

Probability Seminar

Organizer: Christian Gromoll & Tai Melcher

Monday, 2:00–3:00pm, Kerchof 326

Feb 5 **Matt Cecil**, U Conn

Taylor map on complex path groups

The classical Taylor expansion can be interpreted as describing a unitary map from holomorphic functions on \mathbb{C}^d which are square integrable with respect to a suitable Gaussian measure to the set of its “derivatives at the origin,” interpreted as the symmetric tensor algebra (Fock space) along with a suitable norm. This map is related to the fock space representation of classical quantum mechanics. Analogous maps have been shown to exist when \mathbb{C}^d is replaced by a Hilbert space or by a non-commutative Lie group G . In this talk, I will review these known cases and the challenges they present. The goal will be to describe a Taylor map which takes functions on the space of paths on a Lie group which are square integrable with respect to a heat kernel measure to subspace of the dual of the universal enveloping algebra, a setting in which the base group is both non-commutative and infinite dimensional.