July 19th – 24th

Modelling perspectives: looking in and across boundaries

1st Announcement - December 2014
www.nottingham.ac.uk/ICTMA17
Key Dates

1 December 2014
   1st announcement
   Call for contributions

31 March 2015
   2nd Announcement
   Deadline for contributions

30 April 2015
   Notification of proposal outcomes

31 May 2015
   Early bird registration closes

30 June 2015
   Conference Programme published

19 July 2015
   Conference starts
This first announcement of ICTMA-17 contains….

1 Welcome to ICTMA-17  5
2 Location of the conference  6
3 Conference facilities for the scientific programme  7
4 Conference theme  8
5 Call for contributions  10
6 Conference social programme  12
7 Accommodation  14
8 Important information  15
1 Welcome to ICTMA 17

The Centre for Research in Mathematics Education at the University of Nottingham in the UK invites you to the 17th conference of the ICTMA in July 2015.

This biennial conference attracts a vibrant group of educators from around the world to share experiences in the important area of mathematical modelling and applications.

The Centre for Research in Mathematics Education (CRME) at the School of Education of the University of Nottingham is one of the largest such groups in the UK. The university is research-led and consistently ranked among the top 10 in the UK. The Centre caters for a wide range of teaching and supervision of higher degrees with research being focused in the interrelated areas of policy and equity, curriculum and pedagogy, continuing professional development and pedagogies. As part of CRME, the MARS/Shell Centre, founded in 1968, is a professional design research and development group with team members having extensive experience of designing teaching, learning, assessment materials and professional development for teachers of mathematics and science both in the UK and internationally, particularly in the United States.

Since the time of Newton, modelling and applications have played an unusually central role in British mathematics education – particularly in the last two years of high school. Over the last 50 years, the Nottingham mathematics education team has pioneered the explicit teaching of modelling competencies extending from the work at undergraduate level of Hugh Burkhardt and George Hall in the 1960s and 70s and Numeracy through Problem Solving in the 1980s through to recent developments in modelling curriculum and assessment in the UK, Europe and the US, led by Geoff Wake and Malcolm Swan.

It is this strong team that extends an invitation to our colleagues of the ICTMA to join us at ICTMA-17 from July 19th to 24th, 2015.
2 Location of the conference

The University of Nottingham is set in an award winning campus on the outskirts of the City of Nottingham in the East Midlands region of England. Accessibility from both within the UK and internationally is an important feature of the university's location. It is well-served by a number of airports with direct flights from many European cities and indeed from other continents through both London, Manchester (over 200 international destinations) and Birmingham (over 100 destinations). From these airports Nottingham can be reached by train in about 90 minutes. Close at hand, East Midlands Airport (EMA), serving approximately 75 destinations, is most convenient with the city centre being easily reached by bus service in about 30-45 minutes.

The City of Nottingham is a city of legends: world-renowned Robin Hood is alleged to have inhabited the nearby Sherwood Forest with his band of merry men redistributing the wealth of the rich to the poor and in doing so providing the Sherriff of Nottingham with a major headache. Other legends include the two-time European Cup champions, Nottingham Forest, literary heroes DH Lawrence and Lord Byron and international fashion icon Sir Paul Smith. The city is also home to three of the world’s oldest pubs, is recognised as one of the UK’s top shopping cities and has hundreds of restaurants and bars. It lies in the centre of England and consequently in easy reach of many excellent tourist attractions including the cities of London, Oxford, Cambridge and York. For those more interested in visiting the UK’s oldest National Park, the Peak District is close by and the conference excursion will provide an opportunity for you to visit one of England’s premier country houses and estates in this area of natural beauty – Chatsworth. This is the home of the Duke and Duchess of Devonshire and has appeared in a long list of films and dramas including the 2005 production of pride and prejudice (https://www.youtube.com/watch?v=-yj_ZLXrXk#t=37)
Conference facilities for the scientific programme

The conference will be held in the excellent academic facilities of University Park. This is Nottingham’s largest campus at 300 acres. Part of the University since 1929, the campus is widely regarded as one of the largest and most attractive in the country. Set in extensive greenery and around a lake, University Park is the focus of life for students, staff and visitors. Conveniently located only two miles from the city centre, the campus contains:

- period buildings
- modern state-of-the-art teaching and research facilities
- 12 halls of residence (accommodating over 3,000 students)
- several award-winning buildings
- a conference and exhibition centre
- sports facilities
- the Lakeside Arts Centre.

The conference will be held in the Sir Clive Granger Building with three plenary lecture theatres and seminar rooms for parallel workshops and presentations. All are equipped with multimedia presentation stations.

All conference delegates will be provided with access to complimentary wi-fi in all public spaces and meeting rooms.
4 Conference theme
Modelling perspectives: looking in and across boundaries

Mathematical modelling and applications by their very nature involve connecting mathematics with other worlds and consequently focus our attention on boundaries. When involved in modelling and applying mathematics we ourselves, as well as the mathematics we are working with, are engaged in activity both within and across boundaries. At this ICTMA conference we wish to explore the notion of boundary in more detail. For example:

- its importance in the development of understanding of the world which we model mathematically,
- how we can teach applying mathematics and modelling in ways which facilitate learners to work at the boundaries of different forms of knowledge,
- how to assess the processes involved in working at boundaries between mathematical and non-mathematical worlds.

This provides a stimulus to consider new contributions and approaches to the work of our community that might draw on best practice from other related research in mathematics education and associated domains. Indeed modelling has the potential to provide the connective tissue for interdisciplinary work that might stimulate new insight into the mathematical practices that are important in our increasingly mathematical world.

We therefore wish to encourage conference contributions that might address the following or other appropriate issues.

Research perspectives
There are already a wide range of different approaches to research with respect to mathematical modelling and applications. These are drawn from a wide range of different research cultures and paradigms. In seeking to understand modelling and applications within and across subject domains and disciplines there is an opportunity to consider what we might learn by the different approaches that can be taken to researching and understanding teaching, learning and application.

Modelling and applications in school/college
Understanding the interaction of teaching and learning in ‘classrooms’ provides significant challenges. Over many years the mathematics education research community has made significant progress in coming to understand learner development of mathematical concepts whereas our understanding of learner development of modelling competencies is less well informed. At the same time, we have only just begun to examine the complexities encountered in effective teaching of modelling and applications in compulsory school settings.
Modelling in STEM
Mathematical models and modelling underpin much work across the science, technology and engineering disciplines (with mathematics often referred to as underpinning the STEM disciplines). In mathematics education we need to understand the perspectives that these other disciplines have of mathematical modelling, and what is important and effective in supporting and connecting them. There is much to be learnt from interdisciplinary work in which mathematical modelling plays a central role: further research in this area will provide new and important insights.

Modelling in the world of work
In the workplace mathematical modelling and applications underpin much activity – although not always explicitly to all involved. There is increasing interest and a growing body of research within this important area. This has the potential to provide insight into what we know, what we need to learn, the implications for education and what we might learn about research methodologies.

Understanding the world of data and uncertainty.
The advances in technology over the last 20 years have dramatically altered the terrain of modelling in the fields of statistics and probability. New tools are now available for students to explore and develop the kinds of stochastic models that are of increasing importance in science, engineering, economics, and other fields. Research in this area might inform new modes of education with the new technological tools that are increasingly available.
Call for contributions

Deadline for all proposals 31st March 2015

The aim of the ICTMA conference is to provide a forum for the presentation and exchange of knowledge, experiences, and ideas relating to the teaching, learning and assessment of mathematical modelling, mathematical models and applications of mathematics at primary, secondary and tertiary level. The conference programme, following the usual ICTMA tradition, will include opportunities to present your work in the field of modelling and applications. The organising committee seek proposals for individual presentations as posters, papers and workshops. Proposals for alternative modes of contribution are welcome.

Conference proceedings
ICTMA has an agreement with Springer to publish an edited volume of selected papers from the conference. Full paper contributions are required after the conference by 15th September 2015. An international panel of referees will consider contributions after the conference.

Contribution formats
All proposals to contribute to the conference should be made by submitting an abstract - see below

Paper Presentations
Paper presentations may be primarily research or theory driven. The abstract should give an overview of the intentions of the presentation and should have a clear focus on modelling or applications. It may address issues in relation to:
- pedagogy;
- learning;
- assessment;
- epistemology;
- affective issues;
- research methodology;
- connections to other disciplines;
- connections to the workplace or society more widely.

Workshop Presentations
Workshop presentations provide a more interactive format that you can use to involve the audience in hands-on activity. You might propose such a session if, for example, you wish to present work that is developmental in nature. For example, you might demonstrate new approaches to curriculum materials, assessment, models of professional development and so on.

Poster Presentations
Your abstract should give an overview of the work to be presented using text although the poster itself should be visually attractive. Posters presented at the conference should be A1 in size and portrait in orientation.
**Other modes of contributions**

The conference organisers wish to encourage different modes of presentation and are open to suggestions from delegates. For example, it may be that a group of collaborators wish to develop a symposium. In such cases individual contributions should be proposed in the usual manner together with an overarching proposal that should clearly indicate the connectivity of the contributions and set out a rationale for the symposium proposal. The overarching proposal should clarify exactly which individual contributions are included in the symposium.

For each of the contributions above please submit a one page abstract (use the Template or see the Formatting Guidelines) to ICTMA17Academic@nottingham.ac.uk This email address can also be used for any questions you have relating to the process. Please note you should have registered for the conference when you submit your contribution.

**Abstract Formatting guidelines**

**Abstracts should be prepared to the following format:**

- A maximum of **one page**
- Written in English using MS Word, Times, 14-point font, 16-point line space, and 6 points between paragraphs; occupying a frame of 170 by 247 mm
- The title should be centred (in 16 point bold capitals), author(s) name(s) (in 14 point bold), and affiliation(s) of author(s) (in 14 point italics) in this order; all in Times New Roman
- The name of the presenting author(s) should be underlined You may find the template (available on the conference website) helpful in preparing your abstract.

**Abstracts** should be submitted as a document (doc or rtf-format) to ICTMA17Academic@nottingham.ac.uk by the deadline of 31st March 2015.
Conference social programme

The social aspects of the conference form an important part of the programme allowing time for delegates to meet both old and new friends in our community. In addition to times during the day for refreshments and lunch a special programme of events has been organised.

Welcome reception
The conference will open late Sunday afternoon with an informal welcome reception with drinks and snacks allowing delegates to meet informally prior to the start of the scientific programme.

Conference excursion
The conference excursion provides an opportunity to visit a part of the cultural heritage of the region mid-way through the conference. Of course the history of England is rich and varied, aspects of which are well-known throughout the world, particularly through the many successful TV costume drama productions that often use stately homes as their setting.

The Chatsworth Estate is situated in the Peak District National Park with Chatsworth House, much of which is open to the public, situated in its magnificent scenery. The extensive gardens and the surrounding park provide beautiful areas to explore for the more energetic. Whilst the Old Coach House will ensure those wishing to take a traditional English cream tea are not disappointed.
Conference dinner
The Conference Dinner will be hosted at Colwick Hall, situated on the outskirts of the city.
Colwick Hall is steeped in history; it dates back to the 11th Century and was recorded in the Domesday Book. The Hall has been inhabited by some of Nottingham and England’s most privileged families including the Byrons who inhabited the Hall for more than 150 years. The current hall was erected in the 1770s and has served as private home, public house and accommodation for jockeys racing at the nearby Nottingham Racecourse. More recently, the building fell into disrepair was rescued by a local builder who has worked to restore the building to its former glory.
7 Accommodation
The conference organisers would like to encourage you to book the on-site accommodation package as this will allow the conference to develop in a friendly and collegiate atmosphere.

Resident delegates – on-site accommodation package

The conference organisers have managed to secure an on-site accommodation and dining package at very favourable rates. Resident delegates will be housed on campus in comfortable en suite study bedrooms. Each of the bedrooms has high-speed wired internet access, a small fridge and access to a pantry with a sink and microwave oven. All bedrooms are equipped with tea making facilities and are serviced daily.

All of the delegates will be housed together for the duration of the conference. As part of the accommodation and dining package, breakfast and a three course dinner will be served each day in the university dining facilities. The reduced rates that have been negotiated for the all-in package are such that there is no gain in booking on-campus meals and room only accommodation separately.

The organisers recognise that delegates may wish to take some of their evening meals with colleagues off-campus in the City of Nottingham. Therefore we advise delegates who wish to dine elsewhere to sample the delights of Nottingham to just miss their pre-booked meal.

The on-campus accommodation rate is £290 for the entire conference. This includes bed, breakfast and evening meal for 5 nights (except for the conference dinner evening). This package may be booked on the conference website at www.nottingham.ac.uk/ICTMA17

Non-resident delegates

Some full conference delegates may not wish to book the on-site accommodation package, for example, delegates with an accompanying partner (as all accommodation is in single rooms). The city of Nottingham has many alternative accommodation possibilities within a short bus or taxi ride of the campus. It may be possible to book accommodation at the deVere hotel on campus but accommodation here is of course limited. Unfortunately delegates who book their own accommodation are not able to book to dine with other delegates who have this as part of the on-campus package.


8 Important information

Registration and Booking

You can register for the conference, book your place and accommodation package at www.nottingham.ac.uk/ICTMA17

Please note that you can pay by credit card or bank transfer. All fees must be paid in advance of the conference.

Conference rates:
Early Bird Rates (rates after 31st May)

Full conference: £330 (£400)
The full conference rate includes access to all aspects of the scientific programme with refreshments available throughout, and lunch, each day. Also included is the social programme which includes the welcome reception, the conference excursion to Chatsworth House, one of England’s premier stately homes and the conference dinner in the magnificent setting of Colwick Hall.

Accommodation package £290 (£350)
The accommodation rate includes a single, en-suite study bedroom in Cavendish Hall. Breakfasts and evening meals are included.

Day rate: £75 (£100)
The day rate includes access to all aspects of the scientific programme for the selected day. Refreshments and lunch are included. The delegate day rate on Wednesday 22 July includes the excursion to Chatsworth House. Please note that the delegate day rate on Thursday 23 July does not include the conference dinner.

Accompanying person: £100 (£100)
The accompanying person rate includes access to the full social programme which includes the welcome reception, the excursion to Chatsworth House and the conference dinner.

Contacting the conference organisers
Scientific programme enquiries: ICTMA17Academic@nottingham.ac.uk
Administrative enquiries: ICTMA17Admin@nottingham.ac.uk

Website:
www.nottingham.ac.uk/ICTMA17