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Simulation of weak anchoring effects on nematic liquid crystal hemispheres SEAN GILLEN[1], DAVID A.T. SOMERS[2], JEREMY N. MUNDAY[3], Unversity of Maryland, College Park — The free energy of a nematic liquid crystal droplet depends on an interplay between elastic and surface interactions. When the two contributions are of similar magnitude, there exists a transition of the nematic structure of the droplet. Because the two contributions scale differently with length scales, this transition is visible as a function of the size of the droplet. We carry out numerical simulations to explore the use of this transition in measuring surface anchoring energies. This technique could help elucidate alignment forces on liquid crystals, such as those caused by rubbed surfaces, electric fields, or even the Casimir torque.

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