

Abstract Submitted
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Free Energy Landscape of Colloidal Clusters at Small N GUANGNAN MENG, Harvard University, Physics & SEAS, NATALIE ARKUS, MICHAEL BRENNER, Harvard University, SEAS, VINOOTHAN MANOHARAN, Harvard University, Physics & SEAS — We confine small number of micron-sized colloidal particles within micro-wells, and we directly measure the structures and free energies of colloidal clusters, in which the particles act as hard spheres with short-range attractions. We find that highly symmetric clusters are strongly suppressed by rotational entropy and the most stable clusters have anharmonic vibrational modes or extra bonds. The experimental results can be explained well by the classical statistical mechanics and sphere packing theories.

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