Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

Collisions between solitary waves in granular alignments[1] SURAJIT SEN, SUNY Buffalo, DIANKANG SUN, New Nexico Resonance — Solitary waves arise naturally when an unloaded alignment of elastic spheres, that is held between fixed end walls, is perturbed at one end. Unlike most known classes of solitary waves, those in granular materials are special and tend to break down and reform during any collision. Here we present what happens when two solitary waves of unequal magnitude suffer head-on and overtaking types of collisions. We will show that these collisions provide ways for solitary waves to not only become smaller but also become larger (within bounds) and that they are the underlying reason behind the emergence of the quasi-equilibrium phase.

[1]Research Support: Army Research Office

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Date submitted: 19 Nov 2010 Electronic form version 1.4