

ESMTB Infoletter

May 2008



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, 15th of May 2008

Conferences

Society for Experimental Biology AMM at Parc Chanot, Marseille

Date: 2008-07-06 to 2008-07-10

This major symposium organised by the plant, cell and animal committees of the SEB brings together the leaders in systems biology to discuss recent developments in systems analysis of developmental and physiological process in animals, plants and microorganisms. Systems biology is a developing discipline in which computational and mathematical approaches are combined with high throughput experimentation to allow multilevel analysis of biological processes with the aim of gaining new insight. Many systems analyses focus on transcriptomics, proteomics, metabolomics and genomics because the data sets are readily accessible and conform to common archiving protocols. Great insights are already being made, however, using other types of quantitative data. In the age of the computer all data can be digitised but making the data readily accessible to systems approaches requires the establishment of common protocols and archiving strategies. Key to these developments will be incorporating imaging data into systems platforms to allow systems biology to address questions at cellular resolution.

<http://www.sebiology.org/meetings/Marseille/Marseille.html>
<mailto:m.mcainsh@lancaster.ac.uk>

International Symposium on Integrative Bioinformatics at Leucorea, Lutherstadt Wittenberg, Germany

Date: 2008-08-20 to 2008-08-22

Biological data are scattered across thousands of biological databases and hundreds of scientific journals. Current high throughput genomics technologies generate large quantities of high dimensional data. Microarray, NMR, mass spectrometry, protein chips, gel electrophoresis data, Yeast-Two-Hybrid, QTL mapping, gene silencing, and knock-out experiments are all examples of technologies that capture thousands of data points, often in single experiments. The challenge for Integrative Bioinformatics is to capture, model, integrate, and analyse these data in a consistent way to provide new and deeper insights into complex biological systems.

This fifth meeting on Integrative Bioinformatics will be of interest to Bioinformaticians, Computer Scientists and others working in, or interested in finding out more about, the developing area of integrative bioinformatics. There will be opportunities to present and discuss methods, theoretical approaches, and their practical applications.

<http://www.imbio.de/conference08/>
<mailto:lange@ipk-gatersleben.de>

The Dynamics Days Europe 2008 at Delft, The Netherlands

Date: 2008-08-25 to 2008-08-29

Founded in 1980, Dynamics Days Europe has a long tradition of bringing together researchers from a wide range of backgrounds who share a common

interest in the theory and applications of nonlinear dynamics.

The Dynamics Days Europe 2008 conference will consist of 11 topical sessions and two specialised sessions. Each theme will have an associated plenary lecture, one or more invited speakers and in some cases a few contributed talks. The latter will be selected by the theme organizers from submitted abstracts.

The conference will cover the multidisciplinary spectrum of nonlinear sciences, including:

- Climate Dynamics
- Coastal Morphodynamics
- Dynamics of Biosystems
- Fluid Dynamics and Turbulence
- Formation and Dynamics of Patterns
- Hamiltonian Systems
- Optoelectronic and Laser Dynamics
- Soft Cond. and Gran. Matter - Stoch. Dyn.
- Synchronization under Control
- Wave Dynamics
- DNA Translocation Dynamics
- Separatrix Chaos: New Feat., Appr. and Appl.
- Live experim.: Pattern Dyn. in Exotic Gas Disch.

<http://www.dd2008.ewi.tudelft.nl/>
<mailto:DynamicsDays2008@gmail.com>

Transport Phenomena in Micro- and Nanofluidics at Udine, Italy

Date: 2008-09-01 to 2008-09-05

The aim of the course is to present classical and recent numerical and experimental methods for studying transport phenomena in micro- and nanofluidic devices. Special attention is given to numerical simulation techniques and experimental methods in relation to practical engineering problems.

In recent years the progress in miniaturization technology has opened up new pathways for fluid dynamics. Flow in micron and nanometer scale devices are distinct from macro scale flows due to the large surface to volume ratios and the coupling of flow with heat and mass transport as well as electromagnetic fields. In addition, fluids with nanoparticles, such as nanofluids, have flow and thermal properties that may differ greatly from

the background solvent properties. Hence, engineering design for micro and nanofluidic devices is unique from the large scale and requires special attention to surface forces, local chemical conditions, and applied electromagnetic fields.

Transport phenomena in micro- and nanoscale are characterized by surface interaction (solid-fluid or fluid-fluid). Dominance of surface forces leads to unique flow phenomena such as electrokinetic flows, surface tension driven flows, and nanofluids.

As device length scales shrink the continuum description may fail and under some conditions. The course will present various simulation techniques for continuum, molecular and meso scales. Experimental methods will also be presented for characterization of devices and validation of numerical methods.

The lectures address fundamentals of flow in micro- and nanofluidic devices as well as modern simulation and experimental methods. The course is designed to assist engineers and scientists in the design of fluidic MEMS (microelectromechanical-systems) and NEMS (nano-electromechanical-systems). These integrated systems are emerging in many commercial applications such as gene and proteome profiling, bio-chemical sensors, lab-on-chip, cell-on-chip devices and nano-medicine.

This course is addressed to advanced students and scientists from engineering and applied sciences, as well as to physicists and mathematicians interested in fundamentals in the field of micro- and nano-fluidics.

<http://www.cism.it>
<mailto:cism@cism.it>

The 9th International Congress on Cell Biology (ICCB 2008) at Seoul, Korea

Date: 2008-10-07 to 2008-10-10

Cell biology is a rich, integrative science that brings together immunology, biochemistry, biophysics, molecular biology, genetics, physiology, bioinformatics, developmental biology, and more. Each of these fields has its own logic and style in the understanding of the fundamental unit of life, the cell. With the arrival of the 21st century, we face an

explosion of new information on the components of cells and how they interact and influence each other. Still, an immense amount of information remains unknown, particularly about how information flows through cells, and how they decide on the most appropriate ways to respond against internal and external stimuli.

The ICCB 2008 will reflect the state of art in the Challenge of Life Sciences from molecules to cells. The International Congress will not only act as a stage for this very essential meeting, but also as a place where scholars, researchers, and specialists can mutually be in the presence of each other to discuss future research directions and technological advancements. It will also be a great opportunity for everyone attending to increase their network of people, and of course an excellent occasion to visit and enjoy one of the most rapidly developing nations in the world, Korea.

Participants are advised to register in advance (before August 31, 2008) to receive an early registration discount. Please read carefully the registration guidelines at www.iccb2008.org.

<http://www.iccb2008.org/>

4th EMBO Conference: From Functional Genomics to Systems Biology at EMBL Heidelberg, Germany

Date: 2008-11-15 to 2008-11-18

Topics

- Transcriptional networks
- Genomic approaches to diseases
- Protein-protein interaction networks
- Genomic analyses of phenotypic variation
- System level behaviour
- Stochastic events

Deadline for registration is 3 August 2008.

<http://www.embl.de/Conferences/Omics/2008>

Workshops

R0 and related concepts: methods & illustrations at Paris, France

Date: 2008-10-29 to 2008-10-31

The workshop will focus on one of the most important concepts in epidemiology, population dynamics and ecology provided by the mathematical thinking, the basic reproductive number, R_0 , and its associated parameters. This meeting offers the opportunity to learn more about this concept and related ones, the mathematical models and estimation methods they involve and their practical implications.

<https://colloque.inra.fr/r0/>
<mailto:Rzeroconf@jouy.inra.fr>

Schools

Plant Modelling Summer School at University of Nottingham, UK

Date: 2008-09-15 to 2008-09-18

Target audience:

Open to all - plant biology postdoctoral researchers and PhD students are particularly encouraged to attend.

Aims:

- To introduce modelling and quantitative approaches to biology
- To encourage experimental design which generates data suitable for modelling

Registration is FREE but places are limited.

Deadline: 1 August 2008

<http://cpib.info/meeting/index.shtml>

Open Positions

PhD position on evolutionary dynamics Simula Research Laboratory at Simula Research Laboratory

Deadline for applications: 2008-05-16

Simula Research Laboratory conducts basic research in the fields of communication technology, software engineering and scientific computing. The research in the Scientific Computing (SC) department is focused on the development of numerical methods, algorithms and software, and large scale biomedical and systems biology oriented simulation studies applying these methods. In recent years, the main application area for computational research studies has been the simulation of the electrical and mechanical activity of the heart. Currently, we plan to extend our computational research to simulations of the evolutionary dynamics of genetic networks controlling the properties of organisms.

The aim of the research project is to study key evolutionary processes such as the adaptation of organisms to their environment, the splitting up of a species into multiple species and the development of multicellular organisms from a single fertilized cells. A key aspect of the research will be to study how the architecture and dynamics of genome organization and gene regulatory network structure influence the properties of organisms and hence how they influence the above mentioned evolutionary processes and how this contrasts with findings from more classical population genetics models.

Our understanding of genome organization and gene regulatory networks has changed dramatically over the last decade. A large part of DNA that was previously considered junk turns out to be functional after all, coding for RNAs that are however not translated into proteins. These RNAs in turn are often involved in regulating the expression of genes, which were previously thought to be exclusively regulated by proteins. Incorporating these new insights into our models is another key aspect of the research project.

Modeling formalisms used will typically be discrete, individual-based, event-based, and often spatially extended and will involve the explicit modeling of the evolution of genes, genomes and

gene regulatory networks determining the properties of simulated agents. The project will be supervised by a new member of our research group, Dr. Kirsten ten Tusscher (<http://www.binf.bio.uu.nl/khwjtuss/>).

Simula offers excellent opportunities for doing high quality research, generous support for travels and equipment, and competitive salary (around 47.000,- Euro/69.000,- USD for a Ph.D. position)

We are looking for candidates who fulfill one or more of the following requirements:

- a strong interest in evolutionary biological research
- a University degree in computational biology, systems biology, biomedical engineering, artificial life, artificial intelligence, computer science, physics or applied mathematics
- experience with computational modeling, simulation and analysis of complex (biological) systems.

The position requires excellent English writing skills and high marks from the BSc and MSc degree. Women are encouraged to apply. For more information contact Joakim Sundnes (sundnes@simula.no) or Kirsten ten Tusscher (ten-tusse@simula.no). To apply, email a short application letter, curriculum vitae, copies of transcripts and grades, and a publication list to jobs@simula.no. The subject of the email must contain 0830 Scientific Computing.

Application deadline: May 16, 2008

Please contact: [Joakim Sundnes](mailto:Joakim.Sundnes@simula.no)

Scientist training program at French National Institute for Agricultural Research

Deadline for applications: 2008-05-31

An innovative and outstanding young scientist training program is available at the French National Institute for Agricultural Research (<http://www.international.inra.fr/>). The studentship will be founded for 5 years at once. The first three years will be devoted to a PhD training which is supported by three French laboratories: Team BANG (contact: dirk.drasdo@inria.fr) at INRIA, Unit MIA (Computer Science and Applied Mathematics contact: Juhui.Wang@jouy.inra.fr)

and Unit BDR (Developmental Biology and Reproduction contact: Isabelle.Hue@jouy.inra.fr) at INRA. The last two years will be devoted to a post-doc training at foreign laboratories outside France.

The successful candidate will be expected to work on a funded project developing a computational model of the bovine trophoblast morphogenesis which is capable of explaining the growth and pattern formation observed in the developmental processes. The simulation method will combine individual-cell-based models (for further information on this model type: <http://ms.izbi.uni-leipzig.de/>) with continuum equations for the intracellular regulation to investigate the effects of chemical substance production, transport and consumption on the properties of the cells and the shape of the developing embryo. Image processing is used to analyze the experimentally found development scenario. Basic optimization techniques will be used to identify the most likely out of the possible models and estimate the model parameters, and sensitivity analysis will be considered to analyze the model behavior.

The new fellow will also play an integral role in ongoing collaborations with leading scientists on embryonic development and biomedical engineering/computational tissue modeling.

Applicants should have a master degree relevant to mathematical, physical, or biomedical modeling. The applicant must be highly motivated. Technical skills in basic applied mathematics and programming (C/C++, if possible: OpenGL) are necessary. The base salary is about 2000 Euros per month for the PhD training period and 2500 Euros per month for the Post-doc training period. Further information including the research context may be obtained from the persons mentioned at the first paragraph. APPLICATIONS WILL PROBABLY CLOSE BEFORE THE END OF MAY.

Please contact:

<http://www.international.inra.fr/>

2 year visiting position in Applied Mathematics at UNIVERSIDAD COMPLUTENSE DE MADRID (UCM), Madrid, Spain

Deadline for applications: 2008-05-30

The Universidad Complutense of Madrid is opening a 2 year visiting position in Applied Mathematics, starting October 1st, 2008 with the possibility of a third year renewal. Perspectives of a permanent position at the end of that period can also be considered upon performance of the candidate.

We are seeking a candidate with a Ph.D. obtained within the last ten years, with an outstanding publication record and with a proven capability to work in any field of Applied Mathematics. Experience and interest in interdisciplinary collaboration with other Sciences (Biology, Economy, Medicine, Physics, etc.) will be particularly appreciated.

Conditions of the appointment are negotiable. Salary will range between 30.000 and 45.000 euro per year, depending on the qualification of the candidate. Teaching duties will be appropriate for a person from which significant leadership in his/her field is expected. Knowledge of Spanish language is considered to be a very relevant qualification, though not a necessary condition.

Applications must be sent before May 30, 2008, by e-mail to Dr. Angel Manuel Ramos del Olmo at angel@mat.ucm.es and should include a letter of intent, a CV (with full detail of publications and previous teaching experience), and short description of project they wish to carry out at UCM if appointed .

Please contact: angel@mat.ucm.es

5 year PhD position at French National Institute for Agricultural Research, France

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Please contact: Dirk Drasdo
<http://www.international.inra.fr/>