Fano and Dicke effects and spin polarization in a double Rashba-ring system side coupled to a quantum wire

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In this talk we show results about the electronic transport in a system of two quantum rings side-coupled to a quantum wire. This system is studied via a single-band tunneling tight-binding Hamiltonian. We derived analytical expressions for the conductance and spin polarization when the rings are threaded by magnetic fluxes with Rashba spin-orbit interaction. We show that by using the Fano and Dicke effects this system can be used as an efficient spin-filter even for small spin orbit interaction and small values of magnetic flux. We compare the spin-dependent polarization of this design and the polarization obtained with one ring side coupled to a quantum ring. As a main result, we find better spin polarization capabilities as compared to the one ring design.