

GRANULAR PLASTICITY

F. NICOT[†], A. WAUTIER^{††} AND F. DARVE^{†††}

[†] Université Savoie Mont Blanc, ISTerre, Le Bourget-du-Lac (France)
francois.nicot@univ-smb.fr

^{††} Aix-Marseille Université, INRAE, Unité de Recherche RECOVER, Aix-en-Provence (France)

^{†††} Université Grenoble-Alpes, Laboratoire Sols Solides Structures, Grenoble (France)

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ABSTRACT

Granular media stand as an example of materials governed by plastic (in the sense of irreversible) deformational processes related to contact interactions and most importantly to continuous microstructural rearrangement under evolving loading. The constitutive complexity emerging at the macroscale is thought to stem from those multiple microstructural features, in a way that remains to be elucidated. Furthermore, dissipative mechanisms taking place within the pore space are likely to interact with additional micro-physical processes such as capillary effects, fine grain erosion or infiltration, bonding/debonding chemical reactions or water freezing/melting processes.

In the continuity of the four previous editions (Barcelona 2015 and 2019, Hannover 2017, Hamburg 2021 and Milano 2023), we envision that this session will provide an international outlook on the current state of knowledge in all fields related to granular plasticity, including among other:

- mesoscale analysis,
- critical state emergence,
- bifurcation and instability modes,
- micromechanical constitutive models,
- statistical averaging and emerging properties,
- evolving microstructures and grain interactions

Analytical, numerical and experimental works are welcome. Cross-disciplinary approaches introducing new concepts or new tools will be appreciated (eg. complex system analysis, artificial intelligence techniques, bio-inspired concepts...)