



**UNIVERSITÄT
BIELEFELD**



Faculty of Physics



Faculty of Mathematics



THE UNIVERSITY OF
MELBOURNE

Seminar

Bielefeld - Melbourne Random Matrices

Alex Little

University of Bristol

Products of Random Matrices and their real Eigenvalues

Recently there has been a wave of research into products of real asymmetric random matrices. Because these random matrices are asymmetric, they have both real and complex eigenvalues, with the number of each being random.

The real eigenvalues of an asymmetric random matrix interact in an interesting way with taking products, in particular, longer products tend to lead to more real eigenvalues. We look at a particular ensemble, products of so-called "truncated orthogonal" matrices and prove a conjecture about the number of real eigenvalues and their distribution along the real line. Proving this conjecture amounted to a problem in asymptotic analysis, and I will go over the key tricks we used to carry this out. This was joint work with Francesco Mezzadri (Bristol) and Nicholas Simm (Sussex).

Our paper can be found here: <https://arxiv.org/abs/2102.08842>

Wednesday, 14 April 2021, 0900 hrs CEST

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