

Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

Structure and dynamics of suspensions of nanoparticles in nematic liquid crystals BRIAN GETTELFINGER, GARY KOENIG, JOSE MORENO-RAZO, University of Wisconsin, JUAN HERNADEZ-ORTIZ, Universidad Nacional de Colombia, NICHOLAS ABBOTT, JUAN DE PABLO, University of Wisconsin — A hierarchical modeling approach has been adopted to examine the structure and dynamics of nanoparticles suspended in liquid crystals. A molecular model is used to predict the defects that arise in nanoparticle assemblies, as well as their response to applied flow fields. The model is solved by resorting to a radial basis function based technique. The validity of the model and our numerical results are established by direct comparison to results from molecular dynamics simulations of nanoparticles in nematic and isotropic liquid crystals. Results for particle diffusion and aggregation at equilibrium and in flowing systems are then used to interpret our experimental data for a variety of systems.

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Date submitted: 21 Nov 2008

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