Abstract Submitted
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Magnetically tunable selective reflection of light by heliconical cholesterics SEYYED MUHAMMAD SALILI, JIE XIANG, HAO WANG, QUAN LI, Chemical Physics Interdisciplinary Program Liquid Crystal Institute, Kent State University, Kent, Ohio 44242, USA, DANIEL ALEXANDER PATERSON, JOHN STOREY, CORRIE IMRIE, Department of Chemistry, University of Aberdeen, AB24 3UE Scotland, United Kingdom, OLEG LAVRENTOVICH, Chemical Physics Interdisciplinary Program Liquid Crystal Institute, Kent State University, Kent, Ohio 44242, USA, SAMUEL SPRUNT, JAMES GLEESON, Department of Physics, Kent State University, Kent, Ohio 44242, USA, ANTAL JAKLI, Chemical Physics Interdisciplinary Program Liquid Crystal Institute, Kent State University, Kent, Ohio 44242, USA, LCI KENT GROUP TEAM, PHYSICS KENT GROUP TEAM, ABERDEEN GROUP TEAM — We present studies of chiral nematic liquid crystals composed of flexible dimer molecules subject to large dc magnetic fields between 0 and 31 T. We observe that these fields lead to selective reflection of light depending on temperature and magnetic field. The band of reflected wavelengths can be tuned from ultraviolet to beyond the IR-C band. A similar effect induced by electric fields has been presented previously, and was explained by a field-induced oblique-heliconical director deformation. The use of magnetic field here instead of electric field allows precise measurements of some material constants and holds promise for wireless tuning of selective reflection. References [1] S. M. Salili, J. Xiang, H. Wang, Q. Li, D. A. Paterson, J. M. D. Storey, C. T. Imrie, O. D. Lavrentovich, S. N. Sprunt, J. T. Gleeson, and A. Jakli, Phys. Rev. E 94, 042705 (2016).

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