

## **Growth and properties of cobalt oxide hexagonal nanodisks**

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### **Abstract**

Uniform hexagonal-shaped cobalt oxide ( $\text{Co}_2\text{O}_3$ ) nanodisks were prepared in a large scale via simple aqueous solution process at low-temperature of 130 °C. The as-grown  $\text{Co}_2\text{O}_3$  nanodisks were characterized by various analytical tools such as X-ray diffraction pattern, field emission scanning electron microscopy (FESEM) combined with energy dispersive spectroscopy (EDS), transmission electron microscopy (TEM) equipped with high-resolution TEM and SAED pattern, fourier transform infrared spectrophotometer (FTIR), Raman-scattering, UV-Vis. Spectrophotometer. The detailed morphological characterizations by FESEM and TEM reveal that the grown structures are perfectly hexagonal with the typical dimensions of  $80 \pm 20$  nm. Structural characterizations confirmed that the synthesized products are pure cobalt oxide and possessing very well crystalline structure. The synthesized nanodisks may be useful in the fabrication of various nanodevices such as sensors, energy application devices and so on.