



**UNIVERSITÄT  
BIELEFELD**



Faculty of Physics



Faculty of Mathematics



THE UNIVERSITY OF  
MELBOURNE

# Seminar

Bielefeld - Melbourne Random Matrices

**Nicholas J. Simm**

University of Sussex

## Fluctuations and correlations for products of real asymmetric random matrices

Consider a finite product of real asymmetric  $N \times N$  random matrices with i.i.d. Gaussian entries. Recently, Forrester and Ipsen obtained finite- $N$  formulae for the correlation functions of the real eigenvalues of such products in terms of a Pfaffian point process. I will discuss recent work where we obtain asymptotic estimates for the correlation kernel of the process as  $N$  tends to infinity, in particular establishing universality of the real eigenvalues in the bulk and spectral edge regimes. I will explain how we apply such estimates to prove central limit theorems for linear statistics and to establish universality of the largest real eigenvalue. Joint work with Will FitzGerald (University of Manchester).

**Wednesday, 03 November 2021, 0900 hrs CET**

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