Abstract Submitted
for the MAR15 Meeting of
The American Physical Society

The Effect of Compression Frequency on the Collapse Dynamics of Langmuir Monolayers[1] JEREMY EATON, MICHAEL DENNIN, Univ of California - Irvine — We investigate the effects of compression speed and particle size on the collapse dynamics of an SDS-DODAB monolayer uniformly interspersed with fluorescent polystyrene nanoparticles ranging from 40 to 1000 nm in diameter. Folding and buckling are induced in the monolayer-particle system by compressing and expanding it between Teflon barriers which move at areal speeds ranging from 5 to 90 cm^2/min. Video capture and fluorescence microscopy were used to image the monolayer over five compression-expansion cycles. Image processing is used to measure the surface particle density and is further used to characterize the number, structure and reversibility of the folds over time. These details provide insight on dynamics of monolayer collapse and will serve useful in determining the role folding plays in particle transport both within and across the monolayer interface.

[1]We gladly acknowledge the support of NSF grant DMR-1309402.

Jeremy Eaton
Univ of California - Irvine

Date submitted: 12 Nov 2014 Electronic form version 1.4