

SEMINARI DE PROBABILITATS

PROBABILITY SEMINAR

Universitat de Barcelona–Universitat Autònoma de Barcelona

Titles and abstracts for the academic year 2008-2009

01/10/2008 Eddy Mayer-Wolf, Technion, Israel.

Correlation Inequalities in Wiener Space.

Abstract We present a number of correlation inequalities in finite or infinite dimensional Gaussian spaces involving suitably monotone, convex or log-concave functionals, which are presented in a unified manner as direct consequences of a suitable covariance expansion in terms of the Ornstein-Uhlenbeck semigroup. This is joint work with A.S. Ustunel and M. Zakai.

08/10/2008 Sebastian del Baño, CRM, Bellaterra, Spain.

Spot inversions in the Heston models.

Abstract We analyse the Heston stochastic volatility model under an inversion of spot. The result is that under the appropriate measure changes the resulting process is again a Heston type process whose parameters can be explicitly determined from those of the original process. This behaviour can be interpreted as some measure of 'sanity' of Heston model but does not seem to be a general feature of stochastic volatility processes.

29/10/2008 Josep Vives, Universitat de Barcelona, Spain.

An anticipating Itô formula for Lévy processes.

Abstract In this paper, we use the Malliavin calculus techniques to obtain an anticipative version of the change of variable formula for Lévy processes. Here the coefficients are in the domain of the annihilation (gradient) operator in the 'future sense', which includes the family of all adapted and square-integrable processes. This domain was introduced on the Wiener space by Alòs and Nualart (1998). Therefore, our Itô formula is not only an extension of the usual adapted formula for Lévy processes, but also an extension of the anticipative version on Wiener space obtained in Alòs and Nualart (1998).

05/11/2008 Marta Sanz-Solé, Universitat de Barcelona, Spain.

Hitting probabilities for stochastic waves.

Abstract For \mathbb{R}^d -valued stochastic processes $\{v(x), x \in \mathbb{R}^m\}$, we shall discuss conditions providing lower and upper bounds for the hitting probabilities $P\{v(I) \cap A \neq \emptyset\}$ in terms of the capacity and the Hausdorff measure of A , respectively. Applications to the stochastic wave equation with additive correlated noise will be given. The results are part of ongoing work with R. Dalang.

12/11/2008 Sebastian del Baño, CRM.

Some considerations in the trading of exotic options.

Abstract We present some of the real life features of the FX spot and derivatives market and show some consequences these have in the mathematical modelling of the market.