

Abstract Submitted
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Pulling an intruder from a granular material¹ YUE ZHANG, R.P. BEHRINGER, Duke Univ — As a complement to 2D impact experiments, which involves a strongly fluctuating drag force involving collisional momentum transfer from intruder to grains, we consider a controlled 2D pull-out experiments, which is heuristically a reversed version of impact. During the pull-out experiment, a buried intruder is pulled out of a material, starting from rest. In the experiment, the intruder is subject to a gradually increasing upward vertical force, which we increase to the point where the intruder begins to accelerate upwards. To visualize this pulling process, we use 2D photoelastic disks from which circular intruders of different radii are pulled out. We will analyze the dynamics of the intruder and the structures of the force chains inside the granular system, which are captured by a high speed camera.

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