Abstract Submitted
for the MAR06 Meeting of
The American Physical Society

Establishing threshold toxicity for introducing magnetic nanoparticles into HeLa and HEK 293 cells[1] KEZHENG CHEN, WEILI LUO, Department of Physics, University of Central Florida, PAPPACHAN KOLATTUKUTY, Bernard College of Biomedical Sciences, University of Central Florida, UNIVERSITY OF CENTRAL FLORIDA TEAM — Although iron oxide nanoparticles have been suggested as candidate in diverse applications such as drug delivery agents, contrast agents of magnetic resonance imaging, cancer treatment through hyperthermia, etc., the upper limit for safe dosage beyond which the toxicity sets in has never been studied. In this work we report quantitative studies on the percentage change in the number of cell as a function of concentration of magnetic nanoparticles. The incubation is at 37 $^\circ$C and lasted for 24 hours. We found that there is a critical value of particle volume fraction, above which appreciable number of cell death occurs. This critical value was found to differ in two different cell lines indicating that HEK cells are more robust against the magnetic nanoparticles.

[1]This work is partially supported by NSF NIRT 0103587.

Weili Luo
University of Central Florida

Date submitted: 05 Dec 2005 Electronic form version 1.4