

Regularity of distributions of Wigner integrals

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Place **Campus Kirchberg, room B04**

With their seminal work in 1998, P. Biane and R. Speicher founded a non-commutative counterpart of classical stochastic calculus and of Malliavin calculus in the realm of free probability. In particular, they introduced the so-called Wigner integrals as the free analogue of the classical Wiener-Itô integrals. In my talk, I will discuss how recent results that were obtained in joint work with R. Speicher and M. Weber, which under certain conditions allowed to exclude atoms in the distributions of non-constant polynomials in finitely many non-commutative random variables, can be extended and applied to Wigner integrals. More precisely, we will show that distributions of non-trivial Wigner integrals and, more generally, non-trivial elements in the finite Wigner chaos cannot have atoms, by which we answer a question of I. Nourdin and G. Peccati.