

# IMS Annual Scientific Meeting 2021

## University College Cork and Munster Technological University

SEPTEMBER 2ND-3RD

The 34rd annual scientific meeting of the society - the 2021 September meeting - was held on September 2-3, 2021, jointly organised by the School of Mathematical Sciences, UCC, and the Department of Mathematics, MTU. The organising committee members were Cónall Kelly (UCC) and J.P. McCarthy (MTU).

Recognising the continuing disruption caused by the COVID-19 pandemic, but seeking to take a step back in the direction of normal academic activity, the meeting had a hybrid format, with speakers on-site at the Berkeley Library, Munster Technological University, and other delegates able to attend talks virtually if they wished. This hybrid format extended to the IMS Committee meeting and AGM held as part of the event on September 2nd and 3rd respectively.

Opening welcome remarks were made by Cónall Kelly and by Prof. Maggie Cusack, the President of MTU.

The meeting consisted of invited 40 minute talks on a wide variety of mathematical topics with speakers from across Ireland, which were organised into six sessions of two talks each. Students and early career researchers attending in person were invited to display a poster on their research, with a prize awarded for best student poster. A full list of talks and posters is given below.

Judging of student posters took place on Thursday September 2 and Michael Rosbotham, of Queen's University Belfast, was presented with the award during the closing session on Friday September 3 by the President of the Irish Mathematical Society, Dr. Tom Carroll.

The web page for the meeting, which includes a link to the Programme and Book of Abstracts, as well as a gallery of pictures taken during the event, is available at

<https://www.ucc.ie/en/matsci/events/ims2021/>

The organisers are grateful to all who participated in the meeting, and we are especially grateful to our speakers and poster presenters:

### Thursday 2nd September

Pauline Mellon (UCD)

- *Interplay of holomorphy and algebra in Jordan structures.*

Mark Howard (NUIG)

- *A resource theory for quantum computation.*

John Appleby (DCU)

- *Mean Square Characterisation of Discrete and Continuous Linear Stochastic Equations with Memory.*

Anna Zhigun (QUB)

- *Cell migration in fibrous environments: a multiscale approach.*

Spyridon Dendrinos (UCC)

- *Affine invariant measures in harmonic analysis*

Violeta Morari (MTU)

- *SPIRIT Maths: From student perceptions to targeted digital resources*

### Friday 3rd September

Alberto Caimo (TUD)

- *Statistical modelling advances for valued networks.*

Linda Daly (UCC)

- *Seasonal Mortality at Older Ages in Ireland 1986 to 2017 and the implications for Longevity Risk.*

Natalia Kopteva (UL)

- *Numerical solution of time-fractional parabolic equations.*

Brendan Guilfoyle (MTU)

- *From CAT scans to 4-manifold topology.*

Adamaria Perotta (UCD)

- *Why computation matters? An active student-led and practice-based approach to design a computational finance module in higher education.*

Tony Lyons (WIT)

- *Geophysical flows in the presence of underlying currents.*

### Posters

Arinjoy Bhanja and Christopher Noonan (UCC)

- *Stochastic Volatility Modelling and Sensitivity Analysis with ORE.*

Guillem Cobos (MTU)

- *Admissible Line Complexes.*

Fearghus Downes (IT Sligo)

- *Applying a Predator-Prey model to the production of Progesterone and Estradiol from Pregnenolone.*

Michael Rosbotham (QUB)

- *A Global Dimension Theorem for  $C^*$ -algebras.*

Yen Thuan Trinh (UCC)

- *Option Pricing and CVA Calculations using the Monte Carlo-Tree (MC-Tree) Method with the Distribution Correction Factor.*

Report by C. Kelly (email: conall.kelly@ucc.ie)