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Tactoids of chiral liquid crystals[1] VIVIANA PALACIO-BETANCUR, STIVEN VILLADA-GIL, Departamento de Materiales y Minerales. Universidad Nacional de Colombia, Sede Medelln., YE ZHOU, JULIO C. ARMAS-PREZ, Institute for Molecular Engineering. University of Chicago, JUAN JOS DE PABLO, Institute for Molecular Engineering. University of Chicago. Argonne National Laboratory., JUAN PABLO HERNNDEZ-ORTIZ, Departamento de Materiales y Minerales. Universidad Nacional de Colombia, Sede Medelln. — The phase diagram of chiral liquid crystals confined in ellipsoids is obtained, by following a theoretically informed Monte Carlo relaxation of the tensor alignment field **Q**. The free energy of the system is described by a functional in the framework of the Landau-de Gennes formalism. This study also includes the effect of anchoring strength, curvature, and chirality of the system. In the low chirality region of the phase diagram we found the twist bipolar (BS) phase and some cholesteric phases such as the radial spherical structure (RSS), twist cylinder (TC) and double twist cylinder (DTC) whose axis of rotation is not necessarily aligned with the major axis of the geometry. For high chirality scenarios, the disclination lines are twisted or bent near the surface preventing the formation of symmetric networks of defects, although an hexagonal pattern is formed on the surface which might serve as open sites for collocation of colloids. By analyzing the free energies of isochoric systems, prolate geometries tend to be more favorable for high chirality and low anchoring conditions.

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