

Probabilistic Operator Algebra Seminar

Organizer: Dan-Virgil Voiculescu

March 20 **Akihiro Miyagawa**, University of Kyoto

Title: *Convergence for non-commutative rational functions evaluated in random matrices.*

Non-commutative rational functions are possible combinations of non-commutative indeterminates by addition, multiplication and inversion. In the setting of finite von Neumann algebras, the evaluation of non-commutative rational functions in given operators works very well and they are realized as affiliated unbounded operators. In particular, we are interested their evaluation with free random variables and random matrices in terms of asymptotic freeness in free probability. In this talk, I will give an overview of recent developments in the relations between rational functions and free probability. In the sequel, I will explain the result of the convergence of random matrices obtained from non-commutative rational functions. This talk is based on the joint work with B. Collins, T. Mai, F. Parraud and S. Yin.