

Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

Raman scattering study of orientation order parameters in thermotropic biaxial nematic LC MIN SANG PARK, BUM JIN YOON, JUNG OK PARK, School of Polymer, Textile and Fiber Engineering, Georgia Institute of Technology, Atlanta, GA, USA, VEENA PRASAD, Center for Liquid Crystal Research, Bangalore, India, MOHAN SRINIVASARAO, School of Polymer, Textile and Fiber Engineering, School of Chemistry and Biochemistry, Georgia Institute of Technology, Atlanta, GA, USA — There has been considerable interest in the liquid crystalline phases formed by bent-core molecules, since these molecules were considered to have a biaxial nematic phase. In an effort to understand the orientation behavior and the degree of phase biaxiality in bent-core mesogen, Raman spectroscopy has been used to measure the scattering intensities for orthogonal linear polarization. This straightforward methodology allows the values of both uniaxial, $\langle P_{200} \rangle$ and $\langle P_{400} \rangle$, and biaxial order parameters, $\langle P_{220} \rangle$, $\langle P_{420} \rangle$, and $\langle P_{440} \rangle$ to be quantified. From experimentally derived order parameters, the most probable orientation distribution functions are constructed. The results of these measurements will be presented in the context of experimental evidence of phase biaxiality obtained by other methods including X-ray diffraction and NMR.

Min Sang Park
School of Polymer Textile and Fiber Engineering,
Georgia Institute of Technology

Date submitted: 10 Dec 2008

Electronic form version 1.4