

Abstract Submitted
for the TSF10 Meeting of
The American Physical Society

Possible mechanism(s) behind recently observed effects of incorporating gold nanoparticles into a polymer-dispersed liquid crystal¹
ALFONSO HINOJOSA, SURESH SHARMA, UT Arlington — Recently we reported that addition of relatively small concentrations of about 14-nm diameter gold nanoparticles (Au NPs) to a polymer-dispersed liquid crystal (PDLC) produces rather large changes in the electro-optical properties of the PDLC. For example, addition of Au NPs to PDLC microstructure lowers its threshold voltage by almost 50% and increases optical transmission in a manner that depends on NPs concentration and applied electric field.² In order to understand these observations, we have carried out electro-optical measurements on several PDLCs as functions of the polarization of the incident laser beam and applied electric field. In this presentation, we will discuss the results obtained from these experiments and suggest mechanism(s), which might explain NPs-induced changes in the electro-optical properties of PDLCs.

¹Supported, in part, by US Department of Education GAANN grant P200A090284-10.

²A. Hinojosa and S. C. Sharma, Applied Physics Letters, **97**, 081114 (2010)

Suresh Sharma
UT Arlington

Date submitted: 01 Oct 2010

Electronic form version 1.4