Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Janus particles on colloidosomes (Pickering emulsions) and the role of added surfactant SHAN JIANG, LIANG HONG, STEVE GRANICK, Department of Materials Science and Engineering, University of Illinois at Urbana-Champaign — We describe systematically the synergy between particle and surfactant in stabilizing colloidosomes. Special attention is given to what determines the inversion between O/W and W/O emulsions, the so-called 'catastrophic phase inversion'. At the onset of the catastrophic phase inversion, we find an exceptional double-emulsion structure. Extending this idea, we find that when the dispersed phase is frozen by lowering the temperature below its solid-liquid phase transition, particles can be locked at the interface and further chemically modified into Janus colloidal particles. This affords an easy way to produce Janus colloidal particles with versatile chemical makeup in large quantity.

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Date submitted: 18 Nov 2006 Electronic form version 1.4