Combinatorial Aspects of Limit Theorems in Non-commutative Probability Theory

黃皓瑋

National Sun Yet-Sen University

Abstract

Free probability theory is a research field which in a non-commutative context parallels aspects of classical probability, where free products take the place of tensor products, and free random variables replace the independent ones. Since its inception by D. Voiculescu some 30 years ago, the theory itself has matured as a subject in its own right, with broad connections to several other parts of mathematics. In 2013, Voiculescu generalized the notion of free independence to consider left and right actions of operators on reduced free product spaces simultaneously, known as bi-free independence. In this talk, non-commutative central limit theorems and the concept of infinite divisibility will be introduced based on the tool of combinatorics. In particular, we will mention our work on bi-freely infinitely divisible laws and some other related topics.