

Prof Jan Rosinski

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Thursday, September 22, 2016

Rm 277 WCharlton Hall

4 – 5 pm

On the interlinks between Gaussian and Poissonian infinitely divisible processes

Gaussian and Poissonian infinitely divisible (ID) processes come from inherently different types of a stochastic noise. A base of a Gaussian process is a continuously fluctuating thermal type noise while a Poissonian ID process results from a discrete pulses noise. Brownian motion is a primary example of a Gaussian process. It is, therefore, somewhat surprising that the square of a Brownian motion is a Poissonian ID process, thus based on a pulse noise. We will further discuss this phenomenon as well as some related open problems.

One of the fundamental results for Gaussian processes is the Cameron-Martin formula. In this talk we propose an analogy of this formula for Poissonian ID processes, which can also be viewed as an isomorphism identity. The applicability of such identities relies on a precise understanding of Levy measures of stochastic processes and their representations. We will illustrate this approach on examples.

Refreshments will be served 3:15 – 3:45 pm in the Faculty & Graduate Student Lounge
Rm 4118 French Hall West