Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

Direct Measurement of Diffusion of Terbium Ions Through a Silica Gel Matrix[1] M. BLADES, T. IGNATOVA, Lehigh University, J.G. DUQUE, S.K. DOORN, Los Alamos National Laboratory , S.V. ROTKIN, Lehigh University — The use of rare earth ions as optical bio-markers and for the study of complex nanoscale systems via resonant energy transfer has been suggested and successfully demonstrated. Our capability to extract reliable information from such an experiment critically depends on understanding the underlying physics of interactions in the studied material. Here we investigate the diffusion of Terbium into a silica hydrogel matrix. Diffusion rates and optical properties can be related to differences in gel morphology and rare earth ion behavior in gels prepared with and without nanotubes. Absorption mechanisms, micelle formation, and Terbium/nanotube interaction are discussed.

[1]NSF Grant ECCS-1202398

M. Blades
Lehigh University

Date submitted: 09 Nov 2012 Electronic form version 1.4