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(POS-34) Kinetic Approaches to Nucleation

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Nucleation is the process by which liquids crystallize during a first order transition. However, despite being an inherently kinetic process, most theoretical approaches focus on the thermodynamics of cluster formation, often using the bulk properties of the perfect crystal as ingredients. Our recent work explores approaches to nucleation that focus on the influence of the monomer addition and loss, and particle ordering kinetics on both the transient and steady state properties of crystal nucleation. In particular, we show that in cases of non-classical crystal nucleation, the interplay between the free energy surface and the microscopic ordering kinetics leads to distinct nucleation pathways where large, disordered clusters, appearing at intermediate times, may play either a direct or indirect role in crystal nucleation.

Keyword-1

Crystal Nucleation

Keyword-2

Simulation

Keyword-3

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