

Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Discovery of a novel smectic-C* liquid crystal phase with six-layer periodicity¹ SHUN WANG, LIDONG PAN, University of Minnesota, RONALD PINDAK, NSLS, BNL, ZENGQIANG LIU, St. Cloud State University, TINH NGUYEN, Centre de Recherche Paul Pascal, CNRS, Universite Bordeaux I, CHENG-CHER HUANG, University of Minnesota — We report the discovery of a new SmC*_{d6} liquid crystal phase with six-layer periodicity by resonant x-ray diffraction. Upon cooling, the new phase appears between the SmC*_α phase having a helical structure and the SmC*d4 phase with four-layer periodicity. This SmC*_{d6} phase was identified in two mixtures which have an unusual reversed SmC*d4-SmC* phase sequence. The SmC*_{d6} phase shows a distorted clock structure. The existence of phases having liquid-like in-plane ordering with a “long-range” lock-in periodicity (now being extended to six layers) is one of the long-lasting questions in condensed matter. Major efforts are required to address the physical origin of long-range interactions and novel physical properties of the SmC*_{d6} phase.

¹S. W. acknowledges support from DDF, U of Minnesota

Shun Wang
University of Minnesota

Date submitted: 18 Nov 2009

Electronic form version 1.4