

Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Simulation Study of Defect Dynamics in an Extensile Active Nematic GABRIEL REDNER, APARNA BASKARAN, MICHAEL HAGAN, Brandeis University — This talk will describe a novel particle-based simulation scheme for studying extensile active nematic liquid crystals. Motivated by recent experiments on bundled microtubules and molecular motors, we have implemented a minimal simulation model which simplifies the complex details of the experimental system while retaining the correct symmetries of alignment and activity. Our simulations exhibit the same basic phenomena as the experimental system, including the spontaneous generation, unbinding, and annihilation of defect pairs. Our flexible simulation approach allows us to investigate in detail the dynamics of defects interacting with other defects and with system boundaries, as well as to explore a broad region of parameter space.

Gabriel Redner
Brandeis University

Date submitted: 07 Nov 2013

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