Efficient parametrization of fRG by truncated unities and application to the 3D Hubbard model

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Abstract

The functional renormalisation group equations for the 1-PI two-particle vertex scale quartic with the number of momenta. By decomposing the contributions into three channels and projection of each channels weak momentum dependencies to form factors we are able to reduce this to a linear dependence in momenta and cubic in (a small) number of form factors. Applying this method to the 3D Hubbard model reproduces the AFM phase diagram at low interactions even quantitatively.

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