# Unified study of glass and jamming rheology in soft particle systems

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The emergence of solidity in disordered assemblies of repulsive particles has been observed in large variety of systems. One can categorize the observed transitions into two types: the ``glass'' transition which is observed in Brownian particles e.g. colloidal suspensions, and the ``jamming'' transition observed in non-Brownian particles e.g. aqueous foams. Despite notable differences between both types of systems, the macroscopic rheology near both transitions are remarkably similar. A clear understanding of the relation between both transitions is highly desirable. Recently, we studied the shear rheology of soft repulsive particles at large volume fraction using computer simulation. The model becomes either a model of colloidal suspension showing the glass transition or of aqueous foam showing the jamming transition, depending on the choice of control parameters. Exploring this interplay, we observed the glass transition when thermal fluctuations are important, crossing over to qualitatively similar regimes near the jamming transition when dissipation dominates. Our results indicate that the glass and jamming transitions are distinct phenomena occurring over distinct time and stress scales. In this talk, I will first summarize this simulation study [1] and then present our viewpoint on various rheological experiments [2]. Finally, we discuss what we can do by the current microscopic theory [3].

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