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**Cooperative penetration in a light granular medium** J. CARLOS RUIZ-SUAREZ, Cinvestav-IPN, Unidad Monterrey, FELIPE PACHECOVAZQUEZ, Cinvestav-IPN, Unidad Merida — A projectile impacting against a granular medium exemplifies the interesting nature of granular matter. Whether the projectile is an asteroid striking the crust of a planet or an object thrown against a granular bed in the laboratory, once the intruder makes contact with the medium it inevitably encounters a stopping force. The character of this force underscore several fundamental issues, from geological and biological sciences, to soil research and technological applications. The impact velocity dependence, the final penetration depth as a function of different parameters, the nature of the drag force, are nowadays well understood thanks to the recent work carried out by different groups. Furthermore, the effects of confinement, object symmetry and fragility of the medium have also been considered. However, despite all this effort, we know very little about what occurs when more than one intruder impact simultaneously a granular medium. Here we show and discuss some experimental findings about the penetration dynamics followed by a group of intruders impacting a granular medium. The particles used in our study are much lighter than water, therefore, intruders penetrate deeply into the system depicting intriguing cooperative behaviours that hint to hydrodynamic-like interactions.

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