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Exploring the Bernoulli effect on airfoils in a granular flow YASIN KARIM, ERIC CORWIN, University of Oregon — The Bernoulli effect describes the decrease in pressure that results from a fluid accelerating over an airfoil. While granular materials lack many of the features of fluids (i.e. they are compressible, do not have a well-defined viscosity, and are non-cohesive) they nonetheless can be made to flow. We report on experiments carried out to study Bernoulli lift in granular flows as a function of flow speed, density, airfoil shape. Using velocimetry and force sensors we probe the existence of a Bernoulli lift on an airfoil as glass beads flow around it in a quasi-two dimensional system.

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