

Title: Invariant Gibbs measures for the three-dimensional cubic nonlinear wave equation.

Abstract: In this talk, we prove the invariance of the Gibbs measure for the three-dimensional cubic nonlinear wave equation, which is also known as the hyperbolic Φ^4_3 -model. In the first half of the talk, we briefly review properties of Hamiltonian ODEs, which serve as a toy model. We also discuss the connections of our main theorem with recent developments in constructive QFT, dispersive PDEs, and stochastic PDEs. In the second half of this talk, we highlight certain aspects of our proof. In particular, we discuss a caloric representation of the Gibbs measure and a hidden cancellation between sextic stochastic objects. This is joint work with Y. Deng, A. Nahmod, and H. Yue.