

Abstract Submitted  
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**Implicit depletion of anisotropic particles** JENS GLASER, ANDREW KARAS, SHARON GLOTZER, Univ of Michigan - Ann Arbor — Entropy mediates depletion interactions between particles with excluded volume. We implement a novel algorithm [1] to simulate this emergent attraction between hard anisotropic particles in the presence of penetrable hard spheres. Our algorithm is efficient because it integrates out the degrees of freedom of the ideal depletant gas in parallel, which makes it well suited for high-performance computing. The algorithm can achieve several orders of magnitude speed-up over explicit algorithms. As an application we study the interplay between phase separation and kinetic arrest in the anisotropic clustering of colloidal discoids [2]. We also discuss applications of the algorithm for the assembly of hemispheres [1] and of cuboctahedra [3]. [1] J. Glaser, A. S. Karas, and S. C. Glotzer, arXiv:1508.07077. [2] L. C. Hsiao, B. A. Schultz, J. Glaser, M. Engel, M. E. Szakasits, S. C. Glotzer, and M. J. Solomon, Nat. Commun. 6, 8507 (2015). [3] A. S. Karas, J. Glaser, and S. C. Glotzer, arXiv:1510.04236.

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