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Yu Deng, Andrea Nahmod and **Haitian Yue*** (haitiany@usc.edu). *Invariant Gibbs measures and global strong solutions for 2D nonlinear Schrödinger equations.*

In this talk, I'll present our result of the long-standing problem of proving almost sure global well-posedness (i.e. existence with uniqueness) for the periodic nonlinear Schrödinger equation (NLS) in 2D on the support of the Gibbs measure, for any (defocusing and renormalized) odd power nonlinearity. Consequently, we get the invariance of the Gibbs measure. This is achieved by a new method we call *random averaging operators* method, which precisely captures the implicit randomness structure of the high-low interactions. This is work with Yu Deng (USC) and Andrea Nahmod (UMass Amherst). (Received January 16, 2020)