

Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

Pulsed Laser Synthesized Magnetic Cobalt Oxide Nanoparticles for Biomedical Applications HARI BHATTA, Missouri State University, RAM GUPTA, KARTIK GHOSH, PAWAN KAHOL, ROBERT DELONG, ADAM WANEKAWA — Nanomaterials research has become a major attraction in the field of advanced materials research in the area of Physics, Chemistry, and Materials Science. Biocompatible and chemically stable magnetic metal oxide nanoparticles have biomedical applications that includes drug delivery, cell and DNA separation, gene cloning, magnetic resonance imaging (MRI). This research is aimed at the fabrication of magnetic cobalt oxide nanoparticles using a safe, cost effective, and easy to handle technique that is capable of producing nanoparticles free of any contamination. Cobalt oxide nanoparticles have been synthesized at room temperature using cobalt foil by pulsed laser ablation technique. These cobalt oxide nanoparticles were characterized using UV-Visible (UV-Vis) spectroscopy, transmission electron microscopy (TEM), and dynamic laser light scattering (DLS). The magnetic cobalt oxides nanoparticles were stabilized in glucose solutions of various concentrations in deionized water. The presence of UV-Vis absorption peak at 270 nm validates the nature of cobalt oxide nanoparticles. The DLS size distributions of nanoparticles are in the range of 110 to 300 nm, which further confirms the presence nanoparticles. This work is partially supported by National Science Foundation (DMR- 0907037).

Hari Bhatta
Missouri State University

Date submitted: 23 Nov 2010

Electronic form version 1.4