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Equilibrium textures on nematic shells

Within the framework of Landau–de Gennes theory for nematic liquid crystals, I will present the temperature induced isotropic-nematic phase transition on a spherical shell under the assumption of degenerate tangential anchoring. Below a critical temperature, a thin layer of a nematics coating a microscopic spherical particle exhibits nonuniform textures due to the geometrical frustration. These equilibrium textures are consistent with the Poincaré–Hopf index theorem and experimental observations.