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The ICIAM newsletter was created to express the interests of our membership and partner organizations and the views expressed in this Newsletter are those of the authors and do not necessarily represent those of ICIAM or the Editorial team. We welcome articles and letters from members and associations, announcing events, on-site reports from events and industry news. www.iciam.org

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**Cover illustration:** The Beijing national stadium also known as the Bird's Nest was designed by the Swiss architectural firm Herzog & de Meuron. Originating from the study of Chinese ceramics, the design consists of two independent structures, an inner bowl and an outer framework, that together give the outward appearance of a bird's nest.

# EDITORIAL: Who Pays for Interdisciplinary Research?

by Barbara Lee Keyfitz

He who pays the piper calls the tune. — Proverb

While the news is not official yet, and many details have not been determined, it appears at this point that the NSF-funded Institute for Mathematics and Its Applications (IMA) at the University of Minnesota will be closing its doors within a couple of years, and its sister institute, MBI (the Mathematical Biosciences Institute) at Ohio State will not continue much longer in its present form. The ICIAM community will remember MBI as the gracious host of our scientific workshop and board meeting last spring, and will recall the financial support for the workshop provided by IMA. As one of many people whose career was immensely helped by participation in programs at the IMA, I am personally saddened by both decisions. They are also ominous auguries for the future of interdisciplinary research.

The US National Science Foundation does not make its decisions without careful reasoning, and our community expects to learn those reasons in due course. It's well-known that the Division of Mathematical Sciences at NSF has had to absorb substantial budget cuts in the last few years, and had responded in part by encouraging the mathematics institutes (there are six that receive the majority of their funding from NSF) to engage in fund-raising, which turns out to be an easier task for an autonomous organization like MSRI than for an institute that operates within a university. So surely some of this is simply about running out of money. Even so, funding agencies are always setting priorities, and to destroy something that has been created over a period of over thirty years seems to be more calamitous than, say, reducing the size of individual grants or putting a cap on salaries and equipment.

In the case of MBI, the message appears to be that the output of the institute contributes to both mathematics and biology, and the contribution to biology needs to be subtracted from the contribution to mathematics in working out a funding formula. It is possible that a similar philosophy is at work in the decision about the IMA. There are some technical difficulties with the application of this arithmetic to MBI, because even if one accepts the argument that the content discipline ought to pay its share, the content disciplines in mathematical biology span all of the life sciences, including biology, biochemistry, bioengineering, medicine and even agriculture and public health, and collecting the appropriate share from each of them does not seem practical. One can see that in the case of IMA, whose programs ally with a different field each year, this sort of cost-sharing is not feasible at all.

But what if it is the basic premise that is flawed? Readers of DIANOIA may recall a review in an earlier issue of the book "The Mathematical Sciences in 2025" (commissioned, ironically, by the NSF itself). That book, MS 2025, was rather cheerful about the point that "there is no clear line" that separates mathematical sciences research from research in the "content discipline" being modeled, and in my review I worried that this was an invitation to turf warfare. Indeed, if one thinks a bit more clearly about the description of mathematical sciences activity given in MS 2025, "... aim to understand the world by performing formal symbolic reasoning and computation on abstract structures", then one could write a contrasting description of the activities of scientists and engineers who identify with other disciplines. Again quoting from the report, such scientific activity comprises "the quest to turn empirical observations into a means to classify, order and understand reality — the basis of science." As anyone knows who has attempted interdisciplinary research, or has tried their hand at consulting, the first thing that an applied mathematician has to do is to understand the language, assumptions and objectives of the target problem. And the successful mathematical researcher turns their creativity in formal symbolic reasoning (I'm sure the authors intended this to include PDE estimates) or computation toward answering the questions posed by the scientist. But the two strivers — the mathematician and the scientist — have differing objectives. This is true even if they have tremendous respect for each other's goals. What mathematician would not want to contribute to curing cancer? What engineer is not delighted to happen upon an intriguing mathematical object? And there are happy people whose achievements are applauded both by mathematicians and by people who don't identify with mathematics at all (though if you listen carefully the achievements that are praised differ between the two groups). But the people who are actually doing the work usually have no trouble distinguishing between the "mathematical" and the "domain science" aspects of their contributions.

The education of postdoctoral fellows (PDF) has been a significant accomplishment of most of the mathematical institutes; none more so than in the case of IMA and MBI, both of which hire PDF on multi-year contracts. An understanding of the subtle nature of interdisciplinary interactions is one of the lessons taught to these young people by the institutes. Again, from MS 2025: "Their collective impact in changing and broadening the culture of the mathematical sciences has been enormous."

Alas, the use of the past tense in that sentence was prescient. While it is possible that IMA may find a way to continue without NSF funding, this blow falls at a time when State and University budgets are shrinking. In the US, the Federal government has traditionally been the institution that supports basic, visionary science. An institution supported by one of the mission agencies or by state-level funding would look very different from the current IMA. And, oddly, while the posture of NSF in supporting individual investigator grants in mathematics has always been, "support the scientist rather than the project", the notion of a curiosity-driven institute, as distinct from an individual, now appears to be anathema to NSF, at least where applied mathematics is concerned. One can see the contradiction in such a policy by looking at a model tentatively proposed by NSF for the future of MBI: an institute that would be jointly funded, 50-50, by the mathematics division and the biology directorate of NSF. (Let me emphasize that this is not an actual proposal, as it has not yet been accepted by either unit.) A moment's thought should be enough to make it apparent that the way PDF are trained in mathematics is totally different from PDF training in biology. A typical life-sciences postdoc spends a good deal of time in a laboratory. During a three-year stint at MBI, a PDF is usually exposed to at least three different areas of the life sciences and mathematics. A life-sciences postdoc specializes in a single discipline. If you were a sponsor paying the salary of a PDF for three years, and you did not have an intrinsic interest in mathematics, would you indulge this activity? Most likely you would see it as dilettantism. As mathematical scientists, we do not.

In simplest terms: The activity of an institute in any other discipline appears to a mathematician to be mission-oriented. When I was, briefly, an institute direc-

tor, the question we were most often asked by other scientists was, "But what is your institute about?" "Accelerating the pace of discovery", we would reply, recognizing that to a non-mathematician it sounds weak. "Changing the culture" also sounds weak. But it is not. The role of the mathematics institutes, collectively, in changing the discipline from isolated to connected has been recognized, and appreciated. And the specific role of IMA and MBI in broadening and making more mathematical the interaction between mathematics and other sciences is also clear. But who cares? Recall that current IMA and MBI postdocs typically continue their careers in mathematics departments. Furthermore, it is no secret that the typical practitioner of what we might call a nonmathematical science has little understanding of and less respect for "performing symbolic reasoning ... on abstract structures". The Deloitte report on UK mathematical research (also featured in an earlier issue of DIANOIA), while determining that mathematical sciences research is responsible for 10% of employment in the UK, is at pains to point out that most of that 10% of workers do not understand the mathematical research that they are using. And there is palpable contempt for the mathematical Gestalt in the infamous (in our profession) PCAST report that urges an experiment in which mathematics would be taught to university undergraduates by mathematically literate scientists from other disciplines.

The research celebrated at the IMA and at MBI has significantly centered on the impact of interdisciplinary collaborations on the mathematical sciences. Once these institutes are no more, the ability of the US to project leadership in this area will be severely diminished. No payer means no piper means no tune.

Barbara Lee Keyfitz is the Dr Charles Saltzer Professor of Mathematics at the Ohio State University. She has a PhD from New York University, and works in partial differential equations. She is the current President of ICIAM.



# Subscribing to the ICIAM Newsletter

The ICIAM Newsletter appears quarterly, in electronic form, in January, April, July and October. Issues are posted on the ICIAM Web Page at www.iciam.org/News. If you would like to be notified by e-mail when a new

issue is available, please subscribe to the Newsletter. There is no charge for subscriptions. To subscribe or unsubscribe, visit the webpage given above, or go directly to groups.google.com/group/iciam-news.

# ICIAM 2015 Update

by Scientific Program Committee of ICIAM 2015

Online registration for ICIAM2015 has opened. Please register before April 30 to enjoy the discounted rates. For more information, please visit the webpage

#### www.iciam2015.cn

Online hotel reservation has also opened. Please make your reservation as early as possible to secure a room at the discount rates for participants of ICIAM2015. For more information, please visit the webpage

#### www.iciam2015.cn/Hotels-Tours.html

More than 3000 talks had been submitted to ICIAM2015 and it is expected that ICIAM2015 will have the largest number of participants for the congress. If you have not submitted the abstract of your talk yet, please do so before February 28 at submission.iciam2015.cn. Prof. Zeng Qing-Cun has been selected to be the speaker for the public lecture during ICIAM 2015. Prof. Zeng's research fields cover broad areas such as the fundamental physico-mathematical problems of atmospheric and geophysical fluid dynamics, computational mathematics applied to fluid mechanics, remote sensing theory and inversion method, numerical weather and climate predictions, natural cybernetics and the study on the disaster risk reduction of meteorological hazards.

Prof. Zeng was an invited speaker at ICIAM1995. He is a member of the Chinese Academy of Sciences, a foreign member of the Russian Academy of Sciences, a fellow of TWAS, and an honorary member of the American Meteorological Society.

# Press Release: Dr. Heide Hackmann to be ICSU Executive Director and Dr. Lucilla Spini, Head of Science Programmes

Heide Hackmann, a social scientist with extensive experience running international research organizations, will be Executive Director of the Council's Secretariat from March 2015. Lucilla Spini, a biological anthropologist with experience in international science coordination will take on the newly created role of Head of Science Programmes in early January.



Heide Hackmann.

Hackmann joins the Council from the International Social Science Council (ISSC), where she has been Executive Director since 2007. During her tenure, she strengthened ISSC's activity profile, membership base and financial position, and forged strong links with the International Council for Science through key partnerships. These include the Integrated Research on Disaster Risk programme and the Science and Technology Alliance for Global Sustainability, the consortium of international organizations that founded Future Earth, the new global research initiative on global sustainability, and coordinating inputs from the international scientific community on key policy processes at the United Nations.

Hackmann also led the launch of the regular World Social Science Forums and spearheaded the development of a new series of World Social Science Reports. She initiated a new global social science research funding and coordination programme on Transformations to Sustainability, which was launched in March 2014 as a major contribution to Future Earth.

Announcing her appointment, Hackmann said that she felt "excited and grateful for the privilege to head the activities of ICSU, an organization with a long track record of strengthening international research collaboration, and now assuming a leadership role in securing effective collaborations between the sciences and with society in order to address global priority problems."

Peter Liss will step down as Interim Executive Director of the International Council for Science, when Hackmann takes up her new role on 2 March, 2015.

President of the International Council for Science, Gordon McBean, said: "We are extremely pleased to announce Heide Hackmann's appointment as Executive Director. During her tenure at ISSC, she has demonstrated her ability to rally scientists from both the natural and social sciences to work together to address some of the biggest challenges facing humanity. ICSU will benefit greatly from her leadership, vision, and ability to build bridges between different disciplines." He added that the Executive Board was "confident that Hackmann will lead the Council to renewed strength and influence."

Hackmann was born in South Africa and completed her PhD in Science and Technology studies at the University of Twente, Netherlands in 2003. From then until 2007 she was Head of the Department of International Relations and National Quality Assurance and Director: CO-REACH (an EU-funded multi-lateral initiative for the Coordination of Research between Europe and China) at the Royal Netherlands Academy of Arts and Sciences (KNAW).

The Council also announced that Dr. Lucilla Spini will take on the newly created post of Head of Science Programmes, starting from 12 January, 2015. In this role, she will manage the development and implementation of ICSU's scientific and science for policy initiatives, as defined in its Strategic Plan. Spini is an Italian national who holds a B.A. in anthropology from New York University, as well as an M.Sc. in human biology and D.Phil. in biological anthropology, both from the University of Oxford. Since 2001, she has worked on science/policy bridging, global environmental change, sustainable development and research coordination for a number of international organizations, including UNESCO, UNU, and the FAO. She is currently a Giorgio Ruffolo Research Fellow in the Sustainability Science Program at Harvard's Kennedy School of Government.

# Call for Nominations for The Felix Klein Prize

The call of nominations for the Felix Klein prize of the EMS is open.

#### **Principal Guidelines**

It will be awarded to "to a young scientist or a small group of young scientists (normally under the age of 38) for using sophisticated methods to give an outstanding solution, which meets with the complete satisfaction of industry, to a concrete and difficult industrial problem".

#### **Deadline for Submission**

Nominations for the prize should be addressed to the chairman of the Prize Committee, Professor Mario Primicerio (University of Florence). The nomination letter must reach

# Report on ICWM 2014

the EMS office at the following address, not later than December 31, 2015:

EMS Secretariat Ms. Elvira Hyvönen Department of Mathematics & Statistics P.O.Box 68 (Gustaf Hällströmink. 2b) 00014 University of Helsinki Finland

The prize will be presented at the 7th European Congress of Mathematics (Berlin 2016). For more information please see the website www.euro-math-soc.eu/felix-klein-prize

by Sunsook Noh

The International Congress of Women Mathematicians 2014 (ICWM 2014) was successfully held on August 12th and 14th in Seoul, Korea with over 500 attendees representing more than 50 countries.

The meeting was held at Ewha Womans University on the 12th and at the COEX ICM 2014 venue on the 14th. This meeting was especially timely for women mathematicians around the world since Dr. Maryam Mirzakhani of Stanford University became the first woman mathematician to be awarded the Fields Medal at the opening ceremony of ICM 2014. An internationally cooperative effort of the International Mathematical Union, the Local Organizing Committee in Korea, the Korean Women in Mathematical Sciences, the International Program Committee and the International Advisory Committee helped to make ICWM 2014 a truly special global event. In particular, the Local Organizing Committee of ICWM

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2014 provided travel grants to 100 of the 1,000 NANUM Travel Grant recipients of ICM 2014 through the initiated the 'Together Travel Grant Project (TOGETHER 2014)', thus allowing participation of women from all parts of the world to both ICWM 2014 and ICM 2014.

ICWM 2014 brought together many women who were given the opportunity to see, learn, and understand from each other about the field of mathematics and the dedication required to succeed in this difficult career field. The meeting provided a sense of community and a sense of connection to women in mathematics around the world, from students to experienced educators and researchers.

The two day program consisted of the 2014 ICM Emmy Noether lecture by Georgia Benkart (USA) together with 7 plenary lectures given by invited speakers from around the world (Laura Demarco, USA; Isabel Dotti, Argentina; Motoko Kotani, Japan; Hee Oh, USA; Gabriella Tarantello, Italy; Donna Testerman, Switzerland), a special lecture from Ingrid Daubechies, IMU President, a poster presentation session by about 100 presenters around the world (20 of which received a best poster award), a Mathematics-Arts Workshop led by Reza Sarhangi of Towson University, a panel discussion about issues surrounding women in mathematics led by invited panel members representing different regions of the world (Shihoko Ishii, Japan; Soon-Yi Kang, Korea; Barbara Keyfitz, USA; Marie Francoise Ouedraogo, Burkina Faso; Marie-Francoise Roy, France; Dongmei Xiao, China), and finally a WiM-Networking ICWM banquet.

The WiM-Networking banquet was a time of celebration, and networking as short presentations introduced the major women in math organizations in the U.S., Africa, Europe, Korea, and the newly created international Women in Mathematics Committee of IMU by their representatives (Ruth Charney, AWM; Marie Francois Ouedraogo, AWMA; Marie-Francoise Roy, EWM; Pyung-Lyun Kang, KWMS; Ingrid Daubechies, IMU/WiMC).

Information about ICWM 2014 including the program

book and photos of the attendees of the meeting can be found on the website www.icwm2014.org.

Sunsook Noh is a Professor in the Mathematics Education Department, College of Education at Ewha Womans University in Seoul, Korea. She received her PhD in Mathematics from Purdue University and MA in Mathematics Education from Louisiana State University. Her main research interests are Commutative Algebra and Teacher Education. Among her various duties, she has recently served as the Local Organizing Chair for ICWM 2014, the President of the Korean Women in

the Mathematical Sciences (KWMS) and the Dean of the College of Education at Ewha Womans University.



# Call for Nominations for ICIAM Officers: Secretary, Treasurer, Officers-at-Large

The ICIAM Board Meeting in Beijing (August, 2015) will include elections to fill all the ICIAM officer positions except President/President-Elect (which was filled in 2013): The ICIAM By-Laws state that elections for Secretary, Treasurer and Officers at Large take place on years congruent to 3 mod 4. The terms, which are four years in duration, begin on October 1 of the election year.

The current president is Barbara Keyfitz (USA), and the president-elect is Maria J. Esteban (France), whose term as President will begin October 1, 2015. The other officers are as follows.

- Alistair Fitt (UK), Secretary, will have served two terms in 2015.
  - NOT eligible for renewal
- Jose A. Cuminato (Brazil), Treasurer, will have served one term in 2015.
  - ELIGIBLE for renewal
- Taketomo (Tom) Mitsui (Japan), Officer-at-Large, will have served one term in 2015. **ELIGIBLE for renewal**
- Mario Primicerio (Italy), Officer-at-Large, will have served two terms in 2015.
   NOT eligible for renewal

The duties of these positions are described in the By-Laws as follows.

The **Secretary** maintains the records of the organization in cooperation with the President and in accordance with the decisions made by the Board.

The **Treasurer** is responsible for the funds of the organization and annually presents a report on these funds to the Board.

**Officers-at-Large** do not have specific duties assigned by the By-Laws. At present Mario Primicerio chairs the membership committee and Tom Mitsui chairs the ICSU committee.

Nominations for all of these positions are solicited, and may be sent to any of the current officers, any time before the 2015 Board Meeting, but preferably before July 10, 2015, so that information may be circulated to the Board in advance. ICIAM Officers serve without remuneration; however, reasonable officer expenses in carrying out their duties are reimbursed from ICIAM funds.

Anyone with an interest in becoming or nominating an ICIAM Officer is invited to discuss the positions with any of the current officers.

SMAI Journal of Computational Mathematics publishes high quality research articles on the design and analysis of algorithms for computing the numerical solution of mathematical problems arising in applications.



Publication in SMAI-JCM is completely free for both authors and readers. No fees are charged to authors of accepted papers, and papers are freely accessible online to anyone. This is made possible by the generous support of the sponsoring organizations CNRS, INRIA and SMAI.

While the lack of fees is a radical departure from traditional journals, which charge subscription and/or author processing fees, the peer review, production, dissemination, indexing and other journal functions at SMAI-JCM are very similar to those in the best traditional journals.

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Published by SMAI, the French society for applied and industrial mathematics. https://ojs.math.cnrs.fr/index.php/SMAI-JCM







# Announcement of MCA-2017

Following the very successful first Mathematical Congress of the Americas, MCA-2013 in Guanajuato, the second such Congress, MCA-2017, will take place in Montreal, Canada on July 23-28, 2017. The confirmed plenary speakers at MCA-2017 are

- Shafrira Goldwasser (MIT, USA)
- Manuel del Pino (Universidad de Chile)
- Andrew Granville (Université de Montréal, Canada)
- Peter Ozsvath (Princeton University, USA)
- Yuval Peres (Microsoft Research, USA)

The Congress is organized under the auspices of the Mathematical Council of the Americas where more details are to be seen at www.mcofamericas.org.

We look forward to seeing mathematicians from throughout the world in Montreal in July, 2017.

# The SMAI Journal of Computational Mathematics

A widely accessible, carefully peer-reviewed scientific literature is truly important. It is crucial to effective research, and hence has significant impact upon the world's health, security, and prosperity. However, the high cost of many journals blocks access to many researchers and institutions, and places an unsustainable drain on the resources of others. Addressing this issue, the Société de Mathématique Appliquées et Industrielles, or SMAI, the French professional society for applied and industrial mathematics, has committed to the founding of a new journal of computational mathematics: the *SMAI Journal of Computational Mathematics*, or SMAI-JCM. It will be freely accessible to all, and will not require the payment of fees for publication.

The journal, which has just commenced operations and is reviewing its first submissions, intends to publish high quality research articles on the design and analysis of algorithms for computing the numerical solution of mathematical problems arising in applications. Such mathematical problems may be continuous or discrete, deterministic or stochastic. Relevant applications span the sciences, social sciences, engineering, and technology. SMAI-JCM, reflecting the broad interests of a strong and diverse international editorial board, takes a broad view of computational mathematics, ranging from the more analytical (numerical analysis) to the more applied (scientific computing and computational science). In particular, the journal welcomes submissions addressing:

- Computational linear and nonlinear algebra
- Numerical solution of ordinary and partial differential equations
- Discrete and continuous optimization and control
- Computational geometry and topology
- Image and signal processing
- Processing of large data sets

by Douglas N. Arnold & Thierry Goudon

- Numerical aspects of probability and statistics; assessment of uncertainties in computational simulations
- Computational issues arising in the simulation of physical or biological phenomenon, engineering, the social sciences or other applications
- Computational issues arising from new computer technologies
- Description, construction and review of test cases and benchmarks

As this list indicates, the editorial board recognizes that excellence in computational math arises from a broad spectrum of researchers and viewpoints, and encourages submissions of different sorts, with varying balance between computational results and theoretical analysis. Typically the strongest submissions are expected to involve both aspects. The journal will also provide for the publication of supplementary materials such as computer codes or animations.

Peer review will be carried out at SMAI-JCM just as in top traditional journals, and the journal will strive to maintain the highest ethical standards and to employ the best practices of modern scholarly journal publication. However the journal's business model is a radical departure from current practice. All papers accepted by SMAI-JCM will be electronically published in full open access, downloadable by anyone, without delay and in perpetuity. Publication in SMAI-JCM is also entirely free to authors, with the only barrier being scientific quality as determined by careful peer review, not financial. Of course, the publication of a high quality journal does incur costs, in addition to the freely given efforts of authors, editors, and referees. For SMAI-JCM these financial costs are directly borne by SMAI and other sponsoring organizations. We believe that this approach is the most promising way to achieve the goal of universal access to the scientific literature, and we hope that a successful SMAI-JCM will not only improve the publishing of computational mathematics, but serve as a model for other journals.

Context for the new journal can be found in a recent report<sup>1</sup> by ICSU, the International Council for Science, whose members are primarily scientific unions, such as the International Mathematical Union; national academies of science; and other international scientific organizations, of which ICIAM is one. The report advocated the following goals: "The scientific record should be:

- free of financial barriers for any researcher to contribute to;
- free of financial barriers for any user to access immediately on publication;
- made available without restriction on reuse for any purpose, subject to proper attribution;
- quality-assured and published in a timely manner; and
- archived and made available in perpetuity."

Unfortunately, these goals are far from a realization. In the area of computational mathematics, for example, a single well-known computational physics journal charges annual subscription fees that vary between \$6,652 and \$11,396 for online institutional access well more than many institutions can afford,<sup>2</sup> and numerous other journals charge very steep fees. Despite the massive revenues generated for the publisher by these fees, the articles published are not "free of financial barriers for any user to access immediately on publication," but only freely available to users from subscriber institutions. Authors wishing to have their papers placed in open access, are required to pay an additional fee of \$2,200.<sup>3</sup>

After studying the situation the ICSU report concludes that the resources used to support scientific publication are sufficient to bring about a scientific literature as described above: free of financial barriers to access or contribution, while maintaining quality peer review and the best practices in publishing. The obstacle to such a system comes not from the available resources, but rather from the current business models predominant in scholarly publishing. If these models are to change, it will surely have to be researchers themselves, the people who provide the content for the journals and carry out the key editorial and refereeing roles, who bring this about. Similar conclusions have been arrived at in other reports, as well. An October 2014 report<sup>4</sup> of the French Academy of Sciences called on scientists to "regain control of costs for activities that relate to dissemination of scientific information," while reaffirming "the primary need for peer-reviewing of articles before publication by academic research scientists," and the importance of "participation of academics in the final approval decisions."

SMAI-JCM is responding to these calls, offering a model of journal publication which, if widely deployed, can make these goals a reality. Our success in this depends crucially on the acceptance and support of SMAI-JCM by the community. We very much encourage the submission of strong papers in computational mathematics to the journal. Please visit the journal at

#### ojs.math.cnrs.fr/index.php/SMAI-JCM

and help us take a step towards quality, accessible, ethical publishing in mathematics.

Douglas Arnold is a computational mathematician employed as the McKnight Presidential Professor of Mathematics at University of Minnesota, and co-Editorin-Chief of SMAI JCM. In the past he served as the director of the Institute for Mathematics and its Applications (IMA) and as president of the Society for Industrial and Applied Mathematics (SIAM).



Thierry Goudon is a Senior Scientist at Inria, a public research institute dedicated to computational sciences. He received the Robert Dautray prize in recognition of works in the theory of radiative transfer. Photo H. Raguet/C Inria.



<sup>&</sup>lt;sup>1</sup>www.icsu.org/general-assembly/news/ICSUReportonOpenAccess.pdf

<sup>&</sup>lt;sup>2</sup>store.elsevier.com/product.jsp?issn=00219991

<sup>&</sup>lt;sup>3</sup>www.elsevier.com/journals/journal-of-computational-physics/0021-9991/guide-for-authors#13510

<sup>&</sup>lt;sup>4</sup>www.academie-sciences.fr/presse/communique/rads241014.pdf

# **BioDynamics 2015**

We would like to invite you to the next **BioDynamics** Workshop, which will take place in **Edinburgh on 15-17** April, 2015.

This will be the second in a series of international workshops designed to bring together biologists, mathematicians, clinicians, physicists, and computer scientists who are interested in dynamical systems in the biological and medical sciences. They provide a unique and exciting forum for multidisciplinary interactions, which we hope will lead to rewarding collaborations between theoretical, experimental, and clinical scientists.

There will be a number of **keynote presentations** delivered by world-leading scientists, who will talk about their cutting-edge current research and highlight important future challenges within their field. Confirmed keynote speakers include:

- Professor Richard Bertram, Florida State University, United States
- Professor Marian Joëls, UMC Utrecht, Netherlands
- Professor Craig McArdle, University of Bristol, United Kingdom
- Professor Patrice Mollard, Institute of Functional Genomics, Montpellier, France
- Professor David Nutt, Imperial College London, United Kingdom
- Professor Steven Schiff, Penn State Center for Neural Engineering, United States

In addition to keynote presentations, the workshop will feature a number of **selected shorter talks**, with plenty of time for informal discussion, and **poster sessions** will also provide an opportunity for people to present and discuss their work. Posters will be on display throughout the workshop, and there will be prizes awarded for the best posters from students and early-career scientists. As part of our commitment to public engagement, we plan to host an interactive event within the meeting.

BioDynamics 2015 promises to provide an exciting opportunity for scientists to present their data in a multidisciplinary forum and hear how collaborations between biological scientists, clinicians and mathematicians can provide major conceptual advances in our understanding of complex systems.



Registration for the workshop and abstract submission is now open - please note that the **early bird deadline** is 16 January, 2015, and the abstract submission deadline is 8 February, 2015.

Visit the website to register and for further information: www.bio-dynamics.org/events/biodynamics-2015-0 or contact the BioDynamics 2015 Conference Secretariat: The Conference Collective, 8 Waldegrave Road, Teddington, TW11 8GT, UK Tel: +44 (0) 20 8977 7997 Email: biodynamics@conferencecollective.co.uk

The main sponsor of the workshop is the Medical Research Council, with additional funding from other sources.

# Announcing MATHESIA

by LUCA FORMAGGIA

Announcing MATHESIA, a new and we believe unique social/crowdsourcing network. Dedicated to mathematics and to math specialists, its aim is to provide a venue where ""mathematics meets industry to create innovation".

In case you would like to know more, and we hope you do, please visit us at www.mathesia.com. Registration is free before December 1st, 2015.



# Invited Speakers of ICIAM 2015

**Bob Bixby** Gurobi Optimization, Inc., USA

**Analisa Buffa** Istituto di Matematica Applicata e Tecnologie Informatiche, Italy

Gunnar Carlsson Stanford University, USA

Jean Michel Coron Université Pierre et Marie Curie, France

Lisa Fauci Tulane University, USA

Martin Hairer Warwick University, UK

Ravi Kannan Microsoft Research, India

Karl Kempf INTEL Corporation, USA

Shunlong Luo Academy of Mathematics and Systems Science, CAS, China

Volker Mehrmann Technische Universität, Berlin, Germany

Gabriel Nguetseng University of Yaounde I, Cameroon

Yasumasa Nishiura Tohoku University, Japan

**Ricardo Nochetto** University of Maryland, USA

Shige Peng Shandong University, China Nancy Reid University of Toronto, Canada

Mark Sagar The Laboratory for Animate Technologies, The University of Auckland, New Zealand

**Claudia Sagastizábal** Instituto Nacional de Matemática Pura e Aplicada, Brazil

Laure Saint-Raymond École Normale Supérieure, France

**Jesús Sanz Serna** Universidad de Valladolid, Spain

Ludger D. Sax Grid Optimization Europe-System Planning Gas & Water, Germany

**Jin-Keun Seo** Yonsei University, Korea

**Zuowei Shen** National University of Singapore

Ian Sloan The University of New South Wales, Australia

Simon Tavaré Cancer Research UK, Cambridge Institute, UK

Eric Vanden-Eijnden Courant Institute, NYU, USA

Barbara Wohlmuth Technische Universität, München, Germany

Yinyu Ye Stanford University, USA

# ICIAM 2015 Mini-symposia — Extended deadlines

by Scientific Program Committee of ICIAM 2015

# Mini-symposia

Each mini-symposium consists of at least four 25-minute presentations, with an additional five minutes for discussion after each presentation. In general, mini-symposia will be scheduled as four-presentation sessions. Multiplesession mini-symposia may be submitted. Preference will be given to mini-symposia that list all speakers and talk titles. Prospective mini-symposium organizers are asked to submit a proposal consisting of a title, a description (not to exceed 100 words), and a list of speakers and titles of their presentations.

It is recommended that a mini-symposium organizer make the first presentation. Each mini-symposium speaker should submit an abstract of at most 75 words. The organizing committee will evaluate mini-symposium proposals. The number of mini-symposia may be limited to retain an acceptable level of parallelism in the conference sessions.

Participants are normally limited to presenting two talks at most during ICIAM in order to maximize the opportunity for all participants to speak. If you are invited to speak in more than one mini-symposium, we suggest you use the opportunity to nominate a collaborator to present your work.

To ensure balance, ICIAM prefers that a single individual not be the organizer of more than one mini-symposium. In addition, ICIAM discourages mini-symposia in which most of the speakers come from the same organization or if all co-authors of the papers being presented in a minisymposium are from the same organization.

To encourage the submission of more and high quality mini-symposia, a limited number of mini-symposia will be selected by the organizing committee according to the number and diversity of speakers as well as the significance of the topics, and the registration fee of one speaker of these selected mini-symposia will be waived.

# Industrial Mini-symposia

An industrial mini-symposium is quite the same as a minisymposium in form. The subject must be relevant to genuine industrial problems, and there should be at least one speaker coming from industry.

Prospective industrial mini-symposium organizers are asked to submit a proposal consisting of a title, a description (not to exceed 200 words), and a list of speakers and titles of their presentations. Each industrial minisymposium speaker should submit a 75-word abstract.

The organizing committee will evaluate mini-symposium proposals.

To encourage this format, the organizing committee will provide financial support to organizers of accepted industrial mini-symposia.

# Important Dates - EXTENDED

### Mini-symposia

March 30, 2014: Mini-symposium online submission opens;

August 30, 2014: Early decisions announced for minisymposium proposals;

November 30, 2014: Submission deadline for minisymposium proposals;

December 30, 2014: Final decisions announced for minisymposium proposals;

February 28, 2015: Submission deadline for accepted mini-symposium abstracts.

### Contributed Papers

July 30, 2014: Contributed papers online submission opens;

December 30, 2014: Submission deadline for contributed paper abstracts.

## Posters

July 30, 2014: Poster online submission opens; April 30, 2015: Submission deadline for contributed poster abstracts.

## **Conference Registration**

Early Bird Registration: January 1–April 30, 2015; Regular Registration: May 1–July 31, 2015; Late and On-site Registration: August 1–August 10, 2015.

## **Open websites**

Financial Support for attendees from developing countries: www.iciam2015.cn/Support

Enquiry: support@amss.ac.cn

SIAM Travel grants for attendees from U.S. institutions: www.siam.org/meetings/iciam15

### Call for exhibitors: www.iciam2015.cn/Exhibits Enquiry: exhibit@amss.cn

Information about hotels is available as of January 1, 2015 when registration starts. Details can be found at the Congress' homepage: www.iciam2015.cn

# SAVE THE DATE!

August 10-14, 2015 Beijing, China



# The Secretariat of ICIAM 2015

Siyuan Building, No. 55, Zhongguancun East Road, Beijing 100190, P.R. China

Email: iciam2015@amss.ac.cn Tel: 8610-62613242 Fax: 8610-62616840

### **Conference Registration**

Early Bird Registration: January 1 - April 30, 2015 Regular Registration: May 1 - July 31, 2015 Late & On-site Registration: August 1 - 10, 2015

### **Contributed Papers**

Submission Open: July 30, 2014 Submission Due: December 30, 2014

### Mini-symposia

Submission Open: March 30, 2014
Early Decisions Notification of Proposals:
August 30, 2014
Submission Due of Proposals:
Extended to November 30, 2014
Final Decisions Notification of Proposals:
Extended to December 30, 2014
Submission Due of Accepted Mini-symposium Abstracts:
Extended to February 28, 2015

### Posters

Submission Open: July 30, 2014 Submission Due: April 30, 2015

### Satellite Conferences

Submission Open: January 1, 2014 Submission Due: October 30, 2014

### Embedded Conferences

Submission Open: January 1, 2014 Submission Due: October 30, 2014



Conference venue: The China National Convention Centre

# About ICIAM

The International Council for Industrial and Applied Mathematics (ICIAM) is a worldwide organisation for professional applied mathematics societies. Its members are national and regional societies dedicated to applied and industrial mathematics, and other societies with a significant interest in industrial or applied mathematics.

The Council works

- to promote industrial and applied mathematics globally;
- to promote interactions between member societies;
- to promote the goals of these member societies;

and to coordinate planning for the ICIAM Congresses, held every four years, on industrial and applied mathematics.

ICIAM is governed by a Board comprising representatives of its member societies. Programs run by ICIAM, and the bylaws of the organization, can be found on the ICIAM web page, www.iciam.org.

The Full Members and their representatives (when known)

**ANZIAM** (Australia and New Zealand Industrial and Applied Mathematics): Ian H. Sloan

**ASAMACI** (Asociación Argentina de Matemática Aplicada Computacional e Industrial): Eduardo Adrián Santillan Marcus

**CAIMS-SCMAI** (Canadian Applied and Industrial Mathematics Society, Société Canadienne de Mathématiques Appliquées et Industrielles): Ian Frigaard

**CSCM** (Chinese Society for Computational Mathematics): Xuejung Xu

**CSIAM** (China Society for Industrial and Applied Mathematics): Pingwen Zhang and Guiying Yan

**ECMI** (European Consortium for Mathematics in Industry): Michael Günther

**ESMTB** (European Society for Mathematical and Theoretical Biology): Vincenzo Capasso

**GAMM** (Gesellschaft für Angewandte Mathematik und Mechanik): Peter Benner and Sergio Conti

**IMA** (Institute of Mathematics and its Applications): Iain S. Duff and David Abrahams

**ISIAM** (Indian Society of Industrial and Applied Mathematics): Abul Hasan Siddiqi and Pammy Manchanda

**JSIAM** (Japan Society for Industrial and Applied Mathematics): Shin'ichi Oishi and Hiroshi Kokubu

**KSIAM** (Korean Society for Industrial and Applied Mathematics): Chang Ock Lee

**MOS** (Mathematical Optimization Society (formerly Mathematical Programming Society)): William (Bill) Cook

**NORTIM** (Nordiska föreningen för Tillämpad och Industriell Mathematik): Helge Holden

ROMAI (Societatea Română de Matematică Aplicată și

Industrială): Costica Morosanu

**SBMAC** (Sociedade Brasiliera de Matemática Aplicada e Computacional): Helena J. Nussenzveig Lopes

**SEMA** (Sociedad Española de Matematica Aplicada): Tomás Chacón Rebollo

**SIAM** (Society for Industrial and Applied Mathematics): Cynthia Phillips and Irene Fonseca

**SIMAI** (Società Italiana di Matematica Applicata e Industriale): Alessandro Speranza and Giovanni Russo

**SMAI** (Société de Mathématiques Appliquées et Industrielles): Grégoire Allaire and Alain Damlamian

**SPMAC** (Sociedad Peruana de Matemática Aplicada y Computacional): Obidio Rubio Mercedes

**VSAM** (Vietnamese Society for Applications of Mathematics): Lê Hùng Són

The Associate Members and their representatives

AIRO (Associazione Italiana di Ricerca Operativa):

AMS (American Mathematical Society): Don McClure

AWM (Association for Women in Mathematics): Jill Pipher ChinaMS (Chinese Mathematical Society): Xiaoshan Gao CMS-SMC (Canadian Mathematical Society, Société Cana-

dienne de Mathématiques): Elena Braverman

**DMV** (Deutsche Mathematiker-Vereinigung): Günther Leugering

**EMS** (European Mathematical Society): Franco Brezzi **IMS** (Institute of Mathematical Statistics): Hans Rudolf

Künsch IMU (Israel Mathematical Union): Edriss S. Titi

LMS (London Mathematical Society): Stephen Huggett MSJ (Mathematical Society of Japan): Yoichi Miyaoka

**ÖMG** (Österreichische Mathematische Gesellschaft): Alexander Ostermann

**PTM** (Polskie Towarzystwo Matematyczne (Polish Mathematical Society)): Łukasz Stettner

**RSME** (Real Sociedad Matemática Española):

**SingMS** (Singapore Mathematical Society): Weizhu Bao SMF (Société Mathématique de France): Bernard Helffer SMG-SMS (Schweizerische Mathematische Gesellschaft – Société Mathématique Suisse – Swiss Mathematical Society): Jean-Paul Berrut

**SMM** (Sociedad Matemática Mexicana): Mayra Nuñez-Lopez

SPM (Sociedade Portuguesa de Matemática):

UMI (Unione Matematica Italiana): Pierangelo Marcati

The current officers of ICIAM

President: Barbara Lee Keyfitz, USA

President-Elect: Maria J. Esteban, France

Secretary: Alistair Fitt, UK

Treasurer: Jose Alberto Cuminato, Brazil

**Members-at-Large:** Mario Primicerio, Italy and Taketomo (Tom) Mitsui, Japan

ICIAM Newsletter January 2015