Publicacions més rellevants de la línia de recerca:
Aplicacions del Càlcul Estocàstic en Finances i Estadística

Referència: Barndorff-Nielsen, O.E., Corcuera, J.M., Podolskij, M. Power variation for Gaussian processes with stationary increments. *Stochastic Processes and Their Applications.* **119(6)** (2009), pp. 1845–1865.

Abstract: We develop the asymptotic theory for the realised power variation of the processes $X = \phi \cdot G$, where G is a Gaussian process with stationary increments. More specifically, under some mild assumptions on the variance function of the increments of G and certain regularity conditions on the path of the process we prove the convergence in probability for the properly normalised realised power variation. Moreover, under a further assumption on the Hölder index of the path of , we show an associated stable central limit theorem. The main tool is a general central limit theorem, due essentially to Hu and Nualart (Y. Hu, D. Nualart, Renormalized self-intersection local time for fractional Brownian motion, Ann. Probab. (33) (2005) 948-983), Nualart and Peccati (D. Nualart, G. Peccati, Central limit theorems for sequences of multiple stochastic integrals, Ann. Probab. (33) (2005) 177-193) and Peccati and Tudor (G. Peccati, C.A. Tudor, Gaussian limits for vector-valued multiple stochastic integrals, in: M. Emery, M. Ledoux, M. Yor (Eds.), Seminaire de Probabilites XXXVIII, in: Lecture Notes in Math, vol. 1857, Springer-Verlag, Berlin, 2005, pp. 247-262), for sequences of random variables which admit a chaos representation.

Referència: Corcuera, J.M., Guerra, J. . Dynamic Complex Hedging in Additive Markets. (2009) *Quantitative Finance.* DOI: 10.1080/14697680902960234

Abstract: In general, geometric additive models are incomplete and the perfect replication of derivatives, in the usual sense, is not possible. In this paper we complete the market by introducing the so-called power-jump assets. Using a static hedging formula, in order to relate call options and power-jump assets, we show that this market can also be completed by considering portfolios with a continuum of call options with different strikes and the same maturity.

Referència: Corcuera, J.M., Kohatsu-Higa, A.. Statistical Inference and Malliavin Calculus,(2009). To appear in the Proceedings of the Sixth Seminar on Stochastic Analysis, Random Fields and

Applications, Ascona 2008.

Abstract: The derivative of the log-likelihood function, known as score function, plays a central role in parametric statistical inference. It can be used to study the asymptotic behavior of likelihood and pseudo-likelihood estimators. For instance, one can deduce the local asymptotic normality property which leads to various asymptotic properties of these estimators. In this article we apply Malliavin Calculus to obtain the score function as a conditional expectation. We then show, through different examples, how this idea can be useful for asymptotic inference of stochastic processes. In particular, we consider situations where there are jumps driving the data process.