**Enhancement of optical properties of Liquid Crystalline P-n nonyloxy benzoic acid with dispersed citrate capped gold nanoparticles**

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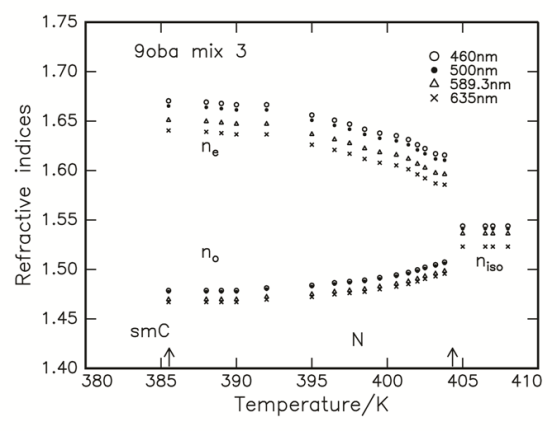
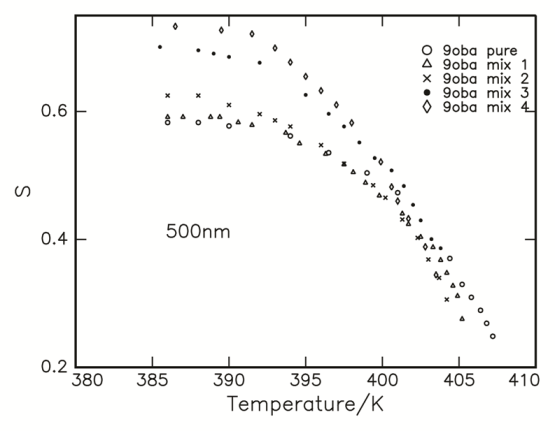
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**ABSTRACT**

*Synthesis and characterization of liquid crystalline n-p-nonyloxybenzoic acid (9oba) compound with dispersed citrate capped Gold nanoparticles in increasing concentrations at four wavelengths 460nm, 500nm, 589.3nm and 635nm. is performed to observe the changes occurred in optical parameters like birefringence and order parameter. Liquid Crystalline phases are not disturbed with the dispersion of nanoparticles and self alignment of nanoparticles achieved with LC molecules, which is more advantageous in various display applications. The refractive indices ne and no are determined by using modified spectrometer designed and fabricated indigenously. The birefringence (δn) values increases with increase in concentrations and this shows that strong vanderwaal’s interaction takes place due to the well capping occurred between the gnps and LC molecules. The orientational order parameter has determined from standard well known theoretical molecular internal field models namely, Kuczenski method, Effective geometry method, Haller’s extrapolation method and Vuks method. In all these methods, the order parameter found increases as like birefringence.*

**Keywords**: 9oba, birefringence, orientational order parameter, gold nanoparticles.

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