Mathematics, Statistics, and Computer Science **@ UIC**

Statistics Seminar

The exponential transform of a path

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Abstract: The exponential transform of a vector-valued path, also known as the signature of a path, is the formal sequence of associated iterated path integrals. It is widely believed (and surprisingly) that the signature contains essentially all information about the underlying path. In this talk, we will prove that every (rough) path is uniquely determined by its signature up to certain tree-like equivalence. Moreover, looking into its probabilistic counterpart, we will obtain stronger uniqueness results for sample paths of Gaussian processes by applying the technique of Malliavin's calculus. This part inspires the development of a universal way to reconstruct every rough path from its signature.

Wednesday, April 19 at 4:00 PM in SEO 636