

Diphasic granular transport in confined geometries: a numerical challenge ?

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Confined mixtures of granular material and fluid exhibits properties little studied until recently. The injection of a third phase into such system leads to a rich interface dynamics. The interaction between the solid granular phase, the immersing fluid and the injected one, in small confinement, involves the competition between capillarity and friction. Stick-slip instability regimes can be obtained.

Beyond its interest for physical sciences such granular transport are challenging the geosciences engineering as well as micro-chemistry. It also stimulates our aesthetical sensitivity since the instability can develop interesting patterns.

An attempt for modelling one-dimensional confined geometries is in development and its confrontation with experiments starts to show preliminary results. The numerical modelling of such system is however at its very beginning. It provides stimulating opportunities and perspectives to explore.