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Particle Organization by Absorbing State Dynamics LAURENT CORTÉ, DAVID PINE, P.M. CHAIKIN, Center for Soft Matter Research, NYU —
In a recent study we have found that irreversible collisions can lead to a dynamical phase transition between a constantly evolving state and an absorbing, quiescent state where particles self organize to avoid further collisions. Here we investigate the organization and order in the absorbing state in a model where active, overlapping particles are given random displacements. We contrast the order to what is obtained thermodynamically for hard spheres. We also show that correlated displacements between colliding particles can lead to crystallization and suggest that irreversible flows are a different yet effective tool for ordering particles in desired motifs.

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