

Abstract Submitted  
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**Resonant soft X-ray scattering study of twist bend nematic, cholesteric and blue phases.**<sup>1</sup> MIROSLAW SLAMONCZYK, Berkeley Lab, Kent State University, EWA GRECKA, University of Warsaw, Poland, NATASA VAUPOTIC, University of Maribor, Jozef Stefan Institute, Slovenia, DAMIAN POCHIECHA, University of Warsaw, Poland, JIM GLEESOM, ANTAL JAKLI, ., SAM SPRUNT, Kent State univerversity, CHENG WANG, ALEXANDER HEXEMER, ., CHENHUI ZHU, Berkeley Lab — We have demonstrated that, when operated at carbon K-edge, the linearly polarized soft X-rays can enable bond orientation sensitivity, which can be utilized to probe the otherwise forbidden peak from the helices of twist bend nematic [2] and helical nanofilament phase [1]. Here we show that the same principle can be used to probe blue phase and chiral nematic phase. Furthermore, we discuss the relationship between the incoming linearly polarized X-rays, and the anisotropy in the scattering pattern. [1] C. Zhu, et al. *Nano. Lett.* **15**, 3420 (2015). [2]. C. Zhu, et al. *Phys. Rev. Lett.*, **116**, 147803 (2016).

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