

1099-35-71

Ibrahim Fatkullin*, 617 N Santa Rita Ave, Tucson, AZ 85721, and **Valeriy Slastikov**.

Diffusive transport in two-dimensional nematics.

I will discuss a dynamical theory for nematic liquid crystals describing the stage of evolution in which the hydrodynamic fluid motion has already equilibrated and the subsequent evolution proceeds via diffusive motion of the orientational degrees of freedom. This diffusion induces a slow motion of singularities of the order parameter field. Using asymptotic methods for gradient flows, I will establish a relation between the Doi-Smoluchowski kinetic equation and vortex dynamics in two-dimensional systems. I will also discuss moment closures for the kinetic equation and Landau-de Gennes-type free energy dissipation. (Received January 26, 2014)