Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

Observations of phase behavior of chiral mesogens in diastereomeric domains of bent-core helical nanofilament networks[1] B. HORANYI, D. CHEN, Department of Physics and Liquid Crystal Materials Research Center, University of Colorado, Boulder, CO 80309-0390, USA, E. KORBLOVA, D.M. WALBA, Department of Chemistry and Biochemistry and Liquid Crystal Materials Research Center, University of Colorado, Boulder, CO 80309-0215, USA, J.E. MACLENNAN, M.A. GLASER, N.A. CLARK, Department of Physics and Liquid Crystal Materials Research Center, University of Colorado, Boulder, CO 80309-0390, USA — Blends of NOBOW, a helical nanofilament-forming B4 bent-core liquid crystal with organic guest molecules are completely mixed in the high temperature, isotropic phase. Upon cooling, the B4 filaments nucleate from the isotropic melt and grow into a homochiral dendritic network which acts as a porous medium of large internal area, with the guest material confined to nanoscale interstitial volumes between the twisted filaments. A typical sample is a conglomerate of independently nucleated left- and right-handed B4 domains many tens of μm across. Polarized optical microscopy reveals that chiral liquid crystal guest materials nanoconfined in the helical nanofilament networks form diastereomeric domains with distinct thermal behavior.

[1]This work was supported by NSF MRSEC Grant DMR-0820579.

Dong Chen
University of Colorado at Boulder

Date submitted: 27 Dec 2012 Electronic form version 1.4