

Abstract Submitted
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Interactions between Structurally Chiral Islands on Freely-Suspended Smectic C films¹ APICHART PATTANAPORKRATANA, CHEOL PARK, JOSEPH MACLENNAN, NOEL CLARK, Department of Physics and Liquid Crystal Materials Research Center, University of Colorado, Boulder, CO 80309, U.S.A — Islands on a freely-suspended Smectic C film, circular regions of greater thickness than the surrounding film area, have strong tangential boundary conditions of the c -director (the projection of the molecular long axis onto the plane of the film) at their edges. These islands form dipolar structures, with an $s = +1$ topological defect inside and an $s = -1$ defect nearby on the background film. Unlike in 2D nematics, the c -director field on Smectic C islands does not have reflection symmetry, and we see both left and right-handed islands on the film. Islands with the same handedness form chain-like structures with topological dipoles pointing in the same direction and along the chain (these have been reported in the literature). Here we describe the interaction between left and right-handed islands, where the topological dipoles point in opposite directions and form a quadrupolar structure. The two -1 defects are half way between the islands and offset from the line joining them.

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