



**UNIVERSITÄT
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Faculty of Physics



Faculty of Mathematics



THE UNIVERSITY OF
MELBOURNE

Seminar

Bielefeld - Melbourne Random Matrices

Markus Ebke

Universität Bielefeld

Symplectic non-Hermitian random matrices - Skew-orthogonal polynomials and universal scaling limits

Non-Hermitian random matrices with symplectic symmetry provide examples for Pfaffian point processes in the complex plane. They are characterised by a matrix-valued kernel of skew-orthogonal polynomials, however finding an appropriate set of polynomials for a given matrix ensemble is difficult.

In this talk I will present an explicit construction of skew-orthogonal polynomials in terms of orthogonal polynomials that satisfy a three-term recurrence relation. Additionally, for the symplectic elliptic Ginibre ensemble I will show how to compute the microscopic large- N limit of the kernel at the origin and prove its universality.

This is based on joint work with Gernot Akemann and Iván Parra. If time permits, I will also mention some results from an ongoing project with Sung-Soo Byun.

Wednesday, 07 July 2021, 0900 hrs CEST

Zoom Conference Call— Please contact Gernot Akemann
(akemann@physik.uni-bielefeld.de) for details regarding access