



Bulletin for Mathematics in Industry

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MESSAGE FROM THE OCIAM DIRECTOR

As a new busy academic year starts, I would like to welcome our new Faculty and post-docs (see below) and thank the leavers for all their hard work. Many of you have seen that data science is becoming increasingly mentioned as the next “big thing”. The Mathematical Institute is part of this effort: we are members of the Alan Turing Institute in London and we have recently hired a couple of faculty in positions related to the subject. Clearly, data science is destined to play a role in applied mathematics. How central will it be and how should we deal with it? Since OCIAM is interested in the connections between mathematics and all areas of sciences and industry, we can look at data science as a new bag of tools to help us answer key questions. We can also develop new methods coupling traditional applied mathematics with this new landscape and we should explore the mathematical structures required to understand data structures and data dynamics. We are particularly well positioned in all these aspects and the future of data science and applied mathematics is very bright indeed.

EVENTS

[The Brooke Benjamin Lecture in Fluid Dynamics](#)

The Lecture will be given by Jane Wang from Cornell University. She will talk on 'Insect Flight: From Newton's Law to Neurons' on Wednesday 8th of November 2017 at 5pm in Andrew Wiles Building, Mathematical Institute, (Lecture Room 3). Drinks reception will be served afterwards. All are welcome.

[Alan Taylor Lecture](#)

The Lecture will be given by Professor Kate Smith-Miles from Melbourne University. She will talk on 'Optimization of the Darkness of Uncertainty' on Monday 20th November 2017 at 5pm in the Bernard Sunley Building, St Catherine's College. Tea will be served from 4.30pm and there will be a reception afterwards. All are welcome.

Forthcoming Study Groups with Industry 2017/18

Jan 29-Feb 2, 2018 [SWI 2018](#), Eindhoven. The Netherlands
Jan 29-Feb 2, 2018 [MISG](#), U. of South Australia, Adelaide
May 14-18, 2018 [ESGI](#), L' Aquila, Italy
July 16-20, 2018 [ESGI](#), Bath, England

More information about Study Groups with Industry can be found [here](#).

CONGRATULATIONS!

OCIAM visiting Professor Tom Mullin has been awarded a two year Leverhulme Emeritus Fellowship. The project is on 'The effect of porosity on a scaffold in a rotating bioreactor' and begins in September. He was also awarded an Honorary Professorship at the LSE in London this year.

Woolly Owl

Oxford won the Woolly Owl Trophy after a hand-fought battle in June at the biennial [Oxford Cambridge Applied Maths Meeting](#). The picture below shows the winning team with John Ockendon (one of the founders of the event) and Phil Trinh who was Team Manager this year.



NEWS

Professor John Allen attended the XXXIII ICPIG Conference in Estoril, Portugal, where he presented a paper, with Joseph Gibson of Imperial College, entitled "The collisionless transient pinch". John attended the first ICPIG Conference, organized by Hans von Engel, which was held in Oxford in 1953.

Colin Please has returned from his sabbatical adventures. He spent three months at QUT in Brisbane collaborating with the dynamic industrial maths group there on problems including lithium batteries, coffee roasting, Hele-Shaw cells, and cell migration. He also greatly enjoyed the fantastic interactions of very different Study Groups with Industry at Cape Town, Adelaide, Limerick, Sonderberg and Warwick and saw the Oxford style of mathematical modelling spreading across the globe. OCIAM was not quite the same without him. The enthusiasm gained from these will now help steer the CDT activities that he now returns to.

Knowledge Exchange 2017

This summer has been awash with events focussed on Knowledge Exchange (KE). First there was the Royal Society meeting [Mathematics for the Modern Economy](#) organised by a team led by John Ockendon. This one-day meeting attracted 180 participants of whom 30% came from industry. The talks reflected the power of mathematics and the value of employing people with a mathematical training but also stressed the difficulties of convincing companies and government of its relevance. Then there has been the collection of data for the [Review of KE in the Mathematical Sciences](#) chaired by Philip Bond which led to a preliminary meeting in London on Sept 8 to describe the findings so far.

Finally a [meeting at ICMS](#) in Edinburgh on Sept 19,20 revisited the evidence collected and introduced some experiences from across Europe. The main conclusion was that the UK needs a central 'hub' for Industrial Mathematics which will receive funding from both the Government and Industry and will coordinate and facilitate the many strands of this activity. The Review will be written over the next few months and presented to the Government early next year. We are all hoping that it will result in some positive moves for the support and encouragement of Industrial mathematics.

Oxford fluids Network (OxFN)

A workshop to mark the official launch of the Oxford Fluids Network (OxFN) was held on Sept 22 in the Mathematical Institute. This interdisciplinary research network is funded by the university and aims to connect researchers in fluid mechanics across subjects and departments in Oxford. The launch event consisted of 3 min talks highlighting the work of 24 different research groups from 5 departments. If you would like to be on the email list to receive information about future activities of this network contact Chris MacMinn on christopher.macminn@eng.ox.ac.uk

QBIOX: using maths and modelling to tackle problems in the biosciences.

QBIOX – Quantitative Biology in Oxford – is a new network that brings together biomedical and physical scientists from across the University who share a commitment to making biology and medicine quantitative. The QBIOX website at <http://www.qbiox.co.uk/> has details of all the activities run by the network, as well as relevant events taking place across the University. If you have events you would like to feature here, just complete the contact form at <http://www.qbiox.co.uk/contact>. You can also sign up to be a collaborator and to receive QBIOX's termly newsletter.

OPPORTUNITIES

InFoMM CDT Call for Project Proposals.

The EPSRC Centre for Doctoral Training in Industrially Focused Mathematical Modelling in Oxford is now looking for proposals for projects starting in 2018. All projects need to involve both an industrial partner and one or more Oxford academics. We are looking for around forty ten-week mini-projects and twenty three-year research projects. Interested industrialists should contact Jonathan Mason (masonj@maths.ox.ac.uk). Examples of mini projects can be found [here](#).

MI-NET is a European network which doles out small sums of money to support European activity in industrial maths. They are not receiving many applications so the chances of success (if your project satisfies the rules) are high.

The next deadline for funding for activities which will take place between 01/5/18 and 30/4/19 is 29th December 2017. Please note that there are still funds available for STSMs during the grant period which ends 30/4/18. (Applications for STSMs are dealt with through rolling deadlines). Details are at <https://mi-network.org/>

WELCOME



Renaud Lambiotte has been appointed Associate Professor of Networks and Nonlinear Systems and comes to Oxford from The University of Namur in Belgium. His recent research includes the development of algorithms to uncover information in large-scale networks, the study of empirical data in social and biological systems, and the mathematical modelling of human mobility and diffusion on networks.

Heather Harrington has been with us for a while and has been very involved in the intellectual life of OCIAM. We are glad to announce that Heather has joined the faculty as an Associate Professor of Applied Algebra and Data Science. She will continue to build her successful research group within OCIAM (Algebraic Systems Biology).



Radu Cimpeanu comes from Imperial College London to take up a Hooke Research Fellowship here. His research is concentrated on the study of interfacial flows and associated asymptotic methods for multi-scale systems, coupled with a strong interest in applied partial differential equations, computational fluid dynamics and high performance computing tools.

Graham Baird has started as a PDRA working with Ian Griffiths on modelling filtration processes, specifically the removal of arsenic from water, with particular application to the improvement of water quality in India.



Vassilios Dallas is the new Departmental Lecturer in Mathematical Modelling. He comes from University of Leeds where he was a Newton International Fellow in the Astrophysical and Geophysical fluids group. His research focus is on nonlinear, multi-scale and statistical dynamics of fluids including turbulence, self-organization and dynamos.

Dori (Adoracion) Castillo is the new OCIAM secretary. She comes from the Faculty of Philosophy where she was a project administrator. Please do not hesitate to ask her for help.



LEAVERS

Phil Trinh is moving to a Faculty position at Bath after many successful and active years in Oxford. We wish him well on his new journey and expect to see him around OCIAM often.

Stuart Thomson has completed his DPhil thesis on 'Mathematical modelling of elastoplasticity at high stress' and has gone to a postdoctoral position in the Department of Mathematics at MIT.

Apology

Note that the correct title of the prize awarded to **Doireann O'Kiely** at the BAMC is the [IMA Lighthill-Thwaites Prize](#)

If you have news for the next issue, or wish to unsubscribe from this bulletin, please inform: ociam-admin@maths.ox.ac.uk