



**UNIVERSITÄT  
BIELEFELD**



Faculty of Physics



Faculty of Mathematics



THE UNIVERSITY OF  
MELBOURNE

# Seminar

Bielefeld - Melbourne Random Matrices

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### Mixed Moments for Product Random Matrices

We study random matrices  $X$  which are the product of a single Ginibre matrix  $A$  and a matrix  $B$  from a somewhat general ensemble. The mixed moments and eigenvalue distribution of  $X$  are given in terms of the moments of powers of the Gram matrix of  $B$ . When  $B$  is itself a product of Ginibre matrices, we find explicit expressions in terms of Fuss-Catalan numbers. We will discuss motivations from the study of multilayer perceptrons.

**Wednesday, 02 September 2020, 0900 hrs CEST**

Zoom Konferenzschaltung— Please contact Anas Rahmann  
([anas.rahman@unimelb.edu.au](mailto:anas.rahman@unimelb.edu.au)) for details regarding access