

Institut de Mécanique des Fluides

2 Allée du Pr Camille Soula, Toulouse

**Vendredi 18 mars à 10h30 - Amphithéâtre Nougaro**

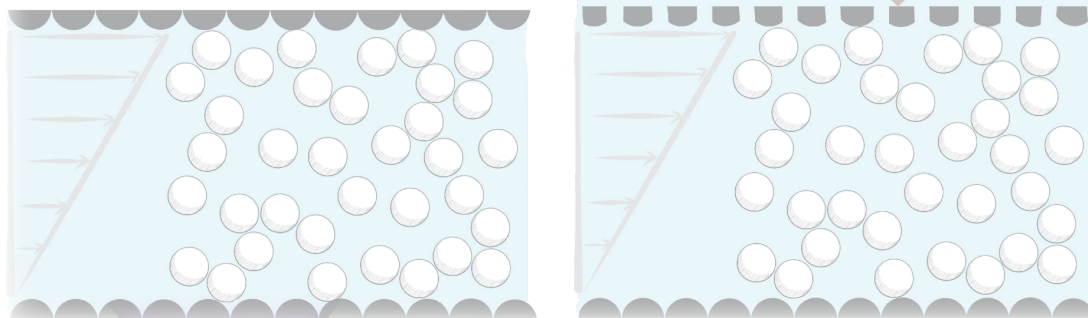
## **Rheology of dense granular suspensions: the transition from Newtonian to Bagnoldian rheology**

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Dense granular suspensions that consist of concentrated mixtures of non-colloidal particles suspended in a liquid are ubiquitous in many natural phenomenon (landslides, debris flows, sediment transport) and industrial processes (concrete, pastes). Their rheology is not fully understood and establishing a unified theoretical framework across the different flowing regimes is still challenging. The present work describes precise rheological measurements of non-colloidal suspensions in the dense regime utilizing a unique custom-built rheometer able to perform pressure- and volume-imposed rheometry. It addresses the transition from a Newtonian rheology in the Stokes limit to a Bagnoldian rheology when inertia is increased and examines whether the inertial and viscous regimes can be unified as a function of a single dimensionless number based on stress additivity.

This work has been done in collaboration with Mie Ichihara, O. Pouliquen and F. Tapia.



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