

Abstract Submitted  
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**Measurements of Stopping Force on Ball on Impact with Granular Medium** JOSEPH AMATO, LAURA COYLE<sup>1</sup>, MICHAEL NITZBERG<sup>2</sup>, Colgate University — We present direct measurements of the deceleration vs. time of a 3.8 cm diameter brass ball plunging into a loose granular bed of 400 - 600  $\mu\text{m}$  glass beads. Data were obtained using an accelerometer chip housed within the ball. As suggested by Durian and co-workers, the measured force on the ball is well described by a velocity dependent force  $\alpha v^2$  plus a separate depth dependent force  $\beta(z+z_0)$ . For impact velocities in the range 1.3 – 5.1 m/s, a single set of parameters  $(\alpha, \beta, z_0)$  fits all the data well, with the exception of the first few ms after impact, when the ball is only partially submerged in the granular matter.

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