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Encapsulation by Janus Oblate Spheroids[1] WEI LI, YA LIU, Lehigh University, GENEVIEVE BRETT, Skidmore College, JAMES GUNTON, Lehigh University — The micro/nano encapsulation technology has acquired considerable attention in the fields of drug delivery, biomaterial engineering, and material science. Based on recent advances in chemical particle synthesis, we propose a preliminary model of encapsulation system inducted by self-assembly of Janus oblate ellipsoids, the particles with oblate ellipsoidal cores and two semi-surfaces coded with dissimilar chemical properties. Using Monte Carlo simulation, we investigate the encapsulation system with spherical particles as encapsulated guests in different densities. We study the anisotropic effect brought by encapsulating agent's geometric shape and chemical composition on encapsulation morphology and efficiency. In the relative high encapsulation efficiency we observe from the simulation, we believe this method of encapsulation is of potential value in practical use.

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