

Abstract Submitted
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Electrophoresis and sedimentation of colloidal particles with normal anchoring in cholesteric liquid crystal¹ TARAS TURIV², OLEG LAVRENTOVICH, Chemical Physics Interdisciplinary Program and Liquid Crystal Institute, Kent State University, Kent, OH 44242-0001, USA — We study sedimentation and electrophoresis of dielectric colloidal spheres with homeotropic anchoring through a cholesteric liquid crystal (CLC) with the pitch larger than the particle diameter. The driving force (gravity or the electric field) is applied parallel to the cholesteric axis. The particle follows a helicoidal (rather than linear) trajectory showing the components of velocity that are parallel and perpendicular to the helicoidal axis of the cholesteric. The handedness of the helicoidal trajectory corresponds with the handedness of the cholesteric material. The effect nonzero velocity perpendicular to the cholesteric axis is explained as the result of broken symmetry of the director field around the particle.

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