

Abstract Submitted
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Morphology and Rheology of the Liquid Crystal-Colloid Composites LU ZOU, CHANJOONG KIM, Liquid Crystal Institute, Kent State University — Liquid crystal (LC)-colloid composites form aggregates and are arrested in various network structures. We study viscoelastic properties and three-dimensional structure of nematic LC-colloid composites using fluorescence confocal polarized rheoscope and fluorescence microscope. We observe various morphological transformations of the composites when we cool them down below T_{NI} from the high temperature isotropic phase. We find that colloidal particles are self-organized to ferny structures, and that the morphological characteristics of the ferny structures depend on the applied shear rates, the cooling rate, the particle volume fraction and the particle size. This study may offer a new route to form novel colloidal structures using anisotropic fluid, which could not be obtained from isotropic suspensions.

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