Applied Mathematics Seminar

UCC

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Quantization of probability

Aspect's experiments from the early 1980's demonstrated the violation of Bell inqualities, which already in 1964 aimed at how to realize the famous Einstein–Podolsky–Rosen gedanken experiment from the early 1930s. Essentially the latter addressed the incompatibility of the laws of probability and those of quantum mechanics for a consistent interpretation of reality.

From the more mathematical point of view this causes the need to "quantize probability". In other words, one is looking for a systematic way to algebraicise probability theory, with the goal to provide a mathematical framework in which both probability and quantum probability can be formalized consistently.

My talk will introduce to this modern discipline, nowadays also called 'Noncommutative Probability', and should be accessible to a general mathematical audience.

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