QUASIPARTICLE SPECTRA OF THE GENERALISED SPIN-FERMION MODELS

A.L. Kuzemsky
Bogolubov Laboratory of Theoretical Physics,
Joint Institute for Nuclear Research, 141980 Dubna, Russia
E-mail:kuzemsky@thsun1.jinr.ru

9.7 cm

The many-body quasiparticle dynamics of the generalised spin-fermion (Kondo-lattice-type) model at finite temperatures have been studied with a special application to perovskite manganites. To get a correct physical picture of manganates the strong spin-charge coupling (Hund coupling) between the t_{2g} and e_g electrons on the same Mn atom should be taken into account properly. Furthermore, to get an insight into the interplay between ferromagnetic (low resistivity) and antiferromagnetic (high resistivity) interactions a careful analysis of the relevant mean fields must be performed. These effects are most suitable accounted for by the method of Irreducible Green Functions[1]. We derived a new system of coupled Dyson equations by using this method in the matrix form. Within our many body approach we analysed the renormalised spectra of carriers and spins, and their damping.

[1] A.L.Kuzemsky, Molecular Physics Reports, **17** (1997) 221;

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Corresponding author :
Dr.A.L.Kuzemsky

Address for correspondence :
Bogolubov Laboratory of Theoretical Physics
Joint Institute for Nuclear Research
141980 DUBNA, Moscow Region, Russia

Email address :
kuzemsky@thsun1.jinr.ru