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**Non-equilibrium phenomena in disordered colloidal solids**

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Colloidal particles are a convenient tool for studying a variety of non-equilibrium phenomena. I will discuss experiments that investigate the aging and non-equilibrium growth of disordered solids. In the first set of experiments, colloidal glasses are rapidly formed to study aging in jammed packings. A colloidal fluid, composed of micron-sized temperature-sensitive pNIPAM particles, is rapidly quenched into a colloidal glass. After the glass is formed, collective rearrangements occur as the glass ages. Particles that undergo irreversible rearrangements, which break nearest-neighbor pairings and allow the glass to relax, are identified. These irreversible rearrangements are accompanied by large clusters of fast moving particles; the number of particles involved in these clusters increases as the glass ages, leading to the slowing of dynamics that is characteristic of aging. In the second set of experiments, we study the role particle shape, and thus, interparticle interaction, plays in the formation of disordered solids with different structural and mechanical properties. Aqueous suspensions of colloidal particles with different shapes evaporate on glass slides. Convective flows during evaporation carry particles from drop center to drop edge, where they accumulate. The resulting particle deposits grow heterogeneously from the edge on the air-water interface. Three distinct growth processes were discovered in the evaporating colloidal suspensions by tuning particle shape-dependent capillary interactions and thus varying the microscopic rules of deposition. Mechanical testing of these particulate deposits reveals that the deposit bending rigidity increases as particles become more anisotropic in shape.