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Granular drops MATTHIAS MOBIUS, SIDNEY NAGEL,
HEINRICH JAEGER, University of Chicago — In fluid dynamics the
instability that leads to the breakup of a fluid column into droplets
is well known. This so-called Rayleigh-Taylor instability is driven by
the competition between gravity and surface tension. We report that a
similar phenomenon can be observed for a column of small granules in
free fall. The flow out of a circular nozzle starts out uniform and then,
further downstream, starts to break up into well defined clusters. This is
surprising since granular media do not possess any surface tension. The
ambient gas enhances the formation of the drops, but we find clustering
at pressures down to $1/2000^{th}$ of an atmosphere. We investigate the drop
formation as a function of pressure and nozzle diameter and discuss the
origin of this phenomenon.

Prefer Oral Session
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