

# ESMTB Infoletter

## May 2009



[www.esmtb.org](http://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](mailto:info@esmtb.org).

Best regards, Andreas Deutsch  
Dresden, 18th of May 2009

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## News

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### ESMTB travel support 2009

As in the previous two years, ESMTB supports travel to mathematical/theoretical biology meetings. The application deadline for 2009 is June 30. Please see pdf for details.

[www.esmtb.org/downloads/announce\\_tg\\_2009.pdf](http://www.esmtb.org/downloads/announce_tg_2009.pdf)

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### Reinhart Heinrich Doctoral Thesis Award 2009

We are proud to announce the Reinhart Heinrich Doctoral Thesis Award 2009 which is to be presented to the student submitting the best doctoral thesis in any area of Mathematical and Theoretical Biology.

ESMTB will honour the best thesis (showing the most impressive modelling ideas and useful innovative methods) with an award.

To apply for this award, please follow the link for more information.

[www.esmtb.org/downloads/RHDTaward.pdf](http://www.esmtb.org/downloads/RHDTaward.pdf)

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### ESMTB member survey 2009

We are currently preparing a membership-based survey of the ESMTB services and activities. You will be informed about the procedure via email soon.

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## Conferences

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**First Virtual Physiological Human (VPH) study group "Regenerative aspects of epithelial tissue/cells" at Nottingham, UK**

**Date: 2009-06-29 to 2009-07-03**

The main objective of this study group is to promote the interaction between modellers and academic and industrial experimentalists working within the life sciences. Researchers from experimental and industrial laboratories are invited to present technical problems for study in working sessions with leading modellers from the academic community.

[www.vph-noe.eu/news/90-vph-noe-study-group](http://www.vph-noe.eu/news/90-vph-noe-study-group)

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**Erasmus Intensive program Mathematics and Biology at The University of Firenze, Italy**

**Date: 2009-07-01 to 2009-07-15**

This graduate course is intended for biologists who feel that they would need to learn more in mathematics for their research.

In all fields of Biology, scientists have now to face with a huge amount of biological sequences which cannot be interpreted without the help of mathematical models. However, students in biology often lack basics which could help them to develop model based approaches. The aims of the IP are to make students in biology more familiar with mathematics and modelling, and learn how to translate a biological problem into a model.

The course is organized with lectures, practicals and conferences, including students presentations, during which participants will learn some of the mathematics that are currently used for modelling dynamic systems, stochastic processes, and statistical modelling through relevant biological examples.

The prerequisite in biology is general knowledge corresponding to a Master degree in Biology in a European University. This course is intended for biologists who need to refresh their knowledge in mathematics. Some basic knowledge is required to fully benefit from the course:

- calculus : function, derivatives
- probability theory : random variable, probability distribution, conditional probabilities
- programming : basic algorithmics (loops, conditional testing) This kind of knowledge should normally have been acquired after a Master degree in Biology in a European University. The first 2 days of the course consist in recalling some basics concerning the above topics.

The IP is funded by the Erasmus EC program and by the university partners. For the members of the partners universities, registration fees are 150 euros and cover for teaching material and accommodations (rooms, lunches, welcoming and closing dinner). Additionally, 75% of the travel costs are paid by the IP (see the section Application form). For other students, registration fees are 800 euros and cover for teaching material and accommodations (rooms, lunches, welcoming and closing dinner).

The course is open to everybody but priority will be given to PhD students from the university partners. Each university partner will select 4 students.

<http://cms.moulon.inra.fr/mathbio/>  
<mailto:alice.francois@agroparistech.fr>

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## Dynamics Days Europe 2009 at Goettingen, Germany

**Date: 2009-08-31 to 2009-09-04**

Dynamics Days Europe is a major international conference with a long tradition since 1980, which aims at covering the entire field of dynamics and nonlinearity. In 2009 the conference will take place in Goettingen from August 31 to September 4,

2009 at the Max-Planck-Institute for Dynamics and Self-Organization, and in the historic lecture hall of the Mathematics Institute of the Georg-August-Universitaet Goettingen.

The conference will cover new developments in modelling, mathematical foundations, applications and experiments. Contributed talks and posters are invited from all areas of dynamics:

- Dynamical Systems
- Chaos in Hamiltonian Systems
- Time-Series Analysis
- Synchronization and Chaos Control
- Quantum Chaos
- Pattern Formation and Spatio-Temporal Chaos
- Turbulence and Fluid Dynamics
- Stochastic Systems
- Non-Equilibrium Statistical Physics
- Soft Matter and Granular Materials
- Complex Networks
- Complex Systems in Biological Physics
- Neural Dynamics
- Population Dynamics and Epidemiology
- Socio- & Econophysics
- Applications in Engineering and Nanoscience

Numerous topics will be highlighted in invited plenary talks. In particular, invited focus sessions will be devoted to

- Clouds & Turbulence
- Dynamics of Soft Matter
- Engineering and Optimization
- Evolutionary Dynamics
- Foundations of Statistical Physics
- Granular Matter: Statistical Physics far from Equilibrium
- Neuronal Dynamics
- Pattern Formation in the Heart

Based on a refereeing of extended abstracts (two pages) a limited number of contributions will be selected for oral presentation. Details on electronic registration, submission of extended abstracts and booking of accommodation can also be accessed on the conference web page <http://www.dynamicsdays.org/dd09>

Deadline for abstracts: April 30, 2009  
 Notification of acceptance May 15, 2009  
 Deadline for registration June 30, 2009  
 Reservation of accommodation recommended in the course of May

<http://www.dynamicsdays.org/dd09/>

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## Workshops

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### MMBNOTT/MRM Summer Workshop in mathematical medicine and biology at University of Nottingham, UK

**Date: 2009-07-15 to 2009-07-17**

The MMBNOTT/MRM Summer Meeting will take place from 15-17 July 2009. This workshop in Mathematical Medicine and Biology will combine invited broad-based presentations with more focused research seminars. We have invited a number of distinguished speakers to Nottingham (with more to follow) who will talk on various aspects of mathematical modelling of biological systems. There will also be a poster session during the week; contributed posters are welcome and prizes will be awarded to the best posters.

The meeting will take place in the Pope Building (C17), University Park, University of Nottingham.

Deadline for registration: 12th June

There is a small registration fee for this event to cover accommodation and food costs. You will need to pay your own travel expenses. Accommodation will be at NCSL on Jubilee campus, a short walk from the School of Mathematics.

[http://www.maths.nottingham.ac.uk/mmbnott/summer\\_meeting/](http://www.maths.nottingham.ac.uk/mmbnott/summer_meeting/)

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## Schools

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### Biomat - Mathematics and Life Sciences: Biology & Mechanics at Granada, Spain

**Date: 2009-06-01 to 2009-06-05**

#### Courses

- Computational Mechanobiology of Hard Tissue; applications to Implant Design and Tissue Engineering
- Bio-fluids, Numerical Simulation: Blood-Vessel Interaction

#### Seminars

- Structure, dynamics and efficiency of tumour vascular networks
- ISTER (Immune System Tumor Efficiency Ratio) a new index in radiotherapy
- Quantitative measure of flux in Circulatory Mechanical Assistance
- Multiscale modelling of tumor growth
- The search for earliest signs of life on Earth
- Mathematical models of wound healing events
- New insights in the modeling of neural systems: bimodal resonances, criticality and brain development

<http://www.ugr.es/~kinetic/biomat/>

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## Open Positions

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### Open PhD position at Helmholtz Centre Munich, Germany

**Deadline for applications: 2009-05-31**

The successful candidate will develop his/her research in collaboration with other members of the Institute of Biomathematics and Biometry at the Helmholtz Centre Munich - German Research Centre for Environmental Health, with various experimentally working groups located in the Helmholtz Centre as well as with modelling groups at the mathematics department of the TU Munich.

The position is located within the interdisciplinary project "Oligotrophic Biofilms" in the Helmholtz Centre. His/her work will focus on modeling the interaction of biofilms and fluid dynamics as well as cell-cell communication within biofilms. Methods used range from numerical analysis and dynamical systems to model based data analysis.

Qualifications and experience required: The applicant should have interest in interdisciplinary work, perhaps even experience in cooperation with life scientists. Moreover, well founded knowledge in dynamical systems and numerical analysis is desired. A master or diploma degree in mathematics is required.

Please contact: [Burkhard Hense](mailto:Burkhard.Hense@helmholtz-muenchen.de)  
<http://www.helmholtz-muenchen.de/en/ibb/>

**PhD position "Role of variability in spatiotemporal patterns of excitable media" at Jacobs University Bremen, Germany**

**Deadline for applications: 2009-05-31**

Starting in June, a PhD position on mathematical modeling of spatiotemporal patterns (in particular spiral wave statistics) is available at the Computational Systems Biology group at Jacobs University Bremen.

In many biological systems, differences between the system components (biological variability) can be expected to outrank statistical fluctuations in the shaping of self-organized patterns. In principle, the distribution of single-element properties should thus allow predicting features of such patterns. For a mathematical model of a paradigmatic and well-studied pattern formation process, spiral waves of cAMP signaling in colonies of the slime mold *Dictyostelium discoideum*, we explored this possibility and observe a pronounced anti-correlation between spiral waves and cell properties (namely the firing rate) and particularly a clustering of spiral wave tips in regions devoid of spontaneously firing (pacemaker) cells (Geberth and Hütt 2008).

The aim of this PhD project is to identify other correlations between distributions of cell properties and pattern characteristics and classify them according to features of the underlying regulation.

*Please contact: Prof. Dr. Marc-Thorsten Hütt*

**Post Doctoral researchers and PhD Students 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/joboffers>

**Research position in computational oncology: modeling bio-mechanics of tumor development and treatment at H. Lee Moffitt Cancer Center & Research Institute in Tampa, Florida**

**Deadline for applications: 2009-05-31**

Applications are invited for a postdoctoral research position in the Integrated Mathematical Oncology group at the H. Lee Moffitt Cancer Center & Research Institute in Tampa, Florida.

We are seeking a highly motivated person interested in applying mathematical modeling and computer simulations to study various aspects of tumor initiation, progression and treatment. The appointed candidate will work with Dr. Kasia Rejniak (<http://www.rejniak.net>) on one of the following projects involving model development and its integration with experimental and/or clinical data: bio-mechanics of normal vs. tumor-like tissue morphogenesis; micro-fluids in drug delivery; bio-physics of tumor microenvironment.

The ideal candidate should have a strong background in computational fluid dynamics and experience in computer programming and visualization. As well as good communications skill and enthusiasm for working in an interdisciplinary team. The working knowledge of one of the following methods: immersed boundary, immersed interface or regularized Stokeslets, will be an asset.

The Integrated Mathematical Oncology (IMO) group is a team of researchers, including mathematicians, computer scientists, imaging specialists, experimental and clinical oncologists, that

are interested in developing novel translational approaches to the prevention and cure of cancer.

Position open until filled. For more information and to apply visit <http://www.moffitt.org/imo/jobs> and send full CV, cover letter, and the names of

three potential referees to Dr. Kasia A. Rejniak at [Kasia.Rejniak@moffitt.org](mailto:Kasia.Rejniak@moffitt.org).

*Please contact: [Dr. Kasia A. Rejniak](mailto:Dr.Kasia.A.Rejniak)  
<http://www.moffitt.org/imo/jobs>*