Optimized assembly and steady-state length-scale control in dissipative systems of photo-switchable colloids

ANTONIO OSORIO-VIVANCO, University of Michigan, MONICA OLVERA DE LA CRUZ, Northwestern University, SHARON GLOTZER, University of Michigan — Photo-switchable nanoparticles, such as those developed by Wei et al., can be assembled into a broad range of structures using light exposure as a control parameter. Jha et al. explored the evolution of these structures using kinetic Monte Carlo simulations. In this work, we build on these studies using Molecular Dynamics with a Langevin thermostat, by judicious choice of exposure parameters that control the dissipative nature of the system, engineer and optimize the self-assembly pathways as well as control the length scales of the steady-state structures.

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3P.k. Jha, V. Kuzovkov, B.A. Grzybowski, and M. Olvera del la Cruz, Soft Matter, 2012, 8, 227-234

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