

Probabilistic Operator Algebra Seminar

Organizer: Dan-Virgil Voiculescu

October 18 **Akihiro Miyagawa**, Kyoto University

Title: *Rationality for operators obtained from free semicircular elements*

I will explain an equivalence between rationality of an operator obtained from free semicircular elements and finiteness of the rank of its commutator with right annihilation (creation) operators via representation on full Fock space. Our results are analogues of the results for free group which were conjectured by A. Connes and solved by G. Duchamp and C. Reutenauer, and extended by P. A. Linnel. For the proof, I will explain how it involves a combination of the tools for noncommutative rational power series, Haagerup type inequality and matrix tricks. This talk is based on my preprint, arXiv:2109.08841.