Probabilistic Operator Algebra Seminar

Organizer: Dan-Virgil Voiculescu

March 17 **Panagiotis Zografos**, University of Leipzig, Institute of Mathematics

Title: *Asymptotics of Harish-Chandra transform and infinitesimal free probability*

In the last ten years, Schur generating functions and Harish-Chandra transforms were introduced and developed as a new version of the Fourier transform for discrete particle systems and random matrices. In this talk, based on this toolbox, we will discuss some new results which allow to access not only the Law of Large Numbers, but also next terms of the asymptotic expansion of averaged empirical measures. We will also discuss the connection with infinitesimal free probability, higher order generalizations and we will introduce a quantized version of infinitesimal free probability. This allows to obtain Baik-Ben Arous-Peche phase transitions in the context of asymptotic representation theory and random domino tilings. This is based on joint work with Alexey Bufetov.