

Abstract Submitted
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Geometry and topology of the cholesteric pitch axis: Which way is everything twisting? DANIEL BELLER, Harvard University, University of Pennsylvania, THOMAS MACHON, University of Warwick, SIMON COPAR, University of Ljubljana, Jozef Stefan Institute, University of Pennsylvania, DANIEL SUSSMAN, University of Pennsylvania, GARETH ALEXANDER, University of Warwick, RANDALL KAMIEN, University of Pennsylvania, RICARDO MOSNA, Universidade Estadual de Campinas, University of Pennsylvania — In a cholesteric with distortions and topological defects, it is not obvious how to even define the pitch axis and locate its singularities. We propose a construction of the cholesteric pitch axis for an arbitrary director field as an eigenvalue problem. With this tool we are able to compare the defects of the cholesteric phase with seemingly analogous defects in the biaxial nematic and smectic phases. Our results show the limitations of these analogies and indicate in what ways the cholesteric's topology is intermediate between, and distinct from, the topologies of the biaxial nematic and smectic phases.

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