

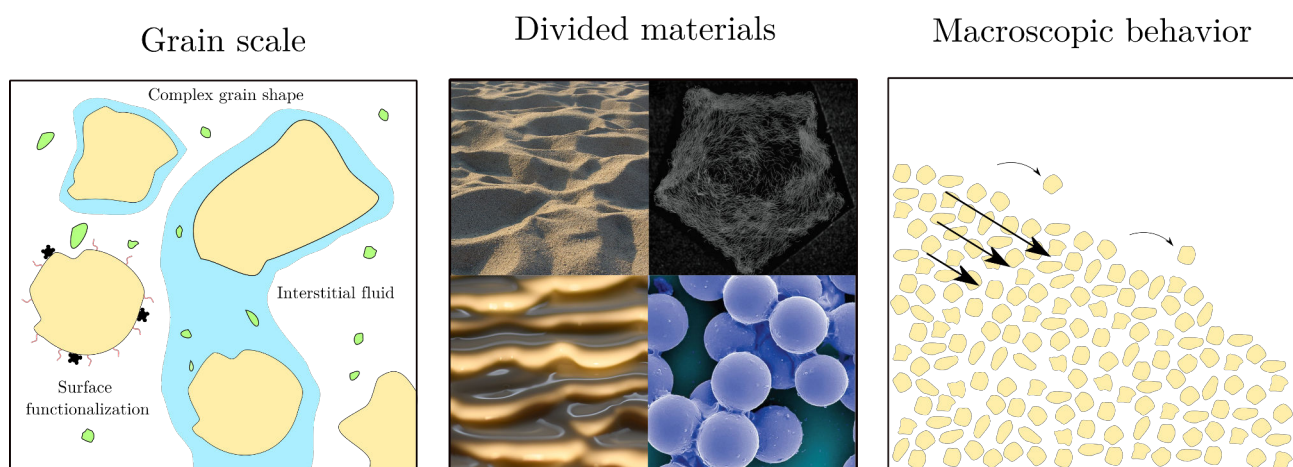
## Physics of divided materials

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The physics of divided materials - granular media, suspensions, gels, complex and active fluids - has received considerable attention in recent years. These materials raise many questions of fundamental physics, both in terms of interactions at the grain scale, in the presence or absence of an interstitial fluid, and in terms of macroscopic behavior (e.g. yield stress and constitutive law).

Recent issues include additional complexities due to shape (strongly non-convex particles) or deformation at the particle scale (soft or slender particles), control of interaction between grains thanks to new synthesis techniques and interface functionalization capabilities, which make it possible to envisage a priori control of the hierarchical structure, rheological and mechanical properties of divided media.



The aim of this mini-colloquium is to review recent developments in the physical description of divided materials, granular systems with or without interstitial fluid, complex and active fluids, and their applications to material programming, geomorphology and industrial processes.