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**Energy injection in a mechanically thermalized, steady state granular Boltzmann bath.** JEFFREY OLAFSEN, Department of Physics & Astronomy, University of Kansas, G. WILLIAM BAXTER, Physics Department, Behrend College — A variety of experiments in driven granular gases have demonstrated an ability to tune the velocity statistics based upon the details of how energy is injected into the granular gas, the long- and short-ranged forcing of the particles, and the viscosity of the interstitial fluid. In one experiment using a two-layer system, simultaneous non-Gaussian and Gaussian velocity statistics are obtained in two different species of particles corresponding to the two layers. This particular design allows for the creation of a steady state granular Boltzmann bath in which equilibrium-like statistics can be observed for a system that is not in equilibrium. Understanding the details of both the mechanical driving and particle-particle interactions that result in this condition may provide clues for predicting when non-equilibrium dynamics can be expected to demonstrate the thermostatics seen in equilibrium systems.

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