

Abstract Submitted
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The Kondo Temperature of Two-dimensional Electron Gas with Rashba Spin-orbit Coupling LIANG CHEN, Mathematics and Physics Department, North China Electric Power University, JINHUA SUN, Department of Physics, Zhejiang University, HO-KIN TANG, Department of Physics, National University of Singapore, HAI-QING LIN, Beijing Computational Science Research Centre — We use the Hirsch-Fye quantum Monte Carlo method to study the single magnetic impurity problem in two-dimensional electron gas with Rashba spin-orbit coupling. We calculate the spin susceptibilities for different spin-orbit couplings, different Hubbard interactions, and different chemical potentials. The Kondo temperatures for different parameters are estimated by fitting the universal curves of spin susceptibilities. We find that the Kondo temperature is almost a linear function of the Rashba spin-orbit energy when the chemical potential is close to the edge of the conduction band, and when the chemical potential is far away from the band edge, the Kondo temperature is independent of the spin-orbit coupling. These results demonstrate that, for single impurity problem in this system, the most important reason to alter the Kondo temperature is the divergence of density of states near the band edge, and the divergence is induced by the spin-orbit coupling.

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