



**UNIVERSITÄT
BIELEFELD**



Faculty of Physics



Faculty of Mathematics



THE UNIVERSITY OF
MELBOURNE

Seminar

Bielefeld - Melbourne Random Matrices

Nizar Demni

Aix-Marseille University

Random states arising from the unitary Brownian motion and Jacobi polynomials in the simplex

I'll talk about a problem motivated by quantum information theory and raised by Nechita and Pellegrini. They asked to compute the joint distribution of a sub-vector of a random vector in the unit sphere sampled from the heat kernel. For a single coordinate, the solution is expressed as a bilinear series of Jacobi polynomials and more generally, it involves the so-called Jacobi polynomials in the simplex introduced by Koorwinder. I'll exhibit the approach used by Nechita and Pellegrini based on pde's and the one I used to completely solve the problem and based on the decomposition of unitary spherical harmonics under the action of unitary subgroups.

Wednesday, 03 February 2021, 1000 hrs CET

Zoom Konferenzschaltung— Please contact Anas Rahman
(anas.rahman@live.com.au) for details regarding access