

Synthesis of nano-sized Cobalt/ Cobalt oxide nano-rods stabilized in surfactant and polymer matrix and their magnetic properties

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In this work, different sized cobalt/cobalt oxide nano-rods were selectively synthesized with very narrow size distribution, using chemical preparation methods, which can be carried out by salt reduction technique.

To prevent undesired agglomeration the nano-rods were stabilized. In this work two different stabilizing matrix were used: polymer and surfactant matrix.

The magnetic properties of cobalt/cobalt oxide was studied by using the Magnetic susceptibility system MS2 at different temperatures, and by using vibrating sample magnetometer (VSM) for hysteresis curves.

The effect of the stabilizing matrix and the effect of reducing the size into the nano-range on the magnetic properties were investigated.

The magnetic measurements show that the nano-rods have a super-magnetic and paramagnetic character.

