HARVARD UNIVERSITY
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Mathematical Picture Language Seminar

Tuesday,
May 2, 2023
9:30 a.m. Boston time

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Hydrodynamics and Corrections to Random Matrix Universality in Quantum Chaos

Abstract: Ensembles of quantum chaotic systems typically exhibit random-matrix-like correlations in the statistics of their energy levels, and the spectral form factor is a useful way to diagnose these correlations. However, real physical systems have non-random structure, like locality and associated slow modes, which should affect these spectral correlations. I will present a theory that predicts the time-dependence of the spectral form factor based on an effective field theory of the relevant slow modes. I will discuss applications of this theory to a variety of systems, including to models with glassy dynamics and sound poles, and I will discuss a forthcoming result in which we relate these corrections to a corresponding effect near the Heisenberg time using the Riemann-Siegel lookalike formula. Based on work with Mike Winer and with Richard Barney, Chris Baldwin, and Victor Galitski.

Zoom QR Code & Link:
https://harvard.zoom.us/j/779283357?pwd=MitXVm1pYUlJVzZqT3lwV2pCT1ZUQT09

https://mathpicture.fas.harvard.edu/seminar