

**PROXIMITY INDUCED SPIN ORDERING AT THE FERROMAGNETIC
METAL/DILUTE MAGNETIC SEMICONDUCTOR INTERFACE**

V.V. Tugushev

*Departamento de Fisica de Materiales, Facultad de Ciencias Quimicas, UPV/EHU,
20080,*

P. Manuel Lardizabal,3, Donostia-San Sebastian, Basque Country, Spain

We investigate theoretically the conditions for the appearance and/or modification of spin ordering in a dilute magnetic semiconductor contacted to a ferromagnetic metal. We show that the magnetic proximity effect has complicated enough physical nature in this system. Allowing for both the electron scattering and hybridization between the ferromagnetic metal and semiconductor electron states at the interface, we calculate the spin polarization of carriers in a semiconductor layer near the interface. The peculiar mechanism of indirect exchange coupling between local spins dissolved in the semiconductor host, which occurs when a dilute magnetic semiconductor is contacted to a ferromagnetic metal, is analyzed. The structure of the proximity induced spin ordering in a dilute magnetic semiconductor is qualitatively described in frame of a mean field approach. The interpretation of experimental data on the Fe/(Ga,Mn)As and Py/(Ga,Mn)As layered structures is done.