Randomly Depleted Kondo Lattices RIBHU KAUL, Duke U. and
TKM Uni-Karlsruhe, MATTHIAS VOJTA, TKM Uni-Karlsruhe — How is the
"heavy Fermi liquid" of the Kondo lattice connected to the Kondo impurity "lo-
cal Fermi liquid" as the concentration of f-moments is varied? We study the ensuing
interplay of strong correlations and disorder within an $SU(N)$ model in a $N \to \infty$
limit. Although normal Fermi liquid behavior is well defined close to the two lim-
its of Kondo-lattice and Kondo-impurity, we find that in between them there are
strongly in-homogeneous phases with large fractions of quasi-free moments that re-
sult in a violation of the usual Fermi-liquid behavior. The full spatial dependence
of the mean field solutions allows us to study the depletion driven evolution of in-
homogeneities in local quantities like the local susceptibility and the local spectral
function in detail. We describe the relevance of our results to recent experiments on
$Ce_{1-x}La_xCoIn_5$.

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