

Abstract Submitted
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Granular Silo collapse: an experimental study¹ ERIC CLEMENT,
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boltenhagen@pmmh.espci.fr, JOSE LANUZA, ESPCI-Universite Paris 6 — We
present an experimental work that develop some basic insight into the pre-buckling
behavior and the buckling transition toward plastic collapse of a granular silo. We
study different patterns of deformation generated on thin paper cylindrical shells
during granular discharge. We study the collapse threshold for different bed height,
flow rates and grain sizes. We compare the patterns that appear during the dis-
charge of spherical beads, with those obtained in the axially compressed cylindrical
shells. When the height of the granular column is close to the collapse threshold,
we describe a ladder like pattern that rises around the cylinder surface in a spiral
path of diamond shaped localizations, and develops into a plastic collapsing fold
that grows around the collapsing silo.

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