

# Case study

## Satellite Workshops

### Case study: Extending the reach and impact of INI programmes across the UK

The Isaac Newton Institute for Mathematical Sciences (INI) was conceived and founded to be a national institution serving the entire UK mathematics research community. The proposal to SERC (EPSRC's predecessor) made in August 1989, three years prior to the opening of the Institute, stated: "Its overall aim will be to stimulate research in the United Kingdom in all of the mathematical sciences". Even earlier than this, acetates from a preliminary brain storming session where the concept of INI was being discussed included: "How to make the Institute truly National" as the first item on the agenda. To this day, all proposals to INI must justify how their proposed programme would impact on the UK research landscape.

Introduced by INI in 2000, "satellite" workshops (workshops that are part of an INI programme but that are held elsewhere in the UK) are a key mechanism for extending reach, bringing INI research and researchers to other parts of the UK

- Enkeleida Lushi, Brown University, USA
- **Satellite Location: University of Leeds**  
*The CFM programme was great and having the satellite workshop in Leeds was certainly an interesting idea.*

- Juliette Kennedy, University of Helsinki, Finland
- **Satellite Location: University of East Anglia, Norwich**  
*It was a wonderful meeting full of fascinating talks.*

and additionally encouraging satellite attendees to attend workshops held in INI itself. The geographical location of each satellite workshop is chosen either because of a large research community working on that topic in that institution or in order to reach out to researchers geographically far removed from INI.

- Terry Lyons, Former Director, Wales Institute of Mathematical and Computational Sciences
- **Satellite Location: Cardiff University, Wales**  
*We were very pleased with the meeting - it seemed that participants found it really interesting and fresh, exactly the sort of thing WIMCS and INI should be supporting.*

At the time of publication (July 2016) there have been 63 INI Satellite Workshops held at institutions across the UK of which 17 have been held in Scotland and 7 have been held in Wales.



Royal Observatory, and University Edinburgh, Met Office, Cardiff University, The Royal Society at Chicheley Hall, Leeds University, UEA and Oxford University

Most recently, the workshop *Multiscale Methods for Stochastic Dynamical Systems in Biology*, the second of four workshops associated with the 6 month INI programme *Stochastic Dynamical Systems in Biology: Numerical Methods and Applications*, was held at the International Centre for Mathematical Sciences (ICMS) in Edinburgh. This workshop characterised the ambition and breadth of its parent programme. With speakers from across Scotland, the rest of the UK, mainland Europe and the US, the workshop covered modelling from the atomistic and

- Dana Longcope, Montana State University (Bozeman), USA
- **Satellite Location:** ICMS, Edinburgh  
*This [meeting] was exceptional for the uniformly high quality of the presentations. It included people from a broad range of disciplines, working on a common objective. I learned more from the ones outside my typical area which was truly relevant in my own research.*

molecular scale (the behaviour of biomolecules by all-atom or coarse-grained molecular dynamics simulations) up to modeling the dynamics of cells or animals. All participants were exposed to talks slightly outside their fields in addition to hearing presentations from experts in their immediate areas. Cohesion between themes was achieved by the inclusion of overarching talks on the development of multiscale methods for connecting

- Tanguy Chouard, Senior Editor, Nature
- **Satellite Location:** The Royal Society at Chicheley Hall, Buckinghamshire  
*A truly outstanding meeting, probably \*historical\* in fact.*

- John McGregor, CSIRO, Australia
- **Satellite Location:** MET Office, Exeter  
*Excellent. I enjoyed many valuable discussions with other attendees and heard a variety of very informative presentations. I was able to solve some modelling problems that had been causing me difficulties.*

different spatial and temporal scales. The workshop talks, posters and informal discussions during breaks highlighted key future research directions in the field including:

- The further coupling of different levels of modeling (combining discrete and continuous models, stochastic and deterministic models and multiscale methods in stochastic PDEs);
- The development of new simulation methods for treating soft biomolecules at mesoscopic length scales;
- The development of appropriate and predictive mathematical models given the large data sets now appearing in many biological areas.

- Helen Fraser, Open University
- **Satellite Location:** Royal Observatory, Edinburgh  
*Really lovely meeting. Very topical up to date and informative.*

Participants commented that “the interdisciplinary nature of this workshop and of the whole INI programme will have a long term impact by stimulating new collaborations between researchers from a diverse set of areas.”

The 2015 workshop Independence Results in Mathematics and Challenges in Iterated Forcing, part of the six

month programme on *Mathematical, Foundational and Computational Aspects of the Higher Infinite* was heralded as equally successful. Held at the University East Anglia (Norwich), home of an active Logic Group, this workshop combined talks with a tutorial element aimed at early career researchers with others on recent advances in the field, with an emphasis on the techniques and their applicability to problems in combinatorial set theory, as well as problems in mathematics outside of set theory proper.

- Jon Bevan, University of Surrey,
- **Satellite Location:** University of Oxford  
*The talks given at the workshop covered a range of interesting topics and were accessible, in my view, to people who are relatively new to Liquid Crystal Theory.*

A fundamental expectation is that, in addition to the general advancement of mathematical science, each INI programme benefits the UK mathematical community in some way: if the UK is strong in a particular field then UK scientists will play a major part in developing and leading the programme; if the UK community is comparatively weak in the field then the programme should help raise UK standards and instructional courses, targetting primarily younger researchers and research students, play a vital role in this regard.

- Mike Todd, University of St Andrews
- **Satellite Location:** London Mathematical Society  
*I found the meeting useful for my research, meeting and listening to people I wouldn't normally come across. Having the meeting in London was very convenient.*

