
LIDIA MRAD, University of Arizona

Dynamic Analysis of Chevron Structures in Smectics

Smectic liquid crystals trapped between two flat substrates exhibit V-shaped defect structures called chevrons under the effect of an applied electric or magnetic field. We consider two models, smectic-A under the effect of a magnetic field using de Gennes energy model and smectic-C under the effect of an electric field using Chen-Lubensky energy model. To understand chevron formation, we analyze the dynamics of these systems. We construct a discretized-in-time gradient flow through energy minimization and prove existence and uniqueness of the continuous gradient flow.