Thematic Session

Session title: Multivariate stochastic modelling in finance, insurance and risk management

Organizers:

Piotr Jaworski, University of Warsaw, `P.Jaworski@mimuw.edu.pl`

Matthias Scherer, Technische Universität München, `scherer@tum`.de

Fabrizio Durante, Free University of Bozen-Bolzano, Italy, `fabrizio.durante@unibz.it`

Description of the topic:

The modelling of multivariate random objects is (in many cases) substantially more difficult than the treatment of a single random variable or stochastic process. This observation applies to the construction, estimation, analysis, and real-world use of multivariate stochastic models alike. Several challenging problems are related to favourite these models. First, the discrete nature of the dimensionality typically introduces non-trivial combinatorial problems, especially if the dimension of the problem is large. Constructing a multivariate distribution function required a matching stochastic model or unfeasible computations. Constructing multivariate stochastic processes with an intuitive and flexible dependence structure is also difficult. On the other hand, the financial and insurance industry (among many other fields of applications) have recognized miss-specified dependence structures as a major risk. For instance, pricing and risk management of portfolios is impossible without a firm understanding of the interactions between the involved objects. Finally, the amount of data often requires non-trivial numerical solutions. All these problems require the usage of the advanced mathematical tools from stochastic analysis and multivariate statistics to be handle in a correct way. The aim of this session is to bring together scientists from Germany and Poland together with recognized international experts in order to favour the interchange of ideas on a relevant topic.

2011 Mathematic Subject Classification:

91Gxx, 62Hxx