RMT Summer School in Japan 2025

September 8–12, 2025 — Kyoto University

Schedule

Time	8 (Mon)	9 (Tue)	10 (Wed)	11 (Thu)	12 (Fri)
09:20–10:40	—	Guionnet I	Guionnet II	Nahmod IV	Guionnet IV
11:10–12:30	—	Nahmod II	Erdős II	Guionnet III	Erdős IV
12:30–14:00 (Lunch)					
14:00–15:20	Erdős I	Nahmod III	—	Erdős III	—
15:50–17:10	Nahmod I	Poster session	—	Poster session	—

Location: Room 401, Building 6

Lecturers and Abstracts

Alice Guionnet (ENS Lyon)

Lecture: Large deviations for the largest eigenvalue of large random matrices, and applications

Abstract: In this mini-course I will review several recent large deviation results for large random matrices, and their relations with spin glasses and the study of the volume of local minima of random functions. We will discuss in particular their universality and how universality is broken by the localization phenomenon.

Andrea Nahmod (University of Massachusetts Amherst)

Lecture: Random Tensor Theory, Propagation of Randomness, and Nonlinear Dispersive PDE

Abstract: The study of randomness in partial differential equations has gained momentum over the past two decades. In recent years, this field has seen significant progress with the introduction of techniques from harmonic analysis and probability. In this series, I will explore the role of random tensors and propagation of randomness in nonlinear dispersive PDE, covering both theoretical foundations and recent advances.

László Erdős (IST Austria)

Lecture: Multi-resolvent local laws and their applications

Abstract: Classical local laws in random matrix theory assert that the empirical eigenvalue distribution of a Wigner matrix converges to the semicircle law at local scales. In this series of lectures, we present a theory of multi-resolvent local laws, which allow us to understand more detailed behavior of eigenvalue statistics and correlations. Applications include universality results and delocalization properties of eigenvectors.

Poster Sessions

Poster sessions will take place on Tuesday and Thursday from 15:50 to 17:10.