Rotationally invariant exchange interaction: The case of paramagnetic metals

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The Curie-Weiss temperature calculated by means of local density approximation plus dynamical mean-field theory is often substantially overestimated. There are two reasons for such overestimation of the magnetic transition temperature. The first one is the local nature of the dynamical mean-field theory, which is not able to capture the reduction of magnetic transition temperature due to long-wavelength spin waves. The second reason comes from the approximate form of the local Coulomb repulsion restricted to the Ising-type exchange interaction. Here we discuss the role of the rotationally invariant Coulomb interaction and show its importance for the transition metals magnetic properties.