

---

**GIULIO BIROLI**, IPhT CEA & LPS ENS

*Recent Results and Challenges in Glassy and Out of Equilibrium Dynamics*

In this talk I will present different challenges arising in the study of dynamics of disordered systems in very high dimensions. The first topic I will focus on is the problem of activated stochastic dynamics, i.e. barrier crossing, in glassy systems. The second topic is the transition towards chaos in Lotka-Volterra equations modeling ecosystems formed by a very large number of species. I will present our recent results based on analysis of the dynamics by dynamical mean-field theory and of critical points of the energy landscape by the Kac-Rice method. I will conclude discussing perspectives both from the point of view of theoretical physics and math.