

Reports of Sponsored Meetings

MAYNOOTH CONFERENCE IN THE HISTORY OF MATHEMATICS
1–2 AUGUST 2019, MAYNOOTH UNIVERSITY

This two day conference was a joint Irish History of Mathematics (IHoM) and British Society for the History of Mathematics (BSHM) Conference.

Day 1 focused on invited talks on a selection of mathematical texts from the Russell Library, it also featured a visit to the Russell Library to view their collections, which include works of Galileo, Copernicus, Fermat, and Newton, to name but a few.

Invited speakers who delivered a lecture were:

- Niccolò Guicciardini (University of Milan)
On two early editions of Isaac Newton’s mathematical correspondence and works: William Jones’s *Analysis per quantitatum, series, fluxiones ac differentias* (1711) and the Royal Society’s *Commercium epistolicum* (1713).
- Yelda Nasifoglu (University of Oxford)
Clavius and Compass: Mathematics education in early modern Jesuit colleges.
- Catherine Goldstein (CNRS, Institut de mathématiques de Jussieu-Paris Gauche)
Jean Prestet’s *Elements of mathematics: algebra* as a basis for mathematics at the end of the 17th century.
- Boris Jardine (University of Cambridge)
The Seven Ages of a Manual: Samuel Sturmy’s *Mariner’s Mirror* (1669), from conception to reception.
- Philip Beeley (University of Oxford)
20 yeares spare hours in algebra. John Kersey’s *Elements of that Mathematical Art* and its contemporary reception.
- Benjamin Wardhaugh (University of Oxford)
Reading Euclid in the Maynooth collection.

The conference organisers have agreed a book deal with Birkhäuser which will focus on Day 1 contributions (including several from authors who could not attend). This is expected to be published in early 2021 as part of their *Trends in the History of Science* series.

Day 2 followed a format similar to previous IHoM conferences and served as IHoM5. There were ten talks, and full details including titles, abstracts and some of the presentations are available from <https://bit.ly/38HHkx6>.

Fifty-one individuals registered for the conference, though several other local people also attended.

The conference was supported by the BSHM, the Irish Mathematical Society (IMS) and Maynooth university (Library, Department of Mathematics and Statistics, and Research Office).

Conference Organisers were Dr Ciarán Mac an Bhaird and Dr. Philip Beeley, in collaboration with Barbara McCormack (Special Collections Librarian). Report by

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15TH INTERNATIONAL CONFERENCE OF THE MATHEMATICS EDUCATION FOR THE
FUTURE PROJECT
4–9 AUGUST 2019, MAYNOOTH UNIVERSITY

The Mathematics Education for the Future Project was founded in 1986 as an international non-profit body to encourage innovation in mathematics, statistics, science and computer education. Since 1999 there have been 15 conferences throughout the world culminating in the Maynooth Conference in August 2019, attended by 188 people from 31 countries.

The 13 sessions over five days at Maynooth were extremely productive, with over 130 workshops, short paper and long paper contributions. There were also peer reviewed conference proceedings.

The plenary keynote *Can Technology make a Difference to Mathematics Education?* was delivered by Douglas Butler of the ICT Training Centre (Oundle) in the UK. This keynote was accompanied by two workshops *Helping Statistical Education through Visualisation* and *Exploring Concepts through a friendly User-interface*.

Delegates also got an opportunity to join local (the Russell Library, the National Science Museum, Maynooth Castle) and slightly less local (Hill of Tara) tours. The Russell Library tours included an exhibition of old mathematical texts.

The conference was supported by the Autograph, Fáilte Ireland, the Irish Mathematical Society and World Scientific.

Local Organising Committee: Dr. Ciarán Mac an Bhaird (Chair), Dr Fiona Faulkner (Co-chair), Dr Mark Prendergast (Co-chair) and Dr. Niamh O'Meara. Conference Organising Committee: Dr. Alan Rogerson, Poland/UK and Mgr. Janina Morska, Poland.

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CETL-MSOR BRINGING TOGETHER MATHEMATICS COMMUNITIES
5–6 SEPTEMBER 2019, DCU

CETL-MSOR brings together those involved in mathematics, statistics and operations research teaching, learning and support in higher education in an annual conference to share and support good practice in the area. This year the conference focussed on enhancements based on reflective and evidence-informed practice in relation to the following themes:

- developing communities of learners in mathematics and statistics support within, and across, the disciplines,
- teaching specialist mathematicians,
- inclusive design for mathematics learning,
- supporting students on the transition into and out of higher education.

Approximately 125 delegates participated in the conference: these came from all over Ireland and the United Kingdom, with some travelling from as far away as Australia and the United States. The conference had never taken place in Ireland before, although many Irish delegates have travelled to it in previous years. The keynote talks were:

- *The development of the mathematics and statistics support community: an objective, subjective, pragmatic and theoretical reflection* by Prof. Duncan Lawson, Coventry University,



FIGURE 1. Keynote speakers Duncan Lawson, Alice Rogers and Joe Kyle together with Eabhnat Ní Fhloinn (organising committee Chair) at CETL-MSOR 2019

- *Over the threshold: how schools, colleges and universities can work together to build mathematical foundations for successful progression* by Prof. Alice Rogers OBE, Kings College London.

Dr. Joe Kyle from the University of Birmingham also gave a keynote address to close the conference, summarising the contributions over the course of the conference.

The full programme can be found at <http://www.sigma-network.ac.uk/wp-content/uploads/2019/09/CETL-MSOR-Final-Timetable-2019.pdf>.

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17TH WORKSHOP ON NUMERICAL METHODS FOR
PROBLEMS WITH LAYER PHENOMENA
11-13 NOVEMBER 2020, UNIVERSITY OF LIMERICK

A three-day workshop was organised by the Department of Mathematics and Statistics at the University of Limerick, Limerick, in cooperation with MACSI (the Mathematics Applications Consortium for Science and Industry), with financial support by the Irish Mathematical Society. The aim of the workshop is to bring together people, in the mathematics and general scientific community, who have particular interests in the

development and applications of numerical methods for problems that exhibit layer phenomena, such as boundary/interior layers in fluid flow and other applications.

This year, the workshop was dedicated to the memory of our dear friend Piet Hemker who passed away in May 2019. Piet worked at CWI (the Centre for Mathematics & Computer Science) in Amsterdam from 1970 until his retirement in 2006 and was a CWI Fellow since 2001. From 1989 until his retirement, he was also an endowed professor at the University of Amsterdam. Piet contributed with important innovative scientific research to many areas of numerical mathematics, including, inter alia, multigrid methods, defect correction, numerical methods for compressible flows, and manifold mapping. Of particular relevance to this workshop, he published more than 20 papers with G.I. Shishkin on singular perturbation problems and proposed the famous Hemker test problem in *J. Comput. Appl. Math.* in 1996. In 2006 Piet became a Knight in the Order of the Netherlands Lion (Ridder in de Orde van de Nederlandse Leeuw).

The meeting was initially planned for April 2020, but was postponed, and finally held virtually on 11-13 November 2020. It featured 12 Irish and international speakers, and attracted more than 50 participants from Canada, China, Cyprus, Germany, India, Ireland, Russia, Serbia, Spain, and the UK.

2020 Speakers

- Faiza Alssaedi (National University of Ireland Galway, Ireland)
Numerical solution of fourth-order real and complex-valued singularly perturbed problems
- Gabriel Barrenechea (University of Strathclyde, Scotland, UK)
Divergence-free finite element methods for an inviscid flow model
- José Luis Gracia (University of Zaragoza, Spain)
Numerical approximations to singularly perturbed convection-diffusion parabolic problems with a discontinuous initial condition
- Róisín Hill (National University of Ireland Galway, Ireland)
Generating layer-adapted meshes using MPDEs
- Natalia Kopteva (University of Limerick, Ireland)
Upper and lower solutions in the numerical analysis of semilinear singularly perturbed differential equations
- Scott MacLachlan (Memorial University of Newfoundland, Canada)
Parameter-robust preconditioners for singularly perturbed convection-diffusion equations
- Nikolai Nefedov (Lomonosov Moscow State University, Russia)
Periodic and stationary solutions of nonlinear reaction-diffusion problems with singularly perturbed boundary conditions
- Eugene O'Riordan (Dublin City University, Ireland)
Singularly perturbed convection-diffusion parabolic problems with a discontinuous initial condition
- Martin Stynes (Beijing Computational Science Research Center, China)
A weighted and balanced finite element method for singularly perturbed reaction-diffusion problems
- Vladimir Volkov (Lomonosov Moscow State University, Russia)
Asymptotic solution of the coefficient inverse problems for Burgers type equations
- Christos Xenophontos (University of Cyprus)
Isogeometric analysis for singularly perturbed high-order, two-point boundary value problems of reaction-diffusion type
- Alexander Zadorin (Sobolev Institute of Mathematics, Novosibirsk, Russia)
Approaches to calculating derivatives in the presence of a boundary layer

The book of abstracts is accessible from the workshop website¹ or using the direct link².

This workshop was the 17th in a sequence of annual workshops, but the 1st to be held online instead of physically. Its success opened our eyes to the possibility of organising talks by speakers located in any part of the globe. Thus, in collaboration with other Irish researchers, we have now created the (virtual) **Irish Numerical Analysis Forum**³ which will include fortnightly seminars in all areas of numerical analysis that are aligned with the interests of the Irish numerical analysis community. Its aim will be to solicit lectures from leading international numerical analysts who will discuss their research area in a style that is accessible to most numerical analysts (i.e., not just those who are already familiar with the subject of the lecture).

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GROUPS IN GALWAY 2020: ONLINE EDITION
9–11 SEPTEMBER 2020, NUI GALWAY

Groups in Galway 2020 was organised by Angela Carnevale and Tobias Rossmann (both from NUI Galway). The organisers are grateful to the Irish Mathematical Society for supporting this event. Due to the ongoing pandemic, the conference took place online. There were three sessions, spread over as many days. The times of the sessions were chosen to accommodate a wide audience from across the world. Well over 200 people registered to virtually attend the meeting, and the total number of active participants exceeded 100 during some of the sessions.

As the non-mathematical highlight of the conference, John Burns, Richard Hennessey, Michael Mc Gettrick, and Cathal Seoighe very kindly provided the participants with a socially-distanced live performance of traditional Irish music, supported by a view of the scenic NUI Galway campus.

The conference featured a total of eight invited talks covering a wide range of topics in contemporary group theory and related fields:

- (1) Matteo Cavaleri (Niccolò Cusano University Rome):
Gain graphs, group algebra valued matrices and Fourier transform
- (2) Joanna B. Fawcett (Imperial College London):
Tree-homogeneous graphs
- (3) Meinolf Geck (University of Stuttgart):
What is bad about bad primes? Some remarks about unipotent classes
- (4) Radhika Gupta (University of Bristol):
Uniform exponential growth for CAT(0) cube complexes
- (5) Joshua Maglione (Bielefeld University):
Isomorphism via derivations
- (6) John Murray (Maynooth University):
Clifford theory of 2-Brauer characters
- (7) Emily Norton (TU Kaiserslautern):
Some decomposition matrices of finite classical groups
- (8) Anitha Thillaisundaram (University of Lincoln):
Groups acting on rooted trees of growing degrees

¹<https://staff.ul.ie/natalia/node/1209>

²https://staff.ul.ie/natalia/sites/default/files//LimerickWorkshop2020_abstracts.pdf

³<https://staff.ul.ie/natalia/node/1210>

The conference website
(<http://www.maths.nuigalway.ie/conferences/gig20/>) contains abstracts of the
talks and further information, including links to videos of some of the talks.

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