Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

Synthesis and Characterization of Gd and Nd Nanoparticles[1]
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Due to the reduced dimensionality, nano-sized materials have physical properties significantly different from the bulk material, such as, superparamagnetic behavior, enhanced magnetization, and self-organization [1-3]. Nano-sized materials have great potential for technical applications, for example, magnetic information storage, imaging, medical devices, and magnetic refrigeration. In this report, we will present the growth and filtration of rare-earth Gd and Nd nanoparticles by the inverse micelle technique [4]. The results of the characterization of these clusters by X- ray diffraction, scanning electron microscope, and energy-dispersive x-ray spectroscopy will be presented. [1] D.C. Douglass, et al. Phys. Rev. B. 47, 19 (1993). [2] J.P. Chen, et al. Phys. Rev. B. 51, 11527 (1995). [3] C. Petit, et al. Advanced Materials. 10, 259 (1998). [4] X.M. Lin, et al. Langmuir. 14, 7140 (1998).

[1]Research is supported by Fresno State start-up fund.

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Date submitted: 20 Nov 2008 Electronic form version 1.4