

Abstract Submitted
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Evidence for evanescent waves at interfaces in a high-index prism/liquid-crystal-Au-NPs/glass/air structure and effects of relative concentration of gold nanoparticles, wavelength, polarization, and incident angle of the laser beam KUNAL TIWARI, ANKIT SINGH, SURESH SHARMA, UT Arlington, Texas 76019 — Incorporation of relatively small concentrations of gold nanoparticles (Au NPs) in a polymer-dispersed liquid crystal (PDLC) is known to lower the operating threshold voltage and increase optical transmission through the device.¹ In order to understand whether there is an interplay between the localized surface plasmon resonance at Au-NPs-dielectric interfaces and the electro-optical properties of PDLC devices, we have investigated propagation of light through a high-index prism/liquid-crystal-Au-NPs/glass/air structure by using Kretschmann geometry as functions of concentration of Au NPs in the liquid crystal, and the wavelength, polarization, and angle of incidence of the laser beam. We will discuss to what extent the results of these experiments support an interplay between the localized surface plasmon resonance at NPs/dielectric interfaces and optical propagation through the above-described structure.

¹A. Hinojosa and S. C. Sharma, Applied Physics Letters, **97**, 081114 (2010)

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