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**Experiments of compaction of an elastic sheet closely-packed in a rigid container** DEBOEUF STEPHANIE, BOUE LAURENT, ADDA-BEDIA MOKHTAR, BOUDAUD AREZKI, ENS-LPS, MORPHOGENESIS TEAM —  
When crumpling a sheet of paper, it is known that deformation essentially appears in localized and lineic singularities, the so-called developable cones and ridges. But how relate the emergence of such patterns to the global shape of the sheet and to the compression force needed to compact it? We try to answer to such a question in the case of a model experiment of compaction. When a circular sheet is pulled through a rigid hole, first it exhibits a conical shape -developable cone-, then it develops folded patterns to achieve close-packed configurations. Our experimental set-up allows simultaneously for the observation and statistical characterization of folded configurations and for the measure of mechanical forces. Different patterns of folds are observed and systematically characterized as a function of the packing fraction of the sheet within the hole.

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