



**UNIVERSITÄT
BIELEFELD**



Faculty of Physics



Faculty of Mathematics



THE UNIVERSITY OF
MELBOURNE

Seminar

Bielefeld - Melbourne Random Matrices

Thomas Bothner

University of Bristol

The complex elliptic Ginibre ensemble at weak

In this talk we will focus on the complex elliptic Ginibre ensemble (eGinUE) and analyze the statistical behavior of its eigenvalues in a suitable scaling limit, known as the weak non-Hermiticity limit. In this limit the asymmetry parameter in the model scales with the matrix dimension and the so obtained 2D limiting point processes generalize the well-known sine and Airy processes from the Gaussian unitary ensemble. Using integro-differential Painlevé transcendents we will show how the gap functions of the 2D limiting point processes can be evaluated in closed form and how Riemann-Hilbert techniques can subsequently yield precise asymptotic information for the same functions. Based on arXiv:2208.04684 and further ongoing joint work with Alex Little.

**Wednesday, 07 September 2022, 0900
hrs CEST**

Zoom Konferenzschaltung— Please contact Leslie Molag
(lmolag@math.uni-bielefeld.de) for details regarding access