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TOPOLOGICAL LESSONS FROM LIQUID CRYSTALS

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ABSTRACT

The topology of the manifold of ground states in an equilibrium system determines the nature and variety of topological defects in ordered materials. Liquid crystals enjoy a great variety of different manifolds and, as a result, many have topological defects that interact in a non-Abelian manner. I will discuss the smectic liquid crystal as the paradigm for all spatially ordered states, describe the interaction between translational and rotational defects, and show how the energy can have a topological nature. All in an hour!

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[3] Aharoni, H., Machon T. and Kamien R.D. 2017 Composite Dislocations in Smectic Liquid Crystals, *Phys*. *Rev*. *Lett*. **118**, 257801.