

Abstract Submitted  
for the MAR11 Meeting of  
The American Physical Society

**Observation of nematic/smectic liquid crystal configurations in a prolate spheroidal confinement** JOONWOO JEONG, MAHN WON KIM, KAIST — Polymer-dispersed liquid crystal (PDLC) is a composite of dispersed LC droplets in a polymer matrix. The electro-optic properties of PDLCs, such as reorientation field strength and response time, are strongly related to the director configuration. Various factors including the intrinsic properties of LC/polymer and the size/shape of droplets affect the liquid crystal configuration. A balance between the bulk elastic energy and the surface anchoring energy determines the configuration. To study systematically the effect of size/shape of droplets on the configuration, we have prepared thin PDLC films with 4-Cyano-4'-pentylbiphenyl (5CB)/ 4-Cyano-4'-octylbiphenyl (8CB) and Polydimethylsiloxane (PDMS) elastomer. Using polarized optical microscopy, we have observed the change in the director configuration of LC droplets as a function of the aspect ratio up to 6 by stretching the film unidirectionally. We have also observed the effect of surface anchoring on the configuration.

Joonwoo Jeong  
KAIST

Date submitted: 16 Nov 2010

Electronic form version 1.4