

Abstract Submitted
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Jamming of Monodisperse Cylindrical Grains in Featureless Vertical Channels¹ NICHOLAS FRIEDL, G. WILLIAM BAXTER, Penn State Erie, The Behrend College — We study jamming of low aspect-ratio cylindrical Delrin grains falling through a featureless vertical channel under the influence of gravity. These grains have an aspect-ratio less than two ($\frac{H}{D} < 2$) and resemble aspirin tablets, 35mm film canisters, poker chips, or coins. Monodisperse grains are allowed to fall under the influence of gravity through a uniform channel of square cross-section where the channel width is greater than the grain size and constant along the length of the channel. No combination of grain heights and diameters is equal to the channel width. Collections of grains sometimes form jams, stable structures in which the grains are supported by the channel walls and not by grains or walls beneath them. The probability of a jam occurring and the jam's strength are influenced by the grain dimensions and channel width. We will present experimental measurements of the jamming probability and jam strength and discuss the relationship of these results to other experiments and theories.

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