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Università di Roma Tor Vergata
Dipartimento di Fisica



Seminar

Thursday, 10 September 2015 - h. 14:30

Sala Struttura della Materia (Dipartimento di Fisica)

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“Frustrated nematic systems in toroidal geometries”

Abstract

Chiral phases of nematic structures in liquid crystals are generally produced by either chiral molecules or by doping a system of achiral LC molecules with chiral constituents. However, a chiral nematic phase may also emerge in geometrically confined nematics with achiral constituents.

It has recently been shown that spontaneous chirality emerges for a nematic in a torus with parallel anchoring for a particular choice of the aspect ratio. Experimental evidence suggests that a chiral phase can also be observed for perpendicular anchoring conditions, however, an analytical minimisation of the Frank free energy suggests otherwise. Nevertheless, analytical calculations show that a chiral vortex structure can be observed for very thin capillary lengths.

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