MATHEMATICS AND STATISTICS
SEMINAR ANNOUNCEMENT

Tuesday, October 20
2:30 - 4:00 PM
McLean Hall 242.1

SPEAKER

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TITLE

Non-crossing partitions of type k, k-dimensional freeness and application to infinitesimal freeness.

ABSTRACT:

Abstract : Free probability theory was introduced by Voiculescu to investigate some operator theoretical problems. The combinatorial objects involved in the theory are lattices of non-crossing partitions, which can be embedded in the Cayley graphs of symmetric groups, known as the type A in the classification of finite reflection goups. Type B free probability was then introduced by Biane, Goodman and Nica, by replacing the symmetric groups by the hyperoctahedral groups (known as type B in the classification). A deep application of this theory was outlined by Belinschi and Shlyakhtenko : roughly speaking, given two time-indexed families of distributions, the free convolution of type B provides the first two leading terms of their free convolution of type A when t goes to 0. We will see that we may obtain the first k leading terms by developing a version of the free probability of type A, but with values in a k-dimensional commutative algebra, and we will study the non-crossing partitions appearing at the combinatorial level of this construction.