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**Chiral liquid crystal droplets near the isotropic phase** JOSE MARTINEZ-GONZALEZ, MOHAMMAD RAHIMI, YE ZHOU, JUAN DE PABLO, Univ of Chicago — Liquid crystalline blue phases (BPs) are found between the helical and the isotropic phase of highly chiral compounds. A common feature of BPs is that the local director field forms double twist cylinders leading to defects that form regular, periodic patterns. As a result of their physical properties, which include selective light reflection, high viscosity and a small elastic shear modulus, BPs could find intriguing potential applications in photonic materials, micro-lasers, electrically switchable colour displays and light filters, to name a few. In the bulk, BPs are only formed in a narrow range of temperature. In this work, we use theory and simulations to examine the phase behavior of chiral liquid crystal droplets with weak planar anchoring in the vicinity of the isotropic phase, with special emphasis on the effects of confining blue phase I and blue phase II. We identify several new morphologies, whose complexity increases with the chirality of the medium, and we find that confinement of blue phases in micro-droplets increases their range of stability.

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