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Simulated Textures of Toroidal Nematic Liquid Crystal Droplets

PERRY ELLIS, ALBERTO FERNANDEZ-NIEVES, Georgia Institute of Technology — Nematic liquid crystals under confinement by curved surfaces can produce complex hierarchical structures whose design principles and properties have yet to be unraveled. Here we focus on toroidal geometries and perform computer simulations of the nematic textures seen between crossed-polarizers. We find agreement with experiments using director fields that exhibit pronounced twist deformations with contributions from bend and splay.

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