

# Séminaire LIONS



**Jeudi 13 décembre à 11h00, pce. 157, bât. 125**

## **Glass transitions in and out of equilibrium**

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The glass transition, extensively studied in dense fluids, polymers, or colloids, corresponds to a dramatic evolution of equilibrium transport coefficients upon a modest change of control parameter, like temperature or pressure. The liquid-glass transition in dense fluids is characterized by several crossover temperatures, but glasses are apparently obtained without crossing any sharp singularity. I will present recent results supporting the idea of the existence of an underlying phase transition, as predicted theoretically in some limiting cases, and showing that there might be a way to directly study its nature in computer simulations. In a second part, I will show that a similar glass phenomenology is also found in many systems evolving far from equilibrium, such as driven granular media, active and living matter. I will discuss this situation from a theoretical viewpoint, and suggest that a dynamic arrest similar to the equilibrium glass transition can indeed take place in such nonequilibrium conditions.

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