

Abstract Submitted
for the DFD10 Meeting of
The American Physical Society

Breakup of particle clumps on liquid surfaces SATHISH GURUPATHAM, M.M. HOSSAIN, B. DALAL, I. FISCHER, P. SINGH, NJIT, D.D. JOSEPH, University of Minnesota — Although it is known that a clump of powder floating on a liquid surface breaks up to form a monolayer of particles on the surface, the mechanism by which this happens is not entirely understood. We show that when a floating clump comes in contact with the liquid surface particles on its outer periphery are pulled into the interface by the capillary force overcoming the cohesive forces that keep the clump together. Furthermore, the newly adsorbed particles move away from the clump which is a consequence of the fact that when a particle is adsorbed on to a liquid surface it causes a flow away from itself on the interface. This flow causes the newly adsorbed particles to not only move away from each other, but also away from the clump. Interestingly, when many particles are asymmetrically broken apart from the clump, the clump itself is moved away by the flow due to the newly adsorbed particles.

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Date submitted: 02 Aug 2010

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