

Modeling liquid crystal films on nanoscale

11:30 Friday Nov 20

<https://njit.webex.com/njit/j.php?MTID=m8ba213cab6d0d7ad94970d566da997f5>

Abstract

This talk will focus on recently developed models and computational techniques for thin films, with focus on nematic liquid crystal films. Models and computations are formulated within the framework of the long wave approach, augmented by the inclusion of nematic-solid interaction forces via disjoining pressure model. Particular aspects that will be discussed involve inclusion of liquid-crystalline nature in the model in a tractable manner. The resulting asymptotic model allows for discussing dewetting type of instabilities of nematic films and in particular the influence of nematic properties on the nature of dewetting. The second part of the talk will build upon the first one by considering explicitly anisotropic nature of the nematic films and the influence which such anisotropy has on dewetting. The analytical techniques are supplemented by large scale GPU based simulations that allow for computing in large domains and for discussion of various instability mechanisms in a fully nonlinear setting.

Speaker

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