

ESMTB Infoletter

April 2009



www.esmtb.org

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, 16th of April 2009

Conferences

Bio-IT World Conference & Expo 2009 at World Trade Center, Boston, USA

Date: 2009-04-27 to 2009-04-29

Since its debut in 2002, the annual Bio-IT World Conference & Expo (www.bio-itworldexpo.com) has established itself as a premier event showcasing the myriad applications of IT and informatics to biomedical research and the drug discovery enterprise. The Conference attracts a highly influential audience consisting of senior level scientists, IT professionals and Executives from organizations across the life sciences industry including Pharmaceutical, Biotechnology, Health Systems, Academia, Government and National Laboratories. In 2008, 1500 delegates representing 23 countries gathered to share information and discuss enabling technologies that are driving the drug discovery process. The event features concurrent tracks with 100+ technology and scientific presentations.

Event Features

- Access All Six Tracks for One Price
- Network with 1,500+ Attendees
- Hear 100+ Technology and Scientific Presentations
- Choose from Multiple Pre-conference Workshops
- Attend Bio-IT Worlds Best Practices Awards
- Connect with Attendees Using CHIs Intro-Net
- Participate in the Poster Competition
- See the Winners of the 2009 Awards
- View Novel Technologies and Solutions in the Expansive Exhibit Hall
- And Much More!

<http://bio-itworldexpo.com/>

"Morphogenesis in Living Systems" International Conference at University Paris 5 Rene Descartes, Paris, France

Date: 2009-05-14 to 2009-05-16

We have the pleasure to announce the first "Morphogenesis in Living Systems" International Conference held under the auspices of the French National Network for Complex Systems.

The conference will take place in Paris at the University Paris 5 Rene Descartes between May 14th and May 16th 2009.

Registration will be open from April 1st to May 10th. Email abstract submission for Poster presentation is open until April 30th. Abstracts accepted for Poster presentation will compete for the MLS2009 Poster prizes.

MLS2009 is jointly organized by the teams leading the European EC projects from the NEST FP6 program: Embryomics, BioEmergences and Morphex.

Would you please help us insuring the largest possible diffusion of the website link:

<http://rncs.fr/MLS-2009>

<http://rncs.fr/MLS-2009>

International Conference on "Mathematical Modeling in the Medical Sciences" at Vanderbilt University, Nashville, TN, USA

Date: 2009-05-18 to 2009-05-21

Biomathematics encompasses the application of mathematical methods to the study of living or-

ganisms. Mathematics plays an essential role in understanding biological systems on many different scales both size and time. For example, we can model biological processes at various scales: (1) molecular, sub-cellular, cellular, tissue, organism and population; and (2) milliseconds, seconds, minutes, hours, days and years.

Mathematics has a rich history as a tool for biologists. More recently, mathematics has found applications in the medical sciences, both in the basic sciences of medicine and in patient care.

The 24th Shanks Conference is a forum for all areas of biomathematics, but speakers have been invited from the special interest areas:

- Models of Cancer Growth
- Models of Epidemics & Infection
- Models of Physiologic Systems and Clinical Practice
- Medical Imaging

<http://www.math.vanderbilt.edu/~shanks2009/>
<mailto:akram.aldroubi@vanderbilt.edu>

Mathematical Models in Ecology and Evolution 2009 at University of Bristol, UK

Date: 2009-09-10 to 2009-09-11

Mathematical Models in Ecology and Evolution 2009 will be held at the University of Bristol on September 10th-11th 2009. Following the great success of the inaugural meeting in 2007 at Sussex, the 2009 meeting will have a Darwinian flavour, in honour of the bicentenary of Darwins birth, and 150 years since the publication of *The Origin of Species*. While not a mathematician himself, Darwins ideas find natural expression in the form of mathematical models, allowing further development and refinement of the theory. MMEE 2009 will showcase the latest developments of formal models in evolution and ecology, and will include keynote addresses on the mathematical modelling of Darwins key theories and insights from:

- Professor Rob Boyd, Department of Anthropology, University of California Los Angeles
- Professor Alan Grafen, Department of Zoology, University of Oxford
- Professor Hanna Kokko, Department of Biological and Environmental Science, University of Helsinki

- Professor Franjo Weissing, Department of Biology, University of Groningen

Abstracts of no longer than 250 words should be sent to James.Marshall@bristol.ac.uk by June 12th 2009. The organisers welcome abstracts for talks and posters (please indicate your preference if you have one).

Registration details and accommodation information will be announced in the New Year, and posted on the conference website: www.cs.bris.ac.uk/mmee2009

As space at the conference venue is strictly limited, and we expect a high level of interest, participants will be asked to register early to avoid disappointment.

<http://www.cs.bris.ac.uk/mmee2009>
<mailto:James.Marshall@bristol.ac.uk>

Workshops

International Workshop on Coping with Crises in Complex Socio-Economic Systems at ETH Zurich, Switzerland

Date: 2009-06-08 to 2009-06-13

Social systems typically feature crises, i.e. unstable and dangerous situations that are characterized by abrupt and large-scale changes. Such disruptions are very hard to predict with any precision and even harder to control. Indeed, crises often convey an impression that key decision makers have lost control and that events unfold in an unstoppable and even catastrophic way. Examples include environmental crises, the collapse of transportation systems, as well as financial and social crises such as poverty, social conflicts or wars. These and other issues will be addressed during the meeting, which combines elements of an interdisciplinary workshop with a think tank and a summer school for young scientists. Scientists and students interested in participating in this workshop are asked to send an e-mail to Lubos Buzna (lbuzna@ethz.ch) or Amin Mazlounian (amin@gess.ethz.ch) to be included in the e-mail distribution list of this workshop.

Important Dates and Registration Fees

- January 31, 2009: Deadline for abstract submission (posters, oral contributions, and tutorials)
- March 15, 2009: Notification to contributors
- April 30, 2009: Deadline for payment of reduced registration fee

<http://www.soms.ethz.ch/workshop2009>

Mathematical and Computational Approaches in Biology and Medicine at University of Warsaw, Warsaw, Poland

Date: 2009-06-15 to 2009-06-16

The idea of this workshop is to investigate how the mathematical modelling and computational tools can advance development of biology and medicine, including the cancer research. The meeting will focus on interactions between the scientists modelling different biological and medical phenomena, and will give all participants an opportunity to network and forge new collaborations. Moreover, the workshop will give Ph.D. students and young post-doctoral researchers an opportunity to present their own research during the oral presentations.

Workshop will take place at University of Warsaw, Banacha 2, 02-097 Warsaw, Poland.

To register for the workshop, please fill the registration form available at www.biolmat.mimuw.edu.pl till 30th of April 2009.

If you have questions, do not hesitate to send an email to: biolmat@mimuw.edu.pl (Subject: INFO).

<http://biolmat.mimuw.edu.pl/>
<mailto:biolmat@mimuw.edu.pl>

PhD Course on Individual-based Modeling of Microbial Interactions & Processes at Technical University of Denmark, Kgs. Lyngby, Denmark

Date: 2009-06-21 to 2009-06-26

In this course we will introduce individual-based modeling in the context of microbial ecology, and

will detail some of the history behind this field as well as the current work being carried out. We will also introduce software for individual-based models in microbial ecology and will assist students as they adapt the software to their own problems.

http://emerg.er.dtu.dk/index.php?option=com_content&task=view&id=67&Itemid=58
<mailto:brim@env.dtu.dk>

International Workshop on Complex Systems and Networks 2009 at University of Bristol, UK

Date: 2009-07-20 to 2009-07-22

The International Workshop on Complex Systems and Networks 2009 (IWCSN09) will be the 6th International Workshop in a successful series of events organized in Bologna (2004), Hong Kong (2005), Vancouver (2006), Guilin (2007) and Canberra (2008). The aim of the workshop is to foster exchange and collaboration among researchers in the fields of multi-agent and complex systems, nonlinear dynamics, networks and coupled systems and related applications. The 2009 edition will be organized by the Bristol Centre for Complexity Sciences, a new interdisciplinary centre in Complexity funded by the UK EPSRC (Engineering and Physical Research Council).

The workshop will be focussed on the problem of studying the emergence of coordinated behaviour in multi-agent systems and networks and their applications. Topics will include synchronization and control of networks of dynamical systems, coordination of behaviour in multi-agent systems, applications to biological and communication networks, epidemics and artificial intelligence. The meeting is sponsored by the IEEE Circuits and Systems Society, the Centre for Chaos and Complex Networks at the City University of Hong Kong, the EU Project PASCAL and the Bristol Centre for Complexity Sciences.

On Monday 20th July 2009, a set of tutorial lectures on complex networks will be run as part of this workshop.

Registrations are now open online at <http://www.enm.bris.ac.uk/anm/iwcsn09/> There is a strict limit on the number of participants at

this meeting. The registration deadline is 6th April 2009.

<http://www.enm.bris.ac.uk/anm/iwcsn09/>
<mailto:E.Weeks@bristol.ac.uk>

International Workshop on Non-Classical Models of Automata and Applications at Wroclaw, Poland

Date: 2009-08-31 to 2009-09-01

Researchers are invited to submit papers concerning original contributions on non-classical models of automata and applications and related subjects for NCMA 2009. Many non-classical automata models are natural objects of theoretical computer science. They are studied from different points of view in various areas, both as theoretical concepts and as formal models for applications. The aim of this workshop is to bring together researchers working on different aspects of different variants of non-classical automata models in order to exchange and develop novel ideas. A deeper and interdisciplinary coverage of this particular area may gain new insights and substantial progress.

Topics of NCMA 2009 include, but are not limited to:

- Bio-inspired Automata
- Cellular Automata
- Restarting Automata, Forgetting Automata
- Automata with Additional Resources
- Automata Networks, Cooperation, and Communication
- Quantum Automata
- Other Formal Models Inspired by:
- Linguistics
- Bio-Computing
- Text Processing
- Document Engineering
- Self-Assembling

In all these settings:

- Application
- Expressive Capability
- Descriptive Complexity
- Universality, Self-Reproduction
- Decision Problems and their Complexity
- Algebraic Properties

The workshop NCMA 2009 is a satellite event of the International Symposium on Fundamentals of Computation Theory (FCT) 2009 and is funded by the AutoMathA project of the European Science Foundation (ESF).

IMPORTANT DATES

Submission Deadline: May 29, 2009 (11:59pm, Samoan time).

Notification Deadline: July 3, 2009

<http://www.informatik.uni-giessen.de/ncma2009/>

Open Positions

PhD position: modeling in vitro angiogenesis at NISB and CWI, Amsterdam, The Netherlands

Deadline for applications: 2009-05-01

The Netherlands Institute for Systems Biology (NISB) and Centrum Wiskunde & Informatica (CWI) invite applications for the position of a PhD position (OIO): Cell-based modeling of in vitro angiogenesis: role of tip cell selection, cross-talk between diffusive and contact-dependent signaling, and endothelial cell-matrix interactions. The opening is a research position within the field of computational biology.

Angiogenesis, the outgrowth of sprouts from existing blood vessels, is essential for many biomedical phenomena, including tumor growth and tissue engineering. A detailed understanding of its mechanisms will help identify specific targets for therapeutic intervention. The key players of angiogenesis are endothelial cells (ECs), the cells lining the inner walls of mature blood vessels, and the surrounding matrix proteins. We have previously built simple models of the ECs self-organization into angiogenic sprouts. In this project we aim to refine our understanding of angiogenic sprouting, by including the selection of tip cells, the leading cells of blood vessel sprouts and the interactions between the ECs and the protein matrix they live in. The final goal of this project is to develop a multiscale, explanatory model of angiogenesis.

You will further develop and analyze cell-based models of angiogenesis and, depending on your interest, validate the cell-based models using mean-

field approaches. Techniques include ordinary differential equations (ECs regulatory networks), the Cellular Potts Model (cell behavior) and PDEs (protein matrix). Model insights and predictions will be interpreted and validated in close collaboration with our experimental collaborators.

The work will be embedded in the Biomodeling and Biosystems Analysis group of the Netherlands Institute for Systems Biology (NISB) and within the Life Sciences group of the Center for Mathematics and Computer Science (CWI) in Amsterdam. As the core modeling group of the Netherlands Consortium for Systems Biology, the Biomodeling and Biosystems Analysis group develops quantitative and predictive models and multiscale computer simulations in collaboration with systems biology groups at participating institutes.

Candidates ideally fulfill the following criteria:

- M.Sc. in theoretical biology, computer science, mathematics or a related discipline
- able to communicate with scientists in biology and mathematics
- good programming skills in C++ and Python or equivalent

The vacancy concerns a temporary research position for four years. The salary and terms of employment are in accordance with the "CAO-onderzoekinstellingen". Besides the salary, CWI offers attractive and flexible terms of employment, like a collective health insurance, pension-fund, and initial help with housing for foreigners.

Direct requests for information or applications before 1 May 2009 to:

Dr. Roeland Merks, Roeland.Merks@sysbio.nl
phone +31 20 592 4117
Netherlands Institute for Systems Biology (NISB) and Centrum Wiskunde & Informatica (CWI)
P.O. Box 94079, 1090 GB Amsterdam, The Netherlands

Applications should include a motivation letter, a curriculum vitae, list of publications, and the names and addresses of at least two persons that can be approached to obtain further information.

Closing time: 1 May 2009

Please contact: Dr. Roeland Merks
<http://www.sysbio.nl>

Positions in biological modeling and simulation at Amsterdam, The Netherlands

Deadline for applications: 2009-05-01

Within the Netherlands Consortium for Systems Biology (NCSB), biologists, computer scientists, physicists and mathematicians of Dutch universities and research institutes have joint forces to develop innovative systems biology approaches for tackling challenging, multi-factorial biological problems related to human health, plant sciences, and white biotechnology.

Computer modeling and simulation are central to this highly multidisciplinary effort. NCSB's core modeling group Biomodeling and Biosystems Analysis at CWI, the Dutch national research institute for mathematics and computer science, develops innovative simulation approaches and coordinates modeling projects at the participating institutes.

The Biomodeling and Biosystems Analysis group invites applications for the following positions:

Postdoctoral researcher

Modeling dynamics and evolution of hierarchically regulated, eukaryotic gene networks
See: <http://www.cwi.nl/en/node/1044>

PhD student

Cell-based modeling of blood vessel formation
See <http://www.cwi.nl/en/node/1045>

Scientific programmer / PhD student

Bringing modeling and simulation to the biologists lab bench
See <http://www.cwi.nl/en/node/1043>

Requirements for all positions:

- A scientific background in simulation and modeling: a degree in theoretical biology or computational physics, computational science, or equivalent experience
- Able to communicate with scientists in biology and mathematics
- Good programming skills in C++ or equivalent
- Minimum academic degree: for postdoc, PhD; for PhD, M.Sc.; for programmer, B.Sc.

For full description of these positions, see <http://www.cwi.nl/en/jobs>. For more information about CWI, NISB, NCSB and the Biomod-

eling and Biosystems Analysis group, visit <http://www.cwi.nl>, <http://www.sysbio.nl>, and <http://www.cwi.nl/merks>.

Contact: Roeland Merks, CWI, Roeland.Merks@sysbio.nl, Tel. +31-20-5624117

Application deadline is May 1st, 2009.

Please contact: [Roeland Merks](mailto:Roeland.Merks@sysbio.nl)
<http://www.cwi.nl/en/jobs>

Post-doc position: A bio-inspired model for solving the decentralized gathering problem at INRIA institute, Nancy, France

Deadline for applications: 2009-05-31

This post-doctoral position is open for candidates eager to develop innovative schemes for analysis and control of decentralized complex systems. As a specific problem, we consider the decentralised gathering problem that consists in grouping at the same location agents that move on a lattice and that are initially randomly scattered on this lattice. The main constraint here is that the agents can only see their immediate neighbourhood. Moreover, they cannot directly communicate with each other: all they can do is to send simple messages, called 'influences', to their environment. The effects of these influences are of course not known in advance.

The prototype model that motivates our approach of the decentralised gathering problem is inspired from the aggregation phenomenon in the social bacteria *Dictyostelium discoideum*.

The tasks of the postdoc research fellow will be:

- to find an appropriate quantifier for describing the aggregation phenomenon (order parameter)
- to study (using large-scale simulations or analysis) the main systems statistical properties (e.g. convergence, cluster size kinetics...)
- to define and analyze the notion of robustness to perturbations : presence of obstacles

Candidates should have a high interest in the modelling of complex systems, in particular cellular automata and multi-agent systems. From the point of view of technical skills, we would appreciate knowledge of object-oriented languages such as

Java. Interest in using FPGA or GPU for simulation would be appreciated but it is not mandatory. Finally, the candidate will be expected to work in an English- or French-speaking environment.

Please contact: Nazim.Fates@loria.fr
<http://webloria.loria.fr/~fates/Amybia/postdoc.html>

Fields-CMM Postdoctoral Positions at Fields Institute, Toronto, Canada

Deadline for applications: 2009-06-01

The Centre of Mathematical Medicine (CMM) hosted at the Fields Institute, Toronto, invites applications for candidates for a number of CMM-Fields postdoctoral fellowships to commence July 1, 2009 or a negotiable date thereafter.

We are looking for individuals who would strengthen current interdisciplinary activity at the Centre. While positions are open to all areas of mathematical medicine and biology, preference will be given to those individuals with research interests in the current principal areas of CMM focus: mathematical oncology, computational neuroscience, and biomechanics of soft tissues or bioinformatics. In particular, we are looking for individuals interested in collaborative interaction with clinicians and experimentalists.

The fellowships provide for a period of engagement in research and participation in the activities of the Centre. They may be offered in conjunction with partner universities. List on the cover sheet of the application if there are any faculty members at universities affiliated with the Fields Institute who you believe are appropriate.

To guarantee consideration postdoctoral applications should be received by June 1, 2009. (NOTE late applications will be accepted until the positions are filled). Applicants must apply through <https://www.mathjobs.org/jobs/Fields/1632>

Eligibility:

Qualified candidates who will have a recent PhD in any of these areas, or a related area of the mathematical sciences are encouraged to apply.

The Fields Institute is strongly committed to diversity within its community and especially welcomes

applications from visible minority group members, women, Aboriginal persons, persons with disabilities, members of sexual minority groups, and others who may contribute to the further diversification of ideas.

Please contact:

<http://www.fields.utoronto.ca/programs/scientific/CMM/>

Open Positions in Mathematical Biology at BCAM Basque Center for Applied Mathematics, Spain

Deadline for applications: 2009-05-31

The BCAM - Basque Center for Applied Mathematics has opened an international call for Post Doctoral researchers and PhD Students to join one

of the Research Teams on:

- Partial Differential Equations, Numerics and Control (PDE)
- Multiphysics, Inversion and Petroleum (MIP)
- Network Design, Analysis and Optimization (NET)
- Calculus of Variations and Elasticity (CVE)
- Mathematical Biology (MB)

Outstanding candidates in other areas of applied mathematics and computer science are also encouraged to apply.

Applications MUST be submitted on-line at: <http://www.bcamath.org/joboffers>

More information on the research teams of BCAM can be found at: <http://www.bcamath.org>

Please contact:

<http://www.bcamath.org/>