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Renormalization group, Kondo effect and hierarchical models

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A manifestation of the Kondo effect is the non divergence at zero temperature
of the susceptibility of an impurity magnetization to the action of a
field. It is a quantum phenomenon not accessible to perturbation theory
because it is essential that the interaction with the host lattice
electrons is antiferromagnetic, no matter how small. Its theory in one
dimension, due to Wilson, is based on the renormalization group and its
interest is that it has been one the first and few cases in which a
multiscale phenomenon controlled by a non trivial fixed point as been
understood.
Wilson's approach has not been based on functional integration: here I
shall discuss
a hierarchical model for a system exhibiting the Kondo effect: its nine
running couplings (of which 2 are relevant 4 are marginal and 3
irrelevant) flow under a beta function which can be computed exactly and
which generates a flow with several properties which give a picture of the
phenomenon.

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