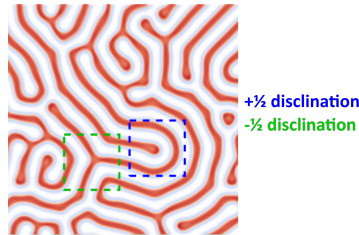




Bachelor-Börse 2023

Defect Motion and Annihilation in Lamella-Forming Block Copolymers

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Block copolymers can self-assemble into a variety of mesophases in equilibrium, such as lamellae, spheres, cylinders, or gyroids. Their potential practical application as the next-generation lithographic fabrication technique require morphologies with least topological defects and a precise control of alignment and orientation. In this regard, we want to investigate the thermodynamic properties and annihilation mechanisms of prototypical disclination defects in lamella-forming block copolymers by varying their molecular components and under external fields. To achieve this, you will use our sophisticated polymer simulation software SOMA to conduct particle-based single-chain-in-mean-field (SCMF) simulations.

Your Challenges

- Learn to setup and execute CPU and GPU based simulations on high performance computing clusters
- Analyze the resulting polymer simulation data using python
- Gain an understanding of the physics of defect kinetics in block copolymer assembly

What We Can Offer You

- Insights into current developments in computational polymer physics
- Existing programs for polymer simulations and access to supercomputers
- Work in an international environment

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<https://www.uni-goettingen.de/en/664202.html>