

Abstract Submitted  
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**Terminal velocity of a heavy object in a superlight granular medium** GABRIEL A. CABALLERO-ROBLEDO, Cimav, Unidad Monterrey, FELIPE PACHECO-VAZQUEZ, Cinvestav-IPN, Unidad Merida, J. CARLOS RUIZ-SUAREZ, Cinvestav-IPN, Unidad Monterrey — A granular material is a system composed of many solid particles interacting mainly through contact forces. Therefore, the dissipation of energy usually plays a dominant role in the dynamics of these materials. For this reason, in experiments done so far, when an object impacts on a granular bed it eventually dissipates all its energy and comes to rest. In contrast, when a dense enough object is placed inside a fluid it keeps falling, asymptotically approaching a terminal velocity. Here we present experiments of a heavy object falling into a silo full of expanded polystyrene spherical particles. The density of the granular medium is so low that it can not bear the weight of an intruder whose mass is beyond a threshold value, even if the object is very deep in the silo. We systematically vary the mass of an object impacting in such a granular bed and we find a transition between the commonly observed behavior where the object stops at a given depth, and a situation where the object keeps falling and reaches a terminal velocity, just as in a fluid.

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