

Abstract Submitted
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Realization spaces of bubble clusters and coarsening trajectories

BRYAN CHEN, RANDALL KAMIEN, University of Pennsylvania — In the search for a more unified description of the geometry of equilibrium foams, we study the space of all realizations of equilibrium bubble clusters of fixed topology. The geometry of foam is highly constrained due to the area minimization property - in two dimensions, this means that all interfaces must be portions of circles and interfaces intersect in threes at angles of 120° . This results in a finite dimensional space of bubble clusters, and the dynamics of coarsening via gas diffusion induces a vector flow on it. The boundaries and singularities of the realization space may be identified with topological transitions and instabilities in coarsening.

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