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Helical motion of chiral liquid crystal droplets[1] TAKAKI YAMAMOTO, MASAKI SANO, Department of Physics, Graduate School of Science, the University of Tokyo — Artificial swimmers have been intensively studied to understand the mechanism of the locomotion and collective behaviors of cells and microorganisms. Among them, most of the artificial swimmers are designed to move along the straight path. However, in biological systems, chiral dynamics such as circular and helical motion are quite common because of the chirality of their bodies, which are made of chiral biomolecules. To understand the role of the chirality in the physics of microswimmers, we designed chiral artificial swimmers and the theoretical model for the chiral motion. We found that chiral liquid crystal droplets, when dispersed in surfactant solutions, swim in the helical path induced by the Marangoni effect. We will discuss the mechanism of the helical motion with our phenomenological model.

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