

Abstract Submitted
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Liquid Crystal Switching Response by Localized Surface Plasmon Induced Electric Fields¹ ZACHARY NUNO, LINDA HIRST, SAYANTANI GHOSH, School of Natural Sciences, University of California, Merced, CA 95343 USA — We investigate the effect of electric fields induced by localized surface plasmons (LSPs) from gold nanoparticles (AuNPs) on the director of a nematic liquid crystal (LC). We deposit LC thin films on a self-assembled AuNP layer and excite the LSPs in the AuNPs using 530 nm excitation light. Using polarized optical microscopy we follow the birefringence of the LC film as the excitation is turned on and off and observe the homeotropic alignment of the LC change to planar. This realignment response is observed to be dependent on the excitation wavelength, excitation power, and temperature; occurring only within 1 degree Celsius of the LC phase transition from nematic to isotropic.

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