Abstract Submitted
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Programmable Self-assembly of Hydrocarbon-capped Nanoparticles: Role of Chain Conformations[1] CURT WALTMANN, NATHAN HORST, Department of Materials Science and Engineering, Iowa State University and Ames Lab, ALEX TRAVESSET, Department of Physics and Astronomy, Iowa State University and Ames Lab — Nanoparticle superlattices (NPS), i.e. crystalline arrangements of nanoparticles, are materials with fascinating structures, which in many cases are not possible to attain from simple atoms or molecules. They also span a wide range of possible applications such as metamaterials, new energy sources, catalysis, and many others. In this talk, we present a theoretical and computational description of the self-assembly of nanoparticles with hydrocarbons as capping ligands. Usually, these systems have been described with hard sphere packing models. In this talk, we show that the conformations of the hydrocarbon chains play a fundamental role in determining the equilibrium phases, including and especially in binary systems.

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