Surface Kondo Impurities in the Slave-Boson Approach

ENRIQUE ANDA, Pontificia Universidade Catoolica do Rio de Janeiro, EDSON VERNEK, NANCY SANDLER, SERGIO ULLOA, Ohio University — Transport properties of magnetic impurities on surfaces have captured a great deal of attention lately. Atom manipulation and topographic imaging techniques using scanning tunneling microscope have confirmed some theoretical predictions on Kondo physics and at the same time revealed other interesting behavior in these systems. For example, experiments have reported unexpectedly high Kondo temperatures for multi-impurity and molecular structures on metallic surfaces. Motivated by these experimental results we apply slave boson techniques for finite Coulomb interaction (finite $U$) to study the transport properties of magnetic impurities on a metallic surface in the Kondo regime. We report here on our studies of the role of fluctuations on the slave boson number for the case of one impurity on metallic surfaces. We compare our results to other theoretical approaches and to experimental results.

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