Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

Formation and Cytotoxicity of Nanoparticles and Nanocubes Prepared from Gold and Silver Salts DANIEL BANKER, SKYLER DORRELL, PRESCOTT IVEY, JOSEPH SCURTI, TABBETHA DOBBINS, Rowan University, Dept. of Physics Astronomy — Photothermal therapy is the use of electromagnetic radiation as the treatment for medical conditions such as cancer. Noble metal nanoparticles and nanocubes are brought to an excited state with laser light and as a result they release vibrational energy in the form of heat, which can be used to kill targeted cancer cells. Wet chemistry gives the basics for the preparation of nanoparticles and nanocubes. Using HAuCl4, AgNO3, tri-sodium citrate and other chemicals, we were able to successfully create gold and silver nanoparticles and nanocubes. The goal is to make sure that 3T3 cells can survive in a nanoparticle or nanocube doped medium so that we can then observe their reaction to photothermal effects. Cell culture techniques were done to 3T3 cells to keep them alive before the testing of cytotoxicity. Photothermal effect refers to the way that our nanoparticles or nanocubes can be photoexcited to release enough heat to kill the cells. We used a UV-Vis spectrophotometer to ensure that the correct wavelength laser. Assuming that the cells will survive living in the doped medium, a medium that has had nanomaterials introduced into it, we will use a high powered laser to observe what the excitation does to the cells since the photothermal effect should result in dead cells.

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Date submitted: 06 Nov 2015 Electronic form version 1.4