

# Electrically controlled spin polarization in T-shaped double quantum dots coupled to ferromagnetic leads

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We analyze the spin-resolved linear transport properties of interacting double quantum dots strongly coupled to two ferromagnetic leads and forming a T-shaped configuration. The calculations are performed with the aid of the numerical renormalization group procedure [1,2] with the full density matrix of the system [3]. This method allows us to calculate the relevant spectral functions and to determine the linear conductance and spin polarization of the current. We find a range of parameters, for which the spin polarization becomes maximized, and may be continuously changed from  $-1$  to  $+1$  by adjusting the dots' energy levels. The maximum spin polarization occurs without the necessity to apply an external magnetic field and is a consequence of an exchange field, which develops due to the presence of ferromagnetic leads.

## References:

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- [3] A. Weichselbaum, J. von Delft, *Phys. Rev. Lett.* **99**, 076402 (2007).