THE CHINESE UNIVERSITY OF HONG KONG

Department of Physics

COLLOQUIUM

Active Topology

by

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Date: April 8, 2022 (Friday)
Time: 9:30 - 10:30 a.m.
Join ZOOM Meeting: https://cuhk.zoom.us/j/96376130447

ALL INTERESTED ARE WELCOME
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Abstract

In two-dimensional systems, such as thin films of superfluids, crystals, liquid crystals and magnets, topological defects are key to understanding the transition between ordered and disordered states. Almost fifty years ago, Berezinskii, Kosterlitz and Thouless showed that these systems disorder through a topological phase transition associated with the proliferation of unbound pairs of vortices of opposite charge. The essence of this transition relies on the mapping of the statistical physics of defects onto a Coulomb gas. In active liquid crystals, topological defects become motile particles and drive the transition from spontaneous laminar flow to self-sustained turbulent-like motion. In this talk I will outline the statistical physics of defects in active nematics and their possible role in materials science and biology.

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