

ESMTB Infoletter

December 2007



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Dear colleague

with this ESMTB Infoletter you receive information about conferences, workshops, schools and open positions. Please send relevant information to be included in the next ESMTB infoletter to info@esmtb.org.

Best regards, Andreas Deutsch
Dresden, 13th of December 2007

Conferences

Computational and Systems Biology Course at Microsoft Research-University of Trento Centre for Computational and Systems Biology, Trento, Italy

Date: 2008-03-10 to 2008-03-14

The Microsoft Research - University of Trento Centre for Computational and Systems Biology (CoSbi) organizes a course for PhD students, advanced master students, early stage postdocs and interested junior researchers on methods and recent results on different aspects of computational and systems biology. Students with both experimental and computational/mathematical background are encouraged to apply. Registered students will receive reading materials that will help them to follow the lectures of the course no matter what background they have. All lecture material will be made available to the students after the course.

Applications will be accepted on this website with poster abstracts from 22 November 2007.

<http://www.cosbi.eu/events/course08.php>
<mailto:course08@cosbi.eu>

Mathematical Neuroscience Meeting at Royal Society of Edinburgh, Edinburgh, Scotland

Date: 2008-03-17 to 2008-03-19

This three-day conference will provide an overview of the current state of research in mathematical approaches to neuroscience, bringing together both

physical and life scientists. Drawing together the field in this way will allow for a critical discussion of the relevant experimental facts and of various mathematical methods and techniques that have been successfully applied to date. Importantly, it will draw attention to, and help develop, those pieces of mathematical theory which are likely to be relevant to future studies of the brain.

The meeting will consist of invited speakers and registered participants, though will be limited to 75 people. The schedule will allow for a number of poster presentations.

A one-day training workshop for PhD students and post-docs entitled An introduction to Mathematical Neuroscience will also take place prior to the meeting (on 16 Mar).

Some financial assistance is available to assist graduate students who attend BOTH the training workshop and the conference.

<http://www.icms.org.uk/workshops/mathneuro>
<mailto:irene.moore@icms.org.uk>

6th International Conference on Pathways, Networks, and Systems at Minoa Palace Conference Center, Chania, Crete, Greece

Date: 2008-08-16 to 2008-08-21

The 6th International Conference on Pathways, Networks, and Systems is to be held at the Minoa Palace Conference Center, 16-21 June 2008 in Chania, Crete (Greece). The meeting is a unique forum to share recent discoveries in systems biology and medicine. Sessions focus on a deep integration of experimental and computational analysis of complex systems affecting cancer, metabolic disease,

cardiovascular functions, stem cells, immunity, infectious disease, and host-microbe interactions. Exciting breakthroughs in other species and model systems are included as they provide new insights, paradigms, technologies and analytical methods. Sessions include lectures by internationally recognized invited speakers as well as talks and poster presentations selected from submitted abstracts. The conference involves a balance of formal presentations with extensive informal discussions.

The deadline for receipt of abstracts, early registration, and hotel reservations is March 15, 2008.

<http://www.aegeanconferences.org/>
<mailto:info@aegeanconferences.org>

**8TH INTERNATIONAL CONFERENCE
ON CELLULAR AUTOMATA FOR RE-
SEARCH AND INDUSTRY (ACRI 2008)
at Yokohama, Japan**

Date: 2008-09-23 to 2008-09-26

Cellular automata present a very powerful approach to the study of spatio-temporal systems where complex phenomena build up out of many simple local interactions. The main goal of the ACRI 2008 conference is to offer both scientists and engineers in academies and industries an opportunity to express and discuss their views on current trends, challenges, and state-of-the art solutions to various problems in the fields of biology, chemistry, ecology, economy, geology, mechanical engineering, medicine, physics, sociology, traffic control, etc.

Topics of either theoretical or applied interest include, but are not limited to:

- cellular automata as models of parallelism,
- computational complexity of cellular automata,
- cellular automata as dynamical systems,
- cellular automata as complex systems,
- cellular automata models for real phenomena,
- cellular automata in system biology,
- algebraic properties of cellular automata,
- cellular automata in natural computing.

Authors are invited to submit papers presenting their original and unpublished research. Papers should not exceed 8 pages and should be formatted according to the usual LNCS article style. Submis-

sions have to be sent through the web page: <http://www.easychair.org/conferences/?conf=ACRI2008>

A volume of proceedings (expectedly LNCS) will be available by the time of the conference. A refereed volume of selected proceedings containing extended papers will be organized after it as a special issue of International Journal of Cellular Automata.

Paper submission: March 1, 2008

Notification of paper acceptance or rejection: April 5, 2008

Final version of the paper for the proceedings: May 1, 2008

Conference: September 23-26, 2008

<http://acri2008.ynu.ac.jp/>
<mailto:toshi@t.kanazawa-u.ac.jp>

Workshops

**Understanding Cellular Calcium Signals at
University of Nottingham, University Park,
Nottingham, United Kingdom**

Date: 2008-04-04 to 2008-04-04

The insight that Calcium is one of the most versatile second messengers has been firmly established in recent years. This workshop brings together experimentalists and theoreticians working on different aspects of the Calcium signalling toolbox. It will take place on Friday, April 4, 2008 in the Cripps Hall Library, University of Nottingham. See below for travel information,

Please note that the number of participants will be limited to around 50 and that there will be no registration fee. Places will be assigned on a first come - first serve basis. Please send an email to Rüdiger Thul for registration.

Information on the previous workshop can be found on the website.

<http://www.maths.nottingham.ac.uk/personal/rt/workshop08/>
<mailto:ruediger.thul@nottingham.ac.uk>

Automata 2008: Future of Cellular Automata Theory and Applications at University of the West of England, Bristol, United Kingdom

Date: 2008-06-12 to 2008-06-14

AUTOMATA-2008 is 14th workshop in a series of AUTOMATA workshops established in 1995 by members of the Working Group 1.5 (Cellular Automata and Machines) subordinated to Technical Committee 1 (Foundations of Computer Science) of the International Federation for Information Processing (IFIP). The main goal of AUTOMATA-2008 workshops is to maintain a permanent, international and multidisciplinary forum for the collaboration of researchers in the fields of Cellular Automata (CA).

The unique workshop will spotlight live topics of cellular automata theory and applications: theoretical constructs, computational solutions and implementations of locally-connected regular discrete worlds.

The workshop will bring together work that focuses on advanced theoretical constructions and genuine implementations of cellular-automata models, computing devices and paradigms.

The workshop will revolve around all important theoretical and applied aspects of cellular automata and discrete complex systems research. Topics will include cellular automata as tiling systems, dynamical systems, models of parallelism, computational models, algebraic structures, formal language processors, structural and computational complexity, framework for investigating discrete complex systems, models of phenomena from biology, chemistry, physics, engineering and other fields

All participants are encouraged to submit a paper for publication in the AUTOMATA-2008 proceedings. All submissions will be peer-reviewed.

The deadline for submission of papers for contributed presentations is 5th April 2008, and the acceptance decisions will be made by 15th April 2008.

<http://uncomp.uwe.ac.uk/automata2008>
<mailto:andrew.adamatzky@uwe.ac.uk>

Schools

INTERNATIONAL BIOMEDICAL MODELING SCHOOL AND WORKSHOP at Bangalore, India

Date: 2008-02-27 to 2008-02-29

The purpose of both the School and the Workshop is to bring together experts in the scientific disciplines of mathematics, medicine and physiology, physics and engineering to develop insights into modeling processes in human disease and physiology with special emphasis on developing cross disciplinary collaborations.

Participants who are selected for the school are automatically included in the workshop (and can present posters or possibly give a talk). This is a great opportunity to learn some theory and then hear state of the art talks in the areas related to the courses. Funding is available for approximately 25 participants in the school part.

The talks in the workshop given by current researchers will cover a wide spectrum of mathematical, biological, and clinical topics and will include topics other than those of the school, thus serving to broaden the scientific perspective of participants while helping them to develop connections in new and exciting areas of research. Registration for only the workshop part of the event is also possible for students, new researchers and current active researchers.

-REGISTRATION: Deadline Dec 31, 2007-

<http://www.ncbs.res.in/events/BMSW2008.html>
<mailto:BMSW2008@ncbs.res.in>

CEA-EDF-INRIA School: Models of cancer and its therapeutic control: From molecules to the organism at Rocquencourt, France

Date: 2008-03-11 to 2008-03-14

Cancer is a multiscale systems disease that transforms a tissue, homogeneous and sensitive to physiological variables controlling proliferation and differentiation, into a heterogeneous, but robust, ensemble of cells able to evade these controls, pro-

liferate and survive radio-or chemotherapy insults by various adaptive ways.

Mathematical methods and their numerical implementations are currently being used in different theoretical settings by various teams of scientists to accurately represent the physiological bases of cell proliferation and its control, normal or disrupted, at the single cell and cell population levels.

The points of view that will be presented in this school range, from normal and pathological cell proliferation representation by physiological (molecular- or mechanistic-based) and phenomenological (descriptive) models, to the evolutionary dynamics of cancer and to problems encountered by oncologists when attempting to define new ways to improve the therapeutic methods that are currently used in the clinic.

The school is intended for PhD students, scientists and company engineers who are interested in working with the help of mathematical modelling methods in the field of cancer.

<http://www.inria.fr/actualites/colloques/cea-edf-inria/2008/models-cancer/index.en.html>
<mailto:jean.clairambault@inria.fr>

Systems Biology Dynamics: from Genes to Organisms at Centre for Non-linear Dynamics, McGill University, Montreal, Canada

Date: 2008-05-20 to 2008-05-30

With the current explosion in biological data, from the sequencing of the human genome to the invention of DNA chips, the life sciences have been propelled into the quantitative era. There is a demand in academia, government, and industry for people who speak the languages of both the physical and the biological sciences. The CND summer school is precisely aimed at satisfying this demand by providing the knowledge needed to boost the move from one side of this divide to the other.

Applicants are encouraged from both the physical and the life sciences, though at least one year of calculus is needed. Each day will consist of a morning of lectures followed by computational lab work in the afternoon. The ultimate goal of the new biology, which has been loosely classified as

Systems Biology, is to produce a computational model of a biological system which allows accurate, experimentally verifiable prediction at the molecular level. The summer school will provide a solid introduction to the fundamental science on which Systems Biology is based. Each lecture will explore the concepts and basic mathematical ideas of a different strand of Systems Biology and will be illustrated with examples from recently published research. Participants will develop a set of tools and a vocabulary which should allow them to discuss and become actively involved in any problem in quantitative biology. They will become familiar with the powerful Matlab programming language as well as the (free) xpp software package.

Topics to be covered will include linear and non-linear systems, chaos, bifurcation theory, stochastic systems, differential delay equations, Boolean models, cellular automata, and statistical analysis (clustering). Applications will range from the molecular (gene expression, neural signal propagation, DNA chips - microarrays, bacterial genetic regulation) to the systems (cardiology, hematology, neural control, sensory transduction) level. Each lecture will be delivered by an expert working in the field and at the end of the course participants will be familiar with the research directions available in quantitative Systems Biology.

All applicants are strongly encouraged to register before February 29th.

<http://www.cnd.mcgill.ca/summer08>
<mailto:angelica.todireanu@mcgill.ca>

Mathematical ecology and evolution at Linnasmäki Conference Centre in Turku, Finland

Date: 2008-08-24 to 2008-08-31

The Helsinki Summer School on Mathematical Ecology and Evolution invites students and young researchers to attend its one-week intense program on five topics at the research frontier:

- Dynamics of structured populations
- Branching processes
- Species coexistence in variable environments
- Adaptive dynamics
- Evolutionary epidemiology

The school is organised by the Biomathematics Group of the University of Helsinki and will be held between 24 and 31 August 2008 in Turku, Finland.

Deadline for applications is 1 March 2008. There is no registration fee. The school awards 8 ECTS credits.

<http://mathstat.helsinki.fi/huippu/MathBio2008>
<mailto:margarete.utz@helsinki.fi>

Open Positions

Assistant Professor position in Applied Mathematics at Department of Mathematics and Statistics, San Diego State University, San Diego, USA

Deadline for applications: 2008-01-18

The Department of Mathematics and Statistics invites applications for a tenure-track Assistant Professor position in Applied Mathematics, beginning in Fall 2008. Preference may be given to candidates in research areas that include but are not limited to dynamical systems, nonlinear waves, communication systems, climate dynamics, asymptotics, and linear algebra. Candidates must have a Ph.D. in Mathematics or a closely related field, and demonstrate excellent teaching skills and outstanding research potential. The successful candidate will have the opportunity to participate in our joint PhD program in Computational Science, as well as in our MA and MS programs in pure and applied mathematics. Salary will be competitive.

Applications should include a cover letter, curriculum vita, a description of research program, a statement of teaching philosophy, and three letters of recommendation. Send to: Antonio Palacios, Applied Mathematics Search Committee Chair, Department of Mathematics and Statistics, San Diego State University, San Diego, CA 92182-7720. Applications received by January 18, 2008 will be given full consideration.

Please contact: [Ricardo Carretero](mailto:Ricardo.Carretero@nlds.sdsu.edu)
<http://nlds.sdsu.edu/>

Postdoc Position - Mathematical modelling and upscaling of rhizosphere control mechanisms at Institute of Soil Science, BOKU Vienna, Austria

Deadline for applications: 2008-01-10

We are looking for a Postdoc within the interdisciplinary project "Mathematics and Rhizotechnology. Mathematical methods for upscaling of rhizosphere control mechanisms", funded by the WWTF ("Wiener Wissenschafts-, Forschungs- und Technologiefonds"; see the link "funded projects" at <http://www.wwtf.at/wwtf/>) at the Institute of Soil Science, BOKU Vienna. The project will start on March 1st, 2008. The position will be funded over 3 years, including a 6-month stay at the University of Oxford, UK. Aim of this project is to develop a simulation model that represents the most relevant rhizosphere control mechanisms, applying state of the art mathematical methods to link the processes on a single root scale to a whole root system.

The work of the Postdoc, in teamwork with the project partners, will include:

- further development of mechanistic models at the single root scale with emphasis on exudate-phosphorus interactions
- modelling the root architecture of oil seed rape
- mathematical upscaling of single root processes to a whole root system
- numerical simulations both at the single root and the whole root system scale

The project shall lead to optimised performance of rhizotechnologies, resulting in higher production efficiency, and reduction of both experimental costs and environmental load.

Related experimental investigations performed by a PhD candidate support model development and parameterisation: the experimental approaches include the selection of oil seed rape cultivars with differing exudation pattern, root architecture and root branching structure, determination of phosphorus/exudate interactions and assessment of the effect of exudation and root architecture on plant phosphorus efficiency.

Requirements:

- strong background in modelling and simulation is essential
- experience in upscaling methods and/or matched asymptotic expansions is desirable
- programming skills are desirable
- willingness to do interdisciplinary research

Application:

Please email your application with a cover letter including your research interests and a CV until January 10th, 2008.

Please contact: [Sabine Klepsch](#)