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Power-law tail of the velocity distribution in granular gases WEN-FENG KANG, University of Massachusetts Amherst, ELI BEN-NAIM, Los Alamos National Lab, JON MACHTA, University of Massachusetts Amherst — We use a two-dimensional event-driven molecular dynamics simulation to study the velocity distribution of a granular gas. We implement the high energy injection mechanism described in Ref. [1]. At a small rate γ we boost randomly chosen particles to a high energy. The resulting driven steady state is found to have a power-law high-energy tail in the velocity distribution, $f(v) \sim v^{-\sigma}$. The simulation results for the exponent σ are in good agreement with the theoretical predictions of Ref. [1].

[1] E. Ben-Naim and J. Machta, Phys. Rev. Lett. 94, 138001 (2005).

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