

Abstract Submitted  
for the TSF06 Meeting of  
The American Physical Society

**Optical Properties of  $\text{Er}^{3+}:\text{Y}_2\text{O}_3$  nanoparticles for biosensor applications**<sup>1</sup> KELLY NASH, RAYLON YOW, DOUG DEE, DHIRAJ SARDAR, JOHN GRUBER, MAOGEN ZHANG, WALDEMAR GORSKI, University of Texas at San Antonio — The optical characteristics of erbium-doped yttrium oxide nanoparticles have been studied for potential use as fluorescent labeling of biomolecules. A comprehensive study of absorption and emission of these nanoparticles is performed. Luminescent properties of the  $\text{Er}^{3+}:\text{Y}_2\text{O}_3$  nanoparticles are utilized to study bioluminescent resonance energy transfer (BRET). This study will help us characterize optimal conditions for functionalizing these nanoparticles to induce selective interactions between the rare earth-doped nanoparticles and biological species (e.g. proteins, DNA).

<sup>1</sup>This work was supported by the NSF-sponsored CBST at UC Davis under the Cooperative Agreement No. PHY 0120999.

Kelly Nash  
University of Texas at San Antonio

Date submitted: 30 Aug 2006

Electronic form version 1.4