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Flow-mediated coupling on projectiles falling in a superlight granular medium GABRIEL A. CABALLERO-ROBLEDO, CINVESTAV-Monterrey, Nuevo Leon, Mexico, JUAN M. SOLANO-ALTAMIRANO, Department of Chemistry, University of Guelph, Ontario, Canada, VINCENT KAMPHORST, Physics of Fluids Group, University of Twente, Enschede, The Netherlands, FELIPE PACHECO-VÁZQUEZ, GRASP, Physics Department, University of Liège, Belgium, J.C. RUIZ-SUÁREZ, CINVESTAV-Monterrey, Nuevo Leon, Mexico — Interesting collective motion emerges when several heavy disks fall in a quasi 2D granular bed of extremely light grains [F. Pacheco-Vázquez and J.C. Ruiz-Suárez, *Nat. Comms.* **1**, 123 (2010)]. In particular, when two disks impact side by side they initially repel, then they attract each other, until they finally stop. We perform experiments and Discrete Element Soft-Particle simulations to determine the range of action and the origin of these attractive and repulsive flow-mediated forces. Our findings suggest that repulsion results from jamming of grains between intruders while attraction would be due to a "granular pressure" drop in the region between intruders caused by a high flow velocity of grains: a Bernoulli-like effect.

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