Fourth Seminar on

**Stochastic Analysis, Random Fields and Applications**

May 19-24, 2002

and

**Minisymposium on Stochastic Methods in Financial Models**

May 23-24, 2002

**Program**

Organizers

Robert C. Dalang
Ecole Polytechnique Fédérale

Marco Dozzi
Université de Nancy II

Francesco Russo
Université de Paris 13

This meeting is sponsored by the Swiss National Science Foundation, the Swiss Academies of Natural Sciences and Medecine, ETH-Zürich, EPF-Lausanne, the Banca Popolare di Sondrio (Suisse), the Centro Studi Bancari Lugano and the Sofipo Fiduciaire.
PROGRAM
Sunday, May 19, 2002

19:15  Aperitive

20:00  Dinner
Monday, May 20, 2002

7:30 - 8:30  Breakfast
8:30 - 8:40  Opening

8:40 - 9:25  J. BERTOIN, Université de Paris 6
Some aspects of additive coalescents

9:30 - 9:55  B. ROYNETTE, Université de Nancy I
On independence times and positions for random walks

Convergence of exclusion processes

10:20 - 10:50  Coffee break

10:50 - 11:35  F. FLANDOLI, Università di Pisa
Random currents and probabilistic models of vortex filaments

11:40 - 12:05  S. MELEARD, Université de Paris X
Probabilistic interpretation and particle method for 2d vortex equations
with Neumann's boundary condition

12:05 - 12:30  R. SOWERS, University of Illinois
Averaging, glueing conditions and singular perturbations

12:40 - 14:00  Lunch

14:00 - 14:45  M. LEDOUX, Université Paul Sabatier
Large deviations and support theorems for diffusions via rough paths

14:50 - 15:15  H. BESSAIH, Università di Pisa
A mean field result with application to 3d vortex filaments

15:15 - 15:40  M. ZÄHLE, Universität Jena
Stochastic integrals for fractional random fields and applications to
SPDE

15:40 - 16:10  Coffee break
Monday, May 20, 2002 (continued)

Parallel Session I : Room A

16:10 - 16:35  S. BONACCORSI, Università di Trento
On a class of stochastic linear Volterra equations

16:35 - 17:00  A. DERMOUNE, Université de Lille
Stability of a stochastic differential equation with measurable drift

17:00 - 17:25  P. LESCOT, Université de Picardie
Isovectors for the heat equation and Bernstein processes

Parallel Session II : Room B

16:10 - 16:35  M. GRADINARU, Université de Nancy I
Itô's formula for fractional Brownian motion

16:35 - 17:00  R. NORVAISA, University of Vilnius
The $p$-variation calculus and its relation to stochastic analysis

17:00 - 17:25  T.S. ZHANG, University of Manchester
Local times of fractional Brownian sheet

19:30  Dinner

Tuesday, May 21, 2002

7:30 - 8:30  Breakfast

8:40 - 9:25  S. ALBEVERIO, Universität Bonn
Recent developments in stochastic analysis related to quantum fields and hydrodynamics

9:30 - 9:55  A.B. CRUZEIRO, Universidade de Lisboa.
An asymptotic estimate for the vertical derivatives of the heat kernel associated to the horizontal Laplacian

9:55 - 10:20  S. TINDEL, Université de Paris 13
Almost-sure Lyapunov exponent of a parabolic SPDE

10:20 - 10:50  Coffee break
Special session in honor of Philippe Blanchard on the occasion of his sixtieth birthday:

10:50 - 11:35 P. BLANCHARD, Universität Bielefeld
Knowledge of the exponent in scale-free random graphs does not determine the threshold properties

11:40 - 12:05 A.D. BARBOUR, Universität Zürich
Asymptotic behaviour of a metapopulation model

12:05 - 12:30 W. ZHENG, University of California at Irvine
Rate of convergence in homogenization of parabolic PDEs

12:40 - 14:00 Lunch

14:00 - 14:45 P. IMKELLER, Humboldt-Universität Berlin
Stochastic resonance

14:50 - 15:15 A. MILLET, Université de Paris X
A discretization scheme for the heat equation perturbed by a space-correlated Gaussian noise

15:15 - 15:40 R. LÉANDRE, Université de Nancy I
Classifying spaces, string structure and stochastic Dirac-Ramond operator

15:40 - 16:05 J.-Cl. ZAMBRINI, Universidade de Lisboa
Stochastic deformation of contact geometry

16:05 - 16:35 Coffee break

Parallel Session III: Room A

16:35 - 17:00 O. LÉVÈQUE, Ecole Polytechnique Fédérale de Lausanne
Hyperbolic SPDE's driven by boundary noise

17:00 - 17:25 L. ZAMBOTTI, Universität Bielefeld
Occupation densities for solutions of SPDEs with reflection

Parallel Session IV: Room B

16:35 - 17:00 B. RUEDIGER, Universität Bonn
Stochastic integration with respect to compensated Poisson random measures and the Lévy-Itô decomposition theorem on separable Banach spaces

17:00 - 17:25 Y. OUKNINE, Université de Marrakech
Regularity and representation of viscosity solutions of PDEs via BSDEs

19:30 Dinner
Wednesday, May 22, 2002

7:30 - 8:30  Breakfast

8:40 - 9:25  M. CRANSTON, University of Rochester
Lyapunov exponents for the parabolic Anderson model

9:30 - 9:55  M. SANZ, Universitat de Barcelona
Stochastic wave equation with 3 spatial dimensions: existence of density

9:55 - 10:20  D. GEMAN, CMLA, ENS-Cachan
Stochastic models for coarse-to-fine search

10:20 - 10:50  Coffee break

10:50 - 11:35  R.J. ADLER, Technion - Haifa
Gaussian random fields on manifolds

11:35 - 12:05  M. WSCHEBOR, Universidad de la Republica Montevideo
Condition numbers in optimization problems and extrema of random fields

12:05 - 12:30  J. ROSINSKI, University of Tennessee
Boundedness and continuity of infinitely divisible processes

12:40 - 14:00  Lunch

14:00 - 14:45  K. WORSLEY, University of McGill
The geometry of random fields in astrophysics and brain mapping

14:50 - 15:15  I.M. DAVIES, University of Wales Swansea
Stochastic heat and Burgers equations and the intermittence of turbulence

15:15 - 15:40  P. VALLOIS, Université de Nancy I
Asymptotic estimates for the ruin problem

15:40 - 16:10  Coffee break
Wednesday, May 22, 2002 (continued)

16:10 - 16:35 B. OKSENDAL, University of Oslo. White noise calculus for Lévy processes with applications to finance

16:35 - 17:00 M.-O. HONGLER, Ecole Polytechnique Fédérale de Lausanne
   The right time to sell a stock whose price is driven by Markovian noise

17:00 - 17:25 P. CHERIDITO, ETH-Zürich
   Mixed fractional Brownian motion

19:30           Dinner
Thursday, May 23, 2002

Minisymposium on Stochastic Methods in Financial Models

organized in collaboration with Dr. Fulcieri Kistler, Università della Svizzera Italiana

7:30 - 8:30 Breakfast

8:30 - 8:40 Opening

8:40 - 9:25 C. MARTINI, Artabel SA
Characterization of cheapest superstrategies in the presence of model uncertainty

9:30 - 9:55 G. BARONE-ADESI, Università della Svizzera Italiana
Electricity derivatives

9:55 - 10:20 O.E. BARNDORFF-NIELSEN, University of Aarhus
Power variation: asymptotic distribution theory and financial economics

10:20 - 10:50 Coffee break

10:50 - 11:35 D. MADAN, University of Maryland.
Stochastic Volatility for Lévy Processes

Parallel Session V : Room A

11:40 - 12:05 E. NICOLATO, University of Aarhus
On multivariate extensions of Ornstein-Uhlenbeck type stochastic volatility models and multi-asset options

12:05 - 12:30 S. SCARLATTI, Università di Chieti-Pescara "G. d'Annunzio"
Pricing barriers under stochastic volatility : an approximation result

Parallel Session VI : Room B

11:40 - 12:05 C. STRICKER, Université de Franche-Comté
Hedging of contingent claims under transaction costs

12:05 - 12:30 A. MIRA, Univ. dell'Insubria Varese
Bayesian estimate of credit risk via MCMC with delayed rejection

12:40 – 14:00 Lunch
Thursday, May 23, 2002 (continued)

14:00 - 14:45 E. EBERLEIN, Universität Freiburg
Modelling of Lévy term structures

14:50 - 15:15 A.N. SHIRYAEV, Steklov Mathematics Institute Moscow
Invariance principle for an exotic horizontal-vertical random walk

15:15 - 15:45 Break

15:45 – 16:30 C. KLÜPPELBERG, Universität München
Optimal portfolio with bounded capital-at-risk

Parallel Session VII : Room A

16:35 - 17:00 A. SULEM, INRIA-Rocquencourt
Risk-sensitive portfolio optimisation with transaction costs

17:00 - 17:25 U. SCHMOCK, ETH/Uni Zürich
Dealing with dangerous digital s

17:25 - 17:50 V. BALLY, Université de Paris VI
A quantization algorithm for pricing and hedging american options

Parallel Session VIII : Room B

16:35 - 17:00 F. GOZZI, Università di Roma La Sapienza
Degenerate parabolic PDE's arising in pricing multiasset European contingent claims: regularity properties and Galerkin finite element approximation

17:00 – 17:25 A. KOHATSU-HIGA, Universitat Pompeu Fabra
An insider with progressive enlargement of filtrations

17:25 – 17:50 M.-C. QUENEZ-KAMMERER, Université de Marne-la-Vallée
Pricing in an incomplete market

19:30 Dinner
Friday, September 24, 2002

7:00 - 8:00 Breakfast

**8:15**  Bus departs from the Centro Stefano Franscini to the Centro Studi Bancari Lugano

9:30 - 9:35 Opening

9:35 - 10:00 H. GEMAN, ESSEC + Dauphine
Pricing and hedging in incomplete markets

10:05 - 10:30 R. CONT, Ecole Polytechnique Palaiseau
Pricing and hedging options with a mis-specified model

10:30 - 11:00 Coffee break

**Public Lectures:**

11:00 Opening

G. SCHEUENSTUHL, Risklab GmbH, Hypovereinsbank
Options and long-term-investment*

Discussion

J.-P. FOUQUE, North Carolina State University
Pricing volatility time scales*

Discussion

13:00 - 14:00 Aperitive - lunch

**14:15**  Bus departs from the Centro Studi Bancari Lugano to the Centro Stefano Franscini

**15:15**  Arrival at the Centro Stefano Franscini

15:15 - 16:00 Coffee and refreshments

From 16:00 Minibus to the Locarno train station

* The duration of this lecture is approximately 45 minutes