



Seminar/Talk

The Zigzag Strategy for Random Band Matrices

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Host: Laszlo Erdős, Jan Maas

Random band matrices have entries concentrated in a narrow band of width W around the main diagonal, modeling systems with spatially localized interactions. We consider one-dimensional random band matrices with bandwidth $W \gg N^\alpha$, general variance profile, and arbitrary entry distributions. We establish complete isotropic delocalization, quantum unique ergodicity (eigenstate thermalization), and Wigner-Dyson universality in the bulk of the spectrum. The key technical input is a family of local laws capturing the spatial decay of resolvent entries, established using a combination of Ornstein-Uhlenbeck dynamics and Green function comparison (the Zigzag strategy). Based on joint work with Laszlo Erdős.

Friday, October 10, 2025 03:50pm - 04:40pm

Central Bldg / O1 / Mondi 2a (I01.O1.008)



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