

In this seminar, I introduce cylindrical nematic liquid crystal (LC) shells. Shells as confinement can provide soft matter with intriguing topology and geometry. Indeed, in spherical shells of LCs, rich defect structures have been reported. Avoiding the inherent Plateau-Rayleigh instability of cylindrical liquid-liquid interfaces, we realize the cylindrical nematic LC shell by two different methods: the phase separation in the nematic-isotropic coexistence phase and a cylindrical cavity with a glass rod suspended in the middle. Specifically, the director configurations of lyotropic chromonic LCs (LCLCs) in the cylindrical shell and their energetics are investigated theoretically and experimentally. Unusual elastic properties of LCLCs, i.e., the large saddle-splay modulus, and the shell geometry with both concave and convex curvatures result in a double-twist director configuration.