

Abstract Submitted
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Hockey night in phase space KIRI NICHOL, Leiden University,
KAREN DANIELS, North Carolina State University — In order to explore the possibility of developing a statistical mechanics for dissipative ensembles, we have performed an experiment in which we track the translational and rotational velocities of pucks on an air hockey table. The pucks are driven by bumpers at the boundaries and are bidisperse to prevent crystallization. At packing fractions of 60% we find that the system distributes rotational and translation energy according to the equipartition theorem. However, as the packing fraction increases, the ratio of rotational energy to translational energy also increases to a value larger than predicted by equipartition. The translational and angular velocity distributions are approximately exponential and the distributions of the translational velocity are the same for both large and small particles. In contrast, the distribution of the angular velocities is broader for the small particles than for the large.

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