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# Seminar

Bielefeld - Melbourne Random Matrices

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## Dynamics of a multiplicative rank-one perturbation of a unitary matrix

We consider a multiplicative perturbation of the form  $UA(t)$  where  $U$  is a unitary random matrix and  $A = \text{diag}(t, 1, \dots, 1)$ . This so-called " $UA$  model" was first introduced by Fyodorov in 2001 for its applications in scattering theory. In this talk, I will give a general description of the eigenvalue trajectories obtained by varying the parameter  $t$  and discuss a flow of deterministic domains that allows separating the outlier resulting from the rank-one perturbation from the typical eigenvalues for all sub-critical timescales. The results are obtained under generic assumptions on  $U$  that hold for a variety of unitary random matrix models.

Based on joint work with Guillaume Dubach (ENS Paris).

**Wednesday, 8th February 2023,  
0900 hrs CET**

Zoom Conference call— Please contact Leslie Molag  
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