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Electronic structure and Magnetoresistance of Ni nanocontacts
J.J. PALACIOS, D. JACOB, J. FERNANDEZ-ROSSIER, Departamento de Física Aplicada. Universidad de Alicante — We address the fundamental question of whether magneto-resistance (MR) of atomic-sized contacts of Nickel is very large because of the formation of a domain wall (DW) at the neck. Using both *ab initio* and model Hamiltonian transport calculations we find [1] that, as in the case of non-magnetic electrodes, transport in Ni nanocontacts depends very much on the orbital nature of the electrons. Our results are in agreement with several experiments in both average value of the conductance [2,3] and the fact that MR can be either positive or negative [3]. Contrary to existing claims [4], DW scattering does *not* account for large MR in Ni nanocontacts.

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