1125-60-935 **Reza Gheissari*** (reza@cims.nyu.edu) and **Aukosh Jagannath**. *Relaxation to equilibrium in spherical spin glasses.*

Spherical spin glasses are an archetypal model of quenched disorder and glassy behavior in statistical physics: for a spherical spin glass of system size N, the energy landscape is known to have exponentially many local minima as $N \to \infty$. This induces a rich and complicated geometry in the corresponding Gibbs measure at low temperature, where the mass concentrates in energy bands around the local minima [Subag 16]. We consider the natural reversible dynamics with respect to the Gibbs measure (the Langevin dynamics) and in particular, the time it takes for the dynamics to relax to equilibrium. We prove that whereas at high temperatures, the time to relax to equilibrium is $O(1)$, at low temperatures the model is in a *glassy phase* marked by timescales to equilibrium that are exponentially long in the system size; this transition is deeply linked to the complexity of the geometry of the Gibbs measure in the static low temperature regime. (Received September 13, 2016)