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Non-Fermi liquid behavior in a three-orbital Anderson model with inverted Hund's rule. LORENZO DE LEO, SISSA and INFM UR-Trieste SISSA, Via Beirut 2-4, I-34014 Trieste, Italy, MICHELE FABRIZIO, (1) SISSA and INFM UR-Trieste SISSA, Via Beirut 2-4, I-34014 Trieste, Italy - (2) ICTP, P.O.Box 586, I-34014 Trieste, Italy — We investigate the critical properties of a threefold orbitally degenerate Anderson impurity model in the presence of a generalized Hund's rule coupling. We use in combination conformal field theory and Wilson numerical renormalization group. The fixed points of the model correspond to boundary conformal field theories including spin, orbital and charge sectors together with a three state Potts model sector. Depending on the average occupation of the impurity we find different situations. In particular at particle-hole (p-h) symmetry we find an unstable non-Fermi liquid fixed point (UFP) separating a Kondo screened phase from a non-Fermi liquid stable phase. Away from p-h symmetry the non-Fermi liquid stable phase is replaced by a conventional Fermi liquid one but the UFP remains. The spectrum obtained numerically agrees with the finite size spectrum predicted by conformal field theory. We obtain the spectral function of the impurity across the UFP. Beyond the interest in the single impurity problem, this system can be relevant to understand via Dynamical Mean Filed Theory the behavior of a strongly correlated lattice model close to the Mott transition, where we expect that the UFP instability of the single impurity turns into a superconducting instability of the bulk.

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