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Orientational multiplicity and transitions in liquid crystalline droplets RAJESH GOYAL, MORTON DENN, The Levich Institute, City College of New York, New York 10031 — Orientation distributions in droplets of liquid crystals with homeotropic anchoring are computed with a simulated annealing algorithm that minimizes the free energy of the Oseen-Frank continuum theory. The droplets exhibit multiple orientational steady states that are separated by finite energy barriers over the entire range of the dimensionless ratio of surface to elastic forces, with maximum transition energy densities of the order of 2,000 Pa for a typical liquid crystalline droplet with a spherical radius of 1 micron. The transition energy densities decrease with elongation to spheroidal droplets with aspect ratios of four or more, indicating that droplet elongation is favored to drive surface-induced transitions.

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