

Abstract Submitted
for the DFD08 Meeting of
The American Physical Society

Forcing and phase transitions in a thin granular layer JEFFREY URBACH, Georgetown University, FRANCISCO VEGA REYES, Universidad de Extremadura, ALEXANDER LOBKOVSKY, Georgetown University — Recent experimental and computational studies of vibrated thin layers of identical spheres have shown transitions to ordered phases similar to those seen in equilibrium systems. Motivated by these results, we carry out simulations of hard inelastic spheres forced by homogenous white noise. We find a transition to an ordered state of the same symmetry as that seen in the experiments, but the clear phase separation observed in the experiments is absent. Simulations of purely elastic spheres also show no evidence for phase separation, suggesting that differential forcing from the vibrating plate is creating an effective surface tension. We do find, however, that inelasticity suppresses the onset of the ordered phase, as is observed in the vibrating system.

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Date submitted: 01 Aug 2008

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