



LABORATOIRE MANCEAU DE MATHÉMATIQUES (LMM) - Équipe d'Accueil 3263

MANCEAU MATHEMATICS LABORATORY (LMM) - Research group 3263

The laboratory carries out research that is both theoretical and also applied to finance, insurance and to energy problems. This research is structured around 2 axes: one axis on probabilities and financial mathematics and one axis on the statistics of processes and applications. The aim of the work carried out within the LMM is to model random phenomena and to develop statistical and numerical methods in order to gain a better understanding of these "uncertain" phenomena. This relates to "extreme" events in insurance and climatology, and the evolution in the price of an insurance or financial product, for example.



22 people including

- 12 researchers and teachers-researchers and 1 associate professor
- 9 doctoral students and postdoctoral fellows
- 1 administrative and technical member of staff



Partnerships

- École Polytechnique, Laboratoire d'acoustique de l'Université du Mans (LAUM), University of Tunis, KTH (Stockholm), Shandong (China), Hong Kong, Kiev, Dallas, Moscow, Mexico City, University of Texas (USA), etc.
- Collaborations with the companies COVEA, EREN and EDF.



The laboratory is involved with 2 research projects supported by the Pays de la Loire Region: PANOrisk (development of decision-making support tools) and DEFIMATHS (promotion of mathematics in the west of France). It is also a partner of the ANR CAESARS project (renewable energy issues).

Member of the Institute of Risk and Insurance (IRA), supported by Le Mans Université

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2 lines of research

Probabilities and financial mathematics

The team has gained an international reputation in the field of Backward Stochastic Differential Equations (BSDEs). It also works with Stochastic Partial Differential Equations and Malliavin calculus for jump processes. The main applications relate to game theory, switching problems in investment choices, assessment of the pricing of financial or insurance products and issues around portfolio selection in the context of model uncertainties.



Statistics for processes and applications

The research themes, which are essentially theoretical, concern the inferential statistics of distribution processes and the statistics of fractional and/or long-memory processes. For example, work on the maximum likelihood estimation of the parameters of an autoregressive process directed by a stationary Gaussian noise and the study of the asymptotic properties of the estimators thus constructed. The application element of this mathematical statistics work relates to inertial central location systems - GPS sensor and work on various statistical aspects related to the electricity production of wind turbines.



The areas of applications



BANKING



INSURANCE



CLIMATOLOGY



NEW ENERGIES



SEISMOLOGY

