Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

The Alignment of Gold Nanorods in Macroscopic Domains JAKE FONTANA, PETER PALFFY-MUHORAY, Liquid Crystal Institute, Kent State University, ASHISH AGARWAL, NICHOLAS KOTOV, Chemical Engineering, University of Michigan — The uniform alignment of nanoparticles in domains with macroscopic length scales is critical to the production of self-assembled composite metamaterials for optical applications. We describe methods of self assembly leading to films and suspensions with a high loading of orientationally ordered nanoparticles in macroscopic domains. The nanoparticles are short aspect ratio gold nanorods, with both plasmon peaks in the visible spectrum. Orientational order can be achieved via applied electric field, mechanical strain, as well as via interactions with anisotropic hosts and among nanoparticles. We have determined the orientational order in our samples from polarized absorbance measurements.

Michele Moreira
Liquid Crystal Institute, KSU

Date submitted: 20 Nov 2008 Electronic form version 1.4