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Spin-dependent tunneling and the Kondo effect in quantum dots.* S. E. ULLOA, A. NGO, Ohio U, E. VERNEK, UFU-Brasil — Many-body effects have a significant role in electronic transport of nanoscale systems. Particular interesting systems are quantum dots coupled to electronic reservoirs via quantum point contacts. Due to strong spin-orbit interactions [1,2], quantum point contacts can exhibit spin dependent hybridization of the QD states, opening the possibility for generating spin-polarized transport. In this work we study electronic transport of a single level quantum dot connected to polarizing quantum point contacts (QPCs) in both the Coulomb blockade and Kondo regimes. We study how QPCs generate spin-polarized currents by using scattering matrix methods and the equations-of-motion technique. We calculate the electronic Green's function, conductance and spin polarization in different parameter regimes. Our results show that both Hubbard and Kondo regimes exhibit high spin-polarized conductance. We analyze how the spin-dependent hybridization of the QPC modifies the Kondo resonance, as well as the density of states of the system. These effects are controllable by lateral gate voltages applied on QPCs, as in recent experiments [2]. [1] A. Reynoso *et al.,* Phys. Rev, B **75**, 085321 (2007). [2] P. Debray *et al.*, unpublished (2008). * Supported by NSF-DMR WMN.

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