Science Meeting – Scientific Report

Scientific report (one single document in WORD or PDF file) should be submitted online <u>within two months of the event</u>. It should not exceed seven A4 pages.

**Proposal Title**: XVII Brazilian School of Probability

**Application Reference N°**: 4668

1)   **Summary (up to one page)**

The XVII Brazilian School of Probability (XVII EBP) took place in Mambucaba, Rio de Janeiro, Brazil, at Hotel do Bosque, in the period of August 4 to August 10, 2013. From a total of about 200 registrations to participate in the school, we were able to support a very significant number of researchers and students. It was attended by 153 researchers and graduate students working in the field of Probability.

The School gathered an international audience, constituted by specialists, young researchers and graduate students in the field. To be stressed the importance and vitality of European participation, including an expressive number of senior and young researchers. The participation of the new researchers from Europe would not be possible without the ESF support through the RGLIS project. The topic of this school fitted particularly well to 'Random Geometry of Large Interacting Systems and Statistical Physics'.

The meeting has successfully achieved its already traditional double goal: as school, it offered two mini-courses in fields of vigorous development, both conducted by top specialists; as workshop, invited speakers and contributors presented recent results in probability and rigorous statistical mechanics. There was a very active interaction between experienced researchers and young participants, both local or from abroad. Ninety-three works submitted by the participants have been selected for presentation. This led to rich sessions of short talks and posters. In this combination, graduate students, young postdoctoral researchers, and specialists have been exposed to material presented in a systematic way, as well as to new advances of the research in the field. Besides the lectures, talks and poster presentations, it was a pleasure for the organizers to see how lively were the discussions, and how people profited from the free time to start new research projects, to discuss ongoing ones, to share scientific ideas on the topics of the School.

As planned, the two minicourses consisted of 5 lectures of 90 minutes each: Professor Martin Hairer (Warwick University), lectured on Renormalisation Theory and Stochastic PDEs; Stochastic Interacting Particles and Statistical Mechanics, was the title of the minicourse delivered by Professor Errico Presutti (Gran Sasso Science Institute, L'Aquila). For each course there were three tutorial classes, of one hour each. These were given by David Kelly (Warwick, UK) for Hairer's course, and by Gioia Carinci (Modena, Italy) for Presutti's course. Each course had a set of lecture notes that was distributed to the participants, and also made available – jointly with additional references indicated by the lectures – at the web address:

http://www.impa.br/opencms/pt/eventos/extra/2013_xvii_ebp/attach/lecture_notes_brasil main.pdf

There were 10 invited plenary lectures of one hour each, 22 short talks (with groups of two parallel sessions). 83 posters have been presented by the participants, reporting on their work, and stimulating the discussion.

The XVII EBP has been organized by IMPA in collaboration with the Federal University of Rio de Janeiro (UFRJ) benefiting also from the technical support and infrastructure offered by IMPA, and as an activity of the research project INCTMat. The School had the scientific sponsorship of the Bernoulli Society for Mathematical Statistics and Probability, joining also the celebrations of 2013 as the International Year of Statistics, in celebration of the 300ths Anniversary of Jacob Bernoulli´s Ars Conjectandi.
Besides the institutions and grants of several participants, the financial support for the realization of the School came from the following agencies and institutions:

- CAPES - Coordenação de Aperfeiçoamento de Pessoal de Nível Superior;
- CNPq - Conselho Nacional de Desenvolvimento Científico e Tecnológico;
- FAPERJ - Fundação de Amparo à Pesquisa do Estado do Rio de Janeiro;
- FAPESP - Fundação de Amparo à Pesquisa do Estado de São Paulo;
- ESF – European Science Foundation – RGLIS Project
- INCTMAT – Projeto Instituto Nacional de Ciência e Tecnologia – Matemática
- IMPA – Associação Nacional de Matemática Pura e Aplicada
- UFRJ - Universidade Federal do Rio de Janeiro

2)   Description of the scientific content of and discussions at the event (up to four pages)

Martin Hairer lectured on "Renormalization theory and stochastic PDEs", with an introduction to very new ideas and methods under development, motivated by the basic and highly non-trivial problem of giving good meaning to solutions of a class of stochastic PDEs, like Allen-Cahn, KPZ, PAM. He introduced a new theory of "regularity structures" that allows to represent a large class of very irregular functions or distributions, and showed how to apply this theory to the above examples, via the association of a renormalisation group.

Errico Presutti lectured on system of interacting particles and phase transitions, examining the following fundamental issues: the Ginzburg-Landau phase transitions

(phase transitions as a variational problem); phase transitions at zero temperature (ground states of interacting particles); the Ising model at low temperatures (phase transitions via a percolation problem); Kac potentials and the van der Waals theory (course graining and effective Hamiltonians). In the second part of the course he focused on Fourier law and hydrodynamic limits, discussing Fourier law and stationary measure with reservoirs at the boundaries and hydrodynamics with free boundaries, and the Stefan problem.

A very important component of the scientific program was given by a set of high level plenary lectures, covering topics such as: rigorous derivation of Brownian motion as a deterministic system of hard-spheres; transitions in rotator systems; notions of nonlinear elasticity; solution to the clairvoyant demon problem and Winkler's compatibility; annihilating particle systems; chains with long memory and applications in neural nets; problems arising in equilibrium fluctuations of lattice systems, like thermal conductivity; investigation of microstructures in the one-dimensional Ising model under Kac potentials; random walks in random potentials and the limiting behaviour of Lyapunov; discussion of various stochastic models of biological interest.

The short talks and poster sessions covered a wide range of topics of current research, including: important progress about the order of the phase transition in planar FK percolation; novel results on frozen percolation; the dynamics of Ising droplets; scaling limits and condensation in stochastic dynamics; zero temperature limit in Kawasaki dynamics; large deviation principles in models of turbulence; directed polymers and stochastic heat equations; nonlinear Schrödinger equations with random potentials: existence and probabilistic properties; localization for random walk in random potentials; characterization of potential well spectrum in renewal processes; analyticity of pressure via maximizing measures; results on the stochastic Cahn-Hilliard equation; symmetric simple exclusion process with free boundaries; nonlinear fluctuations of particle systems; chains with complete connections; exit problems for dynamical systems perturbed by heavy tailed noise; homogenization for multi-dimensional maps and flows; virial series of a gas of point-particles under a uniformly repulsive interaction; about the location of the maximum of a continuous stochastic process; on the convergence to critical measure for zero range processes with random rates; stochastic models for cell mutations.

3)   Assessment of the results and impact of the event on the future directions of the field (up to two pages)

On the general aspect it is to be noted the strong increment in the interaction between the researchers in Brazil with the groups in Europe, as can be seen from the list of participants. One should remark that some of the topics presented in the School already resulted from such interaction, and there is continued collaboration in several topics, including: hydrodynamics with free boundaries; random walks in random environments; percolative systems with long range dependence; the nature of phase transitions in FK models; condensation and metastability.

4)   Annexes 4a) and 4b): Programme of the meeting and full list of speakers and participants

Annex 4a: Programme of the meeting

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XVII Escola Brasileira de Probabilidade
Mambucaba, August 4-10, 2013.

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Program

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Hour	Sunday,4	Monday,5	Tuesday,6	Wednesday, 7	Thursday, 8	Friday, 9		Saturday, 10
9:00 - 10:30		E. Presutti Stochastic Interacting Particles and Statistical Mechanics	M. Hairer Renormalisation Theory and Stochastic PDEs	E. Presutti Stochastic Interacting Particles and Statistical Mechanics	M. Hairer Renormalisation Theory and Stochastic PDEs	E. Presutti Stochastic Interacting Particles and Statistical Mechanics		8:30 - 9:30 T. Mountford Limiting behaviour of Lyapunov exponents
10:30 - 11:00		Break		Break		Break		
11:00 - 12:30		M. Hairer Renormalisation Theory and Stochastic PDEs	E. Presutti Stochastic Interacting Particles and Statistical Mechanics	M. Hairer Renormalisation Theory and Stochastic PDEs	E. Presutti Stochastic Interacting Particles and Statistical Mechanics	M. Hairer Renormalisation Theory and Stochastic PDEs		9:30 - 10:30 S. Olla Macroscopic energy fluctuations and thermal conductivity in system of oscillators with conservative noise
12:30 - 15:00		Lunch		FREE From 12:30-18:30	Lunch			
15:00 - 16:00		G. Carinci Exercises	D. Kelly Exercises		G. Carinci Exercises	**Session A2: (15min)** S. Brassesco M. Hoegele G. Flores D. Kelly	**Session B2: (15min)** I. Armendariz S. Grosskinsky D. Marchetti L. Pimentel	
16:00 - 17:00		D. Kelly Exercises	G. Carinci Exercises	FREE From 12:30-18:30	D. Kelly Exercises	**Session A3: (20min)** H. Lacoin V. Tassion D. Kiss	**Session B3: (20min)** K. Ravishankar R. Schinazi P. Ferrari	Encerramento 11:00
17:00 - 17:30		Break			Break			
17:30 - 18:30	Registration	T. Bodineau The Brownian motion as the limit of a deterministic system of hard-spheres	S. Luckhaus From lattice based Hamiltonians to nonlinear elasticity		G. Giacomin Synchronization and transitions in active rotator systems	L. Triolo An analysis of some stochastic models of biological interest		
18:30 - 19:30	Registration	V. Sidoravicius Clairvoyant demon problem or scheduling of random walks on complete graphs	A. Galves Infinite systems of interacting chains with memory of variable length - a stochastic model for biological neural nets	**Session A1: (15min)** M. Abadi S. Friedli L. Cioletti R. Bissacot / **Session B1: (15min)** P. Gonçalves A. Mailybaev C. Gallesco C. Landim	I. Merola Renewal properties and microstructures of the d = 1 Ising Model	L. Rolla Site recurrence for two-type annihilating particle systems		
19:30 - 20:30		Poster Session 1	Poster Session 2	Poster Session 3	Social			

Speakers:

Minicourses

Martin Hairer (Warwick University)
Renormalisation Theory and Stochastic PDEs.

Errico Presutti (Gran Sasso Science Institute, L'Aquila)
Stochastic Interacting Particles and Statistical Mechanics.

Invited (plenary) lectures:

Thierry Bodineau (École Normale Supérieure Paris)
The Brownian motion as the limit of a deterministic system of hard-spheres

Antonio Galves (Universidade de São Paulo)
Infinite systems of interacting chains with memory of variable length - a stochastic model for biological neural nets

Giambattista Giacomin (Université Paris Diderot)
Synchronization and transitions in active rotator systems

Stephan Luckhaus (Universität Leipzig)
From lattice based Hamiltonians to nonlinear elasticity

Immacolata Merola (Università di L'Aquila)
Renewal properties and microstructures of the d = 1 Ising Model

Thomas Mountford (École Polytechnique Fédérale de Lausanne)
Limiting behaviour of Lyapunov exponents

Stefano Olla (Université Paris Dauphine)
Macroscopic energy fluctuations and thermal conductivity in system of oscillators with conservative noise

Leonardo T. Rolla (IMPA)
Site recurrence for two-type annihilating particle systems

Vladas Sidoravicius (IMPA)
Clairvoyant demon problem or scheduling of random walks on complete graphs

Livio Triolo (Università di Roma "Tor Vergata")
An analysis of some stochastic models of biological interest.

Short talks

Miguel Abadi (IME - USP)
Characterization of potential well spectrum in renewal processes

Ines Armendariz (Universidad de Buenos Aires)
Scaling limit of the condensate dynamics in the zero-range process

Rodrigo Bissacot (IME - USP)
Analyticity of the pressure via maximizing measures

Stella Brassesco (Instituto Venezolano di Investigaciones Científicas)
Some results on the stochastic Cahn-Hilliard equation

Leandro Cioletti (UnB)
On nonlinear Schrödinger equations with random potentials: existence and probabilistic properties

Pablo Ferrari (Universidad de Buenos Aires)
Symmetric simple exclusion process with free boundaries

Gregorio Flores (PUC de Chile)
Directed polymers and the stochastic heat equation

Sacha Friedli (UFMG)
Some remarks on the role of the smoothness of the majority rule in chains with complete connections

Christophe Gallesco (IMECC-UNICAMP)
Localization for random walk in a slowly decreasing potential

Patricia Goncalves (PUC-Rio)
Nonlinear fluctuations of particle systems

Stefan Grosskinsky (University of Warwick)
Dynamics of condensation in the inclusion process

Michael Hoegele (Humboldt Universität Zu Berlin)
The first exit problem from the vicinity of an attractor for dynamical systems perturbed by heavy-tailed Lévy processes

David Kelly (University of Warwick)
Homogenisation for multi-dimensional maps and flows

Demeter Kiss (Centrum Wiskunde&Informatica)
Frozen percolation in two dimensions

Hubert Lacoin (CNRS)

The heat equation shrinks Ising droplets to points

Claudio Landim (IMPA)
Zero-temperature limit of the Kawasaki dynamics for the Ising lattice gas in a large two-dimensional torus

Alexei Malybaev (IMPA)
Large deviation principle in shell models of turbulence

Domingos Marchetti (IF-USP)
On the virial series of a gas of point-particles interacting via a uniformly repulsive interaction

Leandro Pimentel (UFRJ)
On the location of the maximum of a continuous stochastic process

Krishnamurthi Ravishankar (Suny-College at New Paltz)
Convergence to critical measure for zero range process with random rates

Rinaldo Schinazi (University of Colorado at Colorado Springs)
Waiting for a second mutation

Vincent Tassion (ENS-LYON)
The order of the phase transition in planar FK-percolation

Posters

These were presented in three sessions

Poster Session 1:

Roberta Rodrigues Albuquerque (Warwick)
Exchangeable random partitions and coalescent

Plinio Lucas Dias Andrade (IME-USP) and Laura Rifo
A note on Bayesian inference for the long-range dependence of a stationary two-state process

Caio Teodoro Alves (UFMG)
Decoupling of conditional distributions in random interlacements

Marco Aymone (IMPA)
Partial sums of the Random Möbius function

Rangel Baldasso and Otávio Menezes (UFRGS/IMPA)
Hydrodynamic limit for the exclusion process with slow open boundary

Diego Fernando de Bernardini (IMECC - UNICAMP)
Russo's formula for random interlacements

Daniel Ungaretti Borges (IMPA)
Frozen percolation on the binary tree

Manuel Cabezas (IMPA)
Biased activated random walks in Z at criticality

Walter Augusto Fonseca de Carvalho (IMECC-UNICAMP and UNASP-EC)
Renewal processes obtained as aggregation of Markovian processes

Bruno Monte de Castro (IME-USP)
A model selection criterion for the segmentation of symbolic sequences using penalized maximum likelihood

Pedro José Catuogno (IMECC - UNICAMP)
Time dependent tempered generalized functions and Itô's formula

Andressa Cerqueira (IME-USP)
Test of hypotheses on random graphs

Cristian Favio Coletti (UFABC)
Scaling limit for a random tree with one topological end

Jeanne Carmo Amaral Dias (UFMG)
Uniqueness vs. non-uniqueness in complete connections with modified majority rules

Dirk Erhard (Leiden)
The parabolic Anderson model in a dynamic random environment: properties of the quenched Lyapunov exponent

Mikael Falconnet (ÉVRY)

Substitution processes with cut-and-paste mechanism

Ennio Fedrizzi (PARIS VII)

Noise prevents singularities in linear transport equations

Susana Frómeta Fernández (IMPA)

A local central limit theorem for an alpha-stable law

Débora Borges Ferreira (UFRN)

Asymptotic distribution for a heavy-tailed renewal reward dependent process and applications

Roberto Vila Gabriel (UnB)

Exact calculations of the critical point of the random –cluster model on the square lattice

Jan Gairing (HU-Berlin)

Aspects of stability of Lévy driven systems

Renato Jacob Gava (UFSCar)

Gambling teams and waiting time problems in two-state Markov chains

Bruno dos Santos Gois (IMPA)

Tunneling of the Kawasaki dynamics for the Ising lattice gas in a fixed two-dimensional torus before nucleation

André de Oliveira Gomes (U. Potsdam)

Forward backward SDEs: asymptotic properties, large deviations and connections with PDEs

Eduardo Ferioli Gomes (UFRJ)

Spitzer renewal process

Carolina Bueno Grejo (IME-USP)
A spatial stochastic modeling for a dynamic of a viral infection with immunological response

Poster Session 2:

Pablo Groisman (Universidad de Buenos Aires)
Front propagation and quasi-stationary distributions: the same selection principle?

Jose Javier Cerda Hernandez (IME-USP)
Lower and upper bounds to critical curve for Ising model coupled to causal dynamical triangulations

Marcelo Richard Hilário (UFMG)
Coordinate percolation in Z^3

Adrian P. Hinojosa (UFMG) and Aniura Milanés
Estimation of the degree of an exponential random graph using sequential ABC

Anatoli Iambartsev (IME-USP)
Large deviations for excursions of non-homogeneous Markov processes

Milton Jara (IMPA)
Random walks in dynamical random environment and hydrodynamic limits

Kevin Kuoch (PARIS V)
A multitype contact process with competitive immigration

Anna Rafaella da Silva Marinho (UFRN)
Risk model with dependence between claim sizes and claim intervals

Luzia da Costa Tonon Martarelli (UFRJ) and Glauco Valle
Hydrodynamics for a one dimensional zero range process with mass dissipation at the boundary

Julián Martínez (Leiden)
Variational description of Gibbs-non-Gibbs dynamical transitions for spin-flip systems with a Kac-type interaction

Leandro Chiarini Medeiros (UnB)

Lee-Yang circle theorem with complex coefficients

Felipe Rafael Ribeiro Melo (UFRJ)

Hydrodynamic limit for exclusion processes with slow bonds of constant rate

Aniura Milanés (UFMG)

On parametric estimation based on invariance

J.C.S. de Miranda (IME-USP)

Functional autoregressive time series with dependence on derivatives

Ricardo Misturini (IMPA)

On the evolution of the ABC model in a strongly asymmetric regime

Erika Alejandra Rada Mora (IME-USP)

Characterization of the shortest return time for β-mixing processes

Nora Muler (UTDT)

A mixed singular control-optimal stopping problem

Attila László Nagy (BME)

Tightness results for general double branching annihilating random walkers

Manuel Alejandro Gonzalez Navarrete (IME-USP) and Eduardo Jordão Neves

Stationary measure for asymmetric type-dependent Ising models

Sokol Ndreca (UFMG)

Queues with exponentially delayed arrivals

Peter Nejjar (Bonn)

Anomalous fluctuations at the shock in TASEP and some LPP models

Wladimir Neves (UFRJ)

Wellposedness for stochastic continuity equations with Ladyzhenskaya-Prodi-Serrin condition

Adriana Neumann (UFRGS)
The heat equation and slowed exclusion

Roberto Teodoro Gurgel de Oliveira (IMPA)
Percolation on a degree-limited model

Christian Horacio Olivera (IMECC - UNICAMP)
Strong solution of the stochastic Burgers equation

Poster Session 3

Cira Etheowalda Guevara Otiniano (UnB)
Product and quotient of stable random variables

Gabriel Ribeiro da Cruz Peixoto (IME-USP)
K process on a tree with infinite levels

Rafael Jorge Pereira (UFRJ)
Large deviations and systemic risk

Serguei Popov (IMECC -UNICAMP)
Soft local times

Rodrigo Botelho Ribeiro (UFMG)
The critical random graph, with martingales

Rafaela Horacina Silva Rocha (UFRN)
Estimation for the ruin probability in a controlled risk process with reinsurance

Azrielex Andrés Arias Rodrigues (IME - USP)
Stochastic modeling of spike trains of a set of neurons

Pablo Martin Rodríguez (USP - São Carlos)

The behavior of a stochastic process of rumor scotching on finite populations

Santiago Juan Saglietti (Universidad de Buenos Aires)
Convergence of discrete Gibbs measures in the thin hard rods model

Jhames Matos Sampaio (UnB)
Indirect Estimation of Randomized GARCH Models

Remy de Paiva Sanchis (UFMG)
Anisotropic percolation on slabs

Maria Jucimeire dos Santos (UFRN)
Evolutionary algorithm MOSES

Diogo Carlos dos Santos (IMPA)
Birkhoff-von Neumamm theorem, cards and marriages

Alex Rodrigo dos Santos Sousa (UNICAMP)
A functional approach to spike sorting algorithm

Jackes Martins da Silva (PUC-RJ)
Anomalous diffusion from fractional Schrödinger equation

Roger William Câmara Silva (UFMG)
The log skew normal multivariate distribution

Aline Duarte de Oliveira and Guilherme Ost de Aguiar (USP)
Classifying EEG data driven by rhythmic stimuli using a projective test

Dejan Siraj (Warwick)
Mirror and synchronous couplings of geometric brownian motions

Valentin Sisko (UFF)
Growth of uniform infinite causal triangulations

Lucas Martins Stolerman (IMPA)

The spreading of an epidemic over a city: a model on networks

Yuri Suhov (Cabridge / USP)
FK-DLR quantum states and their properties

Lorenzo Taggi (Max Planck Institute)
Transient behaviour of certain probabilistic cellular automata undergoing absorbing phase transition

Marina Vachkovskaia (UNICAMP)
A conditional quenched CLT for random walks among random conductances on Z^d

Gerardo Barrera Vargas (IMPA)
Rényi entropy function and large deviations of short return times

Paulo A. Faria da Veiga (USP-S.CARLOS)
Spectra of dynamics generators of physics models defined by Gibbs measures

Matija Vidmar (Warwick)
Markov chain approximations to scale functions of Lévy processes

Marcio Luis Lanfredi Viola (UFSCAR)
Conditional independence between random fields

Karina Yuriko Yaginuma (IME-USP)
Stochastic modeling of spike trains of a population of neurons

Adriano Zanin Zambom (IMECC - UNICAMP)
On the stochasticity of feasible regions in genetic algorithms

Conrado da Costa (IMPA)
An introduction to Rough Paths (electronic poster)

List of registered participants:

Name	Degree	Afilliation	Country
Adrian Pablo Hinojosa Luna	Ph.D	Universidade Federal de Minas Gerais (UFMG)	Brasil
Adriana Neumann de Oliveira	Ph.D	Universidade Federal do Rio Grande do Sul (UFRGS)	Brasil
Adriano Zanin Zambom	Ph.D	IMECC (UNICAMP)	Brasil
Alex Rodrigo dos Santos Sousa	Student	IMECC (UNICAMP)	Brasil
Alexei Mailybaev	Ph.D	Instituto de Matematica Pura e Aplicada (IMPA)	Brasil
Alexsandro Gallo	Ph.D	Universidade Federal do Rio de Janeiro (UFRJ)	Brasil
Aline Duarte de Oliveira	Student	Instituto de Matemática e Estatística (IME - USP)	Brasil
Ana Patricia Carvalho Goncalves	Ph.D	Pontifícia Universidade Católica do Rio de Janeiro (PUC-RJ)	Brasil
Analia Ferrari	Student	Universidad de Buenos Aires	Argentina
Anatoli Iambartsev	Ph.D	Instituto de Matemática e Estatística (IME - USP)	Brasil
André de Oliveira Gomes	Student	Humboldt Universität Zu Berlin (HUB)	Germany
Andressa Cerqueira	Student	Instituto de Matemática e Estatística (IME - USP)	Brasil
Aniura Milanes Barrientos	Ph.D	Universidade Federal de Minas Gerais (UFMG)	Brasil
Anna De Masi	Ph.D	University of Aquila (UNIVAQ)	Italy
Anna Rafaella da Silva Marinho	Student	Universidade Federal do Rio Grande do Norte (UFRN)	Brasil
Antonio Galves	Ph.D	Instituto de Matemática e Estatística (IME - USP)	Brasil
Attila László, Nagy	Student	Budapest University (BU)	Hungary
Augusto Quadros Teixeira	Ph.D	Instituto de Matematica Pura e Aplicada (IMPA)	Brasil
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Bodineau Thierry	Ph.D	École Normale Superieure de Paris (ENS)	France
Bruno dos Santos Gois	Student	Instituto de Matematica Pura e Aplicada (IMPA)	Brasil
Bruno Monte de Castro	Student	Instituto de Matemática e Estatística	Brasil

		(IME - USP)	
Caio Teodoto de M Alves	Student	Universidade Federal de Minas Gerais (UFMG)	Brasil
Carlos Alberto Cardozo Delgado	Student	Instituto de Matemática e Estatística (IME - USP)	Brasil
Carolina Bueno Grejo	Student	Instituto de Matemática e Estatística (IME - USP)	Brasil
Christian Horacio Olivera	Ph.D	IMECC (UNICAMP)	Brasil
Christophe Gallesco	Ph.D	IMECC (UNICAMP)	Brasil
Cira Etheowalda Guevara Otiniano	Ph.D	Universidade de Brasilia (UNB)	Brasil
Claudio Landim	Ph.D	Instituto de Matematica Pura e Aplicada (IMPA)	Brasil
Conrado Freitas Paulo da Costa	Student	Instituto de Matematica Pura e Aplicada (IMPA)	Brasil
Cristel Ecaterin Vera Tapia	Student	Inst. Ciên. Matemática e Comp. de São Carlos (USP-S.CARLOS)	Brasil
Cristian Favio Coletti	Ph.D	Universidade Federal do Abc (UFABC)	Brasil
Daniel Ungaretti Borges	Student	Instituto de Matematica Pura e Aplicada (IMPA)	Brasil
David Kelly	Ph.D	University of Warwick (UW)	United Kingdom
Debora Borges Ferreira	Ph.D	Universidade Federal do Rio Grande do Norte (UFRN)	Brasil
Deise de Fátima dos Santos	BSc	Uae University (ABU DHABI)	United Arab Emirates
Dejan Siraj	Student	University of Warwick (UW)	United Kingdom
Demeter Kiss	Student	Centrum Wiskunde&Informatica (CW)	Netherlands
Devanil Jaques de Souza	Ph.D	Universidade Federal de Lavras (UFLA)	Brasil
Diego Daltro Conceição	Student	Universidade Federal da Bahia (UFBA)	Brasil
Diego Fernando de Bernardini	Student	IMECC (UNICAMP)	Brasil
Diogo Carlos dos Santos	Student	Instituto de Matematica Pura e Aplicada (IMPA)	Brasil
Dirk Erhard	Student	Leiden University (NL)	Netherlands
Domingos Humberto Urbano Marchetti	Ph.D	USP - Instituto de Física (USP - IF)	Brasil
Dulcineia Santos da Silva	BSc	Uae University (ABU DHABI)	United Arab Emirates
Edgardo Enrique Pérez Reyes	Student	Instituto de Matemática e Estatística (IME - USP)	Brasil
Eduardo Ferioli Gomes	Student	Universidade Federal do Rio de Janeiro (UFRJ)	Brasil
Enrique Andjel	Ph.D	Univ. de Provence - Centre de Mathematique Et Informatique (CMI)	France
Erika Alejandra Rada Mora	Student	Instituto de Matemática e Estatística	Brasil

		(IME - USP)	
Errico Presutti	Ph.D	Universita di Roma Tor Vergata (Roma II)	Italy
Fábio Júlio da Silva Valentim	Ph.D	Universidade Federal do Espirito Santo (UFES)	Brasil
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Filipe Biason Mussini	Student	Universidade Federal do Abc (UFABC)	Brasil
Freddy Hernandez	Ph.D	Universidade Federal Fluminense (UFF)	Brasil
Gabriel Ribeiro da Cruz Peixoto	Student	Instituto de Matemática e Estatística (IME - USP)	Brasil
Gerardo Barrera Vargas	Student	Instituto de Matematica Pura e Aplicada (IMPA)	Brasil
Giambattista Giacomin	Ph.D	Paris VII - Université Denis Diderot (Paris VII)	France
Gioia Carinci	Ph.D	Universita di Modena (UM)	Italy
Glauco Valle da Silva Coelho	Ph.D	Universidade Federal do Rio de Janeiro (UFRJ)	Brasil
Gregorio R. Moreno Flores	Ph.D	PUC de Chile - Santiago (PUC)	Chile
Guilherme Ost de Aguiar	Student	Instituto de Matemática e Estatística (IME - USP)	Brasil
Hamed Yazdanpanah	Student	Instituto de Matematica Pura e Aplicada (IMPA)	Brasil
Hubert Lacoin	Ph.D	CNRS (CNRS)	France
Humberto Carelos Sanna	Student	Universidade Federal do Rio de Janeiro (UFRJ)	Brasil
Immacolata Merola	Ph.D	University of Aquila (UNIVAQ)	Italy
Inés Armendáriz	Ph.D	Universidad de Buenos Aires	Argentina
J.C.S. de Miranda	Ph.D	Instituto de Matemática e Estatística (IME - USP)	Brasil
Jackes Martins da Silva	Student	Pontifícia Universidade Católica do Rio de Janeiro (PUC-RJ)	Brasil
Jan Gairing	Student	Humboldt Universität Zu Berlin (HUB)	Germany
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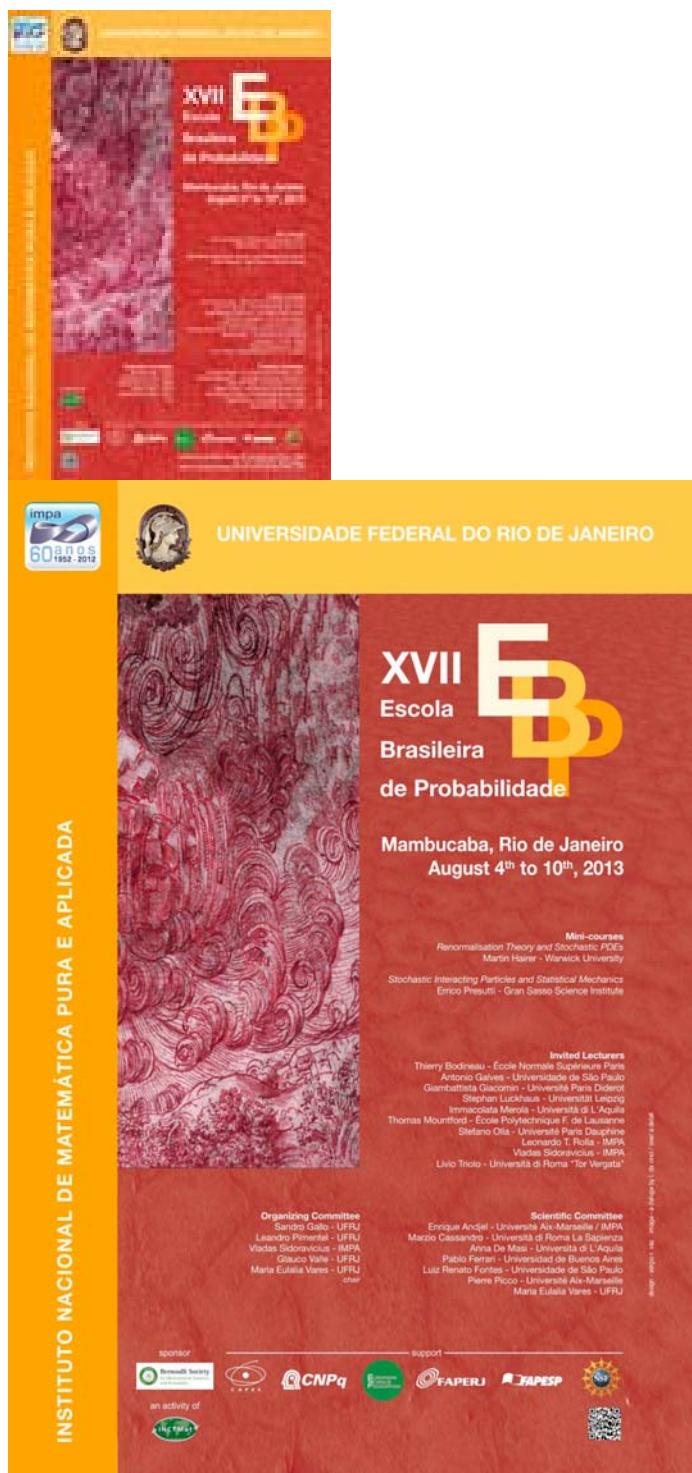| Milton David Jara Valenzuela	Ph.D	Instituto de Matematica Pura e Aplicada (IMPA)	Brasil
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Yuri Suhov	Ph.D	University of Cambridge (Cambridge)	United Kingdom

Summary - Participants:

Attendance: 153 researchers, being 104 from Brazil, and 49 from abroad. The attendance was distributed as follows.

Country	Doctors/Prof	PhD Students	Master Students -	Total by country
Argentina	5	4	0	9
Germany	2	4	0	6
Brazil	49	36	19	104
Chile	1	0	0	1
France	7	2	0	9
Hungary	0	1	0	1
Netherlands	0	3	0	3
England	6	2	0	8
Italy	5	0	0	5
Switzerland	2	0	0	2
Venezuela	1	0	0	1
USA	2	0	0	2
United Emirates	0	0	2	2
Total	80	52	21	153

Publications

Lecture notes for the mini-courses:

http://www.impa.br/opencms/pt/eventos/store_old/evento_1304?link=7