

Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

Dynamics of self-assembly of colloidal clusters¹ SOLOMON BARKLEY, ELLEN KLEIN, VINOTHAN MANOHARAN, Harvard University — We study how small numbers of attractive colloidal particles evolve into compact clusters. In our experiments, we arrange particles into a loosely connected structure, from which they can form additional contacts and fold into a cluster. We observe the folding process using digital holographic microscopy, which allows us to track the precise 3D position of each particle within the cluster during folding. Because the rearrangement process is stochastic, clusters with identical initial arrangements often end up in different final states. However, some final states are preferred over others, based on the number of folding pathways that lead to them. We show how the pathways change with the number of particles and which specific folding events determine the pathways that a cluster can follow toward its final state.

¹This research is supported by NSF grant DMR-1306410 and NSERC

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Date submitted: 11 Nov 2016

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