# Agglomeration and refragmentation in microscale granular flows

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## Abstract

A model is developed to describe dendritic agglomeration in microscale granular flows. The individual particulate grains under consideration are approximated as being spheres that remain spherical after impact. The spheres may adhere to one another, forming branched aggregates ("dendrites"), based upon an empirical contact pressure relation. The possibility for fragmentation is also included in the analysis. The computational model developed is used to demonstrate agglomeration behavior in granular flows for a range of control parameters. The results indicate that there is a transition from size-unstable agglomeration to size-stable agglomeration, which is controlled by the velocity field and the material properties.

**The complete document can be found here.**