

Abstract Submitted
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Modeling the Structures Arising From Defect Bonding Among Colloidal Particles in a Cholesteric Liquid Crystal FRANCES MACKAY, COLIN DENNISTON, University of Western Ontario — We use a lattice-Boltzmann algorithm to investigate the possible structures formed by interactions among spherical colloidal particles emersed in a cholesteric liquid crystal. Strong tangential anchoring is assumed at the particle surfaces, which for a given sphere, results in the formation of a pair of $+1/2$ defect lines, which originate on the sphere, spiral around it at some distance, and then terminate on it. When the helical pitch of the cholesteric is comparable in size to the particle diameter, these defects have the appearance of two handles emerging from the sphere. With more than one particle present, the handles from different spheres tend to join together, forming a type of bond between them. Both single and double bonding among particles is found to be possible. We present results showing chains and other types of structures produced with this type of bonding.

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