

Electro-optical Properties of the Organo-siloxane Tetrapode on Homeotropic Tilted Surface alignments

P. Benzie^a, P. Salter^a, S. Elston^a, P. Raynes^a

*a Department of Engineering Science
University of Oxford
Parks Road, Oxford OX1 3TJ, UK*

Biaxiality has been observed in organo-siloxane tetrapodes using various methods including NMR and infrared absorption spectroscopy (1,2,3). Conoscopically, we investigate the effect of: high-tilt tangentially evaporated SiO alignment, lecithin and a homeotropically aligning rubbed polyimide (SE1211) for anti-parallel devices. It is found that in all devices the alignment of the tetrapode is optically consistent with a tilted uniaxial nematic under applied external fields. Upon applying electric fields of the order of 10^6 V/m, a low frequency switches the device to a planar state and high frequency fields switch the device to a homeotropic state. We show that on homeotropic (SE1211) or homogenous (evaporated SiO) surface alignment a similar tilt is observable with the principal difference being the magnitude of tilt.

- (1) K. Merkel, A. Kocot, J. K. Vij, R. Korlacki, G. H. Mehl, and T. Meyer, *APS*, **2004**, p. 237801.
- (2) D. Filip, C. Cruz, P. J. Sebastião, and A. C. Ribeiro, *APS*, **2007**, p. 11704.
- (3) K. Merkel, A. Kocot and J. K. Vij, *AIP*, **2004**, p. 5012.

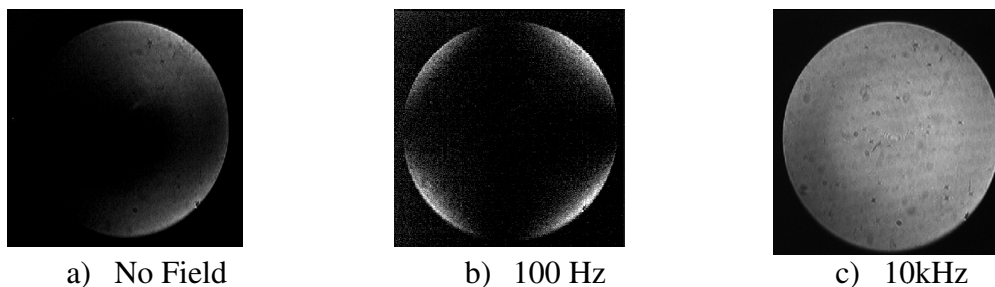


Figure 1: Conoscopic images for a lecithin aligned device at room temperature