

Abstract Submitted
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Liquid Crystal Response to Surface-Plasmon-Induced Electric Fields ZACHARY NUNO, LINDA HIRST, SAYANTANI GHOSH, University of California, Merced — We demonstrate the effect that localized surface plasmon resonance (LSPR) from gold nanoparticles (AuNPs) has on the director of the nematic liquid crystal 4-Cyano-4'-pentylbiphenyl (5CB). The presence of LSPR of the AuNPs was confirmed using metal enhanced fluorescence of a red dye. Using two light sources, a white light with crossed polarizers to observe the birefringence of the liquid crystal and a 510-550nm light to excite the LSPR, we observe re-orientation of the director of aligned liquid crystal molecules when the AuNPs are excited with light matching the LSPR absorption band. This response is observed to be temperature dependent and only seen to occur within 1 degree Celsius of the phase transition from nematic to isotropic phase.

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