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Kondo effect in a quantum dot doped with a Mn^{2+} ion EDSON VERNEK, Universidade Federal de Uberlandia - Brazil, FANYAO QU, Universidade de Brasilia - Brazil, FABRICIO F.M. SOUZA, ENRIQUE V. ANDA, Pontifica Universidade Catolica do Rio de Janeiro, J. CARLOS EGUES, Instituto de Física de São Carlos, Universidade de São Paulo - Brazil — We present a study of a quantum dot (QD) with a single Mn^{2+} ion implanted and coupled to normal metallic leads [1]. As a result of the coupling to the leads, single QD is known to exhibit the well known Kondo effect, which emerges at temperatures below the so called Kondo temperature (T_K). In the present work we investigate the interplay between the Kondo effect and the ferromagnetic (FM) coupling (J) between a spin of the electrons in the QD and the spin of the Mn ion. We show that depending of the ratio J/T_K the ground state of the system is a local FM (non-Kondo) state or a Kondo state of the QD, in which case the Mn^{2+} decouples from the rest of the system.

[1] L. Besombes et al Phys. Rev. Lett. **93** 207403.

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