1135-35-497 **Vincent R Martinez*** (vmartin6@tulane.edu), Mathematics Department, Tulane University, 6823 St. Charles Ave, New Orleans, LA 70118, **Nathan Glatt-Holtz**, Mathematics Department, Tulane University, 6823 St. Charles Ave, New Orleans, LA 70118, and **Geordie Richards**, 3900 Old Main Hill, Logan, UT 84322. *Asymptotic Coupling and Uniqueness of Invariant Measures in Hydrodynamic Equations.* Preliminary report.

In their 1967 seminal paper, Foias and Prodi captured precisely a notion of finitely many degrees of freedom in the context of the two-dimensional (2D) incompressible Navier-Stokes equations (NSE). In particular, they proved that if a sufficiently large low-pass filter of the difference of two solutions converge to 0 asymptotically in time, then the corresponding high-pass filter of their difference must also converge to 0 in the infinite-time limit. In other words, the high modes are "eventually enslaved" by the low modes. One could thus define the number of degrees of freedom to be the smallest number of modes needed to guarantee this convergence for a given flow, insofar as it represents as a solution to the NSE. This property has since led to several developments in the long-time behavior of solutions to the NSE, such as, for instance, to data assimilation, and existence of determining forms. In this talk, we will discuss this asymptotic enslavement property with regards to the issue of uniqueness of invariant measures for stochastically forced equations, specifically those in the context of hydrodynamic and related equations. (Received September 06, 2017)