susceptibilities at the transitions. These predictions are confirmed by the NRG calculations. The results suggest how $\omega, T$ scaling can arise at a quantum critical point in heavy fermions.