

Probabilistic Operator Algebra Seminar

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July 6 **Nicolas Gilliers** , NTNU Trondheim

Title: *Planar holonomy fields based on Zhang algebras*

In this talk, I will introduce Zhang algebra valued random planar holonomy fields. Zhang algebras, also named H-algebras, are non-commutative analogues of the space of functions on a group. These non-commutative groups arise, at least intuitively, if the deformation parameter of a quantum group is set to zero. In the classical sense, holonomy fields are matricial valued stochastic processes indexed by loops drawn on the plane. They model the random holonomy around a loop of a random connection on a principal bundle over the plane. The planar master field defined by T. Levy is a non-commutative free analogue of an holonomy field obtained as the high dimensional limit of a Unitary Brownian planar holonomy field. I will explain how to associate to a standard (classical, free, free with amalgamation) non-commutative Levy process valued in a Zhang algebra an holonomy field on the plane. This work adds a categorical perspective on the previous article by G. Cebron, A. Dahlqvist and F. Gabriel arXiv:1601.00214 on generalized master fields.