

1173-35-47

Xiang Xu*, Department of Mathematics and Statistics, ECSB 2300, Norfolk, VA 23529. *Blowup rate estimates of a singular potential in the Landau-de Gennes theory for liquid crystals.*

The Landau-de Gennes theory is a type of continuum theory that describes nematic liquid crystal configurations in the framework of the Q-tensor order parameter. In the free energy, there is a singular bulk potential which is considered as a natural enforcement of a physical constraint on the eigenvalues of symmetric, traceless Q-tensors. In this talk we shall discuss some analytic properties related to this singular potential. More specifically, we provide precise estimates of both this singular potential and its gradient as the Q-tensor approaches its physical boundary. (Received September 11, 2021)