# Oblate and prolate particles in a quasi-2D silo

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## ABSTRACT

When granular materials flow out of a container, the system occasionally clogs if the orifice is only a few particles large, but above a certain orifice size a practically continuous flow can be observed. We compared the flow field of spherical and non-spherical (prolate and oblate) particles in both regimes by laboratory experiments in a quasi-2D setup.

We found that for spherical particles, the velocity profile is Gaussian as suggested by most of the theories. However, for non-spherical grains a flow channel is narrower and the shape of the velocity profile can only be captured with two fitting parameters. The values of these parameters are analyzed as a function of the particle shape, the size of the orifice, and the angle of the wedge shaped walls.