

Nickel Nanowire: Magnetic Ordering Synthesis

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ABSTRACT:

Magnetic nanowires have been material of interest among researchers due to their unique magnetic properties. In the present research, Nickel (Ni) nanowires with an average diameter of 250 nm and length up to 25 μm have been successfully prepared via anodic alumina oxide (AAO) template-assisted electrodeposition method at the different magnetic field intensities and current density. The primary interest is to investigate the effect of the external magnetic field and current density on the morphological, growth length, crystal orientation and growth of the Ni nanowires. Investigation finding reveals that the employed magnetic field and current density smoothed the surface texture, improved growth length and reduced the crystal size. The observed changes are believed to be contributed by the interaction forces induced by the intensity of applied electric field and the external magnetic field known as magnetohydrodynamic (MHD) effect