

Abstract Submitted  
for the NES14 Meeting of  
The American Physical Society

**Time Lag in K- SmA Phase Transition of 4-Decyl-4-Biphenylcarbonitrile Liquid Crystal** DIPTI SHARMA, Lasell College, Newton, MA — This study explores the presence of time lag in Crystalline to Smectic A (K-SmA) phase transition of 4-Decyl-4-Biphenylcarbonitrile (10CB) liquid crystal. A non-isothermal heating and cooling study was performed for 10CB liquid crystal using calorimetric technique where heating scan was performed from 250 K to 350 K and cooling scan was performed from 350 K to 250 K. A clear difference in K-SmA phase transition was observed between heating and cooling scans. An attracting inclination effect in K-SmA transition was observed on cooling which is completely absent on heating. The inclination of the K-SmA transition peak increases and shows an existence of time lag during cooling whereas other family member shows no effect i.e. 8CB. K-SmA peak shows a lower enthalpy with higher activation when compared with 8CB. The presence of time lag and increase in activation can be explained in terms of the density and nature of the material.

Dipti Sharma  
Lasell College, Newton, MA

Date submitted: 11 Mar 2014

Electronic form version 1.4