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Dynamics of a single particle on a 2D driven granular lattice JEFFREY OLAFSEN, KRISTIN COMBS, Department of Physics, Baylor University, G. WILLIAM BAXTER, Physics Department, Penn State Erie, The Behrend College — Previous measurements have demonstrated interesting behavior in a novel bi-layer granular gas experiment of mechanically shaken particles. The results are of importance because the two layers are in “thermal contact” and yet have very different dynamical behaviors. The lower layer of particles demonstrates velocity statistics that are strongly correlated and non-Gaussian, while the upper layer of particles concurrently demonstrates a lack of correlations and Gaussian velocity statistics. Details of the collisions within each layer (intralayer) and between the layers (interlayer) are clearly of interest to understand the simultaneous behavior. Measurements are made for a single particle in the upper layer to examine the effects of interlayer collisions. In addition, velocity statistics in both layers are analyzed to determine effects of the sidewalls.

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