

Abstract Submitted
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Studies of Glassy Colloidal Systems Under Shear MICHAEL MASSA, CHANJOONG KIM, DAVID WEITZ, HSEAS, Harvard University — In analogy with the glass transition of polymer (and other molecular) liquids, colloidal suspensions can undergo dynamic arrest to form a glassy solid, when the system is concentrated beyond a critical volume fraction. However, in contrast to their molecular counterparts, studies of the glass transition in colloidal systems are facilitated by their natural length- and time-scales, which make it possible to directly visualize the behaviour of the individual constituent particles. Using confocal microscopy, we follow the dynamics of colloidal suspensions near the glass transition, and in particular, their reaction to an imposed deformation. We investigate the evolution from a quiescent solid to a shear melted liquid, to elucidate the nature of the structural rearrangements that govern the properties of glassy materials.

Michael Massa
HSEAS, Harvard University

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