

Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Kinetic Energy Fluctuations in Loaded, Confined Non-Dissipative Granular Chains¹ YOICHI TAKATO, SURAJIT SEN², SUNY-Buffalo — We consider confined granular alignments of sizes $N = 50, 100$ and 500 . The grains repel according to the nonlinear Hertz potential. The effect of loading is to introduce a harmonic term in addition to the Hertz term in the grain-grain potential. We show that in the absence of dissipation, a perturbed granular alignment at zero loading asymptotically relaxes into an equilibrium-like state where the kinetic energy fluctuations can be quite significant. Introducing the harmonic term in the potential tends to eventually suppress fluctuations. The talk shall focus on why this fluctuation suppression occurs.

¹Supported by ARO

²Supported by ARO

Surajit Sen
SUNY-Buffalo

Date submitted: 20 Nov 2009

Electronic form version 1.4