Probabilistic Operator Algebra Seminar

Organizer: Dan-Virgil Voiculescu

October 21   **Michael Magee**, Durham University UK

Title: *Strong asymptotic freeness of Haar unitaries in quasi-exponential dimensional representations*

We prove almost sure strong asymptotic freeness of i.i.d. unitaries with the following law: sample a Haar unitary matrix of dimension n and then send this unitary into an irreducible representation of $U(n)$. The strong convergence holds as long as the irreducible representation arises from a pair of partitions of total size at most $n^{\frac{1}{24}-\epsilon}$ and is uniform in this regime. Previously this was known for partitions of total size up to $\asymp \frac{\log n}{\log \log n}$ by a result of Bordenave and Collins.