

# RELATÓRIO TÉCNICO DE ATIVIDADES

## **Décima Escola Brasileira de Probabilidade Em conjunto ao Encontro Anual do IMS-2006 Relatório de Atividades**

A Décima Escola Brasileira de Probabilidade (X EBP) foi organizada pela Associação Instituto de Matemática Pura e Aplicada, IMPA e Instituto do Milênio IM-AGIMB, e foi realizada em conjunto com o Encontro Anual de 2006 do Institute of Mathematical Statistics (IMS), patrocinado pelo próprio IMS. O evento conjunto realizou-se na sede do IMPA, Rio de Janeiro, RJ, no período de 30 de julho a 04 de agosto de 2006. As atividades principais sob responsabilidade da Escola envolveram dois minicursos, sete palestras convidadas e cerca de 50 trabalhos apresentados na forma de posteres. A programação científica sob responsabilidade do IMS constou de 6 palestras plenárias, 18 sessões especiais em Probabilidade, 23 sessões especiais em Estatística, com um total de 116 palestras convidadas, comunicações orais e cerca de 40 trabalhos apresentados na forma de posteres. O evento conjunto contou com a participação de 246 pesquisadores e de 73 estudantes, estes últimos em sua maioria sul-americanos, que durante toda a semana puderam discutir sobre os principais temas atuais de pesquisa na área de Probabilidade e Estatística Matemática. Para uma significativa participação de pesquisadores e estudantes sul-americanos, além de jovens pesquisadores de outras regiões foi fundamental o apoio dado pelas agências de fomento: dentre os participantes do evento conjunto, além dos nove convidados (minicursos e palestras), 105 participantes (sul-americanos, estudantes e jovens pesquisadores) tiveram auxílio financeiro para custear os gastos de estadia e/ou transporte, obtido junto às agências de financiamento científico do Brasil: CAPES, CNPq, Faperj, Fapesp, Finep, com o apoio de projetos especiais como o Prosul e Pronex no âmbito brasileiro, e ainda com apoio de órgãos no exterior: do ICTP (International Center for Theoretical Physics), da European Science Foundation, através do projeto RDESES, e da NSF nos Estados Unidos. Houve ainda o apoio financeiro dos próprios organizadores, IM-AGIMB e IMPA. Cabe assinalar que toda a participação de pesquisadores do IMS não teve qualquer custo para os organizadores brasileiros ou para nossas agências.

Será publicado um volume com artigos nos tópicos discutidos durante a X EBP.

### **Programação Científica da EBP:**

#### **EBP- Minicurso 1:**

**“Determinantal processes and zeros of Gaussian analytic functions”  
Yuval Peres (UC Berkeley e Microsoft)**

#### **Aula 1: POINT PROCESSES AND REPULSION.**

Point processes (random scatters of points in space) have applications in many areas, including statistics and cosmology. Recently, there has been increasing interest in processes that exhibit "repulsion". We will see why zeros of random polynomials have this property, and describe the effect of repulsion on matching and allocation problems.

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## **Aula 2: ZEROS OF GAUSSIAN ANALYTIC FUNCTIONS**

Zeros of Gaussian analytic functions have a remarkable rigidity property, discovered by M. Sodin: The first order intensity determines the whole process. In several senses (e.g. hole probabilities, gravitational potential), the planar Gaussian zeros behave like a four dimensional Poisson process.

## **Aula 3: DETERMINANTAL PROCESSES**

Discrete and continuous point processes where the joint intensities are determinants arise in Combinatorics (Random spanning trees) and Physics (Fermions, eigenvalues of Random matrices). For these processes the number of points in a region can be represented as a sum of independent, zero-one valued variables, one for each eigenvalue of the relevant operator.

## **Aulas 4 e 5: ZEROS OF THE I.I.D. GAUSSIAN POWER SERIES.**

The power series with i.i.d. complex Gaussian coefficients has zeros that form an isometry-invariant determinantal process in the disk model of the hyperbolic plane. This allows an exact calculation of the law of the number of zeros in a subdisk. We also analyze the dynamic version where the coefficients perform Brownian motion.

## **EBP- Minicurso 2:**

**“Self-similarity and long-range dependence”**

**Murad S. Taqqu (U. Boston)**

### **Aula 1: “SELF-SIMILARITY AND COMPUTER NETWORK TRAFFIC”**

In this lecture we will introduce self-similarity in the context of computer network traffic. It will show why self-similarity is important in this area and will motivate the subsequent lectures. Ethernet local area network traffic appears to be approximately statistically self-similar. This discovery, made about eight years ago, has had a profound impact on the field. I will try to explain what statistical self-similarity means, how it is detected and indicate how one can construct random processes with that property by aggregating a large number of "on-off" renewal processes. If the number of replications grows to infinity then, after rescaling, the limit turns out to be the Gaussian self-similar process called fractional Brownian motion. If, however, the rewards are heavy-tailed as well, then the limit is a stable non-Gaussian process with infinite variance and dependent increments. Since linear fractional stable motion is the stable counterpart of the Gaussian fractional Brownian motion, a natural conjecture is that the limit process is linear fractional stable motion. This conjecture, it turns out, is false. The limit is a new type of infinite variance self-similar process.

### **Aula 2: “FRACTIONAL BROWNIAN MOTION, LONG-RANGE DEPENDENCE AND FARIMA MODELS”**

Long-range dependence in a stationary time series occurs when the covariances tend to zero like a power function and so slowly that their sums diverge. It is often observed in nature, for example in economics, telecommunications and hydrology. It is closely

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related to self-similarity. Self-similarity refers to invariance in distribution under a suitable change of scale. To understand the relationship between self-similarity and long-range dependence, suppose that the self-similar process has stationary increments. Then these increments form a stationary time series which can display long-range dependence. Conversely, start with a stationary time series (with long-range dependence). Then a central limit-type theorem will yield a self-similar process with stationary increments. The intensity of long-range dependence is related to the scaling exponent of the self-similar process. We shall provide here a tutorial on fractional Brownian motion, the Gaussian self-similar process with stationary increments, on its increment process known as fractional Gaussian noise, which displays long-range dependence, and on a large class of long-range dependent stationary sequences called FARIMA, which are commonly used in modeling such physical phenomena.

### **Aula 3: “SELF-SIMILARITY AND LONG-RANGE DEPENDENCE THROUGH THE WAVELET LENS”**

We provide a brief introduction to wavelets and describe how self-similar and long-range dependent processes can be detected by using the discrete wavelet transform. We discuss the nature of the wavelet coefficients and their statistical properties. The Logscale Diagram is introduced as a natural means to study scaling data and we show how it can be used to obtain unbiased semi-parametric estimates of the scaling exponent. We then focus on the case of long-range dependence and address the problem of defining a lower cutoff scale corresponding to where scaling starts. We also discuss some related problems arising from the application of wavelet analysis to discrete time series. Numerical examples using many discrete time models are then presented to show the quality of the wavelet-based estimator and how it compares with alternative ones. The examples include strong short range dependence, and non Gaussian series with both finite and infinite variance.

### **Aula 4: “SELF-SIMILAR STABLE PROCESSES AND FLOWS”**

Self-similarity involves invariance of the probability distribution under scaling and it is characterized by a parameter  $H$ . Brownian motion, for example, is self-similar with  $H=1/2$ . Fractional Brownian motion is a stochastic process parameterized by  $H$  with three characteristics: it is Gaussian, is self-similar and has stationary increments. It is the unique process with these characteristics. If the Gaussian distribution is replaced by an infinite variance symmetric alpha-stable distribution, then one does not have uniqueness anymore. There are in fact an infinite number of processes  $X$  that are symmetric alpha-stable, self-similar with stationary increments. We want to classify a subclass of them, the so-called "mixed moving average" ones by relating their representations to flows. We obtain a decomposition of the process  $X$ , unique in distribution, into three independent components, which we characterize and associate with flows. The first component is associated with a dissipative flow. Examples include the limit of telecom process, the so-called "random wavelet expansion" and Takenaka processes. The second component is associated with a conservative flow. Particular cases include linear fractional stable motions.

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***Ambos os mini-cursos tiveram a duração de cinco horas. Notas foram impressas e distribuídas aos participantes.***

## **EBP - Palestras convidadas**

### **Vincent Beffara (ENS Lyon)**

#### **“Columnar effects and pinning for a few oriented polymer models”**

**Resumo:** “We present new results on the effect of a "columnar defect" (i.e. of a perturbation of the environment along a line) on various models related to directed polymers driven by a random two-dimensional Poisson process. Related to these are the so-called "slow-bond problem" for the asymmetric exclusion process, and a new process defined in terms of interacting and annihilating random walks. The main tool used in the study of these problems, even though the specific details differ in each case, is that of "influence percolation", i.e. a way to relate these problems to one of one-dimensional, dependent, long-range percolation.”

### **Jacob van den Berg (CWI)**

#### **“Self-destructive percolation in the plane”**

**Resumo:** “Most of this talk is about joint work with Rachel Brouwer and Balint Vagvolgyi. A few years ago two of us, motivated by certain forest-fire processes, introduced the self-destructive percolation model (abbreviated sdP). A typical configuration for the sdP model with parameters  $p$  and  $\delta$  is generated in three steps: First we generate a typical configuration for the ordinary percolation model with parameter  $p$ . Next, we make all sites in the infinite occupied cluster vacant. Finally, each site that was already vacant in the beginning or made vacant by the above action, becomes occupied with probability  $\delta$ . I will explain the background of this model, some general properties, a conjecture (about discontinuities of the percolation probability function), and partial continuity results.”

### **Stella Brassesco (IVIC)**

#### **“Front fluctuations in a stochastic reaction diffusion equation”**

**Resumo:** A reaction diffusion equation with the reaction term being the derivative of a double well potential is a basic model for the study of phase separation and interface dynamics, and in that context it is natural to consider the effect of a small random forcing term in the solutions with initial condition close to the profile representing the interface. In the one dimensional case, when the random term is given by a space-time white noise, in the limit as the strength of the noise goes to zero and the volume, goes to infinite, the interface, under a suitable time scaling, describes a Brownian motion, provided that initially it was centered far away from the boundary. When conditions that force the two different phases at the boundary are considered, a non linear drift appears in the equation governing the limit motion of the interface (again in a suitable time scaling), which has the effect of a wall. Indeed, in a further scaling, the motion converges to a reflected Brownian motion.

### **Donald Dawson (Carleton Univ)**

#### **“Emergence and multi-scale behaviour in spatially structured mutation-selection systems”**

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**Resumo:** We investigate the roles of rare mutations and spatial migration in the emergence of new types in evolutionary theory in the framework of a class of spatially structured stochastic population models which incorporate the combined effects of migration, selection and mutation. The models are formulated in terms of a spatially structured system of interacting Fleming-Viot measure-valued diffusions describing a multitype population with a structured type space. The objective is to investigate the evolution of the system in multiple space and time scales and in particular to describe the emergence and spatial spread of rare selectively advantageous mutants. The main results describe the emergence of new structured types with high information content and stability in an increasing hierarchy of time scales. The decomposition of the population into families based on genealogy leads to a description of local biodiversity in terms of the transience-recurrence properties of the migration mechanism. The methods used include dual representations, non-linear demographic dynamics, random McKean-Vlasov dynamics, quasi-stationary states and hierarchical mean-field limits. This is joint work with Andreas Greven.

**Paul Dupuis (Brown Univ.)**

**“Importance sampling for stochastic networks.”**

**Resumo:** “Importance sampling is a technique for reducing the variance in Monte Carlo estimation. It has the potential to be especially effective when rare events are important. However, the technique as traditionally developed is poorly understood in this setting, and particularly so in the context of stochastic networks. We will discuss a technique for the construction and rigorous analysis of importance sampling schemes based on subsolutions to a related nonlinear partial differential equation (the Isaacs equation). We will discuss a variety of stochastic networks, including networks with Markov modulated arrival and service rates and the serve-the-longer service discipline.”

**Vlada Limic (UBC)**

**“Attracting edge: does it happen and if so when?”**

**Resumo:** “Reinforcement is observed frequently in nature and society, where beneficial interactions tend to be repeated. Edge reinforced random walker on a graph remembers the number of times each edge was traversed in the past, and decides to make the next random step with probabilities favouring places visited before. This talk will address several natural questions on asymptotic behavior of “strongly reinforced walks”, i.e. those where the reinforcement weight function  $k \rightarrow W(k)$  is reciprocally summable. It was recently established (jointly with Pierre Tarres) that the walker asymptotically keeps traversing a single random edge with probability 1 under the above summability condition and some fairly general technical assumptions. In an ongoing work (jointly with Codina Cotar) we obtain further information on the time of appearance of this attracting edge.”

**Jim Pitman (U.C.Berkeley)**

**“Random partitions and continuum random trees.”**

**Resumo:** “Various models of random trees provide natural ways to construct random partitions, both finite and infinite, including partitions of a unit mass into a countable collection of sub-masses. This talk will review recent work on such random partitions and partition-valued processes, including processes of fragmentation and coagulation, based on consistent combinatorial constructions and their embedding in continuous time processes related to continuum random trees. This is joint work with coauthors R. Dong, A. Gnedin, B. Haas, G. Miermont and M. Winkel.”

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## EBP – Sessões de Posters

### Sessão I – Trabalhos mais voltados para Estatística. Domingo, 30 de julho.

Alexandra Johanna Esteban López (UFPE. Brasil)

Title: A test on runs for the scale alternative

Authors: Alexandra Johanna Esteban López

Cátia Regina Gonçalves (UnB. Brasil)

Title: Markov chains failure rates: kernel density estimates

Authors: Cátia R. Gonçalves, Chang C. Y. Dorea, Gregorio S. Atuncar

Claudia Monteiro Peixoto (USP, Brasil)

Title: On Runs on Exchangeable Bernoulli Process

Authors: Luis Gustavo Esteves, Claudia Peixoto, Adilson Simonis

Cleber Bisognin (UFRGS. Brasil)

Title: Classical and robust estimation in seasonal fractionally integrated model

Authors: Cleber Bisognin, Sílvia Regina Costa Lopes

Daniele da Silva Baratela Martins Neto (UnB. Brasil)

Title: Convergence results for MCEM and StEM algorithms

Authors: Daniele S.B. Martins Neto, Chang C.Y. Dorea

Elisabeti Kira (USP. Brasil)

Title: Some aspects of queues with abandonments

Authors: Elisabeti Kira, Marcos Nascimento Magalhaes, Henry Ogawa

Fabio Alexander Fajardo Molinares (UFPE. Brasil)

Title: Comparison of some optimization routines implemented in C, Ox and R softwares.

Authors: Fabio Alexander Fajardo Molinares, Nátaly Adriana Jiménez Monroy

Florencia Graciela Leonardi (USP. Brasil)

Title: Probabilistic tree based phylogenetics of protein families

Authors: Hugo A. Armelin, Antonio Galves, Florencia G. Leonardi, Sergio Russo Matioli.

Guilherme Pumi (UFRGS. Brasil)

Title: Some numerical results in copulas and dependence structure of random variables

Authors: Sílvia Regina Costa Lopes, Guilherme Pumi

Hugo Alexander de la Cruz (U. of Informatic Sciences, Cuba)

Title: Approximation of stochastic differential equations through stable and higher order LL methods

Authors: Hugo de la Cruz, Rolando Biscay

Jesus Enrique Garcia (UNICAMP. Brasil)

Title: Classification of bivariate data using copula theory with applications to linguistics.

Authors: Jesus Garcia, Veronica Andrea Gonzalez Lopez

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Luz Milena Zea Fernández (Univ. Nacional de Colômbia. Colômbia)

Title: Analysis the local influence in the Dirichlet regression model.

Authors: Luz Milena Zea Fernández, Klaus Leite Pinto Vaconcellos

Marcelo Damasceno de Melo (IC-UFAL. Brasil)

Title: Data segmentation by superparamagnetic clustering in R

Authors: Marcelo Damasceno de Melo, Talita Perciano, Alejandro C. Frery

Marcelo Goncalves (USP. Brasil)

Title: Bounds for quantile-based measures of dependent risks' functions

Authors: Marcelo Goncalves, Nikolai Kolev, Antonio Elias Fabris.

Marcio Valk (UFRGS. Brasil)

Title: Semiparametric Estimation of Multivariate Fractionally Integrated Process

Authors: Sílvia R. C. Lopes, Marcio Valk

Marcus Alexandre Nunes (UFRGS. Brasil)

Title: Change point estimation in fractionally integrated processes

Authors: Sílvia Regina Costa Lopes, Marcus Alexandre Nunes

Mariela Fernández (USP. Brasil)

Title: Classifying a bivariate joint density

Authors: Mariela Fernández, Nikolai Kolev

Michelle Ferreira Miranda (UFMG. Brasil)

Title: Estimation of the drift and diffusion coefficients for a continuous time diffusion process

Authors: Michelle Ferreira Miranda, Gregorio Saravia Atuncar

Nátaly Adriana Jiménez Monroy (UFPE. Brasil)

Title: Evaluation of the sensibility of the RESET test to violation of the linear regression model assumptions .

Authors: Nátaly Adriana Jiménez Monroy, Fabio Alexander Fajardo Molinares

Philippe Berthet (IRMAR - University Rennes 1. France)

Title: Fractal dimension of unlucky points with respect to a class of density estimators .

Authors: P. Berthet

Roger William Câmara Silva (UFMG. Brasil)

Title: Ruin Probability with diffusion processes

Authors: Roger William Câmara Silva, Gregório Saravia Atuncar

Sandra Milena Hurtado Rua (Northern Illinois University. USAP)

Title: Joinpoint regression model for analysis of survival data

Authors: Sandra Milena Hurtado Rua

Sílvia Regina Costa Lopes (UFRGS. Brasil)

Title: Bandwidth selection in classical and robust estimation of long memory.

Authors: S.R.C. Lopes (UFRGS. Brasil), B.V.M. Mendes (UFRJ, Brasil)

Viviane Simioli Medeiros Campos (UFRN. Brasil)

## RELATÓRIO TÉCNICO DE ATIVIDADES

Title: Kernel estimation for stationary density of Markov chains with general state space  
Authors: Viviane S. M. Campos, Chang C. Y. Dorea

### **Sessão II – Trabalhos mais voltados para Probabilidade. Terça-feira, 1 de agosto.**

Alex Ramos (UFPE. Brasil)

Title: A non-ergodic 1-d particle process with two states

Authors: A. D. Ramos, C. S. Souza, A. Toom

Anatoli Iambartsev (USP. Brasil)

Title: Gibbs with external fields in image processing

Authors: Pechersky E., Iambartsev A.

Arnaud Le Ny (Université de Paris-XI, Orsay. France)

Title: Gibbsian description of mean-field models

Authors: C. Kueleske, A. Le Ny

Ary Vasconcelos Medino (UnB. Brasil)

Title: Anomalous diffusion index for Lévy motions

Authors: Chang C. Y. Dorea, Ary V. Medino

Calitéia Santana Sousa (UFPE. Brasil)

Title: All particle processes without collisions have a fixed point

Authors: C. S. Sousa, A. D. Ramos, A. Toom

Cira Guevara Otiniano (UnB. Brasil)

Title: Results about Lévy stable distributions.

Authors: Cira Etheowalda Guevara Otiniano, Chang Chung Yu Dorea.

Cristian Favio Coletti (USP. Brasil)

Title: Beta-paths in the Hammersley process.

Authors: Cristian F. Coletti, Leandro P.R. Pimentel

Ezequiel Rodrigues Barbosa (UFMG. Brasil)

Title: Optimal estimate for the heat semigroup via logarithmic Sobolev inequality

Authors: Ezequiel Rodrigues Barbosa

Fabio Prates Machado (USP. Brasil)

Title: Self-avoiding random walks on homogeneous trees

Authors: E. Lebensztayn, F. Machado, M. Zuluaga

Geraldine Góes Bosco (USP. Brasil)

Title: Cooperative random sequential adsorption models: a constructive approach .

Authors: Geraldine Góes Bosco, Thomas Logan Ritchie.

Gustavo L. Gilardoni (UnB. Brasil)

Title: On Pinsker's type inequalities and Csiszar's f-divergences

Part I: Second and fourth-order inequalities.

Authors: Gustavo L. Gilardoni

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Javiera Paulina Barrera Martinez (U.T. Federico Sta. María, Chile)  
Title: Cut-off for  $n$ -tuples of exponentially converging processes  
Authors: Barrera, J., Lachaud, B., Ycart, B.

Lilium Cardeno (USP. Brasil)  
Title: Large deviations for short recurrence cylinders  
Authors: Lilium Cardeno

Luiz Renato Fontes (USP. Brasil)  
Title: K-processes, scaling limit and aging for the REM-like trap model  
Authors: Luiz Renato Fontes and Pierre Mathieu

Marcelo Ventura Freire (UNICAMP. Brasil)  
Title: Percolation for the stable marriage of Poisson and Lebesgue  
Authors: Freire, Popov, Vachkovskaia

Martín Eduardo López Daneri (UBA. Argentina)  
Title: Valuations coupling with applications to cake cutting  
Authors: Martín López Daneri, Guillermo Tomás Tetzlaff

Miguel Abadi (UNICAMP, Brasil)  
Title: Large deviations for short recurrence  
Authors: Miguel Abadi

Miriam Harumi Tsunemi (USP. Brasil)  
Title: On the problem of determining optimal inspection interval under Taguchi's on line quality monitoring procedure for attributes  
Authors: Tsunemi, Miriam Harumi; Esteves, Luís Gustavo

Nancy Garcia (UNICAMP. Brasil)  
Title: Spatial birth and death processes as solutions of stochastic equations  
Authors: Nancy L. Garcia, Thomas G. Kurtz

Olivier Bertoncini (Université de Rouen. France)  
Title: Cutoff phenomenon and metastability for Markov chains  
Authors: Roberto Fernandez, Javiera Barrera, Olivier Bertoncini

Pablo A. Ferrari (USP. Brasil)  
Title: Quasi stationary distributions and Fleming-Viot processes  
Authors: Pablo A. Ferrari, Nevena Maric

Pablo Groisman (UBA. Argentina)  
Title: Continuity of the explosion time in stochastic partial differential equations  
Authors: Fernandez Bonder, J., Groisman, P. Rossi, J.D.

Paulo H. S. Lima (USP. Brasil)  
Title: Scaling limit and aging for the Bouchaud trap model in the hypercube  
Authors: L. R. G. Fontes, P. H. S. Lima

Thomas Logan Ritchie (USP. Brasil)

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Title: Exponential rates of convergence in the multidimensional ergodic law of large numbers for constructable random fields

Authors: Geraldine Góes Bosco, Fábio Prates Machado, Thomas Logan Ritchie.

Name: Valentin Sisko (USP. Brasil)

Title: On the shape stability for a growth model

Authors: Mikhail Menshikov, Valentin Sisko, Marina Vachkovskaia

Vincent Deveaux (Université de Rouen. France)

Title: Partially Oriented Gibbs Measures

Authors: Vincent Deveaux

Vladas Sidoravicius (IMPA. Brasil)

Title: Stochastic growth in dangerous environment

Authors: J. van den Berg, Y. Peres, V. Sidoravicius, M. E. Vares

Vladimir Belitsky ( USP, Brasil)

Title: Collapse Interest

Authors: S. Aspandiarov, V. Belitsky, E. Pechersky

### **Programação Científica do Encontro Anual do IMS**

Títulos e resumos no livro de programa em anexo.

#### **IMS Palestrantes Convidados Especiais:**

##### **IMS Wald Lecture (série de tres palestras)**

Peter Hall

##### **IMS Le Cam Lecture**

Stephen Stigler

##### **IMS Medallion Lectures**

Paul Glasserman

Greg Lawler

Thomas Mountford

Michael Woodroffe (cancelada - motivo Varig)

#### **Statistics Program -- July 30–August 2**

##### **1. Analysis of longitudinal data**

Runze Li, Pennsylvania State University

Naisyin Wang, Texas A&M University

Joel Dubin, University of Waterloo

##### **2. Statistical learning**

Phil Long, Google (formerly Columbia University)

Mikhail Belkin, Ohio State

##### **3. Statistics in Finance**

Jianqing Fan, Princeton University

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Per A. Mykland, The University of Chicago

## **4. Aggregation of estimators**

Nicolas Vayatis

Feng Liang

Yuhong Yang

## **5. Statistical analysis of shapes and images**

Rabi N. Bhattacharya, University of Arizona

Ian Dryden, University of Nottingham

Washington Mio, Florida State University

## **6. Estimation in time series that are both non-linear and non-stationary**

Robert deJong, Ohio State University

Yoosoon Chang, Rice University

## **7. Adaptive smoothing applied to images and processes**

J. Polzehl, Berlin

C. Kervann, Rennes

A. Goldenshluger, Haifa

## **8. Inference for high-dimensional data and models**

A. Tsybakov, Paris

S. van de Geer, Zurich

Y. Ritov HU, Israel

P. Bickel (discussant)

## **9. Graphical models: Algorithms and statistics**

Mathias Drton, Univ. Chicago

Zoubin Ghahramani, Cambridge University

Elchanan Mossel, UC Berkeley

## **10. Statistics and the Environment**

Tilmann Gneiting, Seattle

Michael Lavine, Duke

## **11. Inverse problems, deconvolution and applications**

Laurent Cavalier, (Marseille)

Moulinath Banerjee, (Michigan)

Geurt Jongbloed (Amsterdam)

## **12. Modeling dependencies via copulas and applications**

Yanqin Fan, Vanderbilt University

Jose Maria Gonzalez Barrios, Universidad Nacional Autonoma de Mexico

Stephane Girard, Université Joseph Fourier

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## **13. Information and complexity**

Dean Foster, U Penn

Sham Kakade, Toyota Technol. Institute at Chicago

Peter Grunwald, CWI

## **14. Advances in statistical genomics**

Hans Van Houwelingen, (Leiden)

Sayan Mukherjee, (Duke)

Ernst Wit, (Lancaster)

## **15. Analysis of functional data**

Garreth James (USC)

Jane-Ling Wang (UCD)

Steve Marron (UNC)

## **16. Astrostatistics**

Domenico Marinucci, Universita di Roma, "Tor Vergata"

Ji Meng Loh, Columbia University

John Rice, Berkeley

Chad Schafer (discussant)

## **17. Multiple hypothesis testing and false discovery rate**

Yoav Benjamini, Tel Aviv University

Sanat Sarkar, Temple University

## **18. Frequentist analysis of Bayesian procedures**

Subhashis Ghosal, (North Carolina)

Yaeyong Lee, (Seoul)

Harry van Zanten, (Amsterdam)

## **19. Likelihood/Bayesian methods for discretely observed stochastic processes**

Osnat Stramer, University of Iowa

Yacine Ait-Sahalia, Princeton

Alexandros Beskos, Warwick, UK

## **20. Statistics for Levy processes**

Session organized by Mexican Society (AME)

Gernot Muller; Munich

Cecilia Mancini, Florence

Yacini Ait-Sahalia, Princeton

## **21. Parameter Estimation: Classical and Bayesian Aspects**

Session organized by Brazilian Society (ABE)

Organizer: Silvia Regina Lopes

Carlos Alberto Bragança

Francisco Louzada-Neto

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Héo S. Migon

## **22. Robust Statistics**

Session organized by Argentinian Society (SAE)

Organizer: Victor Yohai

Ricardo Maronna, Universidad Nacional de La Plata, Argentina

Daniel Peña, Universidad Carlos III, Spain

Roy Welsch, MIT, USA

## **23. Time Series Analysis**

Session organized by the Chilean Society (SOCHE)

Organizer: Wilfredo Palma

Pascal Bondon, CNRS, France

Mauricio Zavallos and Luiz K. Hotta, Department of Statistics, UNICAMP, Brazil

Wilfredo Palma, Department of Statistics, P. Universidad catolica de Chile, Chile (cancelado – motivo Varig)

**IMS - Comunicações Orais (cf. contributed papers no programa em anexo)**

**IMS – Statistics Posters (cf. Programa em anexo)**

**IMS - Fifth International Symposium on Probability and its Applications**

August 2–4

### **Medallion lectures**

Paul Glasserman (Wednesday)

Tom Mountford (Thursday)

Greg Lawler (Friday)

### **1. Stochastic networks**

Bruce Hajek

Balaji Prabhakar

Kavita Ramanan

Marty Reiman

### **2. Interacting particle systems**

Organizer: Pablo Ferrari

Chair: Pablo Ferrari

Luiz Renato Fontes

Timo Seppalainen

James Martin

Stefano Olla

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## **3. Random matrices**

Gerard Ben Arous  
Jinho Baik  
Pavel Bleher  
Alexander Soshnikov

## **4. Percolation**

Itai Benjamini  
Adam Timar  
Vladas Sidoravicius

## **5. Random motion in a random environment**

Ofer Zeitouni  
Martin Zerner  
Pierre Mathieu

## **6. SLE and Scaling Limits of Planar Processes**

Federico Camia  
Scott Sheffield  
Wendelin Werner

## **7. Mathematical finance**

Steven Shreve  
Walter Schachermayer  
Bruno Dupire

## **8. Levy processes and applications**

Henrik Hult  
Sid Resnick  
Gennady Samorodnitsky (não pode comparecer – motivo Varig)

## **9. Probability and Genetics**

Julien Berestycki  
Anja Sturm  
Tom Kurtz

## **10. Stochastic Geometry and Applications**

Sergei Zuyev  
Evgueni Spodarev  
Matthias Heveling

## **11. Combinatorial probability**

Jean Bertoin  
Anton Wakolbinger  
Boris Granovsky

## **12. Spin glass: statics, dynamics, and aging**

Anton Bovier (não pode comparecer – motivo Varig)  
Leticia Cugliandolo (não pode comparecer – motivo Varig)

# RELATÓRIO TÉCNICO DE ATIVIDADES

Dmitry Panchenko  
Gerard Ben Arous

## **13. Concentration inequalities**

Patrick Cattiaux

## **14. Mixing rates of finite Markov chains**

Alistair Sinclair  
Santosh Vempala  
Dana Randall

## **15. Gaussian processes, geometry and applications**

Jonathan Taylor  
Robert Adler

## **16. SPDE and measure-valued processes**

Sylvie Méléard  
Amaury Lambert

## **17. Stochastic Numerical Methods**

Alexander Yu. Veretennikov  
Miguel Martinez  
Soledad Torres  
Denis Talay

## **18. Random flows**

Olivier Raimond  
Jon Warren  
John Mattingly

**IMS - Probability Posters (cf. Programa em anexo)**