

## Statistical physics of disordered matter

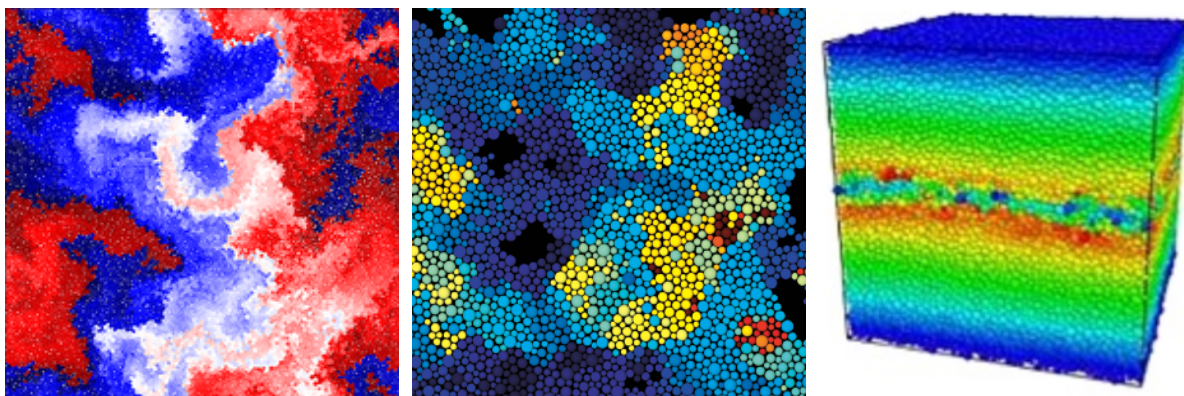
*"Physical properties of dense liquids and disordered solids : from atoms to pedestrians"*

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**Format:** This mini-colloquium complements the plenary talks from A. Tanguy and L. Berthier. For this reason, there will be no invited speaker, and all talks will be contributed, of a duration dictated by the number of submissions.

The ubiquity of disordered matter contrasts with the conceptual and fundamental challenges to rationalise how their physical properties emerge from disorder at the microscopic scale. Understanding the mechanisms responsible for the slow dynamics of dense liquids or the physical properties of disordered solids is an important goal. This endeavour has a long history for thermal solids composed of atoms, molecules, polymers and colloids. There has been much progress on their static properties, and more work is still needed to rationalise their bulk and confined dynamics. Interestingly, very recent studies have broadened the scope of the field by focusing on disordered liquids and solids made of active entities, from motile colloidal particles up to human scales, in which rich collective dynamical behaviour emerges.

**The goal of this mini-colloquium** is to discuss recent advances in the statistical physics of disordered matter, aiming at understanding the physical properties of dense liquids and disordered solids (dynamics, transport, mechanical and rheological, etc.). The mini-colloquium will gather researchers working on a variety of systems, from thermal to driven and active, in the bulk or under confinement, via experiments, computer simulations and analytical approaches. The goal is to offer an opportunity to present exciting recent results in the field. Contributions from students, postdocs, early career and more senior researchers are all welcome.



*From left to right:* chaotic dynamics in a dense active liquid (Y.E. Keta *et al.*, PRL **132** 21 2024); dynamic heterogeneities in a deeply supercooled liquid (B. Guiselin *et al.*, Nature Physics **18** 2022), yielding of stable disordered solid (M. Ozawa *et al.*, PNAS **115** 6656 2018).