

Abstract Submitted
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Electro-optical properties of polymer-dispersed liquid crystals containing gold nanoparticles¹ ALFONSO HINOJOSA, SURESH SHARMA, UT Arlington — It is known that additions of relatively small concentrations of gold nanoparticles (Au NPs) can significantly change electro-optical properties of a polymer-dispersed liquid crystal (PDLC). For example, it has been shown that the addition of Au NPs to a PDLC microstructure lowers the operating voltage and increases transmission in a manner that depends on the concentration of the NPs and applied electric field.² We have extended these measurements to PDLCs synthesized with a different liquid crystalline material and doped with varying concentrations of the Au NPs. We discuss the electro-optical data on two different PDLCs as functions of the concentration of the Au NPs, as well as the polarization and intensity of the incident laser beam. We also present ideas to assess the role of the surface plasmon excitations in modifying the electro-optical properties of Au NPs containing PDLCs.

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

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