

Abstract Submitted  
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**Resonant X-ray Scattering Studies of Smectic and Columnar Bent-Core Liquid Crystal Phases**<sup>1</sup> RONALD PINDAK, Brookhaven National Laboratory, PHILIPPE BAROIS, VIRGINIE PONSINET, Universite Bordeaux, CESAR FOLCIA, JOSU ORTEGA, Universidad del País Vasco, LIDONG PAN<sup>2</sup>, SHUN WANG, University of Minnesota, SUNTAO WANG<sup>3</sup>, Brookhaven National Laboratory, CHENG-CHER HUANG, University of Minnesota — Resonant X-ray scattering provides a direct probe of orientational structures in liquid crystals with periodicities that range from molecular dimensions (0.1 nm) to dimensions that can be observed with visible light (1.0 micron). We have recently applied this technique to study the orientational ordering of bent-core molecules in the smectic B<sub>2</sub> phase and the columnar B<sub>1</sub> phase. Using resonant scattering “forbidden” reflections due to glide or screw symmetry elements can be measured and an analysis of their polarization state enabled us to identify a chiral anticlinic antiferroelectric B<sub>2</sub> phase (Smectic C<sub>A</sub>P<sub>A</sub>) coexisting with an achiral synclonic antiferroelectric B<sub>2</sub> phase (Smectic C<sub>S</sub>P<sub>A</sub>) [1]. We were also able to determine the structure of a columnar B<sub>1</sub> phase and study the transition mechanism between the B<sub>1</sub> and B<sub>2</sub> phases [2].

[1] V. Ponsinet, et al., Phys. Rev. E 84, 011706 (2011).

[2] C. Folcia, et al., Phys. Rev. E 84, 010701R (2011).

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