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DNA Mediated Nanoparticle Crystallization: Characterizing How Equilibrium is Reached[1] CHRISTOPHER KNOROWSKI, ALEX TRAVESSET, Department of Physics and Astronomy and Ames Laboratory, Iowa State University, Ames, IA — DNA programmed self-assembly is becoming one of the most powerful tools for designing nanoparticle crystals due to the exquisite control over lattice size and structure achievable. While in recent years the inventory of crystalline structures accessible through DNA programming has grown, our understanding of the dynamical processes that lead to crystallization is still limited. Using MD we simulate the nucleation and growth of DNA programmed nanoparticle crystallization and characterize the different processes that determine the relaxation times leading to equilibrium. In particular, we classify the topological defects and the processes leading to their annihilation. Implications for experiments as well as for achieving single crystals are also discussed.

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