

An interpolation between free and classical independence of Haar unitaries

Antoine Dahlqvist
University of Sussex
a.dahlqvist@sussex.ac.uk

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Consider a pair of independent Haar matrices on the unitary group $U(N)$; this is one of the first examples of random matrix models where Voiculescu's free independence occurs as $N \rightarrow \infty$. In this talk I shall consider a model absolutely continuous with respect to the latter, with a weight penalising the commutator of the pair for being far away from the identity. We shall see that defining a weight with the heat kernel on $U(N)$ leads asymptotically to an interpolation between free and classical independence of a pair of Haar unitaries.

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