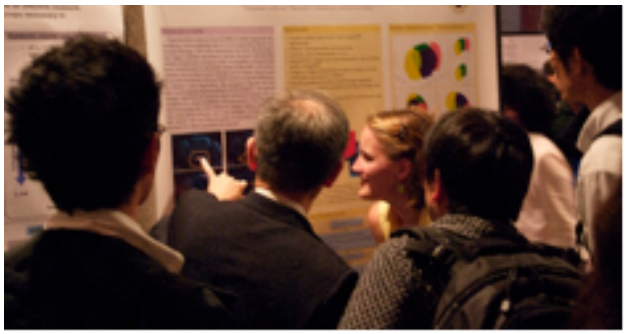
The Society for Mathematical Biology

SMB Newsletter

Volume 20 #3 – September 2007

SMB 2007 JSMB

Photos from the Joint Annual Meetings of the Society for Mathematical Biology and the Japanese Society for Mathematical Biology held at the Fairmont Hotel in San Jose, California, July 31 - August 3, 2007



Truman State student Elise Walck engages in discussion with a crowd at her research poster
Photo Courtesy of Jason Miller

Special thanks to Meghan Burke (standing left), Meredith Greer (standing right) and Bee Leng Lee (seated) for organizing a fantastic meeting
Photo Courtesy of Lou Gross

Many excellent plenary, mini-symposium and contributed talks were given
Photo Courtesy of Jason Miller

Contents

Letter from the President

Dear SMB Members:

As we all know, the SMB is an international society that exists to promote and foster interaction between the mathematical and biological sciences communities through membership, journal publication, and travel support to conferences. On July 31-August 3 the Society held its annual meeting at San Jose, California, with over 300 participants. The aims of the Society were very clearly reflected not only in the scientific and education programs, but also in the number of young people who were supported by travel funds and the mentorship program. It was a joint meeting of the SMB with the Japanese Society for Mathematical Biology and, in the last day, jointly also with MAA, focusing on education and curriculum development.

Mathematical biology extends over a large number of diverse areas, many of them featured in the annual meeting. These included ecology, cancer, cellular biology, chemotaxis, epidemiology, biochemical reactions and networks, genetics and molecular biology, morphogenesis, neurology, and biodiversity.

With so many diverse and fast growing fields, one of the biggest challenges we face is how to significantly increase the pool of young people who will take mathematical biology as career path. Several interesting sessions, in the annual meeting, dealt with educational issues, how to make mathematical biology more attractive to students. This is not an easy task since students need to develop skills not in one discipline but in two, seemingly unrelated, disciplines.

How can the SMB help encourage young people to become math-biologists? Here are two suggestions:

(1) Feature profiles of mathematical biologists (similar to Profiles which periodically appear on SIAM's website under "Career and Jobs") in the SMB Newsletter, on the SMB website, and possibly also in the SMB Digest.

(2) Run short articles (1-2 pages) as "highlights" describing research achievements. An example of such highlights can be seen on the websites of NSF/DMS and at www.mathematicalinstitutes.org.

I would like to encourage you to consider sending me and Holly Gaff (the SMB webmaster) your career profile if you think this can serve to guide young people, and/or a highlight article. Holly and I will work with you to prepare your material for publication and for web display.

As an international society, it is important for the SMB to connect not only to established math-biology societies in other countries and continents, but also to emerging groups worldwide. I envision opportunities for such groups in Africa, China, Mexico, and South America. I have recently appointed a new World Outreach Committee that will explore such initiatives; the committee consists of Aziz Yakubu (Chair), Daniel Bentil, Abba Gumel, Yi Jiang, and Jorge Velasco Hernandez. Please feel free to contact them for any ideas you may have.

The annual meeting in 2008 will be held in Toronto and in 2009 in Vancouver. The venue for the 2010 has not been determined; suggestions by potential organizers should be sent to Nick Britton.

In the August 2 business meeting of the Society it was decided to acknowledge the contributions of Torcom Chorbajian who has served the SMB as its Treasurer for the past 32 years: One of the plenary talks of each annual meeting will henceforth be designated as the Torcom Chorbajian Lecture, to be followed by a reception.

Finally, I wish to express my deep appreciation to Megan Burke, the Program Chair of the San Jose meeting and her committee for a tremendous job, and to Mark Chaplain who led the Society in the last two years, as its President.

Avner Friedman
SMB President

We found our way to San Jose

René A. Salinas

Do you know the way to San Jose?
I've been away so long
I may go wrong and lose my way
Do you know the way to San Jose
I'm going back to find some piece of mind San Jose…. *Burt Bacharach/ Hal David*

Over 300 SMBers and JSMBers certainly found their way to and found some piece of mind at this year's annual meeting in San Jose, CA. The beautiful weather of central California complemented a wonderful meeting at the Fairmont Hotel. The meeting was held jointly with the Japanese Society for Mathematical Biology and intersected with the Mathematical Association of America (MAA) MathFest. The conference brought together a wide range of scientists from many different fields with eight very interesting plenary speakers highlighting the event.

The conference format included two plenary speakers, the usual dazzling range of topics in six concurrent sessions each day, and various evening functions that included posters, food, and fun. The conference kicked off with a plenary by Alan Hastings titled, "Mathematical Approaches to the Management of Spatial Populations." The other plenary speaking included: Yasuhiro Takeuchi, "Mathematical Models of Avian Influenza Epidemic: What Policy Should we Choose?"; Helen Byrne, "Modelling Solid Tumor Growth: Getting the Balance Right"; Akira Sasaki, "Host-parasite Arms Races: Coevolutionary Cycles, Unilateral Disarmaments, and the Correlated Geographical Clines in Resistances and Countermeasures"; Gerda de Vries, "Modelling the Spatio-temporal Dynamics of Nuclear Proteins"; and H.T. Banks, "HIV Models: Cellular to Systemic".

Carlos Castillo-Chavez kicked off the last day with a joint SMB-MAA plenary titled, "On the Dynamics and Evolution of Emergent and Re-emergent Diseases: From Tuberculosis to SARS to the Flu." Also Friday morning, rumors quickly spread of a "Lou Gross in a suit" sighting. These rumors were in fact proven true as a well-dressed Lou Gross presented the final plenary titled, "Managing Natural Resources: Mathematics, Meets Politics, Greed, and the Army Corps of Engineers."

Alan Hastings, Carlos Castillo-Chavez, Suzanne Lenhart and Lou Gross
Photo Courtesy of Lou Gross

Fugo Tasaku gave an excellent Okubo Prize Lecture on models of Avian Brood parasitism. The undergraduate poster prize went to Elise Walck ("A Cellular Potts Model of Caenorhabditis elegans Embryonic Development in the Four-Cell Stage") and Tracey A. Blasingame ("A W Statistic: A New Approach for Testing the Relative Abundance Structure of Communities in a Phylogenetic Context"). The graduate student / postdoctoral prize went to Nobuhiro Kuroiwa ("Effect of Covalent Modification on Signal Amplification in Bacterial Chemotactic Receptors").

Caroline Bampfylde organized a very good mentoring program this year. We had 25 mentees and 23 mentors, and the program seems to be running strong. We encourage anyone interested in becoming a mentor in future meeting to contact Caroline.

On the social side, our local host Bee Leng Lee set up a wonderful barbeque dinner on the campus of San Jose State University. A good time was had by all as the weather proved to be perfect. Our banquet was held jointly with the MAA and provided a wonderful opportunity to meet new people and share ideas.

Passing of the sash and presidency of SMB from Mark Chaplain to Avner Friedman
Photo Courtesy of Lou Gross

At the business meeting, now past-president Mark Chaplain "passed the sash" making Avner Friedman the President of SMB. We would like to thank Mark for ALL of his hard work and wish Avner the best during his term. Mark also announced the creation of a special, named plenary in tribute to Torcom Chorbajian (who organized, with Fred McMorris, the first SMB meeting, 1975, and has attended all of the annual meetings). This plenary will be chosen by the local hosts at each future SMB meeting. We should all thank Torcom for all he has done. Speaking of thanks, we should all give another "round the world" applause to the organizing committee and especially Meghan Burke for running a great meeting.

Thanks to Meghan Burke for organizing a fantastic meeting
Photo Courtesy of Lou Gross

See you next year in Toronto!

SMB career workshop report

Robert Smith? and Jane Heffernan

In 2006, the SMB/SIAM meeting featured a workshop for mathematics job opportunities in the industrial sector, such as pharmaceutical companies, IBM, government and nonprofit organizations. However, while a large number of students and postdocs attended the workshop, many raised the point that they were only considering non-academic jobs as a backup and what they were really interested in was finding a tenure-track job. Students also mentioned that often they didn't even know what tenure-track actually meant, were unable to tell the difference between assistant, associate or full professor and had no idea if looking for such a job was even feasible. Many students made the point that the obvious person to ask was supposed to be their advisor, but they were often afraid to do so, for fear of what their advisor might think.

Consequently, a career workshop on finding an academic job was proposed for the 2007 joint SMB/JSMB meeting. The aim of this workshop was to deconstruct the entire process, from job searching and postdoctoral applications, to the campus interview and negotiation tips.

An important part of providing such a workshop was the creation of a safe space, where students and postdocs would feel free to be able to ask any questions they wanted, without fear that their advisor, or future employer, might be in attendance. As a result, the workshop was limited only to students, postdocs and junior faculty; anyone else was asked to leave the room. A few faculty members who had turned up were happy to oblige, which helped reas-

sure the remaining audience that this would indeed be a place where their concerns would be taken seriously and where there were no “stupid” questions.

The first 40 minutes of the career workshop consisted of a presentation, which defined terms, laid out a timeline of the tenure-track cycle, listed the best places to look for jobs, discussed post-doctoral positions, phone interviews, campus interviews, negotiation and what to do if you don't get an offer. Particular emphasis was placed on the versatility that math biologists have in this process, with interdisciplinary opportunities, joint/cross appointments and consideration of jobs that occur outside the traditional streams. Other issues addressed were dealing with interpersonal conflicts with referees, answering illegal questions, streamlining the reference process through sites such as Interfolio, dealing with the two-body problem and ways to improve your standing if you're some years away from applying. In addition, a handout was prepared, which listed places where academic job listings could be found, some useful websites for the job application process and grant resources, and a sample cover letter, CV, and teaching and research statements.

Following the presentation, an open question period commenced, lasting for over 45 minutes. Major issues raised included interpersonal conflicts between students and advisors, questions about negotiating, appropriate salary requests, visa issues and the teaching-research balance. The issue of interpersonal conflicts between students and advisors (or, to a lesser degree, other referees) was raised again and again, both during the two sessions and then privately with the organizers throughout the rest of the conference. It seems clear to us that letters of reference are a deeply complicated issue. While many of us write and receive generous and extremely helpful letters of reference, there is no process for comment or review of letters which are unhelpful or counterproductive and where the criticism may be unwarranted. As there is no access by the subject to what is written and no tradition of providing the subject with a copy of the letter, the confidential letter of reference is clearly a complicated tool that can, both knowingly and unknowingly, exercise an overwhelming influence over students' lives and their careers. In the worst cases, it can create an unhealthy climate of fear and submission. This issue is a serious one and it is clear that the fear of an unfairly negative letter of reference can profoundly affect the student's experience. This topic requires broader discussion across all disciplines in the University.

The workshop was extremely successful, attracting approximately 70 students and postdocs, across two days. Feedback showed that this was precisely what students and postdocs had wanted but had no idea how to access. Some postdocs who had been to career workshops elsewhere commented that this was the best presentation of its kind.

The handout, including a link to slides from the presentation is available at: https://netfiles.uiuc.edu/rsmith43/jobs/Handout.doc. Students and postdocs who missed the career workshop and have any questions or comments should feel free to contact the workshop organizers. Robert Smith?, rsmith43@uottawa.ca. Jane Heffernan, jmheffer@yorku.ca.

Entrance to San Jose State University
- location of SMB/JSMB picnic
Photo Courtesy of Jason Miller

Mathematical Biology Research Students Reflect on the SMB-JSMB Meeting

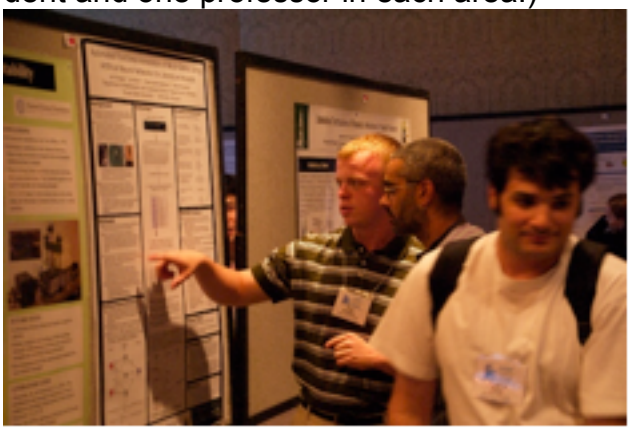
Bryan Hartwig, Josh Kangas, Elise Walck and Nathan Whelan

Truman State students enjoy the SMB/JSMB picnic
Photo Courtesy of Jason Miller

On July 30th, a group of sixteen mathematics, computer science, and biology students and faculty members from Truman State University traveled to San Jose, California, for the joint meeting of SMB and JSMB. We were among the students, all of whom were presenting posters of the investigations we'd been carrying out through Truman's "Research-focused Learning Communities in Mathematical Biology" program. None of us had been to an SMB meeting before, and very few of us had been to an international professional conference, so everyone was excited.

Being part of the meeting was overwhelming at first, as there were not many other undergraduates there. That feeling quickly faded, though, as the excitement and focus required for learning about others' research set in. At first it was difficult to identify sessions and talks on topics that intersected our research areas. This was especially hard for those of us in biology. Before long most of us had figured out how to pick talks and speakers that were in our general area, and then we could just enjoy being around lots of sharp people. We also figured out that you can't understand everything you hear, and at some point you just need to enjoy interacting with your peers, your mentors, and other distinguished researchers. And it's also important to take some time to enjoy the area around the conference site!

One thing that will really stick with us is our experience at the poster session, where we were able to talk with people about our work. We learned that we're doing things that really are interesting to others. We also learned how "interdisciplinary" we'd become through our research project when those of us who had traveled without our research partner learned to trust ourselves to be able to present both the mathematical and biological aspects of our work. (Our research program at Truman has us working for twelve months as part of an interdisciplinary quartet of two biologists and two mathematical scientists, one student and one professor in each area.)



Josh Kangas (Truman State), a computer science major, overviews his project for Amit Bose (NJIT)
Photo Courtesy of Jason Miller

The meeting was incredible (as was the hotel!) and we all felt privileged to have attended this conference at this point in our education. It left us with a new sense of possibility for what we are doing and what we can do with our skills, which we think is an invaluable gift. Those in Truman's mathematical biology research program had talked all summer and the previous semester about how mathematics and biology can fit together in extraordinary ways, and it was nice to have our eyes opened to so many concrete examples of how it's happening in the SMB community.

We'd like to end this article by acknowledging the National Science Founda-

tion for making it possible for all of us to attend the conference and the faculty mentors who work so hard to train us to work at the frontiers of our disciplines. Our research program at Truman State University is made possible by the NSF's *Interdisciplinary Training for Undergraduates in Biology and Mathematics* program (NSF DUE #0436348). Information about our program and our projects can be found at http://mathbio.truman.edu.

Mark Chaplain, now past-president of SMB addresses the crowd at the SMB/JSMB picnic
Photo Courtesy of Jason Miller

Commentary: What is Happening Elsewhere

James B Bassingthwaighte

I recently (15-19 August 2007) attended the 8th World Congress on Microcirculation (WCM). Involvement in research in the field of microcirculation has led to fantastic careers for a goodly number of mathematicians. It is odd, and therefore interesting too, that there is very little overlap in the memberships of the Society for Mathematical Biology and the Microcirculatory Society in the USA or the European or Japanese Societies for Microcirculation, despite much commonality of interest in quantitative biology.

The program of the WCM, like that of the US Microcirculatory Society held along with Experimental Biology each spring, is heavily quantitative, and includes theory in addition to applications of modeling to systems analysis of physiological and pharmacological data. One of the strong points of the WCM meeting was the emphasis on moderately large scale modeling of electrophysiological and metabolic systems in the heart and circulation. Oxygen exchange, oxidative phosphorylation, intermediary metabolism, and vascular and cardiac function are being brought together in these efforts. Many are multi-institutional and multinational collaborations, and have been for years.

A notable example of a particular national effort that is showing outstanding success in relatively large scale modeling is the Leading Project for Biosimulation sponsored by the Japanese Ministry of Education, Culture, Sports, Science and Technology (MEXT). Each of MEXT's several projects is a multi-investigator group effort:

- The Kyoto model centers on cardiac electrophysiology and its relationship to cardiac metabolism.
- The Keio project centers on oxygen handling and the metabolome of the erythrocyte.
- The Osaka project focuses on the neural control of cardiac excitation.

The plan is to integrate these projects so that the cardiac system can be understood to considerable depth.

Another large project, just beginning now, is the Europhysiome Project. With its initial funding from the European Economic Community, a large set of projects are being organized through multi-university collaborations, generated by sets of investigators with mutual interests. The selection process is based not only on the quality and originality of the science, but on the bringing of the projects along to have practical utility, either directly in health care or in en-

hancement of capabilities, probably with more emphasis on bio-devices and bio-instrumentation than on broader scale bio-technology. A central theme in these initiatives is the use of detailed mathematical modeling of the biological systems. The funding opportunities will be expanded through support to be provided by the various European health research agencies.

These goals, potential initiatives, are consistent with efforts initiated over the last decade. Projects like E-cell, Virtual Cell, the Physiome Projects and others herald the critical importance of biological and physiological modeling. We define the Physiome as the quantitative description of the functional behavior of a living organism. It spans the scales of anatomy from gene to whole organism, from bacteria to man. The time scale is from embryogenesis to senescence and death, minutes for bacteria and a century for a few of earth's creatures. Such a far-reaching goal, even if limited to a single species, is a dream unrealizable for this century, but nevertheless provides definition for integrative efforts and a setting for strategizing and collaboration in science. Exemplary of the new attitudes toward collaboration in the health sciences is IMAG, Interagency and Modeling Analysis Group, a set of thirty projects supported through a consortium of NSF and NIH Institutes (http://www.nsf.gov/pubs/2004/nsf04607/nsf04607.htm and http://www.imagwiki.org/mediawiki/index.php). These groups span efforts ranging from molecular modeling and subcellular kinetics to large scale finite element modeling of 3-dimensional flows in airways and blood vessels and tissue mechanics. They could be termed Physiome Projects.

Thus this note is to encourage SMB members to look to other societies such as the American Physiological Society, Biophysical Society, Biomedical Engineering Society and the Microcirculatory Society not only for collaborators but also for stimulating projects that involve ever more challenging mathematics to bring to fruition.

Workshop Announcements

Workshop on The Application of Mathematics to Biomedical Problems

A workshop on the application of mathematics to biomedical problems will be held December 17-19, 2007, at the University of Otago in Dunedin, New Zealand. This workshop will focus on several problems supplied by medical researchers in an attempt to formulate viable mathematical solutions and approaches to these problems. We hope to create an atmosphere in which ideas can be shared across disciplinary lines with a common objective: to create and explore new strategies for attacking the given problems. During the three-day workshop, we will form collaborative teams that may continue to work together after the workshop is over. Our long-term goal is to help foster these collaborations and to facilitate the dissemination of workshop outcomes by encouraging the writing of grant proposals and by organizing publication of finished results.

There is NO registration fee for the workshop. If you are interested in attending, please contact Prof. Ami Radunskaya, aradunskaya@pomona.edu or Dr. Sarah Hook, sarah.hook@stonebow.otago.nz.ac. Please visit the workshop website at http://pages.pomona.edu/~aer04747/WorkshopDecember2007.htm.

Workshop on Viral Paradigms: Molecules, Populations, Ecosystems, and Infectious Disease

A two-and-a-half day workshop whose objective is to change the landscape of how we model and understand viruses will be held January 14-16, 2008 at Georgia Institute of Technology in Atlanta, Georgia,

USA. A small group of scientists will discuss new theoretical and computational tools to bridge multiple spatiotemporal scales in the study of viral dynamics from phage to human pathogens. The website for this workshop is: http://www.biology.gatech.edu/viral2008/

The workshop will include talks by over 15 internationally renowned experts, a poster session, and multiple breakout sessions. The workshop will be limited to 40 participants with ample time for discussion and interaction. The workshop is supported by the Burroughs Wellcome Fund and the Georgia Institute of Technology and organized by Joshua Weitz (Georgia Tech), Howie Weiss (Georgia Tech), and Rustom Antia (Emory). Applications are currently being accepted for a limited number of junior researchers to participate in the workshop. There is no registration fee, and all accepted participants will be considered for travel awards (see website for details). Review of applications will begin on October 5, 2007. For further information please contact Prof. Joshua Weitz, jsweitz@gatech.edu.

Tenure-Track Faculty Positions

Max Wyman Assistant Professorship in Mathematical Biology

The Department of Mathematical and Statistical Sciences at the University of Alberta invites applications for a Max Wyman Assistant Professorship in Mathematical Biology. This is a three-year fixed-term position. The position offers an excellent research and teaching environment with a reduced teaching load (averaging two one-semester courses per year). A startup research grant is included with the position.

We are looking for a person with a PhD, an excellent research record in Mathematical Biology, and strong communication and teaching skills. Candidates are expected to develop an independent research program, and will be eligible to apply for federal research funds. They are expected to participate in graduate training and to be active in the Centre for Mathematical Biology (www.math.ualberta.ca/~mathbio). All aspects of Mathematical Biology will be considered. Current interests within the department include ecology, epidemiology, medicine and physiology.

Alberta is one of the leading Mathematics Departments in Canada and has strong connections with other mathematical institutes, such as the Pacific Institute for the Mathematical Sciences (PIMS), Mathematics of Information Technology and Complex Systems (MITACS), and the Banff International Research Station (BIRS).

Applications should include a curriculum vitae, research and teaching profiles outlining experience and/or interests, and at least three confidential letters of reference. The closing date for applications is November 16, 2007, or until a suitable applicant is found. Early applications are encouraged.

For more information about the Department and the University of Alberta, please visit www.math.ualberta.ca.

Interested applicants may apply to:
Arturo Pianzola, Chair, Department of Mathematical and Statistical Sciences
University of Alberta, Edmonton, Alberta, Canada T6G 2G1
Email: chairsec@math.ualberta.ca

All qualified candidates are encouraged to apply; however, Canadians and permanent residents will be given priority. If suitable Canadian citizens or permanent residents cannot be found, other individuals will be considered.

The University of Alberta hires on the basis of merit. We are committed to the principle of equity in employment. We welcome diversity and encourage applications from all qualified women and men, including persons with disabilities, members of visible minorities, and Aboriginal persons.

Tenure Track Position
Mathematical Biology

The Department of Mathematical and Statistical Sciences at the University of Alberta invites applications for a tenure track position in the area of Mathematical Biology. We primarily seek candidates at the Assistant Professor level, but exceptional candidates at a more senior level will be considered.

We seek an individual who will fit into our applied mathematics program (dynamical systems, differential equations, numerical methods, fluid dynamics, and probability), and who complements the Department's existing expertise in the mathematical modeling of cell biology, ecology, epidemiology, and physiology. Candidates must have a PhD degree in Mathematics or cognate discipline, an excellent research record in Mathematical Biology, strong communication and teaching skills, and leadership potential. Postdoctoral experience is an asset.

The successful candidate will develop an independent research program, supervise graduate students, and teach at both the graduate and undergraduate levels. We offer an excellent research environment with a normal teaching load of three courses per year. For more information about the Department, please visit our website at http://www.math.ualberta.ca/.

Candidates have the opportunity to join the Centre for Mathematical Biology and participate in its activities. For more information about the Centre for Mathematical Biology, see www.math.ualberta.ca/~mathbio.

Applications should include a curriculum vitae, a research statement, a teaching profile outlining experience and/or interests, and at least three confidential letters of reference. The closing date for applications is November 16, 2007, or until a suitable candidate is found. Early applications are encouraged. Interested applicants may apply to: Arturo Pianzola, Chair, Department of Mathematical and Statistical Sciences, University of Alberta, Edmonton, Alberta, Canada T6G 2G1
Email: chairsec@math.ualberta.ca

All qualified candidates are encouraged to apply; however, Canadians and permanent residents will be given priority. If suitable Canadian citizens or permanent residents cannot be found, other individuals will be considered.

The University of Alberta hires on the basis of merit. We are committed to the principle of equity in employment. We welcome diversity and encourage applications from all qualified women and men, including persons with disabilities, members of visible minorities, and Aboriginal persons.

Studentship and Postdoctoral Positions Available

Computational Systems Biology, Heidelberg

Several positions in computational systems biology at the University of Heidelberg, Germany, are available in our group right now: PhD position for modeling and comparing microbial metabolism (lactic acid bacteria), PhD position for developing algorithms for comparative systems biology, PhD position for modeling signal transduction pathways during virus infection, and postdoc in modeling of signal transduction pathways during embryonal development. Contact: Ursula Kummer, ursula.kummer @bioquant.uni-heidelberg.de.

PhD Studentship, Utrecht University

A four-year PhD studentship is available at the Department of Theoretical Biology, Utrecht University, The Netherlands. The aim of this PhD project is development of a computational model of the heart, which combines description of its electrical and mechanical functions. The project includes numerical studies of electromechanics in simple 2D and 3D geometries and in anatomically accurate models of the heart. Possibilities of analytical approaches for these systems will also be investigated. The numerical studies will be performed together with the Bioengineering Institute of Auckland University, New Zealand. We seek a motivated candidate with broad interest in integrative computational and mathematical biology and biomedical engineering. The position also requires assisting in teaching of courses given by our group. For additional information and application contact Dr. A.V.Panfilov: email: a.panfilov@uu.nl

Postdoctoral Positions: Computational Modeling of Motor Proteins

Two NIH-funded postdoctoral positions are available in the area of computational modeling of motor proteins. We study myosin and kinesin-family motors. The modeling efforts involve multiscale (from atomic level to continuum) simulations of the mechanisms by which the motor proteins generate force and motion. This is a collaborative effort with an experimental biophysics laboratory, and significant opportunities will exist for interacting with experimentalists in the design of experiments to test modeling results. Candidates must hold a Ph.D. in biophysics, bio- or physical chemistry, applied mathematics, bioengineering, or other relevant field, along with a demonstrated ability for independent research. Previous experience in the computational modeling of biological systems is desirable, but candidates with appropriate background who are willing to devote the effort necessary to branch out into a new field are also encouraged to apply. The initial appointment is for one year, with renewal subject to satisfactory progress. Applicants should submit a letter of interest, C.V., up to three relevant publications, and the names of three references to Prof. Edward Pate, epate@wsu.edu

Postdoc & PhD Positions Computational Biology ETH Zurich

Postdoc and PhD positions in Computational Biology are available in the Department of Biosystems Science and Engineering of ETH Zurich in Basel. Our group is engaged in developing mathematical models and efficient algorithms for complex biosystems. We are particularly interested in disease-associated cellular networks and their evolutionary dynamics, including genetic and epigenetic variation in cancer and infectious diseases. Successful applicants have a strong background in mathematics, computer science, computational biology, statistics, physics, or a related field, and demonstrated experience in modeling biological systems. The Department of Biosystems Science and Engineering of ETH Zurich is an integral part of SystemX.ch, the Swiss initiative in Systems Biology. It is located in Basel in close proximity of the Biozentrum of the University of Basel, the Frierich Miescher Institute for Biomedical Research, and the pharmaceutical and biotech industry. Please send the usual application material, including at least two references, as a single PDF file to niko.beerenwinkel@bsse.ethz.ch. For further information, http://www.dbsse.ethz.ch/research/group_beerenwinkel/

Postdoc Position
Biophysics & Bio-fluid Mechanics
Georgia Tech

A post-doctoral researcher is being sought to pursue research on an NIH-supported biophysical project dealing with theoretical analysis and multiscale (from molecular level to continuum) simulations of coupled nano/micro scale electrohydrodynamics and membrane biophysics as applied to AFM-integrated Scanning Electrochemical Microscopy (SECM) imaging of biological membranes and cellular signaling events. Candidates must hold PhD degree in Physical, Biological or Analytical Chemistry or Chemical, Mechanical or Biomedical Engineering and have demonstrated ability for independent research. Excellent analytical and numerical skills are a must. Previous experience in membrane biophysics, biofluid dynamics and interfacial phenomena is highly desirable, but excellent candidates willing to commit the time and energy to learn new material are also encouraged to apply. The position is for one year with possible renewal for another year subject to satisfactory progress and availability of funding. To be considered for this position, please send your inquiry to Prof. Andrei G. Fedorov, agf@gatech.edu, http://www.me.gatech.edu/MITf-Lab

The Society of Mathematical Biology publishes the SMB Newsletter in January, May and September for its members. We welcome your submissions for future issues (editor@smb.org). The Society for Mathematical Biology is an international society, which exists to promote and foster interactions between the mathematical and biological sciences communities through membership, journal publications, travel support and conferences. Please visit our website: http://www.smb.org for more information.

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More Photos from the Joint SMB/JSMB Meeting

SMB/JSMB Meeting Picnic
Photo Courtesy of Jason Miller

More than 50 posters covering every topic were available for viewing and discussion
Photo Courtesy of Jason Miller