The Hong Kong Polytechnic University
Department of Applied Mathematics

Seminar

Solution landscapes of Nematic Liquid Crystal

by

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Abstract

Topological defect plays an important role in the physics of liquid crystals. Although a large amount of previous studies is devoted to understand and compute the stable defect structures in liquid crystals as a consequence of geometric frustration, less attention has been paid to investigate the transition states between stable defect structures and the solution landscapes of nematic liquid crystals. In this talk, we first show that a combination of the Landau-de Gennes model and the multi-scale string method can systematically investigate the transition pathways between different defect patterns of nematic liquid crystals confined in a 3D cylinder with homeotropic boundary condition in 3D cylinder. Next, we proposed a High index Optimization-based Shrinking Dimer (HiOSD) method to compute the complete defect landscape of Nematic Liquid Crystals in 2D square. The joint work with Pingwen Zhang (PKU), Yucheng Hu (Tsinghua).

Date : 4 October, 2018 (Thursday)
Time : 2:00p.m. – 3:00p.m.
Venue : TU801, The Hong Kong Polytechnic University

* * *   ALL ARE WELCOME   * * *