MAGNETIC PROPERTIES OF NI-RH NANOSTRUCTURES

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We have studied the magnetic properties of different Ni and Rh nanostructures. A tight binding hamiltonian in the unrestricted Hartree-Fock approximation was used to study bimetallic clusters and monolayers. By ab-initio methods we have calculated the local magnetic moments of several configurations of monolayers, slabs and nanowires. The general trend for Ni rich systems is that even when there is a great enhancement of the Rh magnetic moments, we found a lowering of the total magnetic moment of the alloyed structures with respect to the corresponding pure Ni ones as a consecuence of the decreased magnetic moment of the Ni atoms. We believe that a strong effect of hybridization between Rh and Ni atoms is responsable for this behaviour as can be seen from the modification of their partial density of states with respect to the pure metals.

9.7 cm

13.4 cm

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