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Shape Sensitive Assembly and Colloidal Superball Phase Transitions VISHAL SONI, University of Chicago, LAURA ROSSI, DOUGLAS J. ASHTON, Utrecht University, DAVID J. PINE, New York University, ALBERT P. PHILIPSE, Utrecht University, PAUL M. CHAIKIN, New York University, MARJOLEIN DIJKSTRA, Utrecht University, STEFANO SACANNA, New York University, WILLIAM T. M. IRVINE, University of Chicago — Guiding the self-assembly of materials by controlling the shape of the individual particle constituents is a powerful approach to material design. In particular the assembly of colloidal particles driven by depletants is a versatile playground for investigating this potential. We find that colloidal superballs may assemble into distinct phases that depend on both their shape and the size of the depletants. By using a mixture of depletants, one of which is size-tunable, we can explore reversible transitions between these phases.

Vishal Soni
University of Chicago

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