



26-30 octobre 2026



<https://jmc2026.sciencesconf.org/>

MMM04: Granular Matter, Suspensions, and Colloids

Organizers: Marie-Julie Dalbe (IRPHE, Aix-Marseille University), Anaïs Abramian (Institut Jean le Rond d'Alembert, CNRS), Baptiste Darbois Texier (FAST, CNRS), Virgile Thievenaz (PMMH, CNRS)

Invited Speakers:

Sponsors:

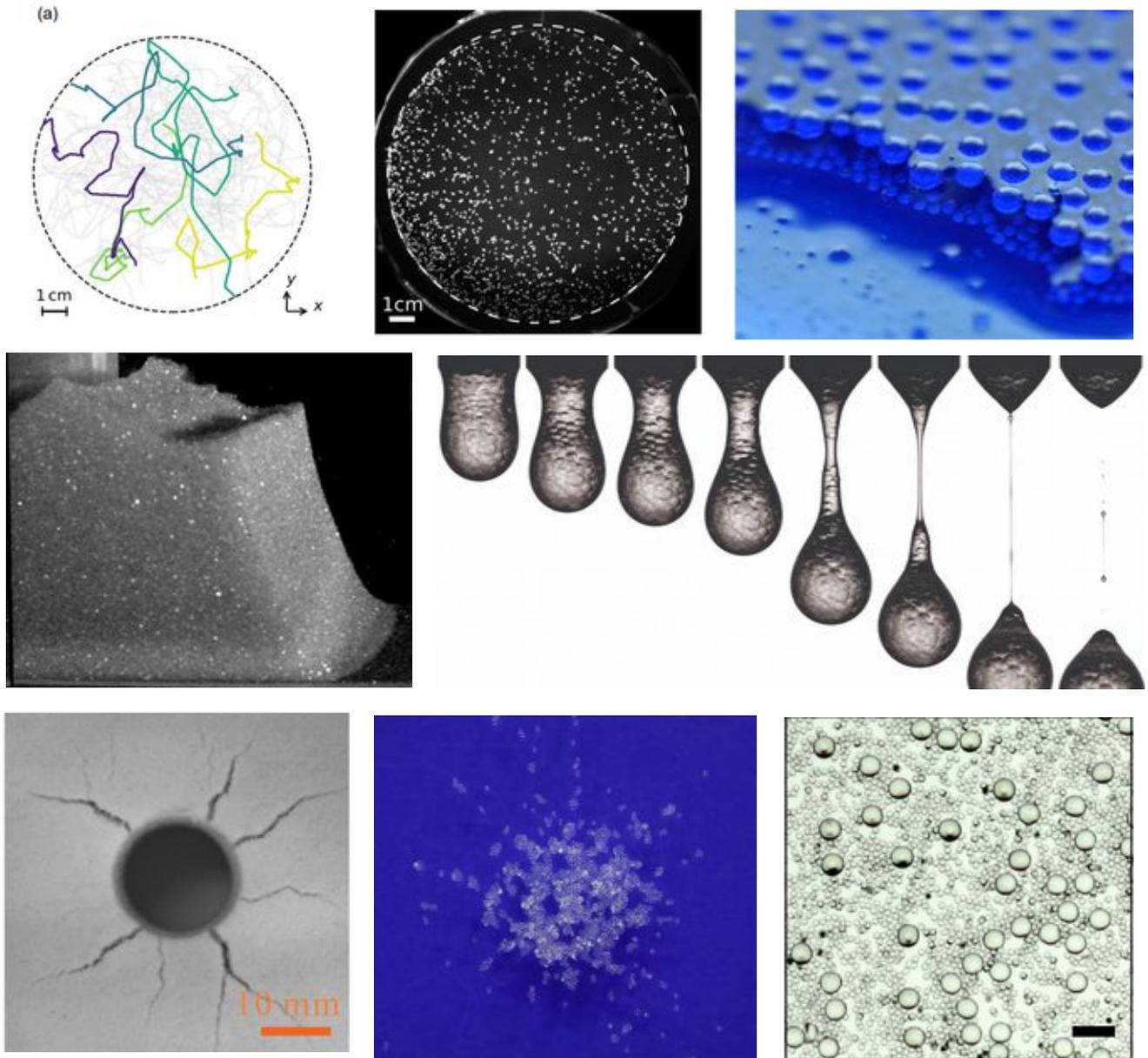
Content:

Divided media—granular materials, suspensions, colloids, emulsions, foams, gels, and more broadly complex fluids—occupy a central place in contemporary soft-matter physics. Their collective behavior emerges from a rich interplay between particle-scale interactions, interstitial-fluid effects, and geometry or deformability at the constituent level. Understanding how these multiscale mechanisms shape macroscopic properties remains an exciting challenge, with implications ranging from geomorphology and natural hazards to industrial processing, additive manufacturing, and material design.

Key open questions involve the roles of lubrication and frictional contacts, adhesive or attractive forces between particles, particle deformability, hydrodynamic interactions, and confinement. Recent experimental, numerical, and theoretical developments continue to reshape our understanding of constitutive laws, flow transitions, shear-induced migration, shear banding, jamming, fracture formation, and nonlocal effects in these systems.

Recent advances include the exploration of systems composed of anisotropic or non-convex particles, deformable or bio-inspired micro-constituents, and particles with tunable interactions made possible by modern synthesis and surface-functionalization techniques. These developments open new routes toward controlling microstructure, flow properties, and mechanical response.

This mini-colloquium aims to bring together researchers exploring the physics of divided materials across scales and contexts. Contributions addressing granular systems with or without interstitial fluids, suspension rheology, complex fluids, and their applications to material programming, geophysical processes, and industrial operations are welcome. The event will provide a forum to highlight emerging tools and concepts, foster discussions between communities, and identify new directions for future research.



Examples of divided matter: particle motion on a vibrated plate, dip coating of a bidisperse suspension, collapse of a cohesive granular column, pinch-off in a filament of suspensions of particle, fracture of a wet granular substrate, fragmentation of a wet granular aggregate, and a bidisperse particle assembly.