Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

Defect Interactions in Active Nematics[1] XU MA, MARK J. BOWICK, Syracuse Univ., LUCA GIOMI, Harvard Univ., M. CRISTINA MARCHETTI, Syracuse Univ. — Topological defects play prominent roles in passive nematic systems, but defect-antidefect pairs ultimately attract and annihilate in a finite time as the system coarsens and approaches its uniform ground state. The situation changes in active systems, which generate energy at the level of the microscopic constituents. We discuss analytic and numerical studies of two-dimensional active nematics focusing on the ability of activity to generate both defect production and annihilation and to stabilize defect-antidefect pairs at arbitrarily long times. In particular we analyze the dynamics of defect pair annihilation as a function of activity and friction and compare to experimental systems consisting of active bundled microtubule suspensions.

[1]This work was supported by the NSF through grants DMR-1004789 and DMR-0808812 and by the Syracuse Soft Matter Program.

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Date submitted: 07 Nov 2012 Electronic form version 1.4