Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

Dynamics and Instabilities of an overdamped active nematic liquid crystal[1] ELIAS PUTZIG, APARNA BASKARAN, Brandeis University — Active nematics have been studied extensively in the context of suspensions of active particles, with a Stokes equation describing the flow of the surrounding fluid. Here we will present a continuum model of an overdamped (often termed 'dry') active nematic, where activity enters through self-induced flows. These flows represent the ability of the internal forces to convect, shear, or rotate the nematic order. The self-induced shear gives rise to an instability in the homogeneous ordered state which is analogous to that seen in active suspensions. The self-induced rotation gives rise to a new instability. A phase diagram from this model will be presented, and the phenomenology will be compared with what is seen in experimental and simulated active systems.

[1]We would like to acknowledge grant support through NSF (NSF-DMR-1149266), (DMR-0820492), (NIH-5T32EB009419) and IGERT (DGE-1068620).

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Date submitted: 06 Nov 2015 Electronic form version 1.4