

Probabilistic Operator Algebra Seminar

Organizer: Dan-Virgil Voiculescu

September 25 **James Mingo**, Queen's University, Canada

Title: *Infinitesimal Operators*

We show that by introducing the concept of an infinitesimal operator we can generalize and strengthen results of Collins, Hasebe, Sakuma, Lenczewski and Male. An infinitesimal operator in a non-commutative probability space is one whose spectral measure is a Dirac mass at 0 but with a non-trivial infinitesimal law, for example a finite rank operator in a random matrix ensemble. When an infinitesimal operator is infinitesimally free from another operator the infinitesimal distribution of non-commutative polynomials in these operators is tractable. We demonstrate this with the commutator and anti commutator. This is joint work with Pei-Lun Tseng and the talk is based on arXiv:2308.02064.