6. Research Centers

EURANDOM

EURANDOM is a European research institute for the study of random phenomena. It will conduct research in mathematical statistics, probability theory, operations research and their applications. The institute is funded by the Netherlands' Ministry of Education, Culture and Science and Eindhoven University of Technology. It is supported by the research organisations of various European Countries. EURANDOM is located on the campus of Eindhoven University of Technology in the Netherlands.

EURANDOM operates since in early 1998. Its scientific programme, still partly "under construction", contains research in the following areas:

- Complex stochastic models (including statistical image analysis and spatial statistics)
- Applications of statistics (including applications to biology and the analysis of large data sets)
- Financial stochastics
- Interacting stochastic systems
- Stochastic networks.

These research programmes will be carried out by postdoctoral fellows and graduate students under the direction of senior scientists in the relevant areas. Workshops and an extensive visitors' programme will be part of the scientific activities of EURANDOM.

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Further information

http://www.EURANDOM.tue.nl

Concentrated Course
Financial Derivatives and Portfolio Theory
May 3-8, 1999, EURANDOM Eindhoven (The Netherlands)

The Research Institute EURANDOM is located at the campus of the University of Technology Eindhoven.

The section *Financial Stochastics* of EURANDOM offers the above-mentioned Concentrated Course. Three experts have agreed to be principal lecturers of the course:

- Tomas Björk
  (School of Economics, Stockholm, Sweden)
- Ralf Korn (University of Mainz, Germany)
- Peter J.C. Spreij
  (Vrije Universiteit Amsterdam, The Netherlands)

Topics of modern financial mathematics will be presented in a way accessible to anyone with an undergraduate degree in mathematics, statistics or econometrics. The basics of stochastic calculus, necessary for the understanding of the financial applications, will be provided by P. Spreij. Then, T. Björk and R. Korn, two well-known researchers in the field of mathematical finance, will give an introduction to the theory of financial derivatives and optimal portfolios, including the theory of arbitrage.

The lectures will be based on the recent books by T. Björk and R. Korn. The participants of the course are encouraged to bring these books to the course.

Literature

1. Björk, T. (1998) *Arbitrage Theory in Continuous Time.* Oxford University Press.
2. Korn, R. (1997) *Optimal Portfolios.* World Scientific Singapore.

Registration

Please register via the registration form as soon as possible *before March 15, 1999.* The maximal number of participants is restricted to 70. Participation will be based on a FRFP (first register–first participate) policy.

At the moment we are working on an electronic registration form which can be used via EURANDOM's web-page in the future. However, if you want to register as soon as possible, please ask Connie M.M. Cantrijn for information (e-mail: cantrijn@eurandom.tue.nl).

More information

Please make any further inquiries to EURANDOM,
all@eurandom.tue.nl,
mikosch@math.rug.nl.

MaPhySto

The Danish National Research Foundation has recently established a Centre for Mathematical Physics and Stochastics (MaPhySto) with start April 1, 1998. Its Scientific Director is Ole E. Barndorff-Nielsen. The objective of the Centre is to strengthen the areas Mathematical Physics and Stochastics (and the interplay between these), by organizing conferences, summer schools and other activities in these areas.

More information can be found at the Centre's web page at

`http://www.maphysto.dk`

or by writing to the MaPhySto address:

Department of Mathematical Sciences
University of Aarhus
Ny Munkegade
DK-8000 Aarhus C
Denmark
phone: +45 8942 3188
fax: +45 8613 1769
email: maphysto@mi.aau.dk

Focus in January 1999

In January 1999 the Centre has a thematic period on *Lévy Processes, Product Integrals and Pathwise Integration.*

This will comprise

- an International Conference (18–22) on *Lévy Processes*,
- an Advanced Concentrated Course (see below),
- and a Workshop (11–13) on *Product Integrals and Pathwise Integration.*

The principal lecturers for the Course are Richard Dudley (MIT) and Rimas Norvaiša (Vilnius). Those interested in participating in one or more of the above-mentioned events are asked to indicate their wishes by email or letter to MaPhySto, or to contact the members of the Organizing Committee:

O.E. Barndorff-Nielsen (Aarhus, oebn@mi.aau.dk),
S.E. Graversen (Aarhus, matseg@mi.aau.dk),
T. Mikosch (Groningen, mikosch@math.rug.nl).

Concentrated Advanced Course (MaPhySto)
Pathwise Integration and Product Integrals
January 7–8 1999, University of Aarhus (Denmark)

Two leading experts have agreed to be principal lecturers:

- Professor Richard Dudley (MIT),
- Dr. Rimas Norvaiša (Institute of Mathematics and Informatics, Vilnius).

They recently finished a volume of Lecture Notes on the topic. Additional lectures will be given by other experts. The Course addresses PhD students, postdocs and researchers who want to learn about the history and recent developments in the classical approach to integration.

Focus

The Course focuses on the Riemann-Stieltjes integral and several of its extensions when neither integrator nor integrand have bounded variation. These integrals, as well as the product integral will be discussed with a view towards applications to sample functions of stochastic processes.

Among others, the following topics will be studied:

- The p–variation of various classes of stochastic processes.
- The relationship between p–variation and pathwise integration.
- The relationship between pathwise and stochastic integration.
- The relationship between product integrals and pathwise integration.
- Applications of pathwise integration, product integrals and related techniques.

The latter item is the main objective of the Workshop that takes place in the week following the Advanced Course. It is intended to bring together specialists from different areas such as probability theory, stochastic processes, statistics, physics, finance and analysis, and to discuss pathwise, stochastic and product integration techniques.

Organizing Committee

Ole E. Barndorff-Nielsen (Aarhus, Denmark), Svend Erik Graversen (Aarhus, Denmark), Thomas Mikosch (Groningen, The Netherlands).

Registration

Please register via the registration form located at

`www.maphysto.dk/events/LevyProc/CAC/register.html`

as soon as possible *before December 1, 1998.* There is no registration fee.

More Information

From our web pages you may find more information, or contact us, for instance by
e-mail: maphysto@imf.au.dk.

Concentrated Advanced Course (MaPhySto)
Stochastic Simulation – with a view towards stochastic processes
February 22-26, 1999, University of Aarhus (Denmark)

The course will cover some main themes in the part of stochastic simulation outside of Markov chain Monte Carlo methods and random variate generation, in particular:

- Simulation of steady-state characteristics (variance estimation, batch means, multiple replications, regenerative simulation)
- Gradient estimation (infinitesimal perturbation analysis, the score function method)
- Simulation of some special processes (Gaussian processes, Lévy processes, solutions to SDE's).

Registration

Please register via the registration form located at `www.maphysto.dk/events/SAcourse99/register.html` as soon as possible *before January 15, 1999.* There is no registration fee.

More Information

From our web pages you may find more information on this and other events. Some travel directions are also provided. You are also always welcome to contact us at any of the above-mentioned addresses.

Summer School (MaPhySto)
Empirical Processes
August 9–20, 1999, University of Aarhus (Denmark)

The Summer School is addressed to PhD's and PostDoc's from all over the world. There will be 4 series of principal courses (approx. 7–9 lectures of 45 min.) in various topics from the theory of empirical processes:

- Uniform Central Limit Theorems,
  R. M. Dudley (MIT).
  Some of the lectures will be based on parts of a book by the author, also called *Uniform Central Limit Theorems* to be published by Cambridge University Press, probably in the first half of 1999.
- Empirical Processes at Work in Statistics,
  A.W. Van der Vaart (Amsterdam) and J.A. Wellner (Seattle).
- Empirical and Partial-sum Processes Revisited as Random Measure Processes,
  P. Gänssler (Munich).
  The lectures will partly base on tools from modern empirical process theory as presented e.g. in Van der Vaart and Wellner [(1996): *Weak Convergence and Empirical Processes*; Springer Series in Statistics].
- Convergence in Law of Random Elements and Sets, J. Hoffmann-Jørgensen (Aarhus).

Besides the principal lectures, there will be a series of talks by invited researchers in the area and the participating PhD's and PostDoc's. To each of the principal courses there will be Lecture Notes available.

Registration

Please register via the registration form located at `http://www.maphysto.dk/events/EmpirProc99/register.html` *before before June 1st, 1999.* The registration fee is DKK 400 (approx. $60).

More Information

From the MaPhySto web-site
`www.maphysto.dk`
you may find more information on this and other events. Some travel directions are also provided. You may also obtain more information from the local organizer

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Laboratory for Computational Stochastics—New!

A new research laboratory, working with projects in computational stochastics, has recently been opened at the Department of Mathematical Sciences, University of Aarhus.

Further information about the activities of the laboratory can be obtained by visiting the homepage:

`http://www.imf.au.dk/stoclab/`

First Research Reports

1. Gundersen, H.J.G., Jensen, E.B.V., Kiêu, K. and Nielsen, J., The efficiency of systematic sampling in stereology—reconsidered (February 1998).
2. Jensen, E.B.V. and Nielsen, L.S., Inhomogeneous Markov point processes by transformation (June 1998).
3. Nielsen, J., The distribution of volume reductions induced by isotropic random projections (August 1998).

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Fields Institute

Fields Institute Workshop
Probability in Finance
January 26–30, 1999, Toronto (Canada)

Organizing Committee

C. Albanese (University of Toronto),
D. Dawson (Fields Institute),
H. Föllmer (Humboldt Universität Berlin),
P.E. Greenwood (University of British Columbia),
T. Kurtz (University of Wisconsin),
T. Lyons (Imperial College),
D. Salopek (York University).

Major themes

will include:

- Interest Rates and Currency Models,
- Credit Risk,
- Risk Management,
- Interplay of Finance and Insurance,
- Derivative Pricing.

Confirmed speakers

Michel Crouhy (CIBC), Mark Davis (Mitsubishi Bank), Freddy Delbaen (ETH Zurich), Darrel Duffie (Stanford), Paul Embrechts (ETH Zurich), Hans Föllmer (*Kolmogorov lecturer*, Humboldt Universität Berlin), Helyette Geman (Univ. Paris IX Dauphine and ESSEC), David Heath (Cornell University), John Hull (University of Toronto), Ioannis Karatzas (Columbia University), Andrew Lo (MIT), L.C.G. Rogers (University of Bath), Steven Ross (Yale University), Steve Shreve (Carnegie Melon University), Stuart Turnbull (CIBC), Mark Yor (Univ. Paris VI).

The workshop is being organized in connection with the Fields Institute program in Probability and its Applications, August 1998 – June 1999. For further information about the workshop and the program, please see the program website

`http://www.fields.utoronto.ca/probability.html`

or write to:

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