Department of Mathematics and Statistics

Colloquium Announcement

Friday
December 2nd 2016
University of Saskatchewan

ARTS Building
Room 101
3:30 PM

A Brief Overview of Bi-Free Probability

Guest Speaker: **Dr. Paul Skoufranis**
York University

Abstract:

Free probability is a non-commutative probability theory that studies the joint moments of operators acting on reduced free products of vector spaces. Since its inception by Voiculescu in the 1980s as an attempt to solve the isomorphic free group factor problem, free probability has become an important part of the theory of operator algebras with several applications to random matrix theory.

In this talk, after a general introduction to the ideas and concepts of free probability, we will provide a brief overview of the recent extension of free probability known as bi-free probability. Bi-free independence extends the notion of free independence in order to simultaneously study the left and right regular representations on free products of vector spaces. Our over-view will look at topics such as basic definitions, bi-free cumulants, bi-free infinitely divisible distributions, operator-valued bi-free independence, bi-free matrix models, and bi-free partial transformations.

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