

Random Organisation, Yielding and Mechanical Memory in Amorphous Solids

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In dilute non-Brownian suspensions, applying an oscillatory perturbation less than a critical magnitude repeatedly, causes particles trajectories to transition from time irreversible paths to reversible ones indicating adaptability of the system to a particular mechanical perturbation [1]. This adaptability of the system, termed "random organisation", is indicative of memory of the training protocol and its presence has been confirmed in experiments in driven dilute non-Brownian suspensions [2] and has also been predicted in simulations in driven dense disordered systems such as amorphous solids [3]. However, there is no experimental evidence for memory in driven dense systems. This talk will describe recent experiments aimed at unravelling the existence of such a form of memory in thermal amorphous bubble rafts [4].

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