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Kondo effect in graphene in the presence of Rashba spin-orbit interaction MAHDI ZAREA, Ohio/Northwestern University, NANCY SANDLER, SERGIO ULLOA, Ohio University — We present an exact solution for the Anderson model of a single-orbital magnetic impurity on graphene in the Kondo regime. Different positions for the impurity are considered: on top of a carbon atom, substitutional or interstitial (middle of the hexagon cell). We show that regardless of the impurity position, the effective exchange Hamiltonian always describes a single-channel Kondo problem. The inclusion of the Rashba spin-orbit interaction changes the linear energy dispersion to a quadratic one near the Dirac points with the corresponding change in the density of states. This in turn, modifies the value of the critical Kondo coupling as compared to the case where the spin-orbit is absent. Moreover, spin-orbit interactions, introduce a Dzyaloshinsky-Moriya (DM) term in the Kondo Hamiltonian away from particle-hole symmetry. Although still in the single channel region, the effective exchange coupling is augmented by the DM term and the Kondo temperature shows an exponential increase. Supported by NSF-PIRE and MWN/CIAM

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