Boundary Defects in Liquid Crystals

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Abstract:

We study the effect of "weak" and "strong" boundary conditions on the location and type of defects observed in a Landau de Gennes thin-film model for liquid crystals. We study both the minimizers of the associated Ginzburg-Landau energy as well as the Gamma limit when the correlation length tends to zero. A-priori estimates in case splay and bend moduli are included in the energy will also be presented. Finally, results in the case of the 3D Landau-de Gennes model with a magnetic field will be presented. These represent joint works with S. Alama, L. van Brussel, A. Colinet, D. Louizos and D. Stantejsky.

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