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Does the Fluid Matter? Impact Into Wet Granular Materials

KERSTIN NORDSTROM, Mount Holyoke College, DYLAN POWERS, SAM ARRINGTON, WOLFGANG LOSERT, University of Maryland — We study the impact of a projectile onto a bed of 3 mm grains immersed in a fluid. We vary the viscosity of the fluid, and see how the impact depth vs impact energy scaling changes. We find only an appreciable change when the viscosity is quite large. We also study the trajectory of the intruder for different viscosities and impact energies. We find these trajectories are well-described by a modified version of the Poncelet-type stopping force model.

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