Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Band gap variations in ferritin-templated nanocrystals JOHN COLTON, STEPHEN ERICKSON, TREVOR SMITH, RICHARD WATT, Brigham Young University — Ferritin is a 12 nm diameter protein shell with an 8 nm "cage" inside that can be used as a template for nanoparticle formation. The native particle is an iron oxide, ferrihydrite, but can be altered or replaced. We have used optical absorption spectroscopy to study the band gap of the ferrihydrite nanoparticles as they age (and become more crystalline), and as they respond to surface interactions with ions in solution. We will also present results of particle composition variations due to incorporation of oxo-anions into the interior of the nanoparticles and substitution of iron with other metals such as cobalt and manganese.

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Date submitted: 14 Nov 2013 Electronic form version 1.4