

Abstract Submitted
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Role of apparent spatial periodicity of metal film and *ac* electric field on the surface plasmon resonance and interference effects in nematic liquid-crystals KUNAL TIWARI, BLAKE BARNETT, SURESH SHARMA, UT Arlington — It is well known that travelling surface plasmon polaritons (SPPs) can be generated by using Kretschmann geometry, in which a sample (in this case a nematic liquid crystal E44) is sandwiched between thin noble-metal film coating (~ 25 nm thick) on the base of high-index prism and Indium-Tin-Oxide coated glass slide [1,2] The onset of SPPs is evidenced by loss in the intensity of totally reflected *p*-polarized light at a certain angle greater than the critical angle for total internal reflection. Recently, we have observed interesting interference effects and changes in the plasmon resonance, which appear to be related to the spatial periodicity of the metal film and field-induced changes in the refractive index of the liquid crystals.

[1] K. Tiwari, A. K. Singh, and S. C. Sharma, Appl. Phys. Letts. **101**, 253103 (2012).

[2] K. Tiwari and S. C. Sharma, Effect of applied *ac* electric field on surface plasmon excitations at metal/liquid-crystal interface, March Meeting of the American Physical Society, 2013, <http://meetings.aps.org/link/BAPS.2013.Mar.Q1.180>

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