

Supplementary Information for: Spin-dependent thermoelectric properties of a hybrid ferromagnetic metal/quantum dot/topological insulator junction

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Additional figures for transmission and thermoelectric coefficients

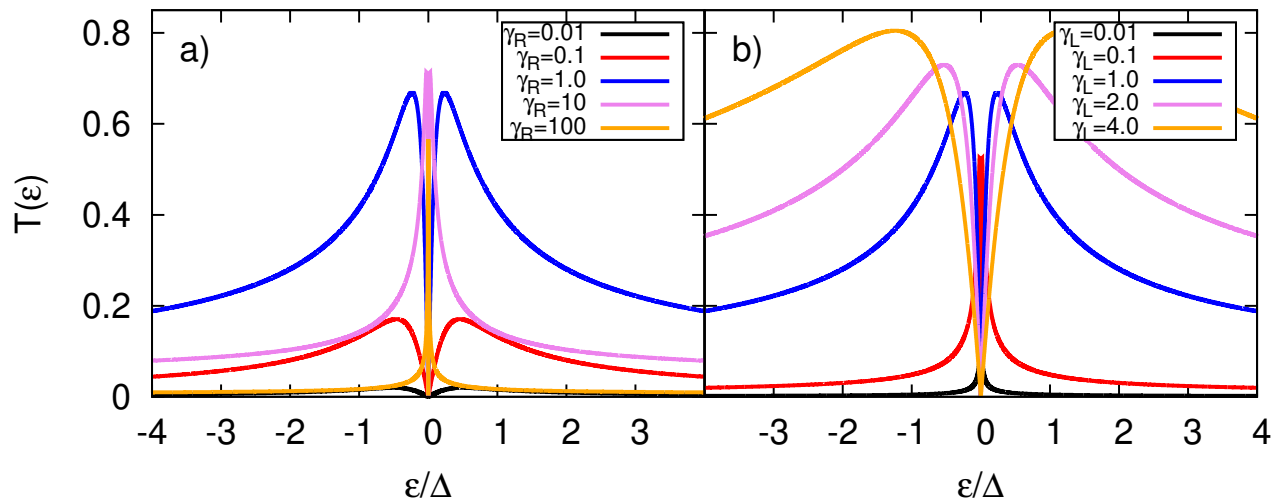


Figure 1. Transmission coefficients as a function of energy calculated for indicated values of the coupling parameters and for $\epsilon_d = 0$. Left panel a) shows results for $\gamma_R = 1$ while varying γ_L , whereas right panel b) presents situation for $\gamma_L = 1$ while varying γ_R . Other parameters: $\Gamma = \Delta$, $T = 0$.

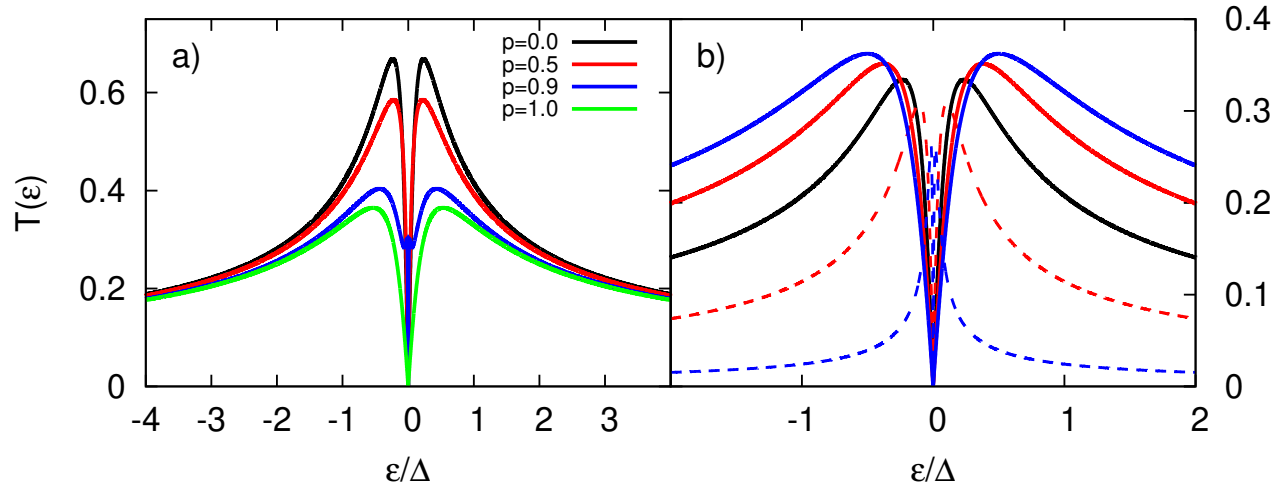


Figure 2. Transmission coefficients as a function of energy calculated for indicated values of spin polarization factor p and for $\varepsilon_d = 0$. Left panel a) shows total transmission, whereas right panel b) displays spin up (solid line) and spin down (dashed line) transmission coefficients. Other parameters: $\gamma_R = 1$, $\Gamma = \Delta$, $T = 0$.

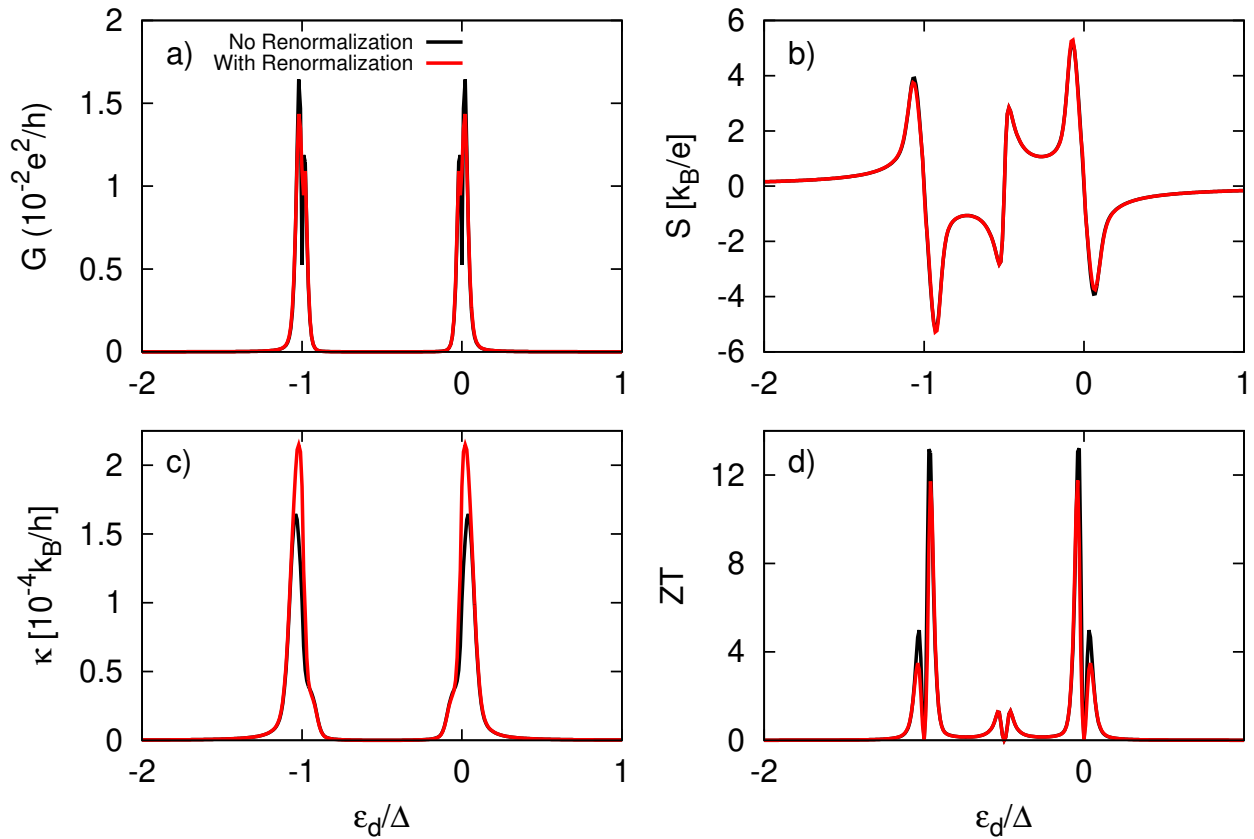


Figure 3. Thermoelectric coefficients: a) electrical conductance, b) Seebeck coefficient (thermopower), c) heat conductance, d) figure of merit, calculated as a function of the dot's energy level ε_d with and without inclusion of dot's level renormalization. The other parameters are: $\gamma_L = \gamma_R = 0.01$, $k_B T = 0.01\Delta$, $U = \Delta$, $p = 0.9$.

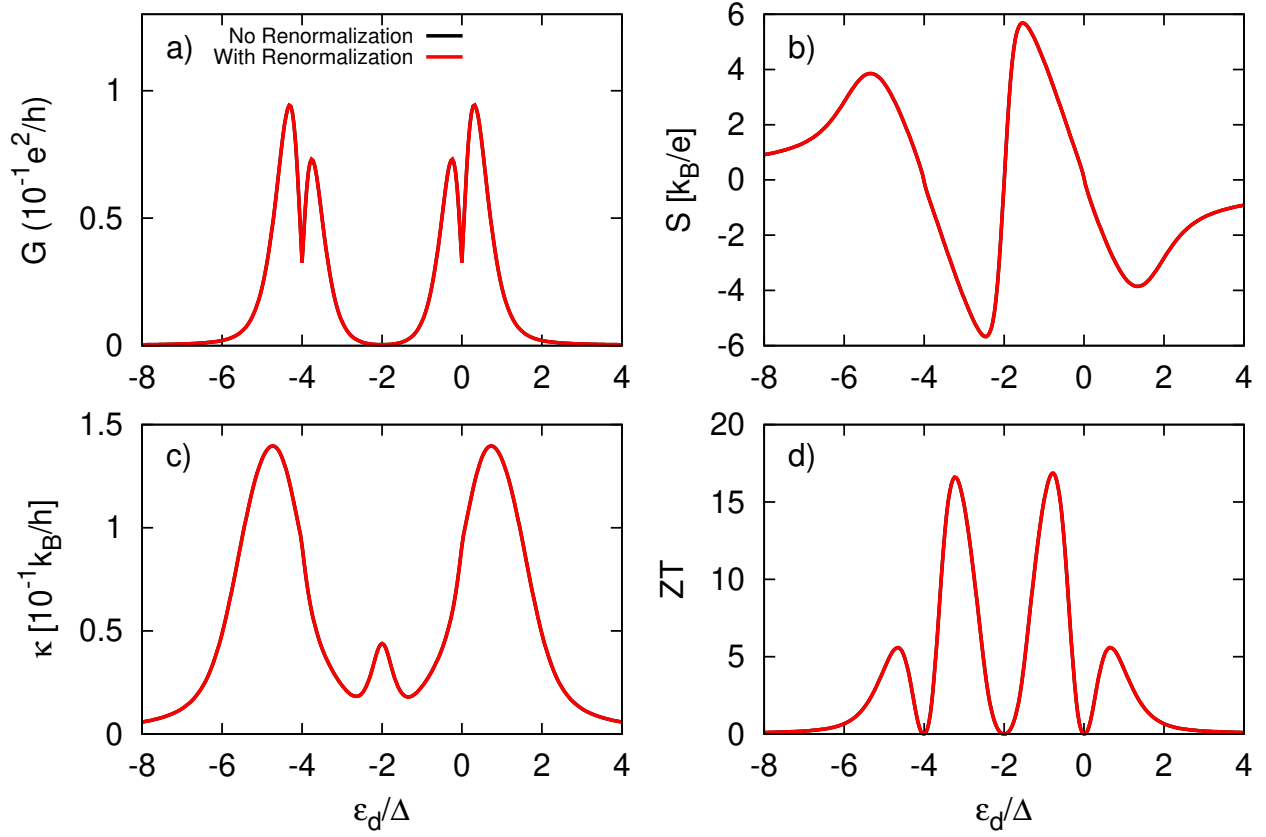


Figure 4. Thermoelectric coefficients: a) electrical conductance, b) Seebeck coefficient (thermopower), c) heat conductance, d) figure of merit, calculated as a function of the dot's energy level ϵ_d with and without inclusion of dot's level renormalization. The other parameters are: $\gamma_L = \gamma_R = 0.1$, $k_B T = 0.2\Delta$, $U = 4\Delta$, $p = 0.9$.

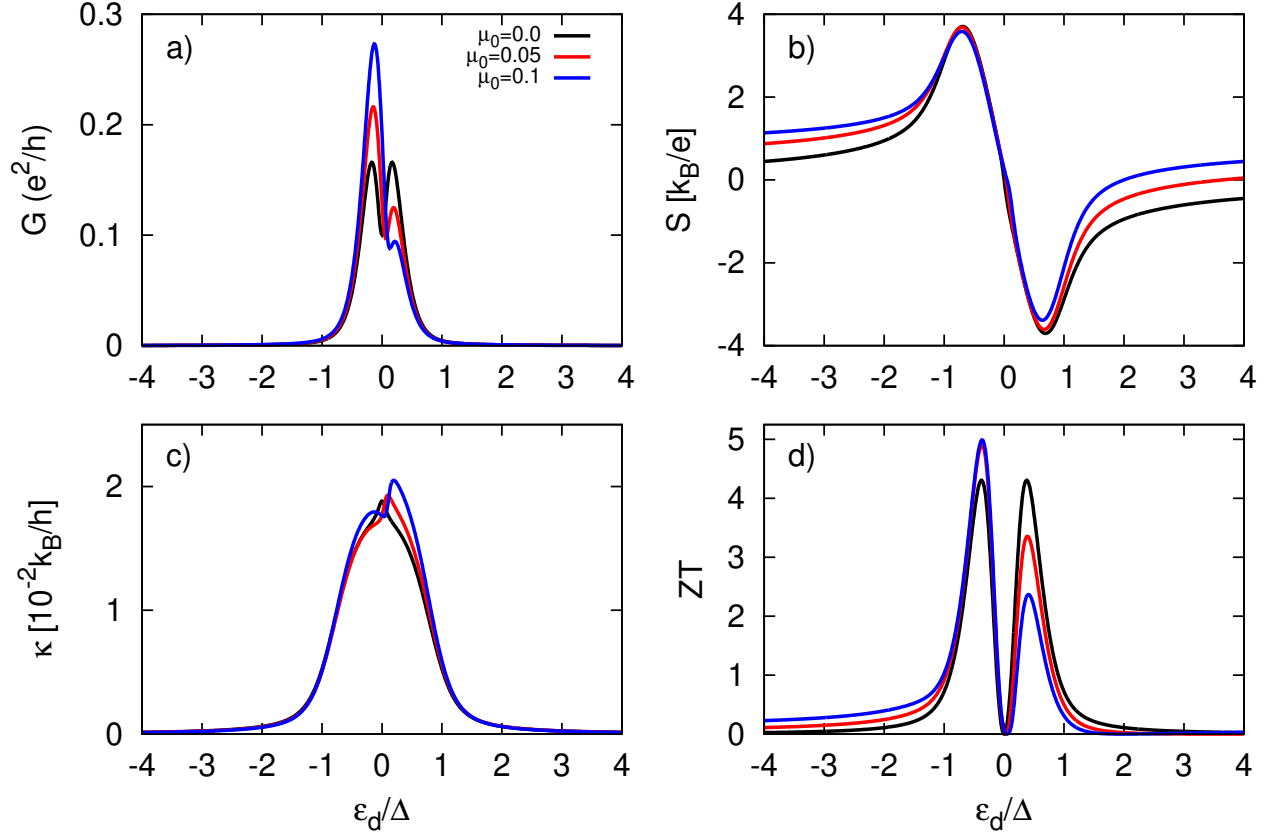


Figure 5. Thermoelectric coefficients: a) electrical conductance, b) Seebeck coefficient (thermopower), c) heat conductance, d) figure of merit, calculated as a function of the dot's energy level ε_d calculated for indicated values of the position of the Dirac point from Fermi level. The other parameters are: $\gamma_L = \gamma_R = 0.1$, $k_B T = 0.1\Delta$, $U = 0$, $p = 0$.