



John Toland takes over at the Newton Institute



On 1st October Professor John Toland succeeded Sir David Wallace as Director of the Isaac Newton Institute. On his first day, when asked about the future he said "The aim will be to maintain and enhance the Institute's reputation as a creative place where the best mathematicians come to do their best work and where young scientists encounter, possibly for the first time at this level, leading researchers from all over the world."

"I have sometimes wondered if my new job will be like working for BBC drama or with a theatre company where the only thing that matters is the performance, with the careful management of resources to make it happen remaining strictly behind-the-scenes. In our case the Institute will be judged solely on the significance, depth and originality of the mathematics that emerges from

its programmes. The challenge to the Institute is to support work of originality, significance and timeliness, all of which are hard to measure, and on occasion difficult to recognise. (It was ever thus. Decca Records turned down the Beatles and James Joyce couldn't get a European publisher for *Ulysses*, but that will not be an excuse!)"

"Working with the Institute's management, the Director has many responsibilities related to this core activity, including the careful management of existing resources and the development of new funding arrangements, the better to maintain the high quality of research at the Institute. Today it all looks like a tall order, but the Institute has an excellent staff and a wonderful team of volunteers who support its aims, and with them I will do my best."

20th Anniversary celebrations

In 2012 the Newton Institute will mark 20 years since it was opened in July 1992. To celebrate this landmark there will be a number of events and lectures throughout the year for a range of audiences from school children to those with a scientific background.

The author of the 'Murderous Maths' series of books, Kjartan Poskitt, will give a fun talk at the Institute on 24th March 2012. It will be aimed at school age children and their families and promises to be very entertaining! Further Details will be released shortly.

Other planned events include an exhibition on Henry Moore and string theory and a publication featuring women mathematicians who visit the Institute during the anniversary year.

Details of all of the planned events will be posted on our special 20th Anniversary webpage when finalised. Please see www.newton.ac.uk/20/

The Institute will also be sponsoring Newton Institute 20th Anniversary Lectures throughout our anniversary year (see p.2 of the *Newsletter*).

In this issue...

- *Current Programmes update*
- *Honorary Fellowship for Howard Covington*
- *Newton Institute 20th Anniversary events*
- *Cross-disciplinary news*
- *Web Seminar downloads*

Honorary Fellowship for Howard Covington

On 13th September Howard Covington, Chair of the Management Committee, was made an Honorary Fellow of the Newton Institute. Honorary Fellowship is bestowed upon individuals in recognition of outstanding contribution to the mathematical sciences in general and particularly to the Newton Institute, through research, philanthropy or leadership. The scroll was presented by the then Director of the Institute, Sir David Wallace who said in his citation that Howard "has brought outstanding experience and commitment; and this is not simply in unstinting support, but also as an imaginative, thoughtful and appropriately searching friend to the Institute, who owns the strategic issues we face, and helps actively to resolve them".



Left to right: David Wallace, Elizabeth Wallace, Veronika Covington and Howard Covington

Howard was delighted to receive the Fellowship and told the *Newsletter* "It is a privilege to be connected with the Newton Institute and to participate in the great work it does for mathematical sciences. I am deeply honoured."

Howard Covington joins a group of selected individuals who have been bestowed with the award including Michael Atiyah, Dill Faulkes, Peter Goddard, John Kingman, Keith Moffatt, Hans Rausing, Evelyn de Rothschild and Peter Swinnerton-Dyer.

David Wallace ends tenure

On Friday 30th September Sir David Wallace came to the end of his tenure as the Director of the Newton Institute. At a farewell party on his last day, Sir David was both surprised and delighted when Howard Covington, Chair of the Management Committee, presented him with an original cartoon. David will maintain links with the Institute by serving on the Development Board.



David Wallace and Howard Covington

Newton Institute 20th Anniversary Lectures

As part of our 20th anniversary celebrations in 2012, the Institute is offering special sponsorship of lectures around the UK by participants at the Institute. As well as paying the travel expenses of the speaker within the UK, for these anniversary lectures we also offer £200 towards the cost of reception (tea and biscuits before and/or wine after) for all attending, £300 towards the cost of a dinner party for selected guests, and up to £100 for overnight accommodation for the speaker. The names and dates of programme participants can be found under Invited Participants on the relevant programme web page at www.newton.ac.uk/programmes/

If you would be interested in holding a lecture in your institution, please let Sara Wilkinson (s.wilkinson@newton.ac.uk) and director@newton.ac.uk know of your intentions at the earliest opportunity.

Developments in the cross-disciplinary initiative

The Institute has always interpreted mathematical sciences in the broadest terms, to include mathematics, its applications and potential applications. Indeed the rationale for focusing on programmes of up to six months is to give researchers from different communities the time and space to learn enough of each other's work to communicate and collaborate effectively. The result has been the output from an extraordinary range of programme areas to be found at www.newton.ac.uk/programmes/.

A cross-disciplinary initiative launched in June 2011 through a special call for proposals (see www.newton.ac.uk/call/specialcall.pdf) will take this aspect of programmes to a new level. The initiative is aimed at ensuring that proposals place mathematics at the heart of research in other disciplines where this is appropriate. In this way, it is expected that the support of the Institute for fundamental mathematics will be taken into new areas of application. This is exciting in its own right and a special challenge for the Scientific Steering Committee. We are addressing that by co-opting to meetings experts in disciplines which are removed from the expertise of SSC members.

The special call resulted in sixteen new proposals for consideration by SSC in October. Many have the potential to break new ground for the application of mathematics in exciting ways, both in terms of fundamental understanding and impact. They will be featured in future editions of the *Newsletter*.



Brad Jones delivering a seminar in September as part of DEMA 2011.

Record-breaking Webseminars

The dissemination of seminars on the internet is evolving into one of the most important pathways to impact for the Newton Institute. The high resolution video recordings are shipped to the Streaming Media Services (SMS) of the University of Cambridge, which mounts them in web format at www.newton.ac.uk/webseminars/. SMS also provide statistics on downloads at <http://www.sms.cam.ac.uk/statistics>. To date there have been half a million views of the Institute's seminars, with more than 115 Tbytes of downloads, an average of 230 Mbytes per view. Further analysis on the download data will be fascinating, and a vital step in interpreting the impact.

What's happening at the Institute at the moment?

Design and Analysis of Experiments

This programme began in mid July with a workshop on experiments for processes with time or space dynamics. This was the first of a series of workshops which attracted design specialists from all over the world. The topics of the workshops reflect the versatility of design of experiments which effectively covers all of statistics, ranging from experiments in healthcare, through experiments for generalized linear models to simulation experiments. In addition, the popular Conference "Designed Experiments: Recent Advances in Methods and Applications (DEMA 2011)" was held in the Institute as part of this series of workshops. A visit to Rothamsted Research Centre with a tour of the field experiments (some of them still continuing from the late 19th century) and a seminar held there by Roger Payne served as focal point for the DEMA conference.

A few highlights from this intense and exciting two months of meetings and conferences include the Rothschild Lecture by John Stufken

on orthogonal arrays. An Industry day with pharmaceutical companies was held in August, as part of the workshop on healthcare. There have also been a number of one-day meetings on diverse topics such as factorial designs and algorithms for building designs.

Now the programme enters into its research-intensive phase which will

last until December. The Cambridge Statistics Initiative (CSI) took place at the end of September and aimed to encourage interaction and networking between researchers in statistics and related disciplines. A number of small workshops and day events are still planned including a two-day workshop on algebraic techniques in design (during late October), and an Industry day planned for November.



Coffee break discussions during a workshop

Staff in the Spotlight



Bernadette Steptoe

What is your job and how long have you worked at the Institute? I am a Library and Information Assistant and I have worked at the Institute for three months.

What does your job involve? To provide, as part of the library team an effective library and information service, to support the Librarian and Information Officer, by assisting with cataloguing, preparing and printing preprints, processing books for shelving, and other administrative work to ensure the smooth running of the library, in particular to provide help and guidance to participants enabling them to make best use of the library.

What have been the highlights of your job so far? The staff are all very friendly and approachable and everybody seems to help out in all different areas of work, which makes the Institute staff as a whole such a great team and the Institute a nice place to work. I enjoy library work and I love the atmosphere and environment. I have worked in libraries for more than 15 years and I always find the work varied and interesting. I get a lot of enjoyment when looking for information and resources and from helping visitors find what they need.

What do you enjoy most about your job? Having the opportunity to do classification and cataloguing, which has always scared me a bit. It's great to finally have an understanding of it, although I'm still learning! I really enjoy meeting and talking to all the visiting scholars.

Do you have any hobbies? I like running (although not too far these days) gardening and walking my dog. I really like boats, enjoy visiting Castles (particularly Warwick Castle), anything to do with medieval history and watching period dramas. I should also mention I am a Coronation Street fan...I love it.

What is your favourite book? Not Without my Daughter by Betty Mahmoody.

What is your greatest luxury in life? I like to read a good book, especially on a warm sunny day in the garden with a glass of Pimms.

Who would be your ideal dinner party guests? Top of my list has to be Stephen Fry because he is so intelligent, interesting, funny and I don't think I have ever met anyone that doesn't like him. Then Nigel Havers, just because I think he is wonderful, witty and of course charming and I have always had a bit of a crush on him. Then it would be Henry VIII because I have a fascination with Tudor England and I would like to put him in the spotlight. Finally Michael Macintyre because I find him hilarious and of course me!

Deputy Director returns to OU

In August Dr Ben Mestel, Deputy Director of the Newton Institute, returned to the Open University in order to concentrate on his own mathematical research. The Institute offers thanks to Dr Mestel for his service to the Institute, the University of Cambridge and also to the UK mathematical sciences community.

Funding and Donors update

In addition to generous support this year from the Garfield Weston Foundation and Henderson Global Investors, the Institute is also grateful to a number of individual donors who have supported the Institute. These donations help to underpin the work of the Institute in many ways and are very much appreciated. All donors will be listed in the 2010/11 *Annual Report* but we would like to take the opportunity of sincerely thanking them here also.

To contribute to the Institute you can contact the Director John Toland by e-mail (director@newton.ac.uk) or visit the Institute website www.newton.ac.uk/support

Keeping it in the family...

Three mathematicians from the same family participated in an Institute workshop from the 18th-22nd July. Ewarest Rafajłowicz and Ewa Skubalska-Rafajłowicz attended the *Experiments for Processes with Time or Space Dynamics* workshop with their son Wojciech. It is an unusual occurrence at the Institute to have mother, father and son attending simultaneously. Ewa gave a seminar entitled *Neural networks for nonlinear modeling of dynamic systems: Design problems* and Ewarest delivered a seminar *Optimal input signals for parameter estimation in distributed-parameter systems*. Wojciech presented a poster entitled *Optimal sensors' deployment in wireless sensor networks for estimating stationary fields*. All three researchers work at the Wrocław University of Technology in Poland and said that they had found their visit to the Institute to be very fruitful.



Ewa, Wojciech and Ewarest