JAMES MINGO, Queen's UNiversity

Infinitesimal Operators

In this talk (which is joint work with Pei-Lun Tseng (NYU Abu Dhabi)) I will show that free independence can be adapted to give spectral results on finite rank perturbations of unitarily invariant matrix ensembles.

The main concepts are that of an infinitesimal operator (the finite rank perturbation) and infinitesimal free independence. Free independence is Voiculescu's adaptation of independence to non-commuting random variables based on free products, and infinitesimal independence is a stronger form of free independence. Free independence has become in recent years one of the main tools in analyzing the eigenvalue distribution of sums and products of random matrices.

I will apply this to the commutator and anti-commutator of independent operators.