Abstract Submitted for the DFD17 Meeting of The American Physical Society

Impact cratering in sand: Comparing solid and liquid intruders DEVARAJ VAN DER MEER, RIANNE DE JONG, SONG-CHUAN ZHAO, Physics of Fluids group, University of Twente — How does the impact of a deformable droplet on a granular bed differ from that caused by a solid impactor of similar size and density? Here, we experimentally study this question and focus on the effect of intruder deformability on the crater shape. We will show that, for comparable impact speeds, the crater diameter is larger for droplets than for solid intruders, but that the latter result in deeper craters. Interestingly, for initially dense beds of packing fractions larger than 0.58, we find that the resultant excavated crater volume is independent of the intruder deformability, indicating an impactor-independent dissipation mechanism within the sand for these dense beds.

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Date submitted: 31 Jul 2017

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