

Abstract Submitted
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Exact results on magnon-mediated pairing of spin-polarons¹ MIRKO MOELLER, MONA BERCIU, University of British Columbia — The motion of a charged particle in a magnetically ordered background determines the electronic behavior of weakly doped, magnetically ordered insulators and semiconductors. This problem can be solved exactly for a single charge carrier in a ferromagnetic background at zero-temperature. The solution is a spin-polaron, *i.e.* a dressed quasiparticle consisting of a charge carrier and a bound magnon which is dynamically emitted and reabsorbed by the charge carrier. If the exchange interaction between the charged particle and the ferromagnetic background is antiferromagnetic, then the spin polaron describes the low-energy states. We generalized the exact solution to the case of two charge carriers. This allows us to characterize the conditions (what ranges of parameters and for what types of lattices) under which magnon-mediated pairing occurs, so that spin-bipolarons describe the low-energy states.

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