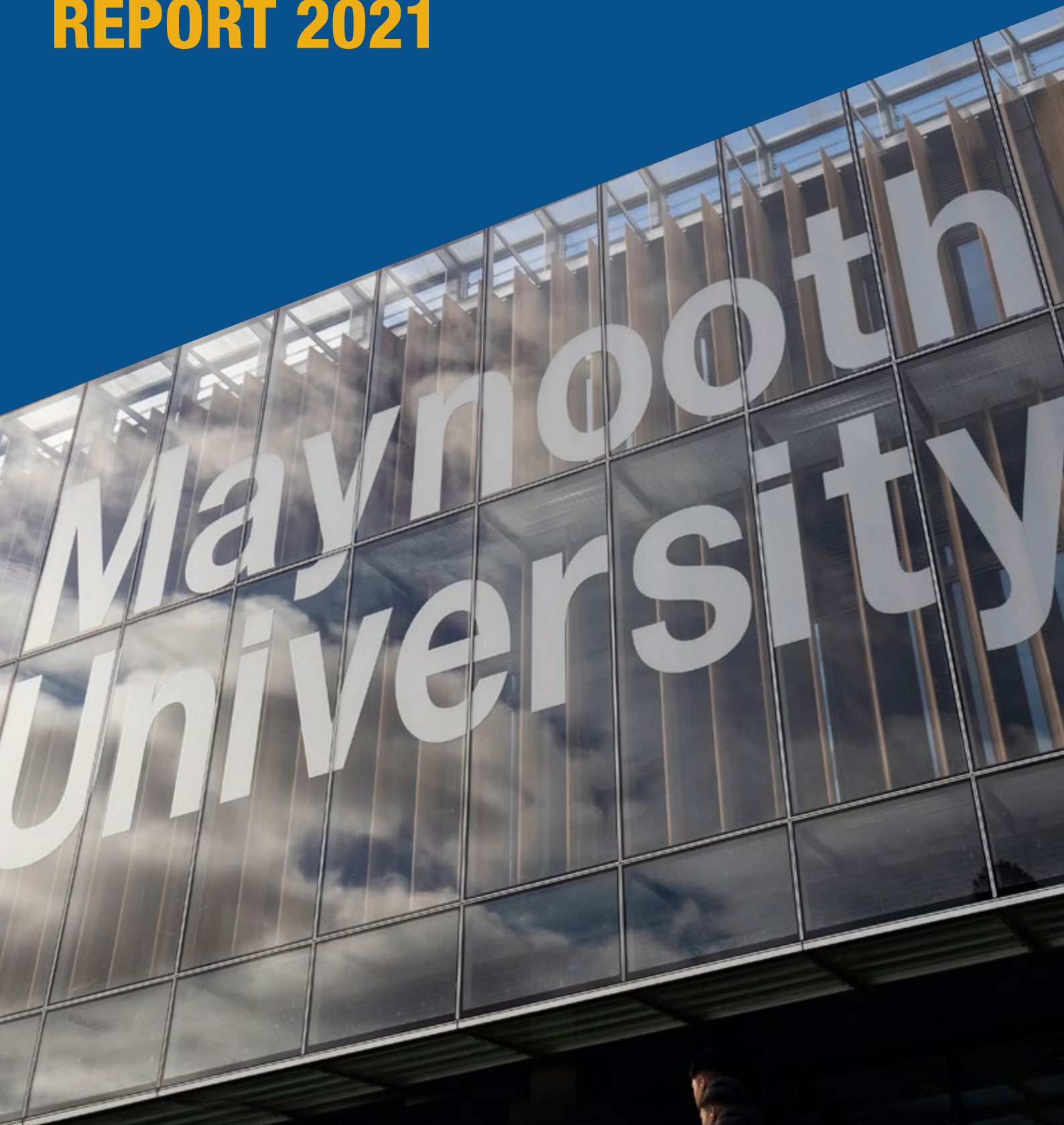




**Ollscoil
Mhá Nuad**
Ollscoil na hÉireann
Má Nuad

MAYNOOTH UNIVERSITY RESEARCH AND INNOVATION REPORT 2021



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INTRODUCTION



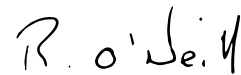
This 2021 report on research and innovation at Maynooth University reflects on the work in research, scholarship and innovation of the University community in 2019 and 2020, and provides an opportunity to highlight the University's notable achievements across its full range of disciplines, and in its interdisciplinary research institutes and centres.

At the end of what has been the most challenging and difficult academic year that most of us have ever faced, we wish to applaud the efforts and achievements of our colleagues across the University. Appreciation is due for academic staff and postdoctoral researchers, and for all the administrators, technicians and support professionals without whom the work detailed here would not be feasible.

We wish to acknowledge the steadfast commitment shown to the University and its ideals that is the basis for the delivery of the education and research through which Maynooth University makes its exceptional, unique contribution to Ireland and the wider world.



Philip Nolan,
President



Ray O'Neill, Vice-President
for Research and Innovation



PURPOSE

Maynooth University is a public research university dedicated to people, ideas and culture, a scholarly community working together to inquire and discover, to teach and learn, to create, conserve, disseminate and apply knowledge, and engage with the challenges that face modern society; through all these things in combination, we are central to innovation, economic growth, social development and cultural vibrancy, and are essential to a free, open, equal, democratic and sustainable society.

VISION

Maynooth University will further advance its international standing as a leading research university, with a vibrant postgraduate community, a distinctive undergraduate provision, a comprehensive and ethical approach to internationalisation, and extensive engagement with external partners; we will be recognised for our commitment to the public and civic mission of the University, as a national leader in equality and diversity, an excellent place to learn and work, an inclusive community where students and staff can flourish, and as making a distinctive contribution to the national system of higher education and the public good.

RESEARCH HIGHLIGHTS

UNIVERSITY RANKINGS

43RD IN THE WORLD

Times Higher Education
Young University Rankings 2020

201–300

Times Higher Education
Impact Rankings 2021

401–500

Times Higher Education
World University Rankings 2021

TALENT DEVELOPMENT 2019/20

83 RESEARCH GRADUATES

65 PhD & 7 Professional Doctoral students
11 Research Masters

133 NEW POSTGRADUATE RESEARCH STUDENTS

91 PhD & 27 Professional Doctoral students
15 Research Masters

70 POSTDOCTORAL RESEARCHERS

PUBLICATIONS & IMPACT 2019/20

Publication	2019	2020
Total (SCOPUS)	594	708
Books	81	64
Book Chapters	174	200

1.5

Field weighted citation impact (2015–2020)

15.6%

Publications in the top 10% of cited publications worldwide (field weighted)

53%

Publications with international collaborators

3%

Publications with industry partners

WEB OF SCIENCE HIGHLY CITED

6

Publications highly cited in field, including 3 hot papers (2019)

5

Publications highly cited in field, including 2 hot papers (2020)

INNOVATION & IMPACT 2019/20

76

New collaborations with Industry

12

License Agreements

7

Patents Filed

12

Invention Disclosures

RESEARCH GRANTS AWARDED 2019/20

177

Research grants

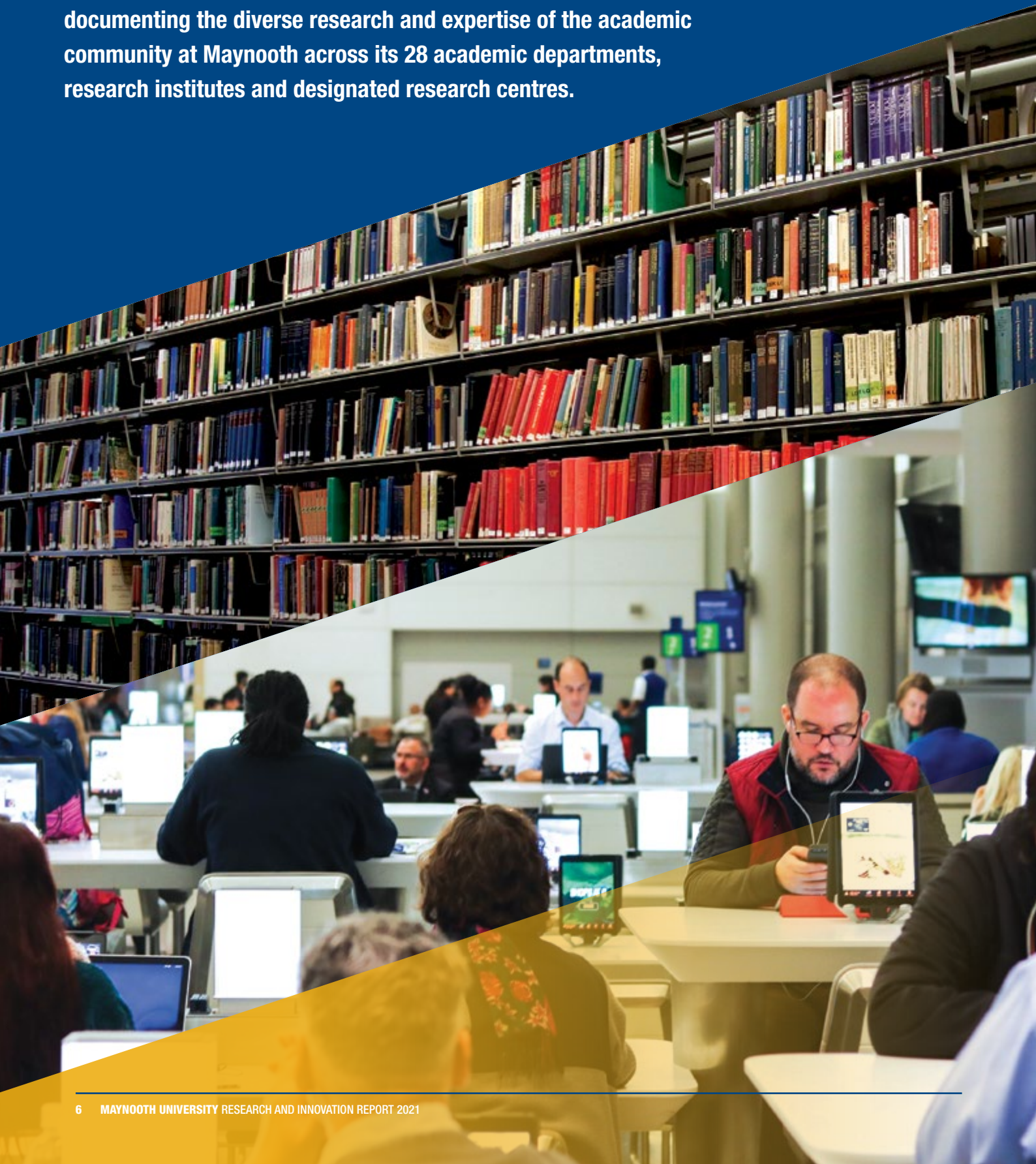
€45,369,497

Total value of research grants awarded



RESEARCH AND INNOVATION AT MAYNOOTH UNIVERSITY 2021

This report catalogues research, scholarship and innovation activities at Maynooth University for the years 2019 and 2020, documenting the diverse research and expertise of the academic community at Maynooth across its 28 academic departments, research institutes and designated research centres.



There can be only one place to start, and that is with the response of researchers in investigating issues of relevance to the pandemic and to highlight some work programmes that were adapted to consider what short-term learnings and interventions might be effective in informing national and international responses to COVID-19.

The international efforts to counter the virus have surely highlighted like never before the importance of fundamental biomedical science in our hyper-connected world. The astonishingly rapid development of new vaccine technologies has been the obvious highlight, enabled by understanding of the basic scientific principles at play. Also crucial have been PCR test techniques that would have been almost unimaginable a few short years ago; rigorously assessing the effectiveness of medical interventions to mitigate the worst effects of the disease; and limiting the effects of the virus by understanding its transmissibility in combination with insights from behavioural science into our human responses.

There have been numerous examples of Maynooth University (MU) researchers using their expertise to help address the pandemic. For example, Dr Fiona Walsh of the Department of Biology and Kathleen Lonsdale Institute for Human Health Research has been a partner in a Teagasc-led national consortium for sequencing of COVID-19, involving universities and hospitals in collaboration with the National Virus Reference Laboratory at UCD. Professor Sean Doyle, Dr Ozgur Bayram and Dr David Fitzpatrick of the Biology Department were awarded rapid response funding by Science Foundation Ireland and collaborated with the National Virus Reference Lab and the Irish Blood Transfusion Board to develop amalgamated bioinformatic and molecular assays to optimize testing for past exposure and potential immunity. Dr Mark Robinson of the Biology Department and Kathleen Lonsdale Institute for Human Health Research collaborated with Queen's University Belfast and St Vincent's Hospital to investigate why people with liver disease are more at risk of dying from COVID-19. Dr Elisa Fadda, Aoife Harbison and Carl Fogarty in the Department of Chemistry, in collaboration with a group of US researchers, investigated the role of glycans in the SARS-COV-2 spike protein and the team built a full-length model of it. This research offers significant insights into the SARS-COV-2 protein which could be harnessed as part of vaccine development programmes. The work was published in ACS Central Science and was featured in the New York Times, El Pais and the Irish Times.

In early March 2020 Professor Philip Nolan, MU President, convened an ad hoc group of mathematicians and statisticians drawn from across the Irish universities to consider urgently how to assist the National Public Health Emergency Team (NPHET) in quantifying the likely spread of the virus in Ireland, and what actions might be effective in limiting its spread. That extended group became the Irish Epidemiological Modelling Advisory Group (IEMAG), chaired throughout by Professor Nolan. Its detailed modelling under conditions of large uncertainty have been an essential part the public health response every day over the 14 months since the beginning of the crisis in Ireland. In addition to Professor Nolan's contribution to

NPHET, Professor Chris Brunson, Director of the National Centre for Geocomputation, has participated on the IEMAG from the outset. Justin Gleeson and Eoghan McCarthy of the All-Island Research Observatory (AIRO) have also been actively involved in managing and analysing data on behalf of the Department of Health, IEMAG and NPHET related to how COVID-19 is spreading. AIRO developed along with Ordnance Survey Ireland and the Central Statistics Office an important national COVID-19 dashboard.

In related work, Professor Andrew Parnell of the Hamilton Institute and Department of Mathematics and Statistics secured short-term SFI funding in collaboration with a number of other Hamilton Institute researchers, and the group developed computational tools to help Ireland predict the epidemiological and economic consequences of removing interventions during the uncertain path to suppression and recovery.

In the social sciences, Dr Thomas Strong from the Department of Anthropology, in collaboration with researchers from Macquarie, Australia and Auckland, NZ, was awarded rapid-response funding on COVID-19 from the Social Science Research Council (an independent, international, nonprofit organisation founded in 1923 and based in New York) for the ethnographic project, *"Invisible Monsters": The Pandemic Imaginary of Infectious Pathogens and Infectious Bodies*. This study describes and analyses the importance of people's ideas about infectious disease in relation to the actions they take to prevent or avoid it, and compares public discourse on the COVID-19 epidemic in three countries: Ireland, Australia, and New Zealand.

Working with Access to Medicines Ireland (AMI) Dr Aisling Mc Mahon of the Department of Law co-authored a widely-read policy paper on why Ireland should join the World Health Organisation's COVID-19 Technology Access Pool (CTAP), which is a mechanism to share IP, technologies, and know-how to increase vaccine supplies. Dr McMahan gave evidence for AMI to the Oireachtas Foreign Affairs Committee on equitable access to COVID-19 vaccines, speaking alongside Dr David Nabarro, WHO Special Envoy on COVID-19, and Winnie Byanyama, Executive Director UNAIDS and United Nations Under-Secretary-General. Dr McMahan also published an article *Global equitable access to vaccines, medicines and diagnostics for COVID-19* in the Journal of Medical Ethics.

The ALL Institute (Assisted Living and Learning) led two COVID-19 related research projects. Professor MacLachlan was a member of the steering group which developed the *Health Service Executive's Psychosocial Response to the COVID-19 Pandemic* – the evidence-informed framework for psychosocial services in Ireland during this time. He led research in ALL evaluating the impact of the pandemic on individuals with intellectual and developmental difficulties. Dr Katriona O'Sullivan developed an extension to the DreamSpace HomeSpace series in collaboration with Microsoft and RTÉ, as part of the provision to families with remote support for home-based learning and more structured and accessible learning activities.

RESEARCH AND INNOVATION AT MAYNOOTH UNIVERSITY

Jolanta Burke and Majella Dempsey, of the MU Education Department, were commissioned by stakeholders, including the government's Department of Education, to explore the impact of the COVID-19 pandemic on schools. They published a series of rapid reports, which shared best practice between schools about how they coped with the pandemic a week after the school closure *COVID-19 Practice in Primary Schools in Ireland*, and again two months later *COVID-19 Practice in Primary Schools in Ireland – two month follow-up*. In addition, they were commissioned by the Catholic Primary Schools Management Association to assess the preparedness of schools to reopen after the pandemic, in a report *Primary School Leaders' Concerns about Reopening Schools After the COVID-19 Closure*, a report on how teachers coped with the pandemic *Lessons learnt: The experiences of teachers in Ireland during the pandemic*.

Despite the challenging conditions enforced by the pandemic, research and scholarship continued at a high level across the three faculties of the University. The total value of new research grants awarded to the University in the year October 2019 – September 2020 amounted to €45.4M. This comprised a budget of €28.4M for work at Maynooth in addition to €17M in funds transfers to international and national collaborating partners.

The biggest single element of the funding is the four-year €21M *SHAPES* project, funded by the EU Horizon 2020 programme and led by Professor Mac MacLachlan and Dr Michael Cooke of the ALL Institute and Department of Psychology, involving 36 partners across 14 countries, which launched in November 2019. The *SHAPES* acronym stands for Smart and Healthy Ageing through People Engaging in Supportive Systems, and Irish partners include UCC and Access Earth Ltd (a Maynooth Campus Company); along with the University of Ulster and the Northern Health and Social Services Trust, in Northern Ireland.

SHAPES is undertaking research aimed at helping Europe's ageing population to live actively and independently at home in their communities with the support of assisted living technology. It is fostering the large-scale deployment of integrated digital solutions which will bring greater independence and improved quality of life to citizens while demonstrating significant efficiency gains in health and care delivery across Europe.

A total of €7.3M was awarded under the Disruptive Technologies Innovation Fund to a research consortium that includes Professor Jiri Vala in the Department of Theoretical Physics on *Quantum Computing in Ireland: A Software Platform for Multiple Qubit Technologies*, which explores the potential to address challenging problems arising in areas such as financial services, logistics or drug discovery. A budget of approximately €600,000 was allocated to Professor Vala. The consortium comprises IBM Ireland Ltd, MasterCard Ireland, Rockley Photonics and Equal 1 Laboratories, Maynooth University, the Tyndall National Institute (Cork) and University College Dublin.

In September 2020 Dr Lorna Lopez of the Department of Biology and Kathleen Lonsdale Institute for Human Health Research won a prestigious European Research Council Starter grant. Dr Lopez was

awarded €1.5M under the ERC Starting Grants scheme, which funds early-career scientists and scholars to conduct pioneering research across all disciplines and to build their own teams. The project will focus on disrupted circadian rhythms and its relationship with autism spectrum disorder (ASD) in families.

Other notable Horizon 2020 successes included funding for a Marie Skłodowska-Curie Initial Training Network awarded to Professor Sharon Todd of the Department of Education, who is a partner in the project, entitled *SOLIDI – Solidarity in Diversity*. The consortium led by the University of Antwerp, brings together academic expertise from 10 universities across Europe working in sociology (expertise on solidarity and organisational and policy strategies), geography (expertise on place and intersectionality) and educational sciences (public pedagogies), each of which have contributed to debates on living in diversity. Together with 23 non-academic partners, this innovative network will educate 15 early-stage researchers. The Network will focus on how to generate and sustain solidarities across cultural boundaries, building on the spatial proximity of citizens with different linguistic, religious and other cultural backgrounds in specific places.

Professor Valerie Heffernan of the School of Modern Languages, Literatures and Cultures, and the MU Arts and Humanities Institute was successful in the H2020 *Widening – Twinning* programme which aims to strengthen specific fields of research in emerging institutions. The overall aim of the *MotherNet* project is to enhance the research capacity of Vilnius University (Lithuania) and raise the profile of its research staff and their institution by linking an emerging body of researchers working on motherhood to world-class centres for research on motherhood at Maynooth and Uppsala University (Sweden).

In late 2020, Dr Rowan Fealy (Geography and ICARUS Climate Research Centre) and Professor Tim Mc Carthy (Computer Science and National Centre for Geocomputation) secured major funding of €5M through the SFI Strategic Partnership Programme, including co-funding to the value of €2.5M by Microsoft. With MU as the lead institution, *Terrain-AI* brings together an interdisciplinary team of co-investigators from Teagasc, DCU, TCD, UCD and UL for a 24-month project with the objective to develop a digital data platform capable of integrating, analysing and visualising large volumes of Earth observation data, including from satellites, drones and on-site measurements. In addition to Microsoft, *Terrain-AI* will work with indigenous Irish based companies including state-owned Coillte (Forestry) and Bord na Móna (Peatland), as well as sensor and data technology SMEs; Icon Group, Anuland, Netfeasa and TreeMetrics. These companies are united in a common desire to collaborate in developing a state-of-the-art digital terrestrial platform that can facilitate the coordination and collection of Earth Observation and in-situ data thus enabling more sustainable land management.

MU researchers continue to play key roles in relevant SFI Research Centres with 26 academic staff actively involved in nine of the Centres: Lero, Connect, Adapt, iCrag, Insight, MaREI, I-Form, SSPC and CONFIRM.



Professor Brian Donnellan, Vice President, Engagement and Innovation joined as a funded investigator in CONFIRM

Most recently, Professor Brian Donnellan of the Innovation Value Institute and School of Business joined as a Funded Investigator in CONFIRM. The CONFIRM centre focuses on smart manufacturing across 8 competencies including: data analytics; product and process control; enterprise modelling and simulation; software systems, network systems and IOT; sensors; robotics and controls and materials processing.

Professor Tim Mc Carthy (Computer science and National Centre for Geocomputation) and Dr John Mc Donald (Computer Science and Hamilton Institute) are Principal Investigators in a new cross centre initiative on *Blended Autonomous Vehicles* established in 2020 and led by the LERO Research Centre. The spoke is a collaboration between Lero, Connect and Insight, involving UCC, UCD, UL, NUIG among others and supported by a number of industry partners including Jaguar Land Rover, Valeo, Kostal, Liebherr, Pavement Management Systems and Combilift. The research team will develop capability in autonomous systems and apply it to areas of significance to Ireland's economy, with the view of establishing Ireland as a key player in the autonomous IT eco-system.

The full spectrum of research and scholarly activity across the University is ably supported by the staff of the Research Development Office, led by its Director, Dr Carol Barrett. Great credit is due for their high degree of professionalism and expertise. Dr Barrett also acts as compiler and editor of this annual research report since its inception in 2018.



Dr Carol Barrett, Director of Research Development

In 2019 and 2020 Maynooth University researchers continued to disseminate their research and scholarship at a high level, with 597 and 711 publications recorded in Scopus in the two respective calendar years.

Approximately 70% of the University's research publications are recorded in the Scopus database. Scopus remains relatively incomplete in its record of monographs and book chapters, and those publication forms are of particular significance in the Arts, Humanities and Social Sciences. Even though it is incomplete, the Scopus record is the one by which universities are now most frequently benchmarked, and so we will pay attention to it here.

Over the period 2015–2020, the University recorded 3,535 publications in Scopus. These have a field weighted citation index of 1.5, which means that those publications have been cited at 1.5 times the world average when compared to the same disciplines globally. Researchers at Maynooth have a strong international focus with 53.6% of all Maynooth publications co-authored in collaboration with international institutions, with a high field weighted citation index for these of 1.90. In addition, collaboration with enterprise is significant with 3.7% of Maynooth University publications co-authored with industry researchers. Enterprise Partners as co-authors include IBM, Alcatel Lucent, CERN and Siemens. These publications in particular have a field-weighted citation index of 1.63. 58% of the University's publications over this period were open access.

In 2019, six papers were ranked as highly cited by Web of Science, of which three were classified as 'hot papers'. Professor Conor Murphy from the Department of Geography and ICARUS Climate Research Centre published an article in *Nature* in September 2019 with collaborators from 20 countries detailing the results of the most complete database of European flooding. The data suggests increasing autumn and winter rainfalls has resulted in increase flooding in NW Europe, while decreased flooding was observed in S Europe. Decreased flooding was also found in Eastern Europe due to decreasing snowcover and melt due to warmer temperatures. The article identified that flood changes were aligned with climate model projections supporting flood risk management.

Professor Rob Kitchin (MU Social Science Institute) and P Cardullo's article *Smart Urbanism and Smart Citizenship: The Neoliberal Logic of 'Citizen-focused' smart cities in Europe* published in *Environmental and Planning C-Politics and Space* in August 2019 examines neoliberal ideals that underpin participation and citizenship in the smart city. The paper consisted of data collection and analysis from the European Innovation Partnership for Smart Cities and Communities as well interviews with stakeholders working on citizen engagement and interviews with officers of the Smart Cities Expo and World Congress. The results determined that while attempting to cast the smart city as 'citizen focused' it remains rooted in paternalistic and instrumental discourse and practices rather than social rights and the common good, concluding that a shift of power is necessary in order for smart cities to become 'citizen-focussed'.

RESEARCH AND INNOVATION AT MAYNOOTH UNIVERSITY

Dr Fiona Walsh and Dr Thuy Do from the Department of Biology and the Kathleen Lonsdale Institute for Human Health published in *Sciences Advances* in March 2019 with collaborators from Italy, Germany, Finland, Portugal, Spain, Cyprus, China and USA studying antimicrobial resistance in European wastewater treatment plants. The study compared the influent and final effluent of 12 plants in seven countries analysing 229 antibiotic resistant genes and 25 mobile genetic elements. The data indicated that the profiles of antimicrobial resistance in urban wastewater treatment plants mirrors that of the AR gradients observed in clinics therefore highlighting the necessity for regular analysis and implementation of control measures, that may be geographic region specific.

There were five Web of Science highly cited articles in 2020 with two classified as 'hot papers'. Dr Philip Hyland in the Department of Psychology published an article *Anxiety, depression, traumatic stress and COVID-19-related anxiety in the UK general population during the COVID-19 pandemic* in *BJPsych Open* in November 2020. With collaborators across the UK the research team determined that some higher levels of anxiety, depression and trauma were observed when compared to previous population studies. It was found that symptoms were predicted by young age, with the presence of children at home and estimates of personal risk. Anxiety and depression were also predicted by low and loss of income and pre-existing health conditions.

Dr Elisa Fadda, Aoife Harbison and Carl Fogarty in the Department of Chemistry published an article on the roles of glycans in the SARS-COV-2 spike protein in collaboration with US researchers. The article published in *ACS Central Science* in October 2020 utilised multisecond-long, all-atom molecular dynamic simulations to provide an atomistic perspective on the roles of glycans and on the protein structure and dynamics. The team built a full-length model of the protein and found a structural role at two N-glycan sites which modulated the conformational dynamic of the spikes receptor protein. The deletion of these sites (N165 and N234) significantly reduced binding to ACE2 recognition. This research offers functional and structural insights into the SARS-COV-2 protein which could be harnessed for vaccine development.



Dr Elisa Fadda, Aoife Harbison and Carl Fogarty in the Department of Chemistry published an article on the roles of glycans in the SARS-COV-2 spike protein

While publication in leading international journals or through international publishers is the normal expectation for all academic staff, there is a strong commitment to other forms of knowledge transfer to communities beyond the University. Maynooth is an active participant in the Campus Engage national network¹, and the Vice President for Engagement and Innovation, Professor Brian Donnellan, leads the University's activities in its goal to build even stronger civic engagement. Engaged research is a specific type of civic engagement, and is an important and distinctive feature of Maynooth University. Engaged research describes a wide range of rigorous research approaches and methodologies that share a common interest in collaborative engagement with the community. It aims to improve, understand, or investigate an issue of public interest or concern, including societal challenges. Engaged research is advanced with community partners rather than for them. 'Community' refers to a range of public research stakeholders, including public or professional service and product users, policy makers, civil and civic society organisations (CSOs) and actors.²

Many staff from the humanities and social sciences, in particular, contribute in a variety of ways to the arts, culture, social and economic development, and environmental policy. Examples include invited participation in national and international policy advisory bodies; preparation of strategies to support local authorities, local communities, and private enterprises; provision of workshops targeted at audiences of practitioners in many fields; and organising cultural events at local and national levels.

The 2020 Times Higher Education Young University Ranking ranked Maynooth at 43rd in the world among universities under 50 years old. Furthermore, the University ranked in the top 101–200 of all universities worldwide in the Times Higher Education Impact Rankings. The impact rankings seek to assess universities according to their contribution to achieving the UN's Sustainable Development Goals. Maynooth scored strongly on:

- > Reducing inequalities;
- > Gender equality;
- > Quality education; and
- > Partnership for the goals.

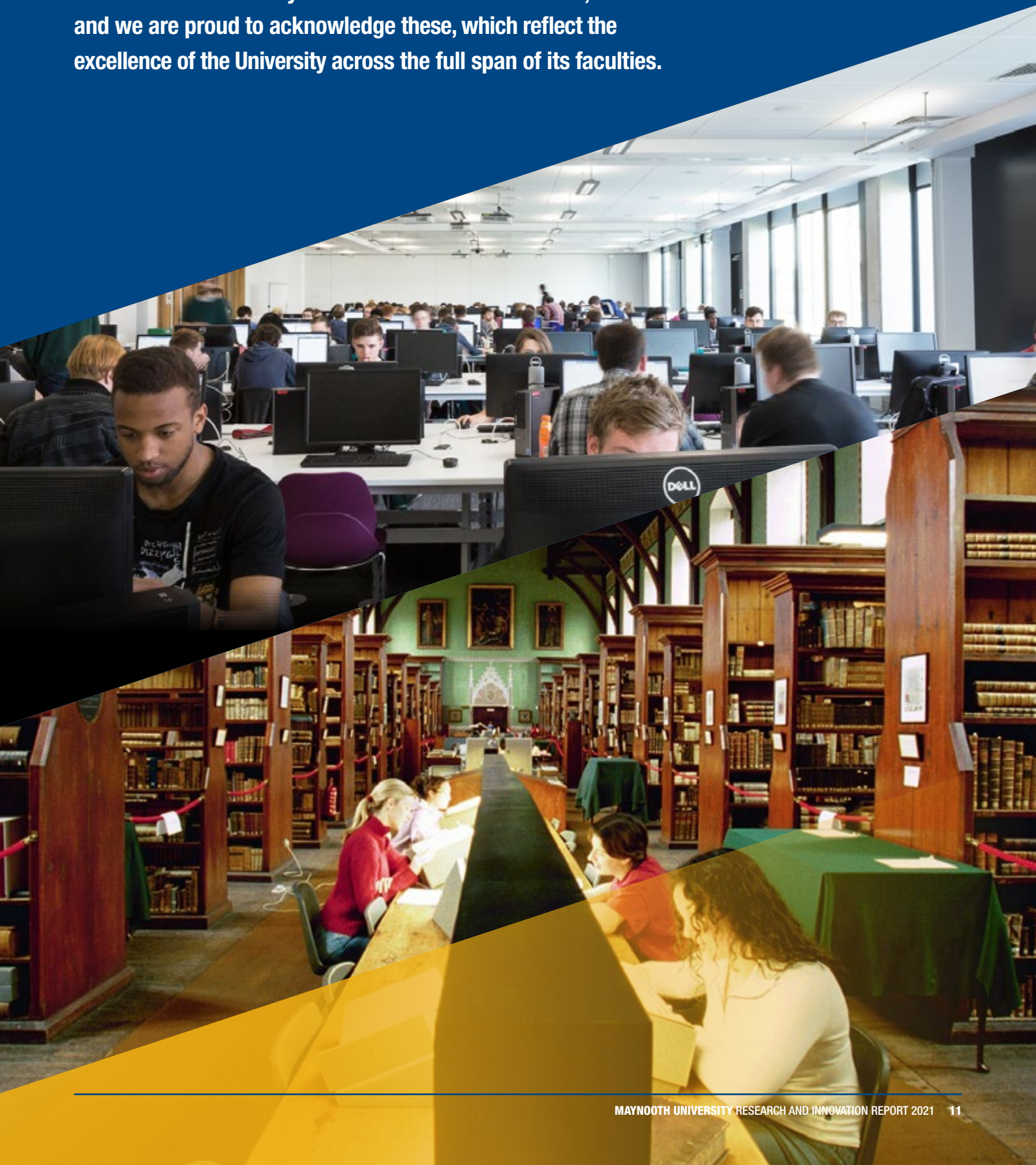
Activities underpinning these represent the very strong public service and civic engagement contribution of the University to Irish society, and to the wider world, and many are detailed in the sections on the faculties and research institutes later in the report.

¹ www.campusengage.ie

² Engaged Research: Society and Higher Education Working Together to Address Societal Challenges, Campus Engage, 2017

AWARDS AND PRIZES

A number of Maynooth University researchers were recognised for their contribution by external awards in 2019/2020, and we are proud to acknowledge these, which reflect the excellence of the University across the full span of its faculties.



AWARDS AND PRIZES IN 2019/2020

EDA SAGARRA MEDAL OF EXCELLENCE FROM THE IRISH RESEARCH COUNCIL

SHIRLEY HOWE



Shirley Howe, Maynooth University PhD student,
Department of Geography

Maynooth University PhD student Shirley Howe won the Eda Sagarra Medal of Excellence at the annual Irish Research Council Researcher of the Year awards. Shirley received the award for being the top-ranking Postgraduate Scholar in the domain of Arts, Humanities and Social Sciences under the Irish Research Council's 2019 Government of Ireland funding programmes.

Shirley received the medal for her project *Of land and ocean: culture and climate on Ireland's Islands*. Proposing a cross-disciplinary approach that draws on geography and anthropology, the research considers if and how cultural processes influence climate change perspectives and responses today.

Fieldwork for the research will be undertaken on Inishbofin Island off County Galway and Valentia Island off the southwest coast at County Kerry to reveal models of the human-environment relationship and how they intertwine with current climate conversations.

Shirley was also declared the regional winner of the Global Undergraduate Awards in the Social Sciences: Anthropology and Cultural Studies category for her essay titled, *Inishbofin Island: A Changing Environment, A Changing Community*.

Shirley is jointly supervised by Professor Conor Murphy (ICARUS Climate Research Centre and Department of Geography, Maynooth University) and Dr Chandana Mathur (Department of Anthropology, Maynooth University). The medal awarded to Shirley Howe is named after Professor Eda Sagarra who was the first chairperson of the Irish Research Council for Humanities and Social Sciences, and integral in the development of the Council.

SCIENCE FOUNDATION IRELAND EARLY CAREER RESEARCHER AWARD 2020

DR LORNA LOPEZ



Dr Lorna Lopez, Associate Professor, Department of Biology
and Kathleen Lonsdale Institute for Human Health Research

Dr Lorna Lopez, a Lecturer and Assistant Professor at the Department of Biology and the Kathleen Lonsdale Institute for Human Health Research at Maynooth University, was awarded the SFI Early Career Researcher Award 2020.

The Science Foundation Ireland national awards recognise key leaders in the Irish research community. Dr Lopez received the award for her work in leading human health research on discovering the genetic basis of neurodevelopmental disorders.

Dr Lopez's research at Maynooth University uses genomic technologies to focus on understanding the genetic basis of mental illness and other brain and medical-related traits. She is also a recent recipient of a prestigious European Research Council Starting Investigator Award in 2020. The project will focus on disrupted circadian rhythms and its relationship with autism spectrum disorder (ASD) in families.

SCIENCE FOUNDATION IRELAND PRESIDENT OF IRELAND FUTURE RESEARCH LEADERS AWARDS

ASSISTANT PROFESSOR JOANNE MASTERTSON AND ASSISTANT PROFESSOR EÓIN MCNAMEE



President of Ireland Michael D. Higgins, Assistant Professor Joanne Masterson and Assistant Professor Eóin McNamee

President of Ireland Michael D. Higgins, honoured two Maynooth University scientists, Assistant Professor Joanne Masterson and Assistant Professor Eóin McNamee, at a special ceremony in Áras an Uachtaráin, Dublin.

Dr Masterson and Dr McNamee both started out as science undergraduates in Maynooth University over twenty years ago, specialising in the field of biology and inflammatory diseases. They were among ten recipients of the SFI President of Ireland Future Research Leaders Award in 2020.

The SFI President of Ireland Future Research Leaders Programme recruits and retains outstanding and emerging early career research leaders with exceptional accomplishments in scientific and engineering domains.

Dr Masterson is an Assistant Professor in the Department of Biology and the Kathleen Lonsdale Institute for Human Health Research, where she leads the Allergy, Inflammation and Remodelling Research (AIRR) laboratory. She received an award of €1,572,600 for her research on the rapidly emerging allergic disease, Eosinophilic Oesophagitis, which is a chronic clinicopathologic allergic gastrointestinal disorder, and an increasing clinical problem. Although immense efforts have been invested in understanding the clinical course and natural history of this emerging disease, to date there is a paucity of therapeutic modalities and no cure. Her research is entitled *Transcriptional Mechanisms Controlling Epithelial Cell Fate Determination during Allergic Esophageal Inflammation in Eosinophilic Oesophagitis*.

Dr McNamee is an Assistant Professor and the Principal Investigator of the Mucosal Immunology Research Lab in the Department of Biology and the Kathleen Lonsdale Institute for Human Health Research. He received an award of €1,488,046 for his research on MicroRNA control of Mucosal Inflammation, which is linked to Crohn's disease and Ulcerative Colitis. The Inflammatory Bowel Diseases (IBD; namely Crohn's disease and Ulcerative Colitis) affects 2.5 million people in Europe (up to 40,000 in Ireland), with limited treatment options and no cure.

PROFESSOR APHRA KERR ENROLLED INTO THE EUROPEAN ACADEMY

PROFESSOR APHRA KERR



Professor Aphra Kerr, Department of Sociology

Professor Aphra Kerr of the Sociology Department and MUSSI has been nominated and enrolled into the Academy of Europe to the Film, Media and Visual Studies section in the 2020 intake of members. Nominations are made by academic peers on the basis of the sole criterium of academic excellence. Professor Kerr was nominated for her consistent contributions in the field of game studies and digital media.

AWARDS AND PRIZES IN 2019/2020

PROFESSOR KAREN TILL AND PROFESSOR PHILIPP ROSEMANN ELECTED TO ROYAL IRISH ACADEMY

PROFESSOR KAREN TILL AND PROFESSOR PHILIPP ROSEMANN



Professor Karen Till, Department of Geography and Professor Philipp Rosemann, Department of Geography

Professor Karen Till and Professor Philipp Rosemann were accepted to the Royal Irish Academy (RIA).

Professors Till and Rosemann were among the 29 new members admitted by Dr Mary Canning, President of the Academy. Membership of the RIA is awarded to persons who have attained the highest distinction by their unique contributions to education and research.

Professor Till, Professor of Cultural Geography, is a leading international figure in the interdisciplinary field of Memory Studies through her scholarly explorations of place, memory and care, and her collaborations with practicing artists. Her research, curatorial work and creative writing include: *The New Berlin*, *Mapping Spectral Traces*, *The Textures of Place* and the forthcoming co-edited book series *Earth Writings*.

Professor Rosemann, Professor of Philosophy, has won recognition for his work at the intersection of the Christian tradition and contemporary thought. His publications include studies of Thomas Aquinas and Peter Lombard. His most recent book, *Charred root of meaning: continuity, transgression, and the other in Christian tradition* (Eerdmans Publishing, 2018), develops a philosophy of religion that is at once biblical and Foucauldian.

PSYCHOLOGICAL SOCIETY OF IRELAND PETER SAVILLE AWARD

DR NUALA WHELAN



Dr Nuala Whelan, Department of Sociology and Maynooth University Social Sciences Institute (MUSSI)

Dr Nuala Whelan (MUSSI and Department of Sociology) has been awarded the prestigious Division of Work and Organisational Psychology (DWOP) Psychological Society of Ireland (PSI) Early Career Researcher Peter Saville Award for Advances in Organisational Psychology.

The award comprises the Peter Saville medal, the award certificate and a €2,000 research or career development bursary. The award is for Dr Whelan's work titled *What works and for whom in Employment Services: the case for a Capability-led Work-Life Inspired Public Employment Guidance Service*.

This work has been developed through the Irish Research Council (IRC) funded Coalesce ACAPES project, *A Collaborative Approach to Public Employment Services*. The project is led by Principal Investigator, Professor Mary P Murphy (Department of Sociology), and based in Maynooth University Social Sciences Institute.

JOÃO LOBO ANTUNES MEMORIAL PRIZE IN BIOETHICS

DR OLIVER BARTLETT AND COLLEAGUES



Dr Oliver Bartlett, Department of Law and Assisted Living and Learning (ALL) Institute

A paper written by Francisco Goiana-da-Silva, João Guedes Marecos and Dr Oliver Bartlett of the MU Department of Law, entitled *Health Misinformation: A Bioethical Approach*, has been awarded the João Lobo Antunes Memorial Prize in Bioethics by the Portuguese Ministry of Health.

Professor João Lobo Antunes was a prominent figure in the field of health ethics, life sciences and biology research. This prize, created by the Portuguese Ministry of Health in his memory, is awarded to a study or piece of research work that contributes significantly to advancing the discipline of bioethics.

The paper written by Dr Bartlett and colleagues discusses the dissemination of fake health news as a public health threat and the bioethical implications of its regulation.

Dr Bartlett teaches Public Health Law, European Union Law and Legal Research Methods in the Department of Law.

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS SENIOR MEMBER

DR INDRAKSHI DEY



Dr Indrakshi Dey, Department of Electronic Engineering and Maynooth University Hamilton Institute

Dr Indrakshi Dey of the Department of Electronic Engineering was elevated to the grade of Institute of Electrical and Electronics Engineers (IEEE) Senior member, an honour bestowed only to those who have made significant contributions to the profession.

Dr Dey, received an MSc degree in Wireless Communications from the University of Southampton in 2010, and a PhD degree in Electrical Engineering from the University of Calgary, Canada, in 2015.

She is also a member of the SFI CONNECT Telecommunications Research Centre. The primary goal of her project *FD-M2Mcomm* at the SFI CONNECT Research Centre is to maximise the end-to-end performance of Machine-to-Machine Communications (M2MCom) systems through Cross-Layer PHY-MAC Full-Duplex (FD) design. It is expected that numerical results over realistic link scenarios will show that this FD design significantly improves the achievable throughput and latency as compared to other key contending technologies.

AWARDS AND PRIZES IN 2019/2020

2019 WALSH PRIZE FOR ECONOMIC AND SOCIAL RESEARCH

DR TUVANA PASTINE



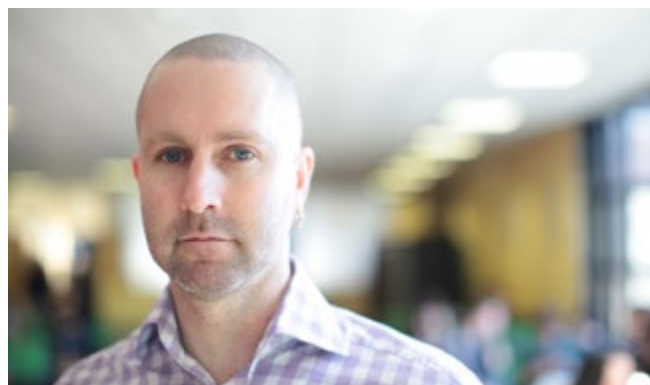
Dr Tuvana Pastine, Head of Department of Economics, Finance and Accounting

Dr Tuvana Pastine along with Dr Ivan Pastine from UCD and Dr Matt Coleman from California Polytechnic State University was awarded the prestigious 2019 Brendan Walsh Prize for Economic and Social Research for their joint paper titled *Incumbency Advantage in an Electoral Contest*. The prize is awarded for the best paper published in the *Economic and Social Review* in the preceding year and it is named in honour of the memory of Professor Brendan Walsh and his long and distinguished career in Irish economics.

The game-theoretical research paper investigates the potency of frequently cited sources of incumbency advantage in generating the observed patterns of campaign expenditure and re-election rates in a campaign spending contest framework. The paper extends the literature by allowing the electoral benefit of visibility to be stochastic. The model provides an explanation of earlier empirical findings that district variation in the cost of visibility does not influence incumbents' victory probability. Furthermore, in contrast to previous literature, the model predicts that campaign finance legislation can increase challengers' expected payoffs.

2020 MOHER DOWNING DISTINGUISHED SERVICE AWARD FROM THE AIDS AND ANTHROPOLOGY RESEARCH GROUP

DR THOMAS STRONG



Dr Thomas Strong, Department of Anthropology

The AIDS and Anthropology Research Group (AARG) Distinguished Service Award is given to a living anthropologist in recognition of her or his exceptionally meritorious contributions to the improvement of the health of people infected with or at risk of infection with HIV.

Dr Thomas Strong's substantial and abiding research on the cultural politics of HIV has always also been joined to a commitment to activism related to AIDS, and to sexual rights and freedoms. In recognition of this work, he was awarded in 2020 the AIDS and Anthropology Research Group's Moher Downing Distinguished Service Award. Earlier in the year, ACT UP Dublin, the AIDS activist organisation that Dr Strong helped to found, was awarded the Noel Walsh HIV Activism Award by Ireland's National Gay and Lesbian Task Force.

JEAN MONNET AWARDS

PROFESSOR JOHN O'BRENNAN AND PROFESSOR TOBIAS LOCK



Professor John O'Brennan, Department of Sociology and MUSSI; and Professor Tobias Lock, Department of Law

Maynooth University is delighted to congratulate Professor John O'Brennan and Professor Tobias Lock on receiving Jean Monnet Awards under the EU's Erasmus+ programme.

The Jean Monnet programme is designed to promote excellence in teaching and research in the field of European Union studies worldwide. Its activities foster dialogue between the academic world and policy makers, in particular with the aim of enhancing governance of EU policies.

Maynooth University has been awarded almost €100,000 for a Jean Monnet Centre of Excellence to be led by Professor O'Brennan, Jean Monnet Professor of European Integration and Director of Maynooth Centre of European and Eurasian Studies. The award is for three years.

Maynooth will also receive funding for a Jean Monnet Chair in EU Law and Fundamental Rights to be led by Professor of Law, Tobias Lock. The award for Professor Lock will be the only Jean Monnet Chair in the field of law in Ireland.

POSTDOCTORAL RESEARCHER DR LEVKE CAESAR AWARDED PUBLICATION PRIZE FOR YOUNG SCIENTIST OF LEIBNIZ-KOLLEG POTSDAM 2020

DR LEVKE CAESAR



Dr Levke Caesar, Department of Geography and ICARUS

Dr Levke Caesar proved in her doctoral thesis that the major Atlantic overturning current (also called Gulf Stream) has weakened by about 15% since the middle of the 20th century. The Gulf Stream transports huge amounts of warm water from the Southern Ocean and the tropical Atlantic to higher latitudes, contributing among other things to the mild winter climate in Western Europe. Using time series of sea-surface temperatures and a high-resolution climate model, Dr Caesar and colleagues from Germany, Spain, and the U.S. reconstructed the development of the Gulf Stream system since the end of the 19th century. They used data obtained since 2004 from instruments measuring the development of the Gulf Stream system in the Atlantic Ocean as part of the *RAPID* project. The researchers observed a relative cooling of the sea surface south of Greenland and an unusually strong warming off the U.S. coast. Both features are unique in their expression worldwide and could be directly attributed to a slowdown of the Gulf Stream system. Their work was instrumental in the 2019 *Special Report on the Ocean and Cryosphere in a Changing Climate of the Intergovernmental Panel on Climate Change*, which concluded for the first time that the Atlantic circulation is weakening. Dr Caesar's publication can be found at www.nature.com/articles/s41586-018-0006-5.

Dr Caesar studied physics at the University of Potsdam and the Kiel University. She subsequently conducted research at the Potsdam Institute for Climate Impact Research in the working group of Professor Stefan Rahmstorf and did her PhD at the University of Potsdam. Since October 2019, Dr Caesar works in ICARUS-Geography Department, Maynooth University as a postdoctoral researcher in physical oceanography and climate research, project *A4: Aigéin, Aeráid, & athrú Atlantaigh*.

The Publication Prize of the Leibniz Kolleg Potsdam is awarded to current or former doctoral students of the Faculty of Science of the University of Potsdam. They receive the award for significant scientific achievements in Potsdam that have been published in recognised journals.

AWARDS AND PRIZES IN 2019/2020

BRONZE ATHENA SWAN FOR GENDER EQUALITY

DEPARTMENT OF GEOGRAPHY AND DEPARTMENT OF LAW



The Athena SWAN Charter was established to encourage and recognise institutional commitment to advancing the careers of women in both higher education and research

The Departments of Geography and Law received the Athena SWAN Bronze Department Awards which recognises work undertaken to advance gender equality for staff and students in Higher Education. The applications were prepared by self-assessment teams (SAT) and were assisted in this work by the University's Equality and Diversity, and HR teams.

In order to achieve Athena SWAN accreditation, institutions and departments in Higher Education Institutions are required to perform a critical self-reflection and analysis to identify both good practice and problem areas in relation to gender equality for staff and students.

The Athena SWAN Charter is based on ten key principles. By being part of Athena SWAN, institutions and departments are committing to a progressive charter; adopting these principles within their policies, practices, action plans and culture. The original Athena SWAN Charter was established in 2005 to encourage and recognise institutional commitment to advancing the careers of women in Science, Technology, Engineering, Maths and Medicine (STEMM) in both higher education and research.

In 2015, the Charter was expanded to recognise work done in Arts, Humanities, Social Sciences, Business and Law; in professional, administrative and technical roles; in work that considers intersectionality; and efforts to support transgender and gender diverse staff and student populations.

In 2017, Maynooth University was the first institution in Ireland to achieve an Athena SWAN Bronze Institution Award under the expanded charter, in recognition of its commitment to progressing gender and intersectional equality for staff and students.

MAYNOOTH UNIVERSITY RESEARCH ACHIEVEMENT AWARD 2020

PROFESSOR DELIA FERRI



Professor Delia Ferri, Department of Law

The overall winner selected for the Maynooth University Research Achievement Award 2020 was Professor Delia Ferri of the Department of Law. She was also the selected winner of the 2020 Faculty of Social Science Research Achievement Award. Professor Ferri is internationally recognised as a leading author and researcher in the emerging field of EU Disability Law and as an expert in EU Law and Comparative Public Law. Her recent innovation and ground-breaking research has led her to being a recipient of a European Research Council Consolidator grant in 2019.

She has published over 60 academic publications in multiple languages including a monograph, a textbook, four edited volumes and articles in internationally ranked peer reviewed law journals. She also plays a key role in important policy-related studies including a policy-based study on the accessibility of workplaces, and an evaluation of the European Disability Strategy.

2020 FACULTY OF ARTS, HUMANITIES, CELTIC STUDIES AND PHILOSOPHY RESEARCH ACHIEVEMENT AWARD

PROFESSOR TERENCE DOOLEY



Professor Terence Dooley, Department of History

Professor Terence Dooley was awarded the 2020 Faculty of Arts, Humanities, Celtic Studies and Philosophy Research Achievement Award. Professor Dooley of the Department of History has been instrumental in creating a field in Irish history – that of the systematic study of Irish ‘Big Houses’ and their associated estates. As Founder and Director of the Centre for the Study of Historic Irish Houses and Estates, he has presided over 18 annual conferences in Maynooth, bringing in national and international scholars of the highest reputation to Maynooth co-editing six volumes arising from this research. In addition, he has published 13 books, two monographs and many book chapters and articles. He is a researcher of international standing and has been asked to collaborate in the most important collective efforts regarding Irish history of the past decade: The Cambridge History of Ireland; the Cambridge Social History of Modern Ireland; the Atlas of the Irish Revolution; the Oxford Handbook of Modern Irish History; Art and Architecture of Ireland.

AWARDS AND PRIZES IN 2019/2020

2020 FACULTY OF SCIENCE AND ENGINEERING RESEARCH ACHIEVEMENT AWARD

DR FIONA WALSH



Dr Fiona Walsh, Department of Biology

The 2020 Faculty of Science and Engineering Research Achievement Award was awarded to Dr Fiona Walsh of the Department of Biology. Dr Walsh's research field is understanding antimicrobial resistance especially with respect to its flow across ecosystems. She has published widely in this space including recent articles in the prestigious *Science Advances* and *Nature Microbiology*.

Dr Walsh's research has translated to very significant impact in the area of international policy formation as evidenced by being invited to contribute to policy formation on antimicrobial resistance by bodies such as WHO and as an expert committee member of the Food and Agriculture Organization (FAO) of the United Nations. She has been awarded €1.8M in external research funding and 11 of these awards are collaborative in nature across the EU.

MAYNOOTH UNIVERSITY EARLY CAREER RESEARCHER OF THE YEAR 2020 AWARD

DR BERNHARD BAUER



Dr Bernhard Bauer, Department of Early Irish and
MU Arts and Humanities Institute

The 2020 Early Career Research of the Year Award was awarded to Dr Bernhard Bauer, who also won Early Career Faculty of Arts, Humanities, Celtic Studies and Philosophy Research Achievement Award. Dr Bauer is a postdoctoral researcher in Early Irish and the Arts and Humanities Institute. Dr Bauer's research is in the field of Celtic Studies and Historical Linguistics with a special focus on cross-cultural contacts and multilingualism in the early Middle Ages and his research methods cross over into the fields of Digital Humanities, cultural history and manuscript studies, which highlights the interdisciplinary aspect of his work. He publishes in leading peer review journals in his field such as *Ériu*, *Études Celtiques* and *Celtica*.

He was awarded a prestigious Royal Irish Academy Charlemont Grant in 2018, and was awarded a MUAHI Early Career Research Grant, which comprises seed funding for developing an ERC Starter Grant application. Since June 2017 Dr Bauer has delivered 19 presentations in eight different countries in Europe and overseas, seven of them as an invited speaker.

EARLY CAREER FACULTY OF SOCIAL SCIENCE RESEARCH ACHIEVEMENT AWARD

DR EOIN FLAHERTY



Dr Eoin Flaherty, Department of Sociology

The 2020 Early Career Faculty of Social Science Research Achievement Award was awarded to Dr Eoin Flaherty of the Department of Sociology. Dr Flaherty's research focuses on financialisation and inequality, with broader relevance for comparative political economy, the economics of inequality and economic sociology. His research on socio-ecological systems, which links historical research and contemporary environmental concerns, has relevance for a wide range of disciplines across both the social and natural sciences.

He is sole author on a monograph published by Palgrave MacMillan in 2019, titled *Complexity and Resilience in the Social and Ecological Sciences* where he set the basis for a new approach to environmental sociology, rooted in an integration of complexity theory, resilience ecology, and historical materialism. He also wrote two extensive papers and one chapter based on original empirical research, and the application of new approaches to the study of comparative income inequality that were published in 2018 and 2019. He brings his expertise into the public sphere through his work with the Nevin Institute and contribution to public debate.

EARLY CAREER FACULTY OF SCIENCE AND ENGINEERING RESEARCH ACHIEVEMENT AWARD

DR ROB ELMES



Dr Rob Elmes, Department of Chemistry and Kathleen Lonsdale Institute for Human Health Research

The 2020 Early Career Faculty of Science and Engineering Research Achievement Award was awarded to Dr Rob Elmes of the Department of Chemistry. Dr Elmes' research encompasses the field of Supramolecular Chemistry and developing responsive molecular systems as new diagnostics/therapeutic technologies.

He is a strong publisher with 13 publications in recent years in prestigious journals such as *Chemical Science*, *Chemical Communications* and *Chem*. He was invited to feature in the *Supramolecular Chemistry – Emerging Investigators* in the UK and Ireland 2018 and *Frontiers in Chemistry – Rising Stars* 2019 special issues. These collections highlight scientists “in the early stages of their careers but making outstanding contributions”.

He has been successful in securing significant research funding and recently become a Funded Investigator in the national SFI Synthesis and Solid-State Pharmaceutical Centre (SSPC). He was also awarded the Molecular Sensors and Molecular Logic Gates Czarnik Emerging Investigator Award 2020 in June 2020.

AWARDS AND PRIZES IN 2019/2020

2020 INAUGURAL JOHN SCANLAN INDUSTRY ENGAGEMENT AWARD

PROFESSOR JOHN STEPHENS



Professor John Stephens, Department of Chemistry was awarded the Maynooth University 2020 inaugural John Scanlan Industry Engagement Award

Professor John Stephens of the Chemistry Department was awarded the first John Scanlan Industry Engagement Award. Professor Stephens' research is focused on the discovery and application of new technologies at the interface of Chemistry and Biology. He is currently leading an interdisciplinary collaboration with a large Irish food company. The main focus of Professor Stephens' research is to add value to existing and new product lines. The project is funded through an Enterprise Ireland Innovation Partnership.

FACULTY HIGHLIGHTS

FACULTY OF ARTS, CELTIC STUDIES AND PHILOSOPHY



FACULTY HIGHLIGHTS

FACULTY OF ARTS, CELTIC STUDIES AND PHILOSOPHY

ANCIENT CLASSICS

In Academic Year 2019–2020, the Ancient Classics Department comprised six full-time academic staff.

Members of the Department continued to make significant contributions to research and scholarship in a variety of forms and across a wide field. As well as presenting frontline new research in the form of a monograph, book chapters, and refereed research articles. The 2019–2020 publications list includes contributions to works of reference, a book review, and an educational online video. Conference and seminar papers also form part of the 2019–2020 output. The intellectual spread of the work is broad, with emphases in areas as diverse as ancient epic, philosophical ethics, Greek and Roman historiography, late antique Christianity, and various receptions of the ancient world in Ireland, English literature and modern philosophy. As in its teaching, so in its research the Department's scope is extensive, especially when considered in relation to its size.

Publication highlights include *Hegel's Antiquity*, a monograph by Dr Will Desmond, which appeared in late 2020 with the Classical Presences series of Oxford University Press. A lengthy study of Hegel's understanding and treatment of major aspects of the classical world, the book approach each of the major areas of his historical thinking in turn: politics, art, religion, philosophy, and history itself. The discussion excerpts relevant details from a range of Hegel's works, with an eye both to the ancient sources with which he worked, and the contemporary theories (German aesthetic theory, Romanticism, Kantianism, Idealism (including Hegel's own), and emerging historicism) which coloured his readings. What emerges is that Hegel's interest in both Greek and Roman antiquity was profound and is essential for his philosophy, arguably providing the most important components of his vision of world-history: Hegel is generally understood as a thinker of modernity (in various senses), but his modernity can only be understood in essential relation to its predecessors and 'others', notably the Greek world and Roman world whose essential 'spirit' he assimilates to his own notion of Geist. To date, one review has appeared (Jenny Bryan, *Greece & Rome*, March 2021) praising it as a "substantial and detailed study".

Across the Department, members published articles in front-rank international journals such as *Histos* and numerous book chapters in major academic presses such as Oxford, Routledge, Peeters, and Brill. An animated video entitled *The philosophy of cynicism* created in collaboration with Ted-Ed Animation has received approximately 1.4 million views since its online publication in late December 2019. The film explores the ancient Greek philosophy of cynicism calling to reject of materialism and conformity in favour of a simple life, asking us to think about what is truly valuable in our lives and not blindly follow convention.

SCOIL AN LÉINN CHEILTIGH/ SCHOOL OF CELTIC STUDIES

The School of Celtic Studies encompasses the Department of Early Irish, Roinn na Nua-Ghaeilge (Department of Modern Irish), Lárionad na Gaeilge (Centre for Irish Language Research, Teaching and Testing), and the Irish Cultural Heritages subject area.

DEPARTMENT OF EARLY IRISH

In 2019/2020, the Department of Early Irish continued to produce world-leading research in the language, literature, history and culture of pre-modern Ireland. The IRC-funded MIMNEC project (PI Dr Deborah Hayden) and the ERC-funded *ChronHib* project (PI Professor David Stifter) continued their research. Dr Siobhán Barrett was awarded a Government of Ireland Postdoctoral Fellowship. The collaborative project *A Digital Framework for the Medieval Gaelic World* (Irish PI Professor Stifter, Co-PI Dr Hayden), received a grant from the AHRC-IRC jointly-funded UK-Ireland Digital Humanities Networking scheme; the project began in August 2020. Postdoctoral researcher Dr Bernhard Bauer won the overall MU Early Career Achievement Award 2020.

RESEARCH GRANTS

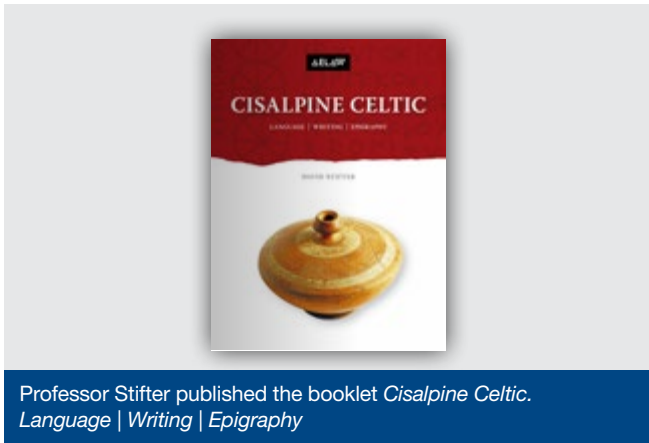
The five-year *ChronHib* project, funded by an ERC Consolidator Grant for Professor David Stifter, officially entered its final year, but due to the COVID-19 emergency the project was granted two no-cost extensions by the ERC, ultimately until 30th April 2021. The two-year MIMNEC project, funded by an IRC Laureate Award for Dr Deborah Hayden, entered its second and officially final year; it was likewise granted a costed extension to January 2021, and a further no-cost extension from 1st February 2021 to 30th September 2021.

Members of staff associated with both projects received other research awards. The collaborative project *A Digital Framework for the Medieval Gaelic World*, of which Professor Stifter is the Irish PI and Dr Hayden is one of the Irish Co-PIs, received a grant from the AHRC-IRC jointly funded UK-Ireland Digital Humanities Networking scheme (UK PI: Professor Greg Toner, QUB); the project commenced in August 2020 and, because of a COVID-19-related extension, runs until September 2021. Dr Nora White was hired as administrator for this project (funded via QUB). The research assistant for the MIMNEC project, Dr Siobhán Barrett, was awarded a Government of Ireland Postdoctoral Fellowship (2020–2022), which started in October 2020. As part of a regional consortium, Dr White was awarded an Adopt a Monument Ireland grant from the Heritage Council of Ireland. For the publication of proceedings of workshops held as part of the *ChronHib* project, Professor Stifter, Dr Elliott Lash and Dr Fangzhe Qiu received grants towards publication from the MU Publication Fund and from the National University of Ireland. Dr Qiu, a postdoctoral researcher on the *ChronHib* project, received an Early Career Academics grant from the National University of Ireland (NUI) towards organising a workshop on Statistics in Historical Corpus Linguistics. Dr Niamh Wycherley received NUI funding for a conference held at the NUI (Merrion Square) in October 2019.

There was also internal funding success: Chelsey Collins (Mississippi University for Women, MU), the top-ranked Faculty of Arts applicant in 2019 for a Hume scholarship, began her PhD studies under the supervision of Dr Boyle.

PUBLICATIONS

Members of Early Irish continued to publish world-class research in a diverse range of publications, including books, edited volumes, and international peer-reviewed journals.



Professor Stifter published the booklet *Cisalpine Celtic. Language | Writing | Epigraphy*, Prensas de la Universidad de Zaragoza 2020, which has been translated into Spanish and Italian in the meantime. Dr Hayden guest-edited a volume of the journal *Language & History* (Taylor & Francis) as a volume of proceedings of a conference hosted by her in 2018; subsequently she became chief editor of the journal. Dr Lash, Dr Qiu and Professor Stifter edited the proceedings volume *Morphosyntactic Variation in Medieval Celtic Languages. Corpus-based Approaches*, Berlin: de Gruyter 2020 in the prestigious *Trends in Linguistics. Studies and Monographs* series. The book is open access at www.degruyter.com/document/doi/10.1515/9783110680744/html

Publications in leading peer-reviewed journals in the field include 13 articles by Professor Stifter, seven by Dr Hayden, four by Dr Boyle, four by Dr Bauer, four by Dr Lash, three by Dr Barrett, three by Dr Qiu, two by Dr White, one by Dr Qiu, e.g. *Cambrian Medieval Celtic Studies*, *Celtica*, *Ériu*, *Indogermanische Forschungen*, *Journal of Pre-Raphaelite Studies*, *Keltische Forschungen*, *North-Western European Language Evolution*, *Palaeohispanica*, *Peritia*, *Speculum*, *Studia Hibernica*, *Zeitschrift für celtische Philologie*. Dr Boyle contributed four chapters to books and edited volumes, Professor Stifter and Dr Hayden three each, and Drs Bauer, Lash, Qiu and White one chapter each. In addition to work by academic staff, the postgraduate student Ellen Ganly published an article in the *North American Journal of Celtic Studies*.

In other media, Professor Stifter produced an audio-visual introduction to Old Irish, a series of 18 half-hour videos together with Dr Aaron Griffith (Uni Utrecht) as part of the project *Ancient Indo-European Languages for the 21st Century* (Universität Göttingen, GER): <https://spw.uni-goettingen.de/projects/aig/Ing-sga.html>.

CONFERENCES AND INVITED LECTURES

As part of the ChronHib project, Dr Qiu and Professor Stifter organised the workshop *Statistics in Historical Corpus Linguistics* (Maynooth University, 4th–5th October 2019). On 18th October 2019, Dr Wycherley organised a multidisciplinary conference, hosted by the National University of Ireland (Merrion Square), on *Relics in Medieval Ireland*. Other events in 2020 were impacted by the COVID-19 emergency: Drs Hayden, Barrett and Bauer's conference *Medicine in the Medieval North Atlantic World*, organised together with Dr Sarah Baccianti (QUB) had to be rescheduled to May 2021.

In the academic year 2019/2020, the staff delivered numerous talks at national, international, and overseas events, many of which in online format due to COVID-19 restrictions. Professor Stifter gave four invited lectures in institutions such as the Dublin Institute for Advanced Studies or Alteritas in Verona (ITA). Dr Hayden gave three academic papers in NUIG, Limerick and QUB; and another one with Dr Barrett and two external colleagues at the University of London. Dr Boyle gave two invited lectures at UCLA and Boston College (USA).

The Department's postdoctoral researchers also gave a number of invited research talks: Dr Qiu was invited to give a lecture at the UCD Ó Cléirigh Seminar series; Dr Bauer was invited to present his research at the Insight Research Centre for Data Analytics in Galway.

IMPACT AND EXTERNALLY-ENGAGED RESEARCH

Dr Bauer won the award of MU Early Career Achievement Award 2020 and the MU Early Career Faculty of Arts, Humanities, Celtic Studies and Philosophy Research Achievement Award 2020. Dr Qiu won 1st place at the Ignite five-minute talk competition (October 2019) with *What is in a name? A guided tour to medieval Irish names*. Dr White received the National Heritage Week Award (County Waterford) for her online Heritage Week event about the Knockboy Ogham stones.

Dr Daniel Watson won the 2020 Johann-Kaspar-Zeuß-Prize awarded by the Societas Celtologica Europaea (SCE) for the best thesis in Celtic Studies for his thesis on *Philosophy in Early Medieval Ireland: Nature, Hierarchy and Inspiration*. Viktoria Krivoshchekova won the 2020 Vivien Law Prize awarded by the Henry Sweet Society for the History of Linguistic Ideas for her essay *Early Irish Grammarians and the Study of Speech Sound*.

More publicly oriented engagement includes, for instance, Dr Boyle whose work received media coverage in the Irish Times. Professor Stifter provided translation services in Gaulish for a computer game production, and in Old Irish for a film production.

Dr Niamh Wycherley is also regularly featured on RTÉ Brainstorm. In the reporting period, three of her articles appeared there, while Dr Nora White contributed an article about Early Irish inscriptions on Ogham stones on the same platform. Dr Wycherley also featured as an expert on early medieval Ireland in a documentary on TG4 (*CSI na hÉireann*, September 2020) and in a Christmas special *Research Spotlight* on the Maynooth University homepage.

FACULTY HIGHLIGHTS

FACULTY OF ARTS, CELTIC STUDIES AND PHILOSOPHY

OTHER RESEARCH CONTRIBUTIONS

Members of the Department of Early Irish continue to provide academic service in MU and within the discipline of Celtic Studies. This includes serving on editorial boards and the committees of learned societies, engaging extensively in peer reviewing and in organising training events and masterclasses for postgraduate students and postdoctoral researchers. Dr Hayden is a member of the Academic Council Research Subcommittee; together with Professor Stifter, she is also a member of the FACSP Research Committee. Professor Stifter is member of the Board of Management of the MU Arts and Humanities Institute and he assumed the role of Chair of the Publications Committee of the Dublin Institute for Advanced Studies' School of Celtic Studies. He is collaborator in two international research projects, one at the University of Bordeaux, the other one at the Austrian Academy of Sciences.

ROINN NA NUA-GHAELIGE/DEPARTMENT OF MODERN IRISH

2019–2020 has been a very productive year for the Department of Nua-Ghaeilge/Modern Irish, during which the Department's long-standing scholarly publications, *Léachtaí Cholm Cille*, and *Irisleabhar Mhá Nuad*, have continued to provide a vibrant forum for new research, and in the case of IMN, a vital forum for new, as well as more-established scholars. Between 2019 and 2020 members of the Department published six authored or edited books/journals as well as 10 book chapters/journal articles.

Alongside authored books and edited books/journals, members of the Department have published their research in a range of other scholarly journals and collections. Collective in-house research projects such as *Scríobhaithe an Tuaiscirt 1650-1900* have made steady progress as have colleagues' collaborations in other research partnerships as outlined below. The Department has recently announced the appointment of its new Professor of Modern Irish and Performing Arts whose arrival will greatly boost the depth and range of the Department's research culture, not least in the area of postgraduate and postdoctoral research. Three PhD students and six MA students of the Department's MA had their degrees conferred upon them in 2020.



Professor Triona Ní Shíocháin was appointed as Professor of Modern Irish and Performing Arts

Roinn na Nua-Ghaeilge were delighted to announce the recent appointment of Professor Triona Ní Shíocháin as Professor of Modern Irish and Performing Arts. In joining the Department of Modern Irish at Maynooth, Professor Ní Shíocháin will bolster a long tradition of literary scholarship, as well as bringing the critical perspective of Performance Studies to the Department's profile of research specialisms. Speaking about her appointment Professor Ní Shíocháin remarked: "Maynooth University has a remarkable legacy and profile in the field of Modern Irish scholarship both nationally and internationally. It is an honour to be appointed to this position, and I look forward immensely to working with the distinguished faculty of the Department of Modern Irish and the wider School of Celtic Studies. I am also excited by the many interdisciplinary opportunities within the rich and diverse research culture of Maynooth University, most particularly in music, performing arts and artistic research, and look forward to collaborations with colleagues in those areas. I also look forward very much to engaging with a vibrant and creative student cohort, and supporting the further development of Irish-language performing and traditional arts within Maynooth University's thriving Irish-language scene."

SCRÍOBHAI THE AN TUAISCIRT 1650-1900 PROJECT (NOVEMBER 2019–MAY 2020)

This project is the first stage in the larger *Atlas Litríocht na Gaeilge* project, the main aim of which is to give a comprehensive profile of the regional development of literature in Irish. The initial stage of ALG is the *Scríobhaithe an Tuaiscirt* project (funded by the Arts and Humanities Institute, School of Celtic Studies and Roinn na Nua-Ghaeilge) and based on Dr Fintan Keegan's mammoth four-volume PhD thesis which gives biographies for 220 scribes in the northern half of Ireland (1650–1900). The main aim is to create a website giving biographies with details of manuscripts compiled and allowing a detailed view of scribal networks and common themes. This will be supplemented by detailed case studies. Once complete, this will then be extended towards creating a website for scribal activity throughout Ireland in this period, *Scríobhaithe na hÉireann (1650–1900)*.

Under the supervision of Professor Fionntán de Brún, the project employed three researchers during November 2019–May 2020: Dr Keegan, Helen Kelly and Miriam Fitzsimons achieved the following aims:

- > Database, including thematic data and case studies completed in May 2020.
- > Conference (*Léachtaí Cholm Cille*) held online in December 2020. This had initially been postponed from April 2020 due to COVID-19 restrictions.
- > Papers given by Professor de Brún and Dr Keegan at *Léachtaí Cholm Cille* conference, publication of proceedings will be completed by July 2021.
- > As part of the AHI visiting lecturer scheme, Dr Lesa Ní Mhughailé (NUIG) spent a week at MU with the project.

The next stage of the *Scríobhaithe na Gaeilge* project (March 2021–February 2022) will involve the construction of the website for *Scríobhaithe an Tuaiscirt 1650-1900* from the database.

COLLABORATIVE PROJECTS AND PARTNERSHIPS

Dr Eoghan Ó Raghallaigh is editor of *The Doegen Records Web Project*, hosted by the Royal Irish Academy Library and is responsible, alongside colleagues in TCD and the Dublin Institute for Advanced Studies, for the Bardic Poetry Database c.1200–c.1700 Bardic Poetry Database (dias.ie) which recently announced its searchable SketchEngine database Bardic @ TCD – Irish and Celtic Studies – Trinity College Dublin. Dr Ó Raghallaigh is also a key contributor to Connecticut University's initiative to provide aids to reading Early Modern Irish texts through its website Léamh.org: Léamh – Learn Early Modern Irish (xn--lamh-bpa.org). These latter initiatives are particularly important in facilitating increased scholarly attention in the area of Bardic Poetry, a perfect example of which is the English Department's *MACMORRIS Project* to which Dr Ó Raghallaigh has been a key advisor.

Dr Tracey Ní Mhaonaigh was awarded €5,000 from Comhairle um Oideachas Gaeltachta agus Gaelscolaíochta in partnership with colleagues in the Department of Computer Science to translate the Bebras Computational Thinking Challenge to Irish.

The Department hosts a regular research seminar series, which has been an indispensable platform for the current research of staff and colleagues in other institutions. While the pandemic has precluded on-campus research events, conversely, the switch to online delivery has widened the audience and range of possible speakers. Similarly, the *Léachtaí Cholm Cille* conference *Scríobhaithe Gaeilge an Tuaiscirt 1650–1900* was very successfully hosted online. In November 2020, Professor de Brún was invited to give the 50th anniversary Léacht Uí Chadhain/Ó Cadhain Lecture, *Maighréad Ní Mhaicín, an Cadhnach agus comaoin an Domhain Thoir*, which was given online. Inevitably some international conferences/events fell foul of the pandemic, including the planned international conference on Rudolf Thurneysen (1857–1940), in the University of Bonn of which Dr Brian Ó Catháin was an organiser alongside colleague Professor David Stifter. A similar casualty was the 17th international symposium of Societas Celtologica Nordica at which Professor de Brún was to speak in May 2020.

PUBLICATIONS

The Department edits and publishes two long-standing publications *Irisleabhar Mhá Nuad* and *Léachtaí Cholm Cille. IMN*, edited by Dr Tracey Ní Mhaonaigh, is a scholarly journal of Irish Studies, which was founded over 120 years ago and is, as such, of great importance to the tradition of research in Irish and to the University itself. *Léachtaí Cholm Cille* is the published proceedings of the Department's annual conference, which celebrated its 50th anniversary in 2019. Dr Lára Ní Mhaoláin's work in preparing an edition of the important Ulster Cycle tale, *Táin Bó Flidhaise*, for the prestigious Irish Texts' Society series, is continuing apace either side of a period of maternity leave and this key text is due to be published in 2022/2023.

LÁRIONAD NA GAEILGE/THE CENTRE FOR IRISH LANGUAGE

Research in the Centre for Irish Language focuses primarily on aspects of applied linguistics related to the learning, teaching, assessment and use of Irish, in order to inform evidence-based practice in language education and policy, both within our own institution and on a national level. The Centre often acts as advisor to state bodies on the Common European Framework of Reference (CEFR) and language testing, and has been commissioned on several occasions to produce test-related research on aspects of Irish-language learning. Lárionad na Gaeilge was awarded five non-research grants relating to the Centre's language teaching and testing projects during the period 2019–2020, with a total value of €874,880 over the two years. The Centre also received funding of €16,887 from An Chomhairle um Oideachas Gaeltachta agus Gaelscolaíochta (COGG) for a report and recommendations on the Leaving Certificate Oral Irish examination. COGG also funded doctoral research by Ailín Ní Chonchúir investigating the effect of cross-linguistic mediation tasks in Irish-language secondary schools on teacher development.

In summary, the Centre's research builds on our strengths in language teaching and testing, and is very much integrated with our practice in those areas. The Centre's staff members are also interested in the rich cultural heritage associated with the Irish language, particularly the Irish song tradition and aspects of Irish folklore.

CONFERENCES AND EVENTS HOSTED

In January 2020, the Centre hosted the 21st annual conference of the Association of Language Communities in the UK and Ireland (AULC). AULC is a professional organisation representing all those involved in language teaching and assessment in Higher Education in the UK and Ireland. The conference was attended by approximately 130 delegates from institutions in the UK and Ireland. The conference theme was *The CEFR, Assessment and Language Learning* and keynote lectures were delivered by Rónán Ó Domhnaill, Irish Language Commissioner; Anne O'Keeffe, Mary Immaculate College; Barry O'Sullivan, Head of Assessment Research and Development at the British Council; and Joseph Sheils, Former Head of the Department of Language Education and Policy in the Council of Europe.

In June 2019, Dr Thomas Bak of the University of Edinburgh delivered a guest lecture on the theme *Why our brains need languages: cognitive effects of language learning and multilingualism*. Dr Bak returned to Maynooth in February 2020 as visiting scholar to the Centre for a three-week period. During this time, he delivered a public lecture, entitled *Bilingualism for Cognition, Language and Brain Health*, as well as a number of guest lectures and seminars on bilingualism, cognition and research methods, to students and staff in the School of Celtic Studies, the School of Modern Languages and Froebel Department of Primary and Early Childhood Education.

FACULTY HIGHLIGHTS

FACULTY OF ARTS, CELTIC STUDIES AND PHILOSOPHY

PRESENTATIONS AND INVITED LECTURES

Members of the Centre for Irish Language delivered nine invited lectures during 2019 and 2020, on topics related to Irish-language teaching, testing and research, the use of the Common European Framework of Reference for Languages, Irish folklore and the Irish song tradition. Anna Ní Ghallachair's invitation to deliver the plenary lecture at the IRAAL (Irish Association for Applied Linguistics) 2020 conference event was particularly noteworthy. The title of the lecture was *Twenty-five years of language policies in Ireland and Europe: taking stock and looking forward* and will be published in the next edition of the IRAAL journal, *Teanga*.



Elisaveta Everard was awarded the T.K. Whitaker prize for the best M.A. thesis research in Irish in all of the NUI institutions in 2020

AWARDS AND OTHER ACHIEVEMENTS

In 2020, the Centre was awarded the ALTE Q-Mark for the second time, in recognition of the excellence of our language tests, in terms of design, administration, standardisation and other quality assurance practices.

Elisaveta Everard was awarded the T.K. Whitaker prize for the best M.A. thesis research in Irish in all of the NUI institutions in 2020, for her study on the effect of oral exam task type on the spoken accuracy of Irish-language learners. This project was jointly supervised by Aoife Ní Ghloinn and Dr Brian Ó Catháin, Department of Modern Irish.

Ailín Ní Chonchúir was awarded a research bursary COGG for doctoral research investigating the effect of cross-linguistic mediation tasks in Irish-language secondary schools on teacher development. Ailín was also involved in the European Centre for Modern Languages (ECML) project: Mediation in Teaching, Learning and Assessment (METLA). In December 2020, Aoife Ní Ghloinn was elected Republic of Ireland Representative for the AULC.

EXTERNAL ENGAGED RESEARCH AND PARTNERSHIPS WITH STATE BODIES

In September 2020, the Centre was awarded a research grant by An Chomhairle um Oideachas Gaeltachta agus Gaelscolaíochta, to undertake a validation study of the Leaving Certificate Irish oral exam. This work is being carried out in the context of a review of the current Leaving Certificate Irish language syllabus and the recent publication of draft specifications for a new revised syllabus. The aim of the Centre's research is to publish a bilingual report providing an analysis of the current Leaving Certificate Irish oral exam, with recommendations that might inform the development of assessment procedures for the revised course. The project team is Elisaveta Everard, Anna Ní Ghallachair, Aoife Ní Ghloinn and Siuán Ní Mhaonaigh.

During 2019–2020, the Centre continued its partnership with the Department of Education and Skills, providing Teastas Eorpach na Gaeilge (TEG) Irish language proficiency tests for all prospective candidates applying for the Baitsiléir san Oideachas Trí Mheán na Gaeilge (Bunmhúinteoireacht), the M. Oid. san Oideachas lán-Ghaeilge and the well-established Professional Master of Education (PME) (Primary Teaching). TEG exams were also provided as part of promotion and recruitment schemes for a number of state bodies and organisations.

Anna Ní Ghallachair continued in her role as Chairperson of Údarás na Gaeltachta. Helen Hegarty was appointed as a member of the Irish Terminology Committee, the official body responsible for the development and approval of new terminology in the Irish language and Siuán Ní Mhaonaigh, Director of TEG, was appointed by Foras na Gaeilge as chairperson of The Language Development Forum from



Helen Hegarty, The Centre for Irish Language, was appointed as a member of the Irish Terminology Committee, the official body responsible for the development and approval of new terminology in the Irish language

IRISH CULTURAL HERITAGES

Dr Mary Leenane's research has developed lines of enquiry first established in her two-volume PhD study of Cú Chulainn's role and representation in early Irish literature, and subsequent work on various aspects of character creation in early Irish literature. While currently working on a book publication concerning Cú Chulainn's characterisation, with emphasis on the notion of heroic biography and related themes, she has given various papers and a recent keynote address on these core themes. In addition to this she has developed interdisciplinary investigations of themes such as the visualisation and representation of the elite in early Irish literature with regard to figures such as Cú Chulainn, Medb, Cormac mac Airt, Conaire Mór, Mór Muman etc. Besides her keynote address at the 41st *Californian Celtic Conference* (UC Berkeley, 2019), related aspects of her research were also disseminated at the 33rd *Conference of Irish Medievalists* (University College Cork, 2019), *XVIth International Congress of Celtic Studies* (Bangor University, 2019), and the 39th *Harvard Celtic Colloquium* (Harvard University, 2019).

Dr Leenane's work on the representation of sound as a component of death narratives was scheduled for delivery at the *The Senses in Medieval and Renaissance Europe: Hearing and Auditory Perception Conference*, April 2020, Trinity College Dublin. Owing to COVID-19 restrictions this event was unfortunately postponed.

Dr Eoin Grogan continues his work (albeit much restricted by the COVID-19 pandemic) on the *Moynagh Lough* project, which details a nationally important crannog excavation carried out by our late colleague John Bradley of the History Department, Maynooth University. The research is led by Dr Michael Potterton (of the same department), and Dr Eoin Grogan (Irish Cultural Heritage) has undertaken the research and reporting on the very extensive Bronze Age phases of the site. This year, there is some progress on the ceramic component of the assemblage. This project is funded by the Royal Irish Academy with support from Maynooth University.

Research continues on the Carrig, County Wicklow, Bronze Age landscape funded by the National Museum of Ireland. The site was, uniquely, in use for over 1,000 years (c. 2000–800BC) and produced an important assemblage of associated (and intact) Bronze Age pottery, copper alloy implements and (locally manufactured) faience beads. A new project, in collaboration with Dr Katarina Becker of UCC and Dr Paul Stevens of Irish Archaeological Consultancy Ltd (IAC Ltd) (funded by Transport Infrastructure Ireland (TII)), is assessing the potential for absorbed residue and Lipid analysis of ceramic assemblages from site in County Sligo. Dr Grogan has authored an extensive series of expert reports on prehistoric pottery in a number of sites throughout Ireland.

DEPARTMENT OF ENGLISH

In the 2019–2020 academic year, the Department of English had a total number of 14 full-time, permanent academic staff, of which Professor Colin Graham was seconded as Dean of the Faculty of Arts, Celtic Studies and Philosophy. The Department had one 50% full-time member of academic staff (Dr Denis Condon, who is a joint appointment with Media Studies). The Department also benefited from the scholarship of full-time fixed-term staff, notably Dr Richard O'Brien and Dr James Fraser who contributed between them three major peer-reviewed journal articles to the Department's research profile.

There were three postdoctoral researchers and eight PhD students in the Department of English, as well as five full time and seven part time MA students. The full time equivalent (FFTE) for undergraduate students was 365.6. The Department produced 78 publications for 2019–2020 and secured one research grant, *AMERGIN* to the value of €91,970.

Dr Kevin Tracey (Professor Patricia Palmer as supervisor) was awarded an IRC postdoctoral fellowship to the value of €91,970 for *AMERGIN – Analysing Macaronic Early-Modern Readers by Gathering Irish Networks* – as part of the *MACMORRIS digital humanities research* project. *AMERGIN's* far-reaching research seeks to build a new, interconnected account of Irish figures at home and abroad in the sixteenth and seventeenth centuries. In doing so, it advances our understanding of the continuum of early modern cultural experience across genres, borders, beliefs, languages, and eras.

AMERGIN contributes to the ongoing *MACMORRIS Advanced Laureate* project funded by the IRC. It seeks to map the full range and richness of cultural activity, across languages and ethnic groups, in Ireland from 1541 to 1661. Despite pandemic restrictions – which impeded creative brainstorming sessions, travel to archives and conferences and other activities – *MACMORRIS* was remarkably productive. Professor Palmer's RTÉ Brainstorm piece, *Ireland during the Renaissance* ranked at number 10 in the Top 50 RTÉ Brainstorm articles nationally for the month of May 2019 with 8,050 loads and 6,959 visitors. Professor Palmer published with David Baker and Willy Maley, *Enter MACMORRIS* (Dublin Review of Books, July 2019). The group saw major publications accepted, which will be published from autumn 2020 onward and included in the 2020–2021 research report.



The *MACMORRIS* group launched its bilingual website

FACULTY HIGHLIGHTS

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The MACMORRIS group also recruited a PhD student, Alan Waldron, who is working on theatre in mid-17th century Ireland and being co-supervised in an international collaboration with Dr Deanna Ranking from Royal Holloway, University of London, and a programmer Rupavathi Subramani. The group presented at national and international conferences: Dr Deirdre Nic Chárthaigh presented at *Rómánsaíocht: Seimineár Taighde ar na Scéalta Rómánsaíochta (Research Seminar on the Irish Romantic Tales)*, University College Cork (November 2019) and Professor Palmer presented *A Map for MACMORRIS, Eoraip: Gaelic Ireland in Medieval & Early Modern Europe*, Boston College, USA (November 2019) and *What Now? What Next?: Redefining Early Modern Ireland*, Global Early Modern Studies, Graduate Centre, City University New York, USA (November 2019). Attendance at the following conferences/invited-speaker events was cancelled due to the pandemic: the *Irish Seminar*, University of Cambridge (May 2020); at *Tintúid-Aistriú: an tAistriúchán Liteartha i Stair na Gaeilge/Irish Literary Translation through Time*, University College Cork (May 2020); Notre Dame Dublin (June 2020); *Tudor-Stuart Conference*, Dublin Castle (August 2020). The group launched its bilingual website macmorriskaynoothuniversity.ie and has a lively Twitter account @macmorr1s.



Professor Emer Nolan's monograph *Five Irish Women: the second republic, 1960–2016*

Professor Emer Nolan's monograph *Five Irish Women: the second republic, 1960–2016* (Manchester University Press, 2019) was published in hardback and subsequently issued in paperback. Reviewed widely, it garnered praise from Catriona Crowe, former head archivist for the National Archives Ireland, in the *Irish Times* for its contribution to scholarship on "later 20th century feminism, politics, Irishness and its meanings, and the results of freedoms achieved and exploited by a cohort of outstanding Irish women." It was reviewed in *New Hibernia Review* as "a remarkable contribution to the theoretical analysis of contemporary Irish writing... an exemplary case of an academic translating hard-won ideas into accessible, elegant prose" and in *Irish Studies Review* as "a rich and important work."

Six colleagues published nine essays in top peer-reviewed journals in the fields of literature and cultural studies: Dr Catherine Gander published *Black and White Landscapes: Topographies of Disorientation*

in the Works of Carrie Mae Weems and Claudia Rankine in the leading *Journal of American Studies*; Dr James Fraser published '*Beard and Bicycle*': *the human, non-human, and post-human bicyclist in Ulysses and Loyalty and Betrayal in Joyce's Exiles* in *Social Research*; Dr Rita Sakr published *Imagining Mid-Nineteenth-Century Beirut as a 'City of the World': Public Intellectuals, Photography, Cartography, and Historical Literature* in *Journal of Urban Cultural Studies and Decolonial Imaginaries of Sanctuary in Behrouz Boochani's Work* in *Crossings: Journal of Migration and Culture*; Dr Stephen O'Neill published *Finding Refuge in King Lear: from Brexit to Shakespeare's European Value* in *Multicultural Shakespeare and Shakespeare's Hand, or 'the stranger's case': Remediating Sir Thomas More in the context of the Refugee Crisis* in *Borrowers and Lenders: the Journal of Shakespeare and Appropriation*. Dr Richard O'Brien published '*I know my clay*': *Some Musical Afterlives of Hamlet's Gravedigger* in *Borrowers and Lenders*. Dr Conor McCarthy published *Edward Said and Authority: from Conrad to Orientalism and Beyond* in *Ariel: a review of International English Literature*.

In the field of literary studies, book chapters play a formative role in setting new directions for the discipline. Nine colleagues published 17 book chapters in 2019–2020, including eight essays in the field of Irish literature and culture, four essays in early modern literature, and three essays in postcolonial literatures, reflecting the international reputation of the Department for expertise in these fields and other areas.

The Department plays an important role in research leadership in the Faculty of Arts, Celtic Studies and Philosophy. Dr Stephen O'Neill secured (with colleagues in Media Studies) an Arts and Humanities Institute (AHI) Research Centre award *Storytelling Across Media*. The new centre advances the study and practice of interdisciplinary approaches to technologically mediated complex narratives. Dr Moynagh Sullivan was awarded AHI Research Centre funding for the *Motherhood Project*, a pathbreaking project to examine cultural representations of mothers that explores discourses and ideologies of motherhood, social trends and geopolitical factors, and sheds light on marginalised and silent maternal voices. In the longer term, both centres will contribute to the Faculty's international partnerships. With support from the English Department and the Arts and Humanities Institute, Dr Gander established the cross-faculty research collective, CRISES (Critical Research In States, Ecologies, and Societies) to instigate in the first instance conversations among researchers working broadly in contemporary subjects, whose research addresses one or more of the many global crises of our age – particularly the humanitarian and ecological. CRISES hopes to become a centre for idea exchange, knowledge transfer, a number of research events, and the development of exciting new research projects, which will see scholars collaborating across disciplines. In 2019, CRISES was involved in two events which enhanced the Faculty's national and international partnerships: *Poetry in Times of Crisis: A reading and conversation with award-winning poets Erika Meitner and Wayne Miller*, at Boston College (26th April 2019) and the one-day symposium *Contemporary Literature: Politics and Aesthetics in Crisis* at Queens

University Belfast, where Dr Sakr was an important contributor. Further events were planned for the 2020–2021 academic year. Dr Gander was also awarded €3,000 from the AHI for the project *Aesthetics of documentary and displacement: poetry, art, hybridity*, the activities of which have been postponed to 2021–2022 due to COVID-19.

The Department of English maintains a key community partnership with Kildare County Council through the Writer in Residence programme, co-sponsored by Kildare County Council Arts Office and the Maynooth University Executive and led in the Department by Dr Oona Frawley. Maynooth University's Writers-in-Residence for 2019–2020 were poet Annemarie Ní Churreáin, whose critically acclaimed first collection, *Bloodroot*, was nominated for multiple awards, and novelist Sue Rainsford, whose debut, *Follow Me to Ground*, won the Kate O'Brien Award and was nominated for the Desmond Elliott Prize and the Republic of Consciousness Award. As Writers-in-Residence, Annemarie and Sue taught and supervised final-year English students' creative writing projects, appeared at the opening weekend of the Kildare Readers Festival (September 2019), and organised a public programme of events. While most of these events were postponed due to the COVID-19 pandemic, the University hosted a performance and reading by acclaimed poet and artist Caroline Bergvall (March 2020), and a planned event focusing on Mother and Baby homes with poet Kimberly Campanello and Caelainn Hogan was rescheduled for Spring 2021. For Kildare County Council Library and Arts Services, Annemarie and Sue were involved in book clubs and writers' groups (at Maynooth, Leixlip and Kildare Community Libraries in autumn 2019), working particularly with either beginning or emerging writers who attend creative writing workshops. As Maynooth Writers-in-Residence, Annemarie and Sue appeared at the Kildare Readers' Festival (30th September) as the launch event of the festival. Out of a series of workshops that Annemarie ran with Kildare poets through the library, the Library Service published a booklet entitled *Bridget* (The Leinster Printmaking Studio), (launched on Saturday 1st February 2020) and reflecting Annemarie's fosterage of research into local stories of St Brigid. The publication marked a new addition to the activities that have been undertaken, and feedback from the Kildare Arts/Library Service is overwhelmingly positive.



Dr Catherine Gander, Department of English, gave a sold-out public lecture for the Irish Museum of Modern Art's (IMMA) exhibition on the sculptor Doris Salcedo's work

The Department undertakes significant civic engagement on a national level, with Dr Michael Cronin chairing a public event for Dublin's *One City, One Book* festival. Dr Gander gave a sold-out public lecture for the Irish Museum of Modern Art's (IMMA) exhibition on the sculptor Doris Salcedo's work. Colleagues publish regularly in the Irish Times and appear in other international media outlets, such as Professor Nolan's appearance on RTÉ News at One to discuss a proposal for the repatriation for the remains of James Joyce. Dr Sinead Kennedy was appointed Co-Director of the Parnell Summer School for 2020, and Professor Lauren Arrington continued to serve as Co-Director of the *W.B. Yeats International Summer School*. Dr Gander led the organising committee for the national conference *Counter-Narratives and Hidden Histories*, the 50th Anniversary conference of the Irish Association of American Studies; set to run 3rd–4th April, the conference was cancelled due to COVID-19. Dr Gander is also on the organising committee for the *Leonard Cohen conference*, set to run in 2020 but postponed to 2022 due to COVID-19. Dr Sakr co-founded the Irish Network for Middle Eastern and North-African Studies (INMENAS, now 58 members) and co-organised its first networking event in November 2020. Dr Sakr also coordinated a major event with Behrouz Boochani in March 2020, *Writing/Righting Refuge* as part of MU's Social Justice Week, including Boochani, his translator, Scholars at Risk Network and MU researchers in the area of refugee studies as well as the external partner, the Irish Refugee Council (its CEO was a panellist in the roundtable) and the anthropologist documenting the Direct Provision System, Dr Abayomi Ogunsonya.

The Department represents significant international leadership in the field of literary studies. Professor Palmer presented on Spenser at the major conference of the Modern Language Association, and she gave the keynote at the March 2019 conference of the Royal Historical Society, *Dominus Hibernie/Rex Hiberniae: premodern Ireland, 1200–1801* at the National Archives, Kew. Dr Sakr appeared as the main guest on the two-hour BBC World Service weekend, where she spoke about Middle Eastern literature, world cities, and current affairs (and the MA in Literatures of Engagement at Maynooth English). Professor Nolan was an invited speaker on the topic *The Referent of Ireland in the Nineteenth Century* at Villanova University, Philadelphia in February 2020. Dr O'Neill gave the keynote, "By most mechanical hand": *Shakespeare embedded in Westworld and digital cultures* at the conference, *Shakespeare on Screen in the Digital Era*, Paul Valéry University Montpellier (September 2019).

FACULTY HIGHLIGHTS

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DEPARTMENT OF HISTORY

In the academic year 2019–2020 the Department of History counted 16.5 staff FTEs. The Department counted as well one IRC postdoctoral researcher (Dr Frances Nolan), and 29 PhD students. In addition, there were four M.Litt students, 22 MA students, and 610 undergraduates. Of note as well were its 230 students in the Military College at the Curragh, which included 22 MA students.

During this year two new grants were accumulated by the Department. Veronica Barry was awarded an IRC Postgraduate Fellowship by the Irish Research Council for her doctoral thesis on the role of women as subjects, and distributors, of Nazi propaganda in neutral countries during the Second World War. Meanwhile, Dr Michael Potterton was awarded €9,700 by the Royal Irish Academy for his continuing work on the *Moynagh Lough Excavation Project*.

The years 2019–2020 saw the Department of History continue to produce and disseminate research at a very high level, revealing the depth and scale of its members' national and international connections. A second edition of Dr Ian Speller's *Understanding Naval Warfare* was published by Routledge (2019); alongside Deborah Sanders and former Maynooth student Robert McCabe, Dr Speller also edited, for Routledge, *Europe, Maritime Security and Small Navies* (2019), for which he wrote a number of pieces. Colmán Etchingham co-authored *Norse-Gaelic Contacts in a Viking World* (Turnout: Brepols Publishers, 2019). Professor Terence Dooley co-edited, with Christopher Ridgway, *Sport and Leisure in the Irish and British Country House* (Four Courts Press, 2019), the latest in a long line of volumes arising from the activities of the Centre for the Study of Historic Irish Houses and Estates. Dr Jennifer Redmond and Elaine Farrell co-edited *Irish Women in the First World War: Irish Women's Lives, 1914–1918* (Routledge, 2019), which explores the multi-faceted experience of the Great War by women of different classes and backgrounds across the island. Dr Jonathan Wright broke new ground with his edited volume, *An Ulster Slave-Owner in the Revolutionary Atlantic: the Life and Letters of John Black* (Four Courts Press, 2019), while also, on a broader canvas, co-editing, with Daniel S. Roberts, the very topical *Ireland's Imperial Connections, 1775–1947* (Palgrave, 2019).

Alongside Catriona Pennell, Professor Filipe Ribeiro de Menezes co-edited and co-authored the introduction to *A World at War, 1911–1949: Explorations on the Cultural History of War* (Brill, 2019). This volume contains important contributions by figures such as John Horne, Jay Winter, Edward Madigan & Heather Jones, Robert Gerwarth and Maynooth's Dr John Paul Newman. Dr Alison FitzGerald's edited volume *Studies in Georgian Silver* (Four Courts Press, 2020) draws on a variety of sources and approaches to revise our understanding of Ireland's silversmithing. Professor Raymond Gillespie and Brendan Scott co-edited *The Books of Knockninny: Manuscripts, Culture and Society in Early Eighteenth-Century Fermanagh* (Cumann Seanchais Bheirne, 2019).

Dr Michael Potterton, finally, co-edited two volumes: *Carrick, County Wexford: Ireland's First Anglo-Norman Stronghold* (Four Courts Press, 2019), which incorporates findings from the most recent excavations at the site of the oldest Anglo-Norman stronghold in Ireland, and *The Town in Medieval Ireland in the Light of Recent Archaeological Excavations* (Wordwell, 2020).

Building on the findings reached at workshop held in Maynooth, Dr Newman led a team of colleagues to consider the topic of *Cultures of Victory and Victorious Societies in the Twentieth Century* in a special section of Vol. 54, n. 4, of the *Journal of Contemporary History*. Dr Newman contributed both the Introduction and one of the articles in the section, *Volunteer Veterans and Entangled Cultures of Victory in Interwar Yugoslavia and Czechoslovakia*.

As well as marshalling the work of other historians in their edited volumes, Maynooth historians have been invited to participate in volumes edited by their peers. Dr Hussam Ahmed published a chapter, *Porous Boundaries: the 'Local' and the 'Foreign' in Cairo's Vibrant Francophone Cultural Scene (1919–1939)*, in *Cultural Entanglement in the Pre-Independent Arab World: Thought and Literature* (Bloomsbury, 2020), edited by Anthony Gorman and Sarah Irving. Professor Gillespie contributed chapters to books edited by Brendan Scott (*Society and Administration in Ulster's Plantation Towns*, Four Courts Press, 2019) and Brendan Scott and Liam Kelly (*Leitrim: History and Society*, Geography Publications, 2019). Dr David Lederer published two chapters in significant international collaborations: a chapter on *Suicide in the Early Modern World*, which appeared in Volume 3 of *The Cambridge World History of Violence* (CUP, 2020), edited by Robert Antony, Stuart Carroll, and Caroline Dodds Pennock, and another on *Religion and Spirituality*, which appeared in *A Cultural History of the Emotions in the Late-Medieval, Reformation and Renaissance Age* (Bloomsbury, 2019), edited by Andrew Lynch and Susan Broomhall. Also published by Bloomsbury in 2019 was *Eighteenth-Century Art Worlds: Global and Local Geographies of Art*, edited by Michael Yonan and Stacey Sloboda. Dr JoAnne Mancini published a chapter in this volume, *Pedro Cambón's Asian Objects: A Transpacific Approach to Eighteenth-Century California*.



Dr Frances Nolan published “*That Caballing Humour, Which Has Very Ill Effects*”: Frances Talbot, Jacobite Duchess of Tyrconnell (c.1649–1731), in Myles Campbell's *Vicereines of Ireland: The Women Behind the Throne*

Arising out of her work as a postdoctoral researcher in the Department, Dr Frances Nolan published “*That Caballing Humour, Which Has Very Ill Effects*”: Frances Talbot, Jacobite Duchess of Tyrconnell (c. 1649–1731), in Myles Campbell’s *Vicereines of Ireland: The Women Behind the Throne* (Irish Academic Press, 2020). Professor Thomas O’Connor is represented in *Ireland in the European Eye*, edited by Gisela Holfter and Bettina Migge (Royal Irish Academy, 2019), with a chapter, *Prequels: The Irish European Diaspora*. Finally, Professor Ribeiro de Meneses published *Portugal: The Carnation Revolution*, in Peter Furtado’s, *Revolutions: How They Changed History and What They Mean Today* (Thames & Hudson, 2020), and *Diplomacia, Defesa e Guerra, 1961–1974*, in José Maria Brandão de Brito & Paula Borges Santos’s *Os Anos Sessenta em Portugal: Duas Governações, Diferentes Políticas Públicas?* (Edições Afrontamento, 2020).

In terms of peer-review articles, and aside from Dr Newman’s contributions, noted above, Maynooth historians have seen their work published in the US Naval War College Review and the Brazilian *Revista da Escola de Guerra Naval* (Dr Speller), the *Journal of Social History* (Dr Newman, with Adam Luptak), *Gender and Education* (Dr Redmond, with Judith Harford), *Netherlands Review of Military Studies* (Dr David Murphy, with Theo Brinkel and Jörg Noll), *Small Wars Journal* (Dr Murphy), and *British Catholic History* (Professor O’Connor). Dr Nolan published an article in the *Historical Journal*.

The *Maynooth Studies in Local History* series (Four Courts Press), whose direction is passing from Professor Gillespie to Dr Potterton, has long played an important role in the life of the Department of History. 2019–2020 saw the publication of nine more volumes in the series, covering issues as diverse as *The Kirwan Murder Case, 1852* (Suzanne Leeson, 2019), *Rathcoole and the United Irish Rebellions, 1798–1803* (Kerron Ó Luain, 2019), *Crime and Punishment in Nineteenth-Century Belfast: The Story of John Linn* (Jonathan Wright, 2020), and *Belturbet, County Cavan, 1610–1714: The Origins of an Ulster Plantation Town* (Brendan Scott, 2020).

The COVID-19 pandemic has obviously had an effect on the dissemination of knowledge at conferences, seminars and workshops. Nevertheless, before its effects began to be felt in Ireland Maynooth historians organised a number of events and spoke across the country and the world. The Centre for the Study of Historic Irish Houses and Estates held its 17th Annual Conference in 2019, on the subject of *Country House Collections*; its Director, Professor Dooley, also co-organised another conference, *Remembering 1919: War, Politics and Sport*, with Professor Marian Lyons. Papers were delivered as far afield as the University of Tampere (Dr Lederer, keynote lecture at the *Experiences of Dis/ability from the Late Middle Ages to the Mid-Twentieth Century Conference*), the Universidad de los Andes, Bogotá, and UCLA (Dr Mancini, *The Legacy of Conquest: Art at California’s Missions in the Global 18th-20th Centuries*), Budapest (Dr Potterton, International Commission for the History

of Towns), the US Army Command and General Staff College, Fort Leavenworth, Kansas, USA (Dr Speller, *Amphibious Operations in an Era of Declining Access*), and the Brazilian Naval War College, in Rio de Janeiro (Dr Speller, three lectures in 17–19 July 2019).



Dr Alison FitzGerald, Department of History, spoke at the Waterford Museum of Treasures and the Ulster Society for Irish Historical Studies Research Seminar Series

Closer to home, Dr Alison FitzGerald spoke at the Waterford Museum of Treasures and the Ulster Society for Irish Historical Studies Research Seminar Series, at Queen’s University Belfast; Dr Potterton presented his findings at the Royal Irish Academy, the Irish National Heritage Park, the National Museum of Ireland, the Blackfriary Archaeology Field School, in Trim, County Meath, and the *Carrig 850 Summer Lecture Series*, at Wexford Library; and Dr Redmond gave a paper to the *Working for the Home: Past and Present* seminar, in Trinity College Dublin, while also giving the keynote lecture to the Women’s History Association of Ireland annual conference in University College Cork. Dr Redmond gave further lectures at the Donegal County Museum and Donegal County Archives, and the Monaghan County Museum.

The Department of History is proud of its research seminar, which allows its lecturers and postgraduate students to listen to the work of leading national and international scholars first-hand. In 2019 sixteen papers in all were delivered at the seminar; speakers included Professor Iskra Ivelkic (University of Zagreb), speaking on *Irish Noblemen in Croatia (19th-20th Century)*; Professor Larry Goodson (US Army War College), on *The Syrian War: First Great War of the 21st Century*; Professor Paul Moyer (SUNY Brockport), on *New England Witch-hunting in the English Atlantic, 1640–1670*; Dr Eric Morier-Genoud (Queen’s University Belfast), on *Researching the Global Catholic Church from the Periphery: Archives, Concepts and Transnational Connections*; Professor Annie Tindley (University of Newcastle), on *Modernity and Rurality in Scotland: Land and People, 1746 to the Present – Some Initial Reflections*; and Professor Sally Promey (Yale University), on *Testimonial Aesthetics and Material Establishment: the Public Display of Religion in the United States*.

FACULTY HIGHLIGHTS

FACULTY OF ARTS, CELTIC STUDIES AND PHILOSOPHY

SCHOOL OF MODERN LANGUAGES, LITERATURES AND CULTURES

During the academic year 2019–2020, research-active staff in the School of Modern Languages, Literatures and Cultures (SMLLC) comprised 17 academic staff members (three of whom were employed on a part-time basis), one postdoctoral researcher, and five doctoral students.

During the period under review, these researchers produced two monographs, two edited books, 23 book chapters, 17 peer-reviewed journal articles, and five other publications (book reviews and media articles). Researchers in the SMLLC also hosted two conferences and gave 30 conference presentations during this period.

Four SMLLC researchers applied successfully for research grants during 2019–2020; two proposals were successful, resulting in a combined external research award of €282,040.90 to MU. An additional grant of €33,000 from the National Forum for the Enhancement of Teaching and Learning in Higher Education was also awarded. This brings the total SMLLC external research awards for 2019–2020 to €315,040.90.

The School of Modern Languages, Literatures and Cultures had a very productive year when it comes to publications in high-ranking journals and in books with prestigious publishers. Dr Zhouxiang Lu (Chinese Studies) published a new monograph entitled *A History of Shaolin: Buddhism, Kung Fu and Identity* with Routledge; this book has already garnered interest from the academic community and has been praised as “the most comprehensive history of Shaolin in English to this date” (Joseph Chadwin, University of Vienna). SMLLC staff members saw their work published in a number of highly regarded international journals: Dr Ana de Prada Pérez published an article with the *International Journal of Bilingualism* while her colleague in Spanish and Latin American Studies, Dr David García León was shared the results of his research in *Linguistic Approaches to Bilingualism*; Dr Julie Rodgers’ work was represented in the *Australian Journal of French Studies*, while her colleague in French Studies, Dr Sarah Gubbins, published an article in *Nineteenth-Century Contexts*. In addition to these prestigious journal publications, postdoctoral scholar Dr Mary Boyle (German Studies) published in the *Modern Language Review*, while Dr Lu (Chinese Studies) saw his work represented in the *International Journal of the History of Sport*.

Researchers in the School also published chapters in important books with respected publishing houses. Key amongst these is a chapter by Professor Ruth Whelan (French Studies) in an innovative volume entitled *Reassembling the Republic of Letters in the digital age. Standards, systems, scholarship* (Göttingen U.P. 2019), published at the conclusion of the Horizon 2020-funded COST Action IS 1310, in which she participated, and which set out to explore the historical and literary heritage of the early-modern communications revolution (1500–1800). The framework emerging from that project is documented in this book. Other book chapters included contributions by Dr Yinya Liu and Dr Zhouxiang Lu (both Chinese Studies) to *The*

Routledge Handbook of Sport in Asia (2020). Dr Catherine Leen contributed a chapter on the photography of Dulce Pinzón to a new volume entitled *Legacies of the Past: Memory and Trauma in Mexican Visual and Screen Cultures*, while her colleagues in Spanish and Latin American Studies, Dr David Conlon and Dr Mercedes Carbayo Abengozar, published chapters on Latin-American crime fiction and contemporary women’s writing in Spanish respectively.

Academic staff in the School of Modern Languages, Literatures and Cultures organised two important conferences in 2019: In March, Professor Valerie Heffernan and Dr Kira Collins (both German Studies) collaborated with the Department of Media Studies on a symposium on the topic of *Mediating Motherhood*. This symposium explored the ways in which normative expectations of mothers and mothering are mediated through contemporary films, newspaper debates, television series and the media. In September of the same year, Professor Arnd Witte (also German Studies) organised a two-day international conference entitled *Intercultural Competence: A Concept in Need of Rethinking?*. This conference brought together over twenty international researchers to critically revisit the concept of intercultural competence, both in terms of its underlying cultural-relativist framework and in terms of the validity of its meaningfulness for a number of academic disciplines. Members of staff in the School also presented their research at over thirty national and international conferences and meetings of scholarly societies during 2019–2020, including at universities all over Europe and beyond.

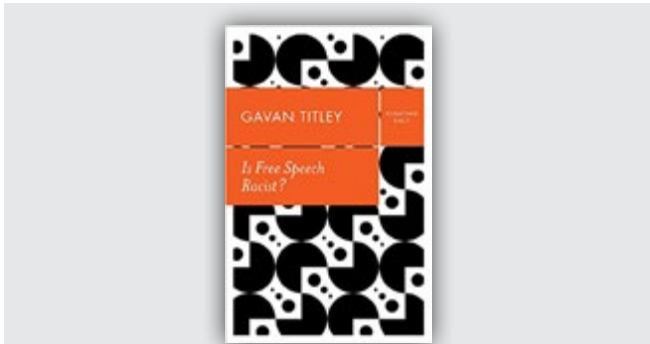
2019–2020 was a very successful year for staff members in the School of Modern Languages, Literatures and Cultures when it comes to funding applications. Chief among these was a proposal from the MU *Motherhood Project*, which was led by Professor Heffernan (German Studies) and also involved Dr Carbayo Abengozar (Spanish and Latin American Studies) and Dr Rodgers (French Studies), for a collaborative project with Vilnius University (Lithuania) and Uppsala University (Sweden) on narratives of contemporary European motherhood. This proposal was successful in attracting almost €900,000 through the Horizon 2020 *Twining* programme; MU’s share of this grant is €255,416. In addition, Dr Clive Earls brought in a grant from the National Forum for the Enhancement of Teaching and Learning in Higher Education to work with a diverse inter-institutional team of Applied Linguists and language teaching experts on a project entitled *Higher Education Language Educator Competences (HELECs)*. The purpose of the HELECs research project is to develop an empirically informed framework of competences for professionals in the field of language education in Higher Education. The project was awarded €150,000 in total; MU’s share of this grant is €33,000.

Finally, Peadar Kearney, a PhD student in French Studies, successfully applied for a Government of Ireland Scholarship from the Irish Research Council for a doctoral project on francophone cinema, which is supervised by Dr Rodgers. This award will lead to external research income of €24,000 to the School of Modern Languages, Literatures and Cultures. The combination of these three externally funded research grants means that the members of the School raised over €315,000 in research income in 2019–2020.

DEPARTMENT OF MEDIA STUDIES

During 2019/2020 the Department produced seven books, 17 refereed journal articles and eight book chapters. The Department also received €45,311 in research grant funding. There were nine members of staff with one postdoctoral research fellow and five doctoral students in the Department of Media Studies during this time.

A significant proportion of Media Studies publications are featured in highly regarded journals. These include *The Journal of Urban Technology*, the *Journal of Communication*, *Journalism*, *Social Media and Society*, *Media Culture and Society* and *The European Journal of Communications*.



Dr Gavan Titley's monograph *Is Free Speech Racist?* listed second in BBC Science Best Non-Fiction Books of 2020

Dr Gavan Titley's monograph *Is Free Speech Racist?* was listed second in BBC Science Best Non-Fiction Books of 2020 and Klassekampen 'Top 20 political books for the lockdown', December 2020. Both of his monographs have been extensively reviewed (four reviews each) in high impact journals and Dr Titley has had 629 Google citations over the last three years. He was a visiting fellow at the Institute for Culture and Society, Western Sydney University in December 2019–January 2020.

Dr Jeneen Naji exhibited a VR poem *Ice cream Thoughts at the Noemata* exhibition. Dr Naji and Dr Anne O'Brien (with Dr Stephen O'Neill from English) successfully applied for a €10,000 MU Arts and Humanities Institute grant, *Faculty Storytelling Across Media Research Centre*. Dr Naji and Dr Kylie Jarrett's IFTe network & research project was funded by UKRI-AHRC and the Irish Research Council under the UK-Ireland Collaboration in the Digital Humanities Networking Call (AHJV00199X/1 and IRC/V00199X/1).



Dr Kylie Jarrett, Department of Media Studies, co-authored the book *#NSFW*, which won the 2020 Association of Internet Researchers (AoIR) Nancy Baym Book Award

Dr Jarrett's co-authored book *#NSFW* won the 2020 Association of Internet Researchers (AoIR) Nancy Baym Book Award. AoIR is the peak internet research organisation and this is a prestigious and highly competitive award. Dr Jarrett was also programme Chair of the very successful Association of Internet Researchers conference held online over a month-long period in 2020.

Dr O'Brien continues her engaged research on domestic violence with continued participation in the NGO consortium. This has significant social impact as the NGOs are approaching the National Union of Journalists about the development of guidance on reporting domestic violence, femicide and familicide.

The Department also conducted engaged research for a consortium of domestic violence NGOs, including the National Women's Council of Ireland, Safe Ireland, the National Observatory on Violence Against Women, Women's Aid, Rape Crisis Network of Ireland and Dublin Rape Crisis Centre. The research was funded by the Community Foundation for Ireland. This research examined international best practice in media reporting of femicides and generated baseline data and case studies of the Irish media's coverage of domestic homicides and familicides.

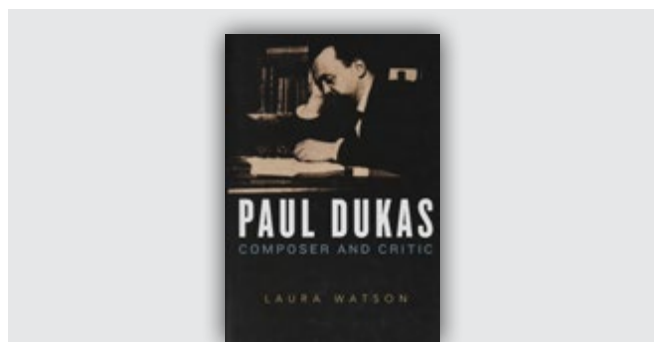
FACULTY HIGHLIGHTS

FACULTY OF ARTS, CELTIC STUDIES AND PHILOSOPHY

DEPARTMENT OF MUSIC

In the academic year 2019/2020 the Department of Music comprised of 12 academic staff members and one university tutor and one postdoctoral researcher. The department has 13 PhD students. For this academic year, the overall number of publications was 107 and the Department received a research grant valued at €96,000.

The Department of Music's productive and ambitious research community is committed to the fostering and dissemination of excellent internationally recognised research and to the integration of current research within its undergraduate and postgraduate programmes. In these commitments it is aligned with the Maynooth University Strategic Plan (2018–2022) which states that “research and scholarship are fundamental to our mission” and emphasises the University's reputation for ‘research-led’ teaching. The Department's research activities contribute significantly to the research profile of the Faculty of Arts, Celtic Studies and Philosophy (FACSP) and the Arts and Humanities Research Institute. The Department's research strengths therefore encompass a range of areas that reflect the breadth and rich diversity of the discipline, crossing the borders between art and science, theory and practice. This range gives the Department a distinctive profile and affords opportunities to engage in a rich array of research activities, networks and outputs. Composers, performers, musicologists and music technologists work together within a diverse and strongly disciplinary and interdisciplinary culture.



Dr Laura Watson published her monograph *Paul Dukas; Composer and Critic* (Routledge)

BOOKS

During the calendar years 2019 and 2020 Dr Laura Watson published her monograph *Paul Dukas; Composer and Critic* (Routledge). This is the first book in English appraising the composer's contribution to a broad variety of musical practices. Professor Victor Lazzarini's *Computer Music Instruments II: Realtime and Object-Oriented Audio* (offers a thorough treatment of computational instruments for sound and music. In 2020 (Springer International Publishing), Professor Lazzarini also co-edited *Ubiquitous Music Ecologies* (Routledge). This book emerged out of the Ubiquitous Music Group; an international research network established in 2007. The volume offers an outline of the ecologically based perspectives on ubiquitous music, that is at the intersections of music and computer science.

Dr Estelle Murphy has published '*To speak its Share on Public Joy' The Musical Ode from 1660 to 1779* (Boydell and Brewer). This is the first book to document the role of the music ode during the Restoration and Augustan periods. An interdisciplinary book, it focuses on poetry, publishing and print culture, political, historical and social context. Additionally, Dr Murphy has also published *John Eccles, Incidental Music Part 2, Plays H-P, The works of John Eccles* (A_R Editions, Inc.) the edition of John Eccles's music for plays beginning with the letters H-P.

BOOK CHAPTERS

In 2019 and 2020, researchers in the Department published 19 book chapters. Professor Fiona Palmer contributed to the volume *Irish Musical Studies 12: Documents of Irish History in the Long Nineteenth Century* (Four Courts Press), "*Madame Stockhausen was not at Rehearsal – but why not?!: Sir George Smart's Perspective on the Dublin Grand Musical Festival of 1831*". The chapter uses the rich manuscript legacy of the Festival's musical advisor and fixer, Sir George Smart, to shed light on the logistics and impact of this watershed event and on the remarkable reception given to the virtuoso violinist, Paganini. Dr Adrian Scahill contributed to the same volume, *Irish Musical Studies*, with his article *Transformation of performance and participation in the early céilí, 1897-8*, which re-examines sources from the 1890s and beyond as a means of rethinking how the céilí functioned as a space for performance and participation during the years of the Gaelic revival.

Dr Francesca Placanica contributed to the book *New Music Theatre in Europe 1955-75* (Routledge) with her chapter entitled *Embodied Commitments: Solo Performance and the Making of Avant-garde Music Theatre*, in which she argues that in order to capture the political impact of new music theatre, it is necessary to pay attention to the performance space. Focusing on the experiences of vocal performers Roy Hart and Cathy Berberian, the chapter explores the intersections between experimental and new music theatre.

Other major contributions include: Dr Laura Watson's chapter '*Lyrics, Hearing Prose: Morrissey's Autobiography*' in the new edited collection *Music, Memory and Memoir* (Bloomsbury) and her chapter *Dukas, critical conversations, and intellectual legacies* in *Paul Dukas: Legacies of a French Musician* (eds. Helen Julia Minors and Laura Watson, Routledge). Dr Placanica's chapter *Ritual and Embodiment in Giacinto Scelsi's Solo Works for Voice: A Performative Studies Approach in Giacinto Scelsi: Music across the Borders* (Brepols); Dr Placanica also contributed to *The Cambridge Companion to Women in Music since 1900* and to *Intertextuality in Music; Dialogic Compositio* (Routledge). Both Dr Laura Watson and Dr Scahill contributed to the volume *Made in Ireland: Studies in Popular Music* (Routledge); Dr Murphy contributed to *The Oxford Handbook of Irish Song, 1100-1850*. Professor Lazzarini contributed to *Ubiquitous Music Ecologies* (Routledge) with his chapter *The Analogue computer as a musical instrument*.

Professor Lazzarini contributed with two articles to the 146th *Audio Engineering Society Convention* (AES 2019) and to the *Proceedings of the 14th International Symposium on CMMR*.

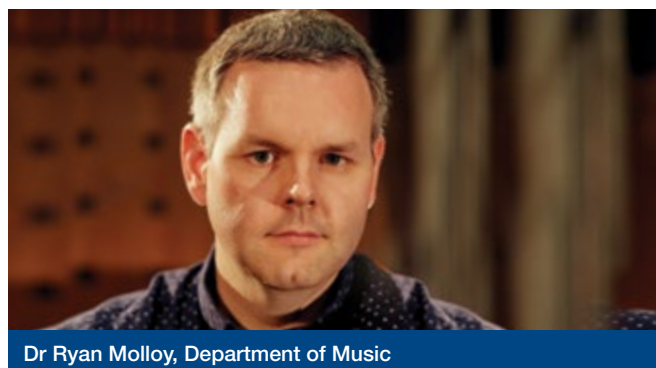
PEER REVIEWED ARTICLES

Researchers in the Music Department continue publishing their research in top-level journals.

Dr Alison Hood's contribution, with Dr Paul Donovan of the School of Business, on *Experiential Learning in the Large Classes*, focusing on an initiative involving performative pedagogy in an undergraduate class of 150 students, was published in the *Journal of Management Education*. Professor Fiona Palmer discusses the recent developments in conducting studies with her article *Guest Editorial: Positioning 'conducting studies' in 2020, Where are we and where can we go?* in the latest issue of *Music Performance Research*, entitled *Oxford Conducting Institute Special Issue*. Dr Antonio Cascelli explores the connections between the concept of nature as expressed by St Francis's *Laudes Creaturarum* and the emergence of ecocriticism in the article *The experience of nature, time and lightness in Goffredo Petrassi's Laudis Creaturarum*, published in *Chigiana. Journal of Musicological Studies*. Professor Lazzarini's article *Ubiquitous Music: Perspectives and Challenges*, in *Journal of New Music Research*, presents the proposals that emerged in the context of the *Ubiquitous Music Workshop* held at the Federal University of São João del Rei, MG, Brazil. Dr Scahill explores the impact that the introduction of the long-playing had on the development of the musical work concept within Irish traditional music, with his article *The Album and the Musical Work in Irish Folk and Traditional Music, ca. 1955-70* (in *Éire-Ireland. A Journal of Irish Studies*). Dr Michael Palmese's article, *A Portrait of John Adam as a Young Man: 1790s Juvenilia* (in *American Music*), uses the narrative trajectory of Joyce's *A portrait of the Artist as a Young Man* to explore John Adam's early career. Professor Christopher Morris's article in *Opera Quarterly*, entitled *Casting Metal: Opera Studies after Humanism* explores how the increasing prominence of installation-based performance and technology is causing a rethinking of the role of musical non-human in the context of opera.

COMPOSITION

Dr Ryan Molloy had three major commissions in 2019–2020: *The Ballycommon Suite*, an Arts Council Traditional Commission for the In Tune for Life Orchestra; *Luasc*, a commission from RTÉ for the 50th birthday of the Irish Chamber Orchestra and premiered by them during the pandemic; and *Arcady*, a test piece commissioned by the Dublin International Piano Competition with funds from RTÉ Lyric FM for their 2022 competition.



Dr Ryan Molloy, Department of Music

Dr Martin O'Leary's *Psalmus invivatorium*, commissioned by NUI Maynooth Music Department to mark the 50th anniversary of the Maynooth University Choral Society was premiered in March 2019. His composition *The Reproaches* was performed at the 225 Years of Sacred Music Gala Concert in Maynooth College Chapel, as part of the celebration of St Patrick's College Maynooth anniversary. Dr O'Leary also performed his new piano piece *Égaoineadhi* at a Music Department lunchtime concert in October 2019.

Dr Gordon Delap's composition *Black Dog* was performed at the Dialogue Festival in Edinburgh; he also contributed to the NESS Project at the Science Gallery Souch Check in Stockholm with his composition *Ashes to Ashes*. His piece *I dreamt that I died and came back as a moth trapped in a practise room piano* contributed to the T-Son-Studio Panorama.

Dr Iain McCurdy, exhibited his sound installation piece *Cipher* at the *Diffrazioni Festival* in Florence in March 2019.

OTHERS

Considering the wide spectrum of research activities in the Music Department, the research output of the Department expands into innovative academic and out-reaching outputs. Dr Molloy released two CDs: *Pianophony, One Day: November Woods*. Dr Placanica's video installation *Neither (I nor Not I)* was screened at the *Diffrazioni Festival* in Florence in March 2019. Dr Cascelli published his article *What opera tells us of the issues of the day* in the RTÉ Brainstorm Series, Professor Palmer was interviewed for RTÉ Lyric FM to discuss Handel's *Messiah* and its continuing relevance in the 21st century. Dr Watson took part to the Contemporary Music Centre Podcast series, to talk about the collaborative project *Sounding the Feminist*; she also contributed to a radio interview for Culture File.

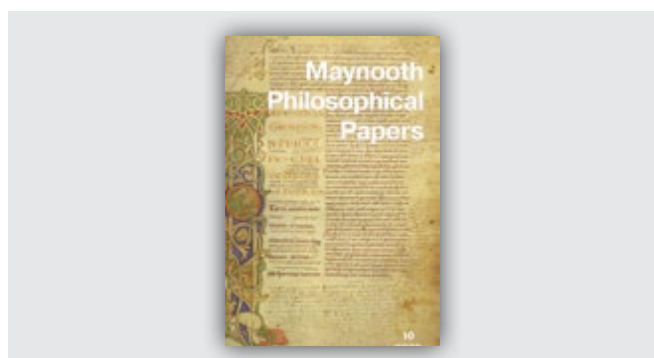
All members of the Music Department are also actively involved in presenting their research at international conference and as invited guest speakers.

FACULTY HIGHLIGHTS

FACULTY OF ARTS, CELTIC STUDIES AND PHILOSOPHY

DEPARTMENT OF PHILOSOPHY

In the reporting period, the six permanent full-time academic staff of the Maynooth University Philosophy Department published or contributed to conferences in the following countries: Ireland, Belgium, France, Finland, Germany, Greece, Israel, Poland, Romania, Switzerland, the United Kingdom, and the United States. Such international reach does not exclude local roots; neither does it contradict the desire to play an active role specifically in Irish academic and intellectual life. It is thus that some of the Department's most significant publications in 2019/2020 occurred within an Irish context.



Maynooth Philosophical Papers, Issue 10 (2020)

First, the Department produced another issue of our journal, *Maynooth Philosophical Papers*, which is published through the Philosophy Documentation Centre (Charlottesville, Virginia) and printed in Naas, County Kildare – a nice example of how the local and the global can work hand in hand. Issue 10 (2020) runs to 172 pages. It offers a long section devoted to Book XI of Augustine's *Confessions* with three papers which were delivered at a seminar held at the Arts and Humanities Institute in February 2019. The contributors to this section are John Milbank (University of Nottingham), William Desmond Sr (Thomas A. F. Kelly Visiting Chair in Philosophy, MU), and Professor Philipp Rosemann (MU Philosophy Department). Other papers published in this issue include work by Dr Mette Lebech (MU Philosophy Department), Dr Philip Gonzales (SPCM Philosophy Department), and Jeffrey Bishop (Tenet Chair in Health Care Ethics, St Louis University).

Dr Susan Gottlöber edited a significant volume reflecting the state of philosophical debates in Ireland. Entitled *Philosophy in Ireland: Past Actualities and Present Challenges* and published by Cambridge Scholars, the book consists of nine chapters by some of the leading Irish philosophers. The chapters cover aspects of intellectual life from the Middle Ages to the twenty-first century.

Together with Dr John Haydn Gurmin, a former doctoral student from the Department, Dr Gottlöber also edited the 2016/2017 volume of the *Yearbook of the Irish Philosophical Society* (which appeared in 2019).

As a contribution to the history of Irish intellectual life, Dr Lebech edited a commemorative volume on the Reverend Professor James McEvoy, who held the Chair of Philosophy in Maynooth from 1995 to 2004. Under the title *Priest, Scholar, Teacher, Friend: James McEvoy in Memoriam*, the book gathers together reflections on a scholar who is recognised as one of the leading experts on medieval philosophy of his generation, and who trained numerous doctoral students now teaching at universities both in Ireland and abroad. *Priest, Scholar, Teacher, Friend* opens with an intellectual biography by Professor Rosemann, the current Chair who was himself one of McEvoy's students.

Along similar lines, Dr Amos Edelheit helped his own teacher, the Israeli scholar of ancient philosophy, James Glucker, publish a collection of articles which originally appeared between 1964 and 2000: *Classics and Classicists: Selected Essays, 1964–2000* (Cambridge Scholars Publishing). From 1978 until his retirement in 2001, Glucker served as Professor of Classical Philology and Philosophy at Tel-Aviv University.

On the side of monographs, the Department can report Dr Lebech's *European Sources of Human Dignity: A Commented Anthology* (Peter Lang). The book extends Dr Lebech's work on this important topic by making available, for the first time, a collection of central texts which contributed to the formation of the notion of human dignity.

For journal articles, a few examples of our work will have to suffice. Professor Rosemann has a long record of collaboration with the Instituto Tecnológico Autónomo de México, which many regards as the leading Mexican university and the one most influential in shaping Mexican public policy. In 2019 ITAM's journal *Estudios* published Prof Rosemann's piece, *El dinero como clave del mundo: la filosofía de Georg Simmel*. This was based on a lecture delivered in Mexico. Amos Edelheit researched an essay under the title, "*Renaissance Scholasticism*" Strikes Again: Nicoletto Vernia and the Debate between Medicine and Civil Law for volume 86 of *Recherches de théologie et philosophie médiévales*. The volume number alone – indicating 86 years of publication – shows that this is one of the seminal journals in the field of medieval intellectual history. On the other end of the spectrum, so to speak, Dr Gottlöber continued her research on Nicholas of Cusa by writing for a new digital journal, thus helping the MU Philosophy Department to be active in this cutting-edge medium. Her article explores the question of tolerance in the Renaissance thinker Nicholas of Cusa, who was a pioneer among European intellectuals with his interest in the Qur'ān. Dr Lebech produced important work on Edith Stein for Routledge's *New Yearbook for Phenomenology and Phenomenological Philosophy: Essence, Eidos, and Dialogue* in Stein's *Husserl and Aquinas. A Comparison*.

Finally, it is worth noting that Maynooth University is co-sponsoring (with the University of Dallas) a book series founded by Professor Rosemann. *Dallas Medieval Texts and Translations* currently stands at 26 volumes. One new volume appeared in 2019.

FACULTY HIGHLIGHTS

FACULTY OF SCIENCE AND ENGINEERING



FACULTY HIGHLIGHTS

FACULTY OF SCIENCE AND ENGINEERING

DEPARTMENT OF BIOLOGY

The Department of Biology has 26 academic staff and 15 postdoctoral researchers in the academic year 2019/2020. In addition, 13 new postgraduates commenced their studies and eight doctoral students graduated.

Research groups in the Department of Biology have published a total of 139 publications, 124 of which were in peer-reviewed journals (research articles and reviews). Most of these publications were in highly regarded peer-reviewed journals (e.g. *Molecular Microbiology*, *MBio*, *Journal of Ecology*, *Plant Physiology*, *Frontiers in Chemistry*, *Frontiers in Immunology*, *Scientific Reports*, *Journal of Immunology*). In addition, several publications have also been published in high-impact factor (>10) journals (e.g. *Molecular Cell*, *Journal of Experimental Medicine*, *Nature Communications*). Notably, 14 of the peer-reviewed publications emanated from collaborations between different groups within the Biology Department.

Research groups in the Department have also contributed chapters to four books, and have engaged as book editors and book writing. Members of the Department have also been very active in disseminating their research findings through presentations at both national and international conferences (including posters and talks). In total, 18 conferences were targeted, most of which took place in 2019, as 2020 was disrupted by the COVID-19 pandemic.

FUNDING HIGHLIGHTS

- > Two prestigious grants (funding > €1,000,000):
 - Lorna Lopez; ERC Starting grant; *Family Sleeps: Disrupted Circadian Rhythms in Families – an Endophenotype of Autism Spectrum Disorder?*; €1,499,323.
 - Eoin McNamee; SFI; *MicroRNA Control of Mucosal Inflammation*; €1,488,046.
- > Nine major grants (funding >€100,000), including the following examples:
 - Andrew Hogan; National Children's Research Centre Crumlin; *Childhood Obesity and Vaccine Responses*; €234,459.
 - Mark Robinson; HRB; *The liver neighbourhood watch: regulatory tissue-resident natural killer (NK) cells protect against liver decompensation in patients with chronic liver disease*; €475,969.
 - Two SFI COVID-19 Rapid Response grants to Mark Robinson and Sean Doyle, both of which illustrate the capacity of the Department to contribute to the current pandemic and to rapidly address important health-related and societal issues.
 - Grants from the Department of Agriculture, Food and the Marine, Horizon 2020 and SFI research centres.

- > Two Marie Skłodowska-Curie postdoctoral scholarships (EU Horizon 2020).
- > Five postgraduate scholarships (three Teagasc Walsh fellowships, one co-funded by Leeds Beckett University, and one co-funded with Mater Foundation).

PRIZES

Dr Lorna Lopez was awarded the SFI Early Career Researcher award 2020.



Dr Lorna Lopez was awarded the SFI Early Career Researcher award 2020

Postgraduate and undergraduate students of the Biology Department have also received awards. For example, Fiana Ni Ghraígh won 2nd Place in Maynooth University 3 Minute Thesis Competition, 21st October 2020 and a Summer Programme for Undergraduate Research (SPUR). Student, Ardena Berisha, won a highly recommended award (second place in our Faculty of Science and Engineering out of 21 students) for her presentation of her work at the 2020 *Undergraduate Research Virtual Symposium*.

SUMMARY OF EXTERNAL ENGAGED RESEARCH HIGHLIGHTS

Several researchers have been involved in consultancy projects including public institutions such as Teagasc and several Irish-based companies.

In addition, in the context of the COVID-19 pandemic, members of the Department have engaged in partnerships with civic bodies. For example, Professor Bernard Mahon has been working as an expert COVID-19 advisor to the Department of Education regarding safe operation of education facilities at the primary, secondary, further and higher education sectors, and has also given a seminar to the Irish Lung Fibrosis Association on COVID-19 vaccines.

Members of the Department also engaged with the general public, such as for example:

- > The development of *Dissect & Discuss* by Dr Lorna Lopez – a public outreach project with support from Maynooth ICA (Irish Country Women’s Association), and Kildare and Wicklow Education and Training Board (KWETB).
- > The organisation of a Maynooth Community Health Coffee Morning run by the Kathleen Lonsdale Institute for Human Health Research (Dr Mark Robinson). Twenty-one members of the wider Maynooth community joined in this half day ‘World Cafe’ event. Key themes emerging from this initiative included the role of the community and social supports in health and the need for more community-led healthcare, the importance of mental health, and the desire to have a good quality of life as we age.

Members of the Biology Department engaged in a large number of collaborations with other national research institutions, such as TCD, UCD, Teagasc, St James’s Hospital, St Vincent’s University Hospital, as well as with institutions in Northern Ireland (Queen’s University Belfast). Research groups in Biology also engaged with many European research institutions (University of Bonn, Institut Pasteur, Rothamsted), including hospitals such as the Institut de Myologie at the Pitié-Salpêtrière Hospital (Paris, France) or the Department of Neonatology and Paediatric Intensive Care at the Children’s Hospital (University of Bonn; Germany). The collaboration network also extends to institutions in the U.S. (e.g. National Jewish Health, University of Wisconsin, Harvard University).

COMMUNITY PARTNERSHIP PROJECTS, AND PUBLIC AND PATIENT INVOLVEMENT (PPI)

Several groups in the Biology Department engaged in partnership projects involving PPI. Selected examples are provided below:

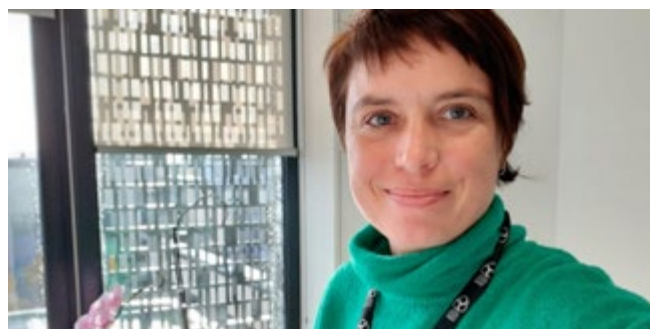
- > As part of an HRB-funded Emerging Investigator Award, Dr Mark Robinson organised meetings with patient contributors who are living with chronic liver disease. This patient involvement has led to a new focus on the area of frailty within patients with chronic liver disease. The loss of independence in day-to-day life is a significant burden on patients with chronic liver disease and their families. Understanding the biological changes associated with frailty is a novel area of research addressing this important patient concern.
- > As part of an ERC-funded project, Dr Lorna Lopez has initiated a collaboration with PPI Ignite at Trinity College Dublin for public involvement.

DEPARTMENT OF CHEMISTRY

The Department of Chemistry (12.5 academic staff) is highly research active and has a very strong publication record. The Department recorded 89 publications in international peer-reviewed journals (research articles and reviews) and four book chapters in 2019–2020. The publications highlight the Department’s very productive collaborations with national and international researchers. Co-authors on the papers are from Irish Universities such as TCD, TU Dublin, NUIG and UCD, while international universities include Imperial College London, MIT, University of Rio de Janeiro and University of California San Diego. These papers have already received 430 citations (source Scopus, March 2020). The substantial interdisciplinary nature of the departmental research is reflected in the fact that the publications cover many subject areas from Chemistry (37%), Materials Science (13%), Biochemistry (10%) Environmental Science (3.5%) and Medicine (3.5%). Much of the research presented in these papers is supported by external funding with 24% acknowledging Science Foundation Ireland and 24% acknowledging the Irish Research Council.

PUBLICATIONS HIGHLIGHTS

- > The paper *Recent developments in the formulation of graphene-based coatings for the corrosion protection of metals and alloys* authors from the Department, B. Healy, T. Yu, D. da Silva Alves and C.B. Breslin, was selected as a feature paper in the journal of Corrosion Materials Degradation (2020), 1(3), 296-327e, a new open access journal.
- > Casalino L et al Beyond Shielding: The Roles of Glycans in the SARS-CoV-2 Spike Protein ACS Central Sci (2020), 6(10), 1722–1734, authors from the Department Elisa Fadda, A. Harbison, C. Fogarty. The article was highlighted on the on the journal’s supplementary cover and the work was featured in the New York Times, El Pais and the Irish Times.



Dr Elisa Fadda, Department of Chemistry and the Hamilton Institute

FACULTY HIGHLIGHTS

FACULTY OF SCIENCE AND ENGINEERING

- > Dr Tobias Krämer was an author on the paper Storey C.M. *et al.* *A shape changing tandem Rh(CNC) catalyst: Preparation of bicyclo[4.2.0]octa-1,5,7-trienes from terminal aryl alkynes* *Chemical Science*, (2020), 11(8), 2051-2057 which was selected as an inside front cover and was highlighted on RSC Twitter #ChemSciPicks.
- > Professor John Stephens published an article with T. F. Jamison on the *Continuous-flow synthesis of Tramadol from cyclohexanone* *Synlett*, (2020), 31(19), 1888-1893 detailing work he was involved in during his sabbatical leave visit to Professor Jamison's laboratory in MIT.
- Professor John Lowry and his group with clinician Professor Jack Kelly (University Hospital Galway), published a clinical study which confirmed that continuous real-time monitoring of dynamic changes in tissue oxygen using a novel implantable sensor can serve as an indicator of reperfusion status in patients undergoing carpal tunnel surgery. It is hoped that the sensor may be used in other medical conditions such as hypoxia, stroke and reperfusion injury. *Development and validation of a real-time microelectrochemical sensor for clinical monitoring of tissue oxygenation/perfusion.* *Anal. Methods*, (2020), 12, 2453-2459.
- > Dr Trinidad Velasco-Torrijos' research article *Glycosyl squaramides, a new class of supramolecular gelators*, *Soft Matter*, (2020), 16, 7916-7926 was featured in the back cover.

FUNDING HIGHLIGHTS

- > Dr Diego Montagner secured EU-funding with a project entitled *Advanced hybrid theranostic-nanoplatfoms for active drug delivery in the cancer treatment*. This project is under the Horizon 2020 Call: H2020-WIDESPREAD-2018-2020 in collaboration with the Palacky University in Czech Republic and the CNR (National Research Council) in Italy, €184,485 (MU).
- > Dr Eithne Dempsey is a PI in collaboration with industry partner Glanbia, Career Fit PLUS fellowship (H2020 and Enterprise Ireland) in the field of sensors for infant nutritional products, €261,450 (MU).
- > Professors Denise Rooney, Carmel Breslin and Frances Heaney are leading a €2.9M initiative to develop *Virtual Laboratories in higher education as an innovative pedagogical tool* in collaboration with DkIT, AIT, UCC and DCU.
- > Dr Robert Elmes Funded Investigator within the Solid-State Pharmaceutical Centre (SSPC) (SFI Research Centre) 2019 under the Pharm5 centre renewal programme, €181,983 (MU).

POSTGRADUATE STUDENTS

17 postgraduate students commenced their studies in October 2019 or October 2020, including five IRC Postgraduate Scholars and one major John Hume Scholar. Four research students from Italy visited the Department in 2020 with funding from ERAMUS+ and the Calabria 2020 Plus Mobility Consortium, (supervisors Dr Dempsey and Professor Breslin). Daniele Costa da Silva Alves, from the Federal University of Rio Grande in Brazil, is currently completing a year of her PhD programme in the Department under the supervision of Professor Breslin.

ENGAGED RESEARCH

The Department has sustained and increased its engagement with industry partners. Engaged research projects that have been initiated/continued in 2019-2020 are as follows.

- > Professor John Stephens (collaborator, Dr Andrew Hogan, Biology) – El Innovation Enterprise partnership with Dairygold on novel food ingredients and an Enterprise partnership with Connolly's Red Mills on animal nutrition (collaborator, Dr Rafael de Andrade Moral, MU Department of Mathematics and Statistics).
- > Dr Roisin O'Flaherty – Enterprise partnership with NIBRT and Agilent.
- > Dr Oisín Kavanagh funding Janssen/SFI SSPC is a visiting researcher with Dr Robert Elmes.
- > Dr Eithne Dempsey – H2020 project with the food company Glanbia.
- > Professor John Lowry has collaborations with the following industry partners - Eli Lilly & Co (UK & USA); Boehringer Ingelheim Pharma GmbH & Co. KG (Germany); COMPASS Pathways Ltd. (UK). He submitted a Biotechnology and Biological Sciences Research Council (BBSRC) Responsive Mode Industrial Partnership Awards application in collaboration with the University of Bristol. With Ulysses Neuroscience Ltd. (Ireland), he successfully acquired partnership seed funding from Enterprise Ireland/Knowledge Transfer Ireland (TTSI3 Pipeline Fund).
- > Engagement with Irish Distillery companies to perform whiskey analysis is led by Ms Barbara Woods (senior technical officer).

PRIZES

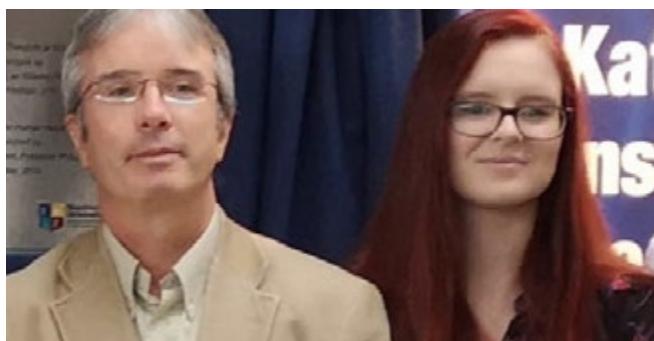
- > Dr Robert Elmes was awarded the Maynooth University 2020 Early Career Faculty of Science and Engineering Research Achievement Award in October 2020.



Dr Robert Elmes awarded the 2020 Early Career Faculty of Science and Engineering Research Achievement Award

- > Dr Rob Elmes was awarded the Molecular Sensors and Molecular Logic Gates Czarnik Emerging Investigator Award 2020 in June 2020.
- > Professor John Stephens was awarded the Maynooth University 2020 inaugural John Scanlan Industry Engagement Award in February 2020.

- > Muhib Ahmed (supervisors Professor Denise Rooney and Dr Malachy McCann) won the Irish Biological Inorganic Chemistry Society Postgraduate Award in December 2019.
- > Caytlin Boylan (supervisor Professor John Lowry) was awarded for her research presentations, first prize at the Institute of Chemistry Ireland (ICI) *Postgraduate Chemistry Research Symposium* (September 2020) and second prize at the *Chemistry Le Chéile* conference (December 2020).



Caytlin Boylan with Professor John Lowry, Department of Chemistry

Researchers from the Department delivered a number of important talks and were involved in external scientific bodies and outreach activities in 2019/2020. Some examples include:

- > Dr Rob Elmes, Invited Speaker, April 2019, *C5 Symposium on Supramolecular Chemistry 2019*, Northwest A & F University, Xian, China - *Squaramides as Receptors and Sensors for Anions*.
- > Dr Trinidad Velasco-Torrijos, Invited Seminar Series Speaker, June 2019, Université Grenoble-Alps (France) - *Combating infection with sweet tools*.
- > Dr Diego Montagner, Invited Seminar Series Speaker, August 2019 Centro Atómico de Bariloche (Argentina) - *New Frontiers in Platinum Based Chemotherapeutic Agents*.
- > Dr Trinidad Velasco-Torrijos was elected as Science Communication Manager of the management committee of COST Action CA18132 Functional Glyconanomaterials for the Development of Diagnostics and Targeted Therapeutic Probes (March 2019).
- > Dr Roisin O'Flaherty is a member of the board of the European Chemical Society Division of Chemistry in the Life Sciences, the Jenner Conference committee and the Protein Expression in Animal Cells Conference committee.

For Science Week 2020 Professor John Stephens worked with Fóram Uisce to prepare a video (*Curious Chemistry*) for their series on the physical, chemical and ecological properties of water, and what these tell us about our environment. While for the 2019 Science Week, Professors Denise Rooney and Frances Heaney gave a talk to leaving certificate students on *Tales from the Periodic Table with an Element of Surprise*.

DEPARTMENT OF COMPUTER SCIENCE

In the academic year 2019/2020 the Department of Computer Science had six professors, four senior lecturers, and 15 full-time lecturers. Additionally, two Professors of the Department are seconded to the Hamilton Institute. There were also two postdoctoral researchers, and there were 23 full-time PhD students, two part-time PhD students, and seven MSc by research students. Five of the MSc by research students should be transferring to the PhD register, while the other two studied specifically for an MSc. The total number of publications was 127. This can be divided into one book, four book chapters, eight conference contributions, 65 peer-reviewed conference publications, two magazine articles, two electronic articles, one patent, a blog, three editorials, one note, two workshops, one other publication, and 35 peer-reviewed journal publications, one technical publication.

HIGHLIGHT PUBLICATIONS INCLUDED

- > A new textbook on software testing written by four members of the Department: Dr Ralf Bierig, Dr Stephen Brown, Dr Edgar Galvan, and Dr Joe Timoney.
- > An ACM conference paper on *An investigation into the gender differences in Computer Science using Physiological, Psychological and Behavioural metrics* by Dr Aidan Mooney, Dr Keith Nolan and Dr Susan Bergin.
- > A paper by Rob Kelly and Professor Barak Pearlmutter on *Lock-free Hopscotch hashing in the A-ranked APOCS20 SIAM Symposium Algorithmic Principles of Computer Systems* conference.
- > A paper by Dr Galvan and Professor Vicenc Torra on *Explaining Recurrent Machine Learning Models: Integral Privacy Revisited*.
- > A MODELSWARD conference paper by Dr Hao Wu and Dr Timoney.
- > A journal of Applied Optics paper by Tomi Pitkääho and Professor Thomas Naughton titled *Focus prediction in digital holographic microscopy using deep convolutional neural networks*.
- > A paper by Dr Diarmuid O'Donoghue in the International Journal of Advances In Intelligent Informatics about *AncDE with gaussian distribution for numerical optimization problem*.
- > An IEEE internet of things journal paper on the *Analysis and Enhancement of the LoRaWAN Adaptive Data Rate Scheme* by Joseph Finnegan, Professor Ronan Farrell, and Dr Brown.
- > A paper on the *Design of a novel photosensitive phantom for the accurate calibration of the temporal response of electroencephalography systems* by Dr Charles Markham.
- > A paper in Topics in Cognitive Science by Dr Philippe Moser and Dr Phil Maguire on *Seeing Patterns in Randomness: A Computational Model of Surprise*.
- > A paper on the agricultural impact of the 2015–2016 floods in Ireland as mapped through Sentinel 1 satellite imagery by Professor Tim McCarthy.
- > An editorial by Dr Peter Mooney for the International Journal of Geographical Information Science.

FACULTY HIGHLIGHTS

FACULTY OF SCIENCE AND ENGINEERING

Professor Naughton's research group was honoured to be invited to present its SFI-funded work as an official invited presentation at *Digital Holography and Three-Dimensional Imaging 2020*, the top-ranked worldwide conference on digital holography. The paper, with authors Tomi Pitkäaho, Professor Aki Manninen, and Professor Naughton, and entitled *Applications of multi-label segmentation in digital holographic microscopy using deep learning (Invited paper)* was delivered by teleconference by Professor Naughton in May 2020.



Focus prediction in digital holographic microscopy using deep convolutional neural networks by Professor Tom Naughton's group was listed number three in the 15 most cited articles published in the journal Applied Optics since 2019

A publication from Professor Tom Naughton's group was listed as number three in the 15 most cited articles published in the journal Applied Optics since 2019. The journal article *Focus prediction in digital holographic microscopy using deep convolutional neural networks* reports on the successful application of a form of artificial intelligence to the analysis of three-dimensional (3D) images of cells. The technology used for 3D imaging was a digital holographic microscope, and the article reports on one of the first applications of deep learning in the field of digital holographic microscopy. The primary author of the work was Maynooth University PhD student Tomi Pitkäaho, and was co-authored with his supervisor, Professor Naughton, and collaborator Professor Manninen, Faculty of Biochemistry and Molecular Medicine, University of Oulu, Finland. Applied Optics is one of The Optical Society's flagship peer-reviewed publications and is ranked 4th out of 95 journals according to Optics category rankings in the 2018 Journal Citation Reports(R) (Clarivate Analytics, 2019).

Two significant research grants with Professor Tim McCarthy in collaboration with Dr Rowan Fealy (Geography and ICARUS Climate Research Centre) in the first case, and with Professor John McDonald in the second.

> **Terrain-AI - an SFI Strategic Partnership in collaboration with Microsoft, €5M**

It aims to create a Decision Support Tool for Climate Change Mitigation & Management. It will last 24 months and support 50 researchers. The Data Platform will incorporate data from 15 national test-sites, Spaceborne, aerial/drone and in-situ sensors. These will capture and analyse data using the latest Machine Learning pipelines and Integrated Earth System modelling to profile various habitat types (Grasslands, Croplands, Peatlands, Forestry, Urban) in order to gain a better understanding of Carbon Stocks and Exchange.

> **The National Autonomous Technologies Data Platform (NATDaP) is an SFI Research Infrastructure Project, in total valued at €1.2M with €600,000 for MU**

This research infrastructure comprises various drones, unmanned ground vehicles (UGV), an autonomous car as well as LiDAR, Hyperspectral and Navigation sensor technologies. These autonomous platforms record optical, LiDAR, Radar and navigation sensor data streams which will be used to construct high-quality multi-modal Machine Learning training datasets of real-world objects e.g. buildings, vehicles, transportation corridors, urban environments. This MU coordinated project also involves autonomous research colleagues from NUI Galway, Munster Technological University at Tralee, UCC and with Irish based Industry partners.

Professor Rosemary Monahan is leading a number of projects that include:

> **VALU3S - Started May 2020 until 2023, value €447,202**

This is a H2020 ESCEL JU Research and Innovation Action, with MU funding of €447,202 from a total of €7M. It designs and implements process workflows and tools for improving the time and cost needed in the verification and validation of automated systems. The consortium has partners from 10 different countries, amounting to a mix of 25 industrial partners, 6 leading research institutes, and 10 universities.

> **InSPECT - SFI Discover awarded in 2018 and runs until December 2021, value €272,895**

This is concerned with introducing the Science of Problem-solving through Education in Computational Thinking, to increase student, teacher, and parent interest and involvement in STEM. This project is implemented by the Programming Algorithms Computational Thinking (PACT) Team in the Department of Computer Science. This team consists of academic staff Professor Tom Naughton, Dr Rosemary Monahan, Dr Aidan Mooney, Dr Kevin Casey, Joseph Duffin, Dr Susan Bergin and Dr Liadh Kelly, who are collaborating with Taina Lehtimäki as the Computational Thinking Expert hired on this project.

> **CoCoA: Co-create Collaborate Activate – Advancing Computational Thinking Education - SFI Discover, awarded in December 2020, value €149,375.77**

Provides for Continuing Professional Development (CPD) teacher training workshops in Computational Thinking, resources for students/teachers, school visits, the Bebras National Competition, and the development of our community of practice. The focus is on improving teamwork and collaboration in the classroom through active learning and computational thinking. This project is also implemented by the PACT Team in the Department of Computer Science, MU.

Dr Rosemary Monahan and Dr Liadh Kelly were involved in two successful Higher Education Authority (HEA) Gender Equality Enhancement Fund 2020 applications, where Maynooth University is a supporting partner. The funded projects are:

> ***TechMate: A best practice toolkit for driving sustainable acceleration towards gender equality in technology disciplines in Higher Education Institutions (HEIs), value €33,000***

Led by Professor Sarah Jane Delany and Dr Susan McKeever, School of Computer Science, TU Dublin, supported by MU, IT Carlow and UCD.

> ***Irish Network for Gender Equality in Computing (INGENIC): The Collective Voice for Gender Equality in Computing, value €23,800***

Led by Anne Write, Department of Technology and Psychology, Institute of Art, Design and Technology (IADT) and supported by MU and GMIT and members of the INGENIC network.

Dr Monahan also has an IRC funded PhD student. The project title is *A constructive framework for software specification and refinement in Event-B*. It builds on her group's mathematical foundation for model-driven software engineering.

Dr Liadh Kelly is a Funded Investigator in the ADAPT II SFI Research Centre, which creates next-generation digital content technology solutions to support people in their daily lives. She is Co-Chair of the international CLEF eHealth lab series, which supports the development of techniques to aid laypeople, clinicians, and policymakers in easily retrieving and making sense of medical content to support their decision making. She is also involved with the supervision of PhD students on FUSE Centre for Research Training (CRT).

Professor John McDonald had a number of engagements and responsibilities including:

- > Associate Editor IEEE Robotics and Automation Letters.
- > Associate Editor 2020 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS).
- > In 2020 he was awarded the IEEE Robotics and Automation Letters Distinguished Service Award as Distinguished Associated Editor.
- > He is the Student Chair for the upcoming *European Signal Processing Conference 2021 (EUSIPCO)*. He was an Invited Speaker at the *Intelligent Transportation Systems Conference 2020 Workshop on Collaborative Perception & Federated Machine Learning for Autonomous Driving (CoFedDLAD 2020)* where he presented a talk titled *Collaborative Dense SLAM*.

Dr Hao Wu was awarded IRC Ulysses funding in 2020 for *Project Cyclone*. It proposed a new framework for verifying Cyber Physical Systems (CPS). It is a collaboration with Professor Dominique Mery (University of Lorraine). Dr Wu is leading the research for designing a new specification language, algorithms and automated tools and UL is to provide CPS industrial examples.

Dr Joe Timony gave the keynote presentation *The ubiquity of guitar effects to sound processing* at UbiMus 2020 the tenth workshop on Ubiquitous Music.

DEPARTMENT OF ELECTRONIC ENGINEERING

The academic year 2019–2020 brought some changes to the Department of Engineering. The former Head of Department, Professor Ronan Farrell was appointed as Dean of Faculty and Professor Subhrakanti (Subhra) Dey was appointed as Head of Department. Dr Marco Cognetti was also recruited to the Department and will enhance the teaching programme and research portfolio in the area of robotics. There were high publication numbers: 48 journal papers, another 57 conference papers, with the majority of publications in top quartile journals or major conferences, and a ratio of 2.7 PhD students per staff member.



The Centre for Ocean Energy Research group (COER) led by Professor John Ringwood continued its high performance with EU and SFI/ National Science Foundation (NSF) awards, high publication numbers and three PhD graduates. Two prestigious SFI Frontiers for the Future Programme grants were awarded to Dr Bryan Hennelly and Dr Arman Farhang in the areas of wireless networks and biophotonics with a value of more than €1M. The SFI Frontiers for the Future Programme is highly competitive nationally and has been designed by SFI to deliver highly innovative, collaborative research with the potential to deliver impact, whilst providing discrete opportunities for high-risk, high-reward research. An Enterprise Ireland Capital Grant Funding was won by Dr John Dooley to increase the measurement capability of RadioSpace to cover mmWave 5G and by Dr Seamus McCloone for the development of technology to enhance teaching. There was continued participation in high profile SFI Centres MaREI and CONNECT, and the Foundations of Data Science and ADVANCE Centres for Research Training.

Renewed funding of the SFI Centres CONNECT, ADVANCE and MaREI in the areas of Future Networks & Communications, and Energy, Climate & Marine was very welcome news in the past year, with the Departments two largest research groups integrally involved in these two centres and benefitting from ongoing funding.

There were 16 grant applications in the reporting period with a total value of €4.12M. During the same period 11 grant applications were approved with a value of €2.5M. This is a highly successful year for the Department both in terms of the number of applications and awarded grants. Overall, there is a high level of funding diversity with two EU grants active during the reporting period (including one that was

FACULTY HIGHLIGHTS

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granted during the reporting period), several SFI grants including the aforementioned SFI centres, as well as Enterprise Ireland funding and PhD funding from other sources.

The COER research group led by Professor Ringwood continues to go from strength to strength. The group was especially prolific in the past year publishing 32 journal papers and 25 conference proceedings in that time. The group was awarded more than €1M in funding. Some notable new projects include the *LiftWEC* EU Horizon2020 project with 10 consortium members working on the development of a novel wave energy converter and a U.S. and Ireland R&D Partnership funded by SFI and NSF, with a project proposal entitled: *Control Co-Design of Heterogeneous Arrays of Wave Energy Converters.*"

In October 2019, Professor John Ringwood was awarded the Maynooth University PhD supervisor award noteworthy for having five PhD students graduate in the previous 12-month period.

PUBLICATIONS

In the reporting period, three book chapters, 48 journal papers, and 57 conference papers were published for the Department, with major contribution from the COER group.

In the reporting period, the Department had 27 PhD students registered, which is a relatively strong number. In total eight students graduated and five joined us. Overall, this has been a positive year for PhD numbers.

Professor Dey's book titled *Optimal Control of Energy Resources for State Estimation Over Wireless Channels*, Springer Briefs in Control, Automation and Robotics, Springer International Publishing (2018) achieved the following important recognition. According to a communication from Springer Nature, the book "is among the top used publications on SpringerLink that concern one or more of the United Nations Sustainable Development Goals SDG7: Affordable and Clean Energy", and has been downloaded more than 300 times by researchers concerned with this goal. Various resource allocation algorithms pioneered by Professor Dey, especially those concerning optimising energy/power consumption in wireless sensor and actuator networks for wireless estimation and control tasks were compiled in this book for a wider audience. This recent communication from Springer Nature is a testament to the fact that such algorithms are helping address some of the current global challenges.

Dr Farhang edited a book on *Radio Access Network Slicing and Virtualization for 5G Vertical Industries*, John Wiley and Sons (December 2020), and he contributed to two chapters of the book. Dr Farhang gave a keynote talk on *Trends in Waveform Design for Future Multi-Service Communication Networks* in 15th Graduate/Computer Workshop (WPOS/WCOMP2020), that was organised by the University of Brasilia, Brazil. He delivered a half-day tutorial in the IEEE ComSoc flagship conference, *International Conference on Communications (ICC)* around the topic of waveforms with the title, *Mixed Numerologies and Flexible Waveforms: Enablers for Multi-Service Communications*. He also delivered an invited talk in Waveform Design Team, Huawei 2012 wireless technology Laboratory, Chengdu subdivision, China where he presented his latest research results around the topic of waveforms in multi-antenna systems.

It is worth mentioning that the contents of the presentation included the already published work of the Dr Farhang. Such activities build on international reputation of Ireland and Maynooth University.

The following papers from the COER group have been highly cited in the past three years:

- > *Mathematical modelling of wave energy converters: A review of nonlinear approaches* M Penalba, G Giorgi, JV Ringwood Renewable and Sustainable Energy Reviews 78, 1188-1207 2017. Cited 114 times.
- > *Optimal control, MPC and MPC-like algorithms for wave energy systems: An overview* N Faedo, S Olaya, JV Ringwood IFAC Journal of Systems and Control 1, 37-56 85 2017. Cited 85 times.
- > *Mathematical modelling of mooring systems for wave energy converters – A review* 73 2017 J Davidson, JV Ringwood Energies 10 (5), 666 2017. Cited 73 times.
- > *High-fidelity numerical modelling of ocean wave energy systems: A review of computational fluid dynamics-based numerical wave tanks* C Windt, J Davidson, JV Ringwood Renewable and Sustainable Energy Reviews 93, 610-630 2018. Cited 81 times.

In 2020, Professor Subhra Dey was selected to be a Senior Editor for the IEEE Transactions on Control of Network Systems, a journal for which he served as an Associate Editor for five years. Professor Dey was recognised as an Outstanding Reviewer by the IEEE Control Systems Letters Editorial Board in 2020.

Dr Bryan Hennelly is now an editor of the journal Photonics.

Dr Farhang is collaborating with Jaguar Land Rover, Ireland on his recently funded SFI Frontiers for the Future Project.

Professor Ringwood/COER Group has had several examples of engaged research:

- > Industrial partnership project (jointly funded by MaREI/SFI and CorPower Ocean) with CorPower Ocean AB, Sweden, entitled *Control design for the CorPower wave energy device*.
- > Member of management committee of WECANet EU COST action CA17105 *The First Open Pan-European Network for Marine Renewable Energy with a Focus on Wave Energy*, with 31 partner countries.
- > External reviewer for Slovenian Research Agency, EPSRC, University of Cyprus, Member, Offshore Renewable Energy Steering Group (External Stakeholders Group), Department of Communications, Climate Action and Environment, Irish Government.
- > Committee Secretary, Royal Irish Academy – Engineering and Computer Sciences Committee.
- > Member, International Federation of Automatic Control (IFAC) Technical Committee TC7.2 (Control Applications of Marine Systems).

DEPARTMENT OF EXPERIMENTAL PHYSICS

In the academic year 2019/2020 the Department of Experimental Physics hosted eight academic staff and two new research masters students began their studies. There were 11 journal articles published and 15 referred conference proceedings. Two further research grants were awarded to the Department during the reporting period. The Department has four very active research groups, the Terahertz Space Optics groups, the Star and Planet Formation Group, the Atmospheric Physics group and the Molecular Physics group.



Terahertz Space Optics Group, Dr Neil Trappe, Dr Creidhe O'Sullivan, Professor Philip Nolan, Dr Marcin Gradziel and Professor Anthony Murphy, Department of Experimental Physics

MKIDS

The group was delighted to welcome a new staff member, Dr Colm Bracken whose research into cryogenic detectors has broadened the expertise in Maynooth. As part of a DIAS-led SFI-funded research project Dr Bracken is designing, fabricating and testing new detector designs for astronomy and astrophysics applications. The year 2019/2020 saw the successful fabrication of the group's first prototype arrays of superconducting MKIDs (Microwave Kinetic Inductance Detectors). The prototype arrays, designed as part of a collaboration between Maynooth University Experimental Physics and DIAS, were fabricated at Trinity College Dublin/CRANN and the Tyndall National Institute in Cork. These arrays, which are fabricated out of novel Ti/TiN multi-layer materials are currently being tested at the cryogenic facilities in the DIAS MKID lab.

Dr Bracken's research is currently focused on new technology readout electronics for MKIDs, toward a low-power, compact, readout solution for extremely large-format MKID arrays for both optical/near-IR and THz/sub-mm astronomy and cosmology. These new-technology room-temperature electronics are based on adapting the latest commercial FPGA boards and on-chip data converters which are primarily produced for the emerging 5G industry. These new technologies lend themselves perfectly to the requirements of MKID readout systems.

Using an internal Seed-Fund from Maynooth University (2020), Dr Bracken and students in the Department of Experimental Physics are researching new methods for automating and optimising the geometrical and electrical design of MKID arrays. There is currently relatively poor agreement between design frequencies (through EM simulations) and real measured frequencies (in the MKIDs' superconducting state). Automating the EM simulations will allow the efficient search through the parameter space for optimum detector geometries, and should reveal more accurate methods of interpolation and extrapolation that produce better agreement between simulation and measurement.

EUROPEAN SPACE AGENCY RESEARCH

In October 2020, the European Space Agency (ESA) decided not to proceed with a potential future space mission SPICA (a SSpace Infrared telescope for Cosmology and Astrophysics) first proposed in response to a call in 2007 for missions for the ESA Cosmic Vision 2015–2025 programme. Dr Trappe and Dr Gradziel were working in collaboration with Cardiff and Cambridge Universities in the development of the software to design and model the waveguide coupling structures for SAFARI (with PhD student J. Brennan). This work evolved from a previous ESA contract No 4000105705/12/NL/Cbi *New Technology High Efficiency Horn Antennas for Cosmic Microwave Background Experiments and Far-Infrared Astronomy*, successfully completed in 2019. Currently the SAFARI international consortium is seeking an alternative mission proposal to continue this development for Transition Edge Sensor detectors. The research group carried out preliminary research into potential designs for a European Space Agency Technical Research Programme (TRP) to build a terahertz calibration test antenna VAST in collaboration with Rutherford Appleton Laboratories (RAL) and Queen Mary College London.

Q&U BOLOMETRIC INTERFEROMETER FOR COSMOLOGY (QUBIC)

Work has continued on QUBIC, a ground-based experiment that aims to measure the extremely faint polarisation features of the Cosmic Microwave Background (Maynooth PI, Dr C. O'Sullivan, PhD students D. Gayer, D. Burke and J. Murphy). The instrument Technical Demonstrator which was built to test the concept and make preliminary instrument Technical Demonstrator that was designed to validate the new interferometry technique and make preliminary observations was successfully tested and calibrated in Paris in 2019. The Maynooth group has now become involved with developing the data analysis pipeline for the project. Collaborators in Argentina completed the construction of an observing building at the Alto Chorrillos site near San Antonio de los Cobres, in the Salta province, from where QUBIC will observe. Funds were obtained to ship the instrument to Argentina and install it on site. The group is now waiting on a relaxation of the COVID-19 rules to ship and begin commissioning the instrument in Argentina.

IRISH THZ MEASUREMENT FACILITY IN MAYNOOTH

The group have completed the initial calibration and verification measurements of the new Rohde and Schwarz frequency extension heads for their high-frequency vector-network-analyser based terahertz test facility. The system is now capable of transmitting and receiving signals between 0.5 to 1.1THz, and is the first such facility to be developed in Ireland. The facility was funded as part of an SFI Infrastructure Award and is currently available for unique measurements by Drs Trappe and Gradziel. The goal of this national infrastructure is the development of antennas and optical systems for terahertz communications systems. The group is currently working with researchers from University of Illinois, University of Chicago and Rochester Institute of Technology to conduct characterising measurements on a novel THz silicon waveguide spectrometer.

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NEW CONSORTIA

In 2020, the research group was invited to contribute to a French-led consortium for a proposed Cosmic Microwave Background radiation balloon spectrometer Bisou led by the Université Paris Sud. MSc student D. Byrne worked on modelling another French-led proposal called Pristine. The research group also were approved in the expression of interest round to submit a full proposal in a joint EPSRC/ Science Foundation Ireland (SFI) grant in collaboration with Cardiff University in 2020. The full proposal, entitled *Planar antenna solutions for the development of terahertz (THz) wireless communication systems beyond 5G technology*, is currently being prepared. The group is developing a collaboration with Manchester University to study focal plane arrays that are of potential interest for ESO's ALMA telescope (MSc student J. Graham).

STAR AND PLANET FORMATION GROUP (PI: DR E. WHELAN)

The star and planet formation group continued to work on three related projects in 2020. The first was to understand the launching of protostellar jets (PhD students A. Murphy, A. Miller, M Birney, MSc student D. Cashin). The second was to explore techniques for detecting exoplanets in the disks of young stars. The third is related to disk winds in young stars and their role in setting the conditions for planet formation (PhD student N. Otten).



Aisling Murphy focused on studying the evolution of the TH28 jet axis, working with Dr C. Dougados

Aisling Murphy continued her work on European Southern Observatory's Very Large Telescope, MUSE observations of the protostellar jet from the young star TH28. She was working with Dr C. Dougados of the Institut de Planetologie et d'Astrophysique de Grenoble (IPAG) thanks to ULYSSES funding awarded to the group in 2017. In the last year, her focus has been on studying the evolution of the TH28 jet axis. She has shown that the position of the axis varies periodically with time, pointing to the presence of a close companion whose orbital motion is causing the jet to wiggle. She presented this work in September 2020 at the *Irish National Astronomy Meeting*. Also in December 2020, Aisling gave a talk, at the virtual conference *Five Years after HL Tau, A new era in Planet Formation*. Aisling has a paper due to be published in 2021.

Andrew Miller is also working on VLT/MUSE data in collaboration with C. Schneider at the University of Hamburg and C. Manara at ESO. Andrew has recently finished his work on the intermediate mass star

HD 163296 and has a paper which will be published in 2021. Matthew Birney joined the group in Autumn 2020 on a Hume scholarship. He is also working initially on MUSE data and his object of interest is the Class I young stellar objects HH 46-47. Matthew will study jet launching early in the evolution of young stars. Finally, Darren Cashin started an MSc in the group in January 2020. He is working on data of young stellar jets from the KECK telescope. The goal of his work is to also add to our understanding of how jets are launched and how they influence planet formation.



Dr Emma Whelan started a new project on disk winds in young stars in late 2019. This is in collaboration with several researchers in the US and in particular with Dr I. Pascucci at the University of Arizona. A crucial step in understanding how stars accrete their mass, as well as how disks evolve to form planets, is clarifying how the accreting disk gas loses angular momentum. Originally MHD disk winds were favoured but the prevailing view for several decades has been that MRI-induced turbulence leads to outward viscous transport of angular momentum, enabling disk material to flow radially inward. However, recent simulations find that non-ideal MHD effects suppress MRI over a large range of disk radii (~1-30 AU), restoring radially extended MHD disk winds as the prime means for extracting angular momentum and enabling accretion at the observed rates. This piece of work is involved with finding observational evidence of disk winds and measuring the mass outflow rate in the winds. Dr Whelan also gave a talk on this work at the virtual conference *Five Years after HL Tau, A new era in Planet Formation* in December 2020. Noah Otten joined the research group in Autumn 2020 to work with Dr Whelan on this project.

Research related to using spectro-astrometry to detect planets in the disks of young stars is on-going and collaborators of the group made two trips to the Gran Telescopio Canarias in 2020 to gather data for this work. Andrew Miller took part in first observing trip in January 2020. Observing proposals to ESO for data to be collected in 2020 were awarded time however no data were gathered due to the shut down of the telescopes as a result of the COVID-19 pandemic.

ATMOSPHERIC PHYSICS (PI: DR FRANK MULLIGAN)

Highlights for the Atmospheric Physics Group included the discovery of a quasi-quadrennial oscillation (QO) in the mesopause region following the analysis of 24 years of OH rotational temperature observations made at Davis, Antarctica in collaboration with colleagues from the Australian Antarctic Division. The results were published in two papers in Atmospheric Chemistry and Physics in 2020. J. Kealy continued her doctoral programme of observations of mesopause OH emissions at Maynooth, in which she detected the presence of noctilucent clouds via the presence of infrasound modulation. She has also recently identified an infrasound signature which appears to arise from the explosion of a large meteorite over Greenland more than 3,600km away. A paper is currently in preparation on this observation in collaboration with colleagues in Germany who are modelling the propagation of the signal through the atmosphere. Dr F. Mulligan was a referee for the journals *Annales Geophysicae*, *Atmospheric Chemistry and Physics*, *Atmospheric Measurement Techniques*, *Journal of Atmospheric and Solar Terrestrial Physics* and *Journal of Geophysical Research*.

MOLECULAR PHYSICS (PIS: DR P.J.M. VAN DER BURGT, DR M. GRADZIEL)

The Molecular Physics group successfully performed coincidence mass spectrometry of electron impact fragmentation of anthracene molecules. This was done using a new data acquisition system for time-of-flight mass spectrometry, in which a field programmable gate array was used for the timing and the recording of mass spectra on an event-by-event basis. LabView software was developed for the analysis of the coincidence data. A detailed model of the coincidence data acquisition in the system was developed – fully accounting for the effect of instrumental imperfections, such as detector dead time, as well as random coincidences – increasing the fidelity of the final coincidence maps.

The measurements were done at 70 eV electron impact and clearly show a number of prominent fragmentations producing two singly-ionised fragments. A scientific paper is being written on the results. The group plans to look at fragmentations of other molecules in the near future.

Dr Peter van der Burgt is a member of the management committee of COST Action CA18212: Molecular Dynamics in the GAS Phase (2019–2023) and is also a member of Council of the Institute of Physics (2019–present).

In 2020, Dr Marcin Gradziel was re-engaged by Macro Works Ltd to extend the functionality of a *Glint and Glare* analysis package originally developed for the company in 2015 and extended in 2016. This phase focused on refining the balance between accuracy and performance of the algorithms underpinning the software, to further improve the fidelity of quantitative results when impact is predicted, and allow them to be stress-tested more easily.

DEPARTMENT OF MATHEMATICS AND STATISTICS

During 2019–2020, the Department had 20 long-term academic positions plus one postdoctoral researcher. Of the 20 regular positions, two were seconded partly or fully to the Hamilton Institute (Professor Andrew Parnell and Professor David Malone).

As well as the long-term academic positions, there was one postdoctoral researcher (Diarmaid Hyland), 14 PhD students, and one research masters student. The Department had 49 publications in 2019 and 46 in 2020.



Programmes of work included a COVID-19 response SFI grant

There were several grants of note awarded to members of the Department, including a Horizon 2020 grant (€8M, with €513,000 to Professor Parnell), *Terrain-AI* a SFI Strategic Partnership grant led by MU (€5M, with €150,000 to Professor Parnell), a Marine Institute Centre on Atlantic Climate Change grant (€2M, with €150,000 to Professor Parnell), and a COVID-19 response SFI grant (€70,000). The Department was also involved in two Centres for Research Training that were funded by SFI starting in 2019 (Foundations of Data Science and ADVANCE): both networks were awarded over €13M by SFI and have additional private funding. The Department is involved in the SFI Research Centre CONNECT which received word of fresh funding of €39M during 2020 (although the launch did not take place until 2021). Finally, the Department is hosting Dr Diarmaid Hyland, an IRC postdoctoral fellow for 2019–2021 (€91,900).

Members of the Department had various notable publications.

In 2019, Professor Parnell published a paper in the Proceedings of the National Academy of Sciences. It developed a new spatio-temporal model which dated when a particular tsunami hit the coast of Northern Sumatra and thus enabled us to work out how much damage it might have caused in certain areas. This was one of the papers featured in a National Geographic article on this event.

Climate change and greenhouse gas levels is a topic of interest to Professor Parnell and Dr Niamh Cahill. Professor Parnell wrote a paper on the effect of rising CO₂ levels on water use efficiency of evergreen and deciduous plants, and his article for RTÉ's Brainstorm on sea level rise is available at www.rte.ie/brainstorm/2019/1014/1083259-how-maths-can-calculate-how-climate-change-impacts-our-sea-levels. He also had a featured article on SFI's climate change page www.sfi.ie/research-news/stories/climate/sea-level.

FACULTY HIGHLIGHTS

FACULTY OF SCIENCE AND ENGINEERING

Dr Cahill's 2020 paper on estimating global mean sea-level rise in NPJ Climate and Atmospheric Science attracted much media attention: there were at least 150 international media articles written on this paper, and Dr Cahill herself spoke on a local radio station and gave an interview for The Times Ireland about it.

In 2020, Dr Cahill published a paper in Gates Open Research on assessing the progress being made in 68 of the world's poorest countries towards achieving a proposed benchmark for satisfying the demand for family planning. This benchmark is associated with one of the UN's Sustainable Development Goal (specifically 3.7: By 2030, ensure universal access to sexual and reproductive health-care services). This paper provides important information on what is required for countries to meet this proposed benchmark which is vital for the successful implementation of Family Planning programmes that will ultimately help achieve the Sustainable Development Goals.

In 2019, Dr Katarina Domijan published a paper in the top-rated astrophysics journal Solar Physics which proposed a statistical model that significantly improves detection and classification accuracy of solar flare events from SMART features derived from magnetogram images.

Professor David Wraith and Dr Mark Walsh had two joint 2019 publications in Geometry and Topology, one of the three most prestigious journals worldwide with an emphasis on geometry. Both were concerned with the observer moduli space of metrics of positive Ricci curvature. This space is the quotient of the space of all Riemannian metrics on a manifold by the group of diffeomorphisms which fix both a basepoint and the tangent space at that basepoint.

In 2020, Dr Rafael de Andrade Moral published a paper in the Journal of Computational and Graphical Statistics, one of the leading journals in computational and graphical statistics. In this paper, the authors introduce an extension of a graphical goodness-of-fit assessment method to bivariate models, capable of detecting outliers. This is useful in many applied areas such as ecology and agriculture and opens up the possibility for further extensions to the n-variate setting.

Another paper by Dr Moral was in The Journal of Pest Science, the leading journal in the field of pest science/biological control. In this paper, the authors show the potential for controlling spider mites and other pests in strawberry crops using two species of fungi. The results suggest that inoculating the root of the strawberry crop with these fungi species acts as a deterrent for pests that will feed on the leaves after the plant grows, without harming beneficial insects or mites.

In 2020, Dr Keefe Murphy published a paper in the prestigious journal Advances in Data Analysis and Classification that extends the standard finite Gaussian mixture model family to accommodate covariates of mixed type.

Dr Oliver Mason published a paper in the high impact Journal of the Franklin Institute on novel aspects of the positive linear observer problem. The paper's results can help the development of privacy preserving state estimation algorithms.

Professor Ann O'Shea continued her collaboration with Dr Majella Dempsey of the Education Department. Together, they published three papers in highly ranked international journals on task design and the use of technology in second level classrooms.

Dr Ciarán Mac an Bhaird and collaborators wrote several papers that constitute the first research of Maths Support staff and student engagement with online resources and technology. Considering the subsequent move to online teaching and support due to COVID-19, this work allows practitioners and researchers give broader context to and measure the effectiveness of their new online approaches.

There has been continued interest in the energy usage of Bitcoin. Professor Malone's article *How many Bitcoin miners does it take to change a lightbulb?* in 2019 has received 473 citations so far.

Under external engaged research, the COVID-19 Rapid Response Research and Innovation Funding (SFI) grant led by Professor Parnell, which involved several members of the Department was significant. This work serves to emphasise the critical nature of mathematical science in the investigation of societal issues no matter their nature or how rare they are, and its output can be found at www.hamilton.ie/covid19. The contents of that webpage include a dashboard of COVID-19 data, some blog posts, and various COVID-19 apps (real time excess mortality tracker, a SEIR mathematical model, and modelled answers to questions such as what effect a vaccine will have in Ireland).

In a similar vein, Professor O'Shea and Dr Hyland conducted a national survey of undergraduate mathematics students to study the effects of the COVID-19 university closures on the teaching and learning of mathematics.

Professor Malone's archive of state exam papers from the STEM area expanded in 2020. Thanks to information provided by teachers and members of the public, Professor Malone completed the collection of Leaving Cert and Junior Cert mathematics papers. <https://archive.maths.nuim.ie/staff/dmalone/StateExamPapers/>. The archive is a good source of contacts between the Department and secondary teachers. It was covered in an extensive article by Peter McGuire in the Irish Times in November 2019.

Dr Mac an Bhaird carried out the first large scale research on the impact of widening participation on Mathematics Support services, and on staff's ability to meet increasingly diverse student needs. This work on accessibility issues has led to the development of tailored resources for students with disabilities.

Professor David Wraith helped to found a weekly online geometry research seminar with an American collaborator. It has since grown to attract a core audience of over 25 geometers from across Europe and the USA.

DEPARTMENT OF PSYCHOLOGY

The Department of Psychology is highly research active, with a world-class track record of research publication and dissemination, as well as a strong research-driven focus on teaching/education. During the calendar years 2019–2020, staff produced 208 international peer reviewed journal articles plus over 40 other publications/outputs, including book chapters, published (and other) research reports, policy briefs, working papers, editorials, articles of professional interest and audiovisual material³. This is an impressive level of research productivity for what is still a small to medium-sized department by international standards (despite its growth in recent years) and especially considering that almost half of the reporting period straddled the COVID-19 emergency.

Department research during the same period, has been published in a number of prestigious and highly ranked psychology and other important interdisciplinary journals, including *World Psychiatry*, *The Lancet Psychiatry*, *Clinical Psychology Review*, *BMC Health Services Research*, *Neuropsychopharmacology*, *Quality of Life Research*, *International Journal of Health Policy and Management*, *Psychological Science*, *Frontiers in Psychology*, *Aging and Mental Health* and *Pharmacological Research*. The research also reflects strong interdisciplinarity, as evidenced by publications related to cognate disciplines such as medicine/psychiatry, nursing, health policy and the arts and humanities.



Leading field weighted citation index performance in Ireland

The published research of the Department of Psychology is high impact and strongly international as shown by the KPIs outlined below (for the period 2017–2020). Notably, a comparison on SciVal, of our field weighted citation index, 1.81 and citations per publication, 8.5, indicates that the Department is leading nationally when compared to Psychology departments in the six other Irish universities for which this information is available.

- > Field-Weighted Citation index: 1.81⁴
- > Citations per publication: 8.5
- > Research cited: 2,500 times
- > Percentage of publications amongst the top 10% most cited publications worldwide: 23%
- > Percentage of publications in the top 10% of journals ranked by citations: 28%
- > Percentage of publications co-authored with international researchers/collaborators: 69%

³This total excludes (numerous) conference-related papers/publications.

⁴This means that our research is cited 81% more frequently than world-wide disciplinary norms for the areas in which we publish.

The Department has enjoyed unprecedented success during October 2019–December 2020 in securing new funding, totalling approximately €25.9M. The Department had two major funding successes, in particular, including: (1) the *SHAPES* consortium project bid to Horizon 2020, led by Professor Mac MacLachlan and Dr Michael Cooke (€21M); and (2) the Science Foundation Ireland *ADVANCE* Centre for Research Training initiative, co-led by Professor Deirdre Desmond (and also lead MU applicant) – with a total budget in excess of €13M that involves the recruitment and training of 130 PhD scholars. Both projects are now underway.

Aside from the two flagship projects above, an additional €1.62M of grant funding was won by departmental staff during October 2019–December 2020. A number of applications were already submitted, or in train, just before the COVID-19 pandemic materialised in March 2020, but it is important to note that, during 2020, and despite the COVID-19 emergency, several departmental staff successfully secured COVID-19 related funding and/or were involved in COVID-19 related research/activities (some of which were unfunded), whilst at the same time adjusting rapidly to online/remote teaching.

Total existing funding as of October 2019 – excluding the new funding described above – amounts to approximately €3.4M across a range of projects. The total amount of new and existing funding – excluding the two flagship projects mentioned above – equates to average research funding per academic staff member of approximately €264,000 over the last four to five-year period (approx.) – a figure considerably higher than the University average funding per academic staff member (of approx. €100,000). Only three bids for research funding submitted during the reporting period (totalling approximately €400,000) were unsuccessful, demonstrating a very strong success rate overall. Several staff (Professor Sinéad McGilloway, Dr Joanna McHugh Power and Dr Bryan Roche) were also involved as co-applicants in successful funding applications led by colleagues either in other MU departments or externally.

Civic engagement has become an increasingly important aspect of all that the Department does, and the research involves/has involved partnerships with individuals and wider groups in the national and international community, including service users and providers, practitioners, schools, industry, governments, NGOs, United Nations agencies and other civil society representatives/actors. The work of both the ALL Institute) and the Departmental CMHCR in particular – of which a number of departmental staff are members – is characterised by a strong engaged research ethos.

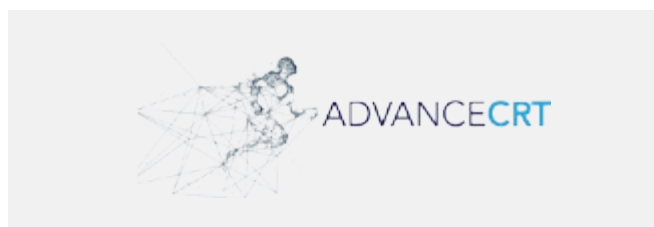
The Department also has a strong commitment to the supervision and mentoring of doctoral research students and research staff. During the 2019/2020 academic year, there were 35 registered research students in the Department of Psychology, a figure which increased to 46 for the academic year 2020–2021. This equates to a rate of supervision of 2.4 research students per academic staff member, although it should be noted that three (contract lecturer) staff were appointed only in the last 12 months (approx.) and, therefore, would have had relatively little opportunity, to date, to recruit PhD students.

FACULTY HIGHLIGHTS

FACULTY OF SCIENCE AND ENGINEERING

MAJOR RESEARCH HIGHLIGHTS 2019–2020

Professor Deirdre Desmond is leading the Maynooth University component, and is also Co-PI, of the SFI-funded Centre for Research Training in Advanced Networks for Sustainable Societies, a doctoral training centre that currently has 18 research supervisors drawn from a range of STEM and Social Sciences disciplines. This major initiative is aimed at addressing the challenges of advances in technological capabilities continuing to outpace our understanding of the personal and social significance of such developments and the ethical, legal and policy frameworks to govern their deployment. The vision of the centre is to train the next generation of researchers seeking solutions to the technical and societal challenges of connectivity between large numbers of people and things.



Professor Deirdre Desmond is Co-PI of the SFI-funded doctoral training centre, the Centre for Research Training in Advanced Networks for Sustainable Societies

The four-year *SHAPES* project – funded by the EU Horizon 2020 programme and led by Professor Mac MacLachlan and Dr Michael Cooke of the Department of Psychology and ALL Institute – is a €21M European research project involving 36 partners across 14 countries and is the largest ever grant for healthcare research led by an Irish institution. The Maynooth University component of the project is funded to €2.8M. This is the first EU framework consortium grant ever coordinated by Maynooth University. The project, called *Smart and Healthy Ageing through People Engaging in Supportive Systems (SHAPES)*, aims to find ways of helping Europe's ageing population live actively and independently at home in their communities with the support of assisted living technology.

Dr Joanna McHugh-Power is a Co-Investigator on the successful QUB-led, three-year, inter-institutional ESRC bid entitled *SPACE: Supportive Environments for Physical and Social Activity, Healthy Ageing, and Cognitive Health* (£1,978,865). This transdisciplinary and engaged research project involves collaboration between public health science, complexity science, epidemiology, urban planning, geography, neuroscience, psychology, and computer science. The overarching aim of the project is to investigate the impacts of urban environments on healthy ageing and cognitive functioning, within diverse individuals and communities, through the novel integration of multi-omics, lifestyle behaviour and environmental exposures from urban environments.

Substantial international funding was also awarded for two engaged research projects in 2020, led by Dr Michael Cooke, and Professor McGilloway of the Centre for Mental Health and Community Research.

The first, the CREST study, is funded by EU Horizon 2020. It involves the development of an innovative prediction, prevention, operation, and investigation platform aimed at enhancing the efficiency and effectiveness of EU law enforcement agencies through the use of real-time intelligence.

The second project, the SALaM Ireland study, is funded by Qatar Foundation International. It is investigating the mental health and wellbeing of refugee youth in schools in Ireland. This project is strategically important in terms of MU's recently acquired University of Sanctuary status and its strong social justice ethos. Most recently, Dr Katriona O'Sullivan, secured substantial funding from Science Foundation Ireland – in collaboration with Microsoft and Accenture – to develop a unique new STEM 'passport' for inclusion.



The SALaM Ireland study is strategically important in terms of MU's recently acquired University of Sanctuary status and its strong social justice ethos

A number of departmental staff (Professor Andrew Coogan, Dr Michael Daly, Dr Philip Hyland, Professor McGilloway, Dr Rebecca Murphy and Dr O'Sullivan) have also contributed to important research on the pandemic as it emerged by: (a) quickly responding to, and successfully securing funding from, rapid response COVID-19 calls (either as PIs or as co-applicants); and/or (b) were involved in writing about, or researching the psychosocial and behavioural impact of COVID-19 without the support of formal funding. The Department also led a global survey on how COVID-19 was affecting the users of assistive technology and participated in another global survey on the impact of COVID-19 on service provision for people with intellectual disabilities. In addition, Professor MacLachlan was a member of the Steering Group which developed the *HSE's Psychosocial Response to the COVID-19 Pandemic* – the evidence-informed framework for psychosocial services in Ireland during this time. Collectively, all of this work has led to 21 publications in the last 12 months, including 17 international peer-reviewed journal articles plus four other publications (one research report and three articles).

Research by members of the Department of Psychology has received significant national and international media coverage and interest in 2019/20. For example, Professor Coogan's work on Coronavirus anxiety and sleep and also on circadian rhythms and chronobiology, was covered (respectively) in two articles in the Irish Times. Dr Hyland's work on the first wave of the Irish COVID-19 Psychological Survey, was featured in the national media (e.g. Irish Times, Business Post) and also received considerable international media attention (e.g. The New York Times, The Times, The Guardian). Professor McGilloway's research on the experience of Leaving Certificate students (*Class of 2020*) during COVID-19 was covered by national and regional radio as well as the Irish Times (and the Leinster Leader) and RTÉ Brainstorm, whilst she was also cited in the Irish Times in an article on parenting during the pandemic. In addition, the recently completed ENRICH research was included as a 'success story' in the *Health Research Board in Action* (2020) report, whilst the SALaM Ireland study featured in *The Bridge* magazine (2020). Dr McHugh Power was interviewed for purposes of two podcasts for the NHS Mental Elf podcast and Mental Health Today. Dr O'Sullivan's research on Dreamspace was featured in the IrishTech News, and she contributed a commentary to, and was cited in, two separate articles in the Irish Times on diversity and inclusion in schools respectively. The work with Microsoft was recognised through the Royal Irish Academy 2020 US-Ireland Research Innovation Award for Innovation in Talent Development. Her work on outreach-focused STEM innovations also formed part of a special feature in the 2020 edition of *The Bridge* magazine.

A number of projects in the Department involve extensive engagement with the wider community. Some examples are provided below.



Dr Michael Cooke is a PI on the ECHO project, aiming to develop a European Cybersecurity ecosystem

Dr Michael Cooke is a PI on the *ECHO* project (*European network of Cybersecurity centres and competence Hub for innovation and Operations*; funded by EU Horizon 2020), which aims to strengthen the proactive cyber defence of the EU and enhance Europe's technological sovereignty through effective and efficient multi-sector and multi-domain collaboration. The project is developing, in collaboration with a number of community and academic partners, a European Cybersecurity ecosystem to support secure cooperation and development of the European market, as well as to protect EU citizens against cyber threats and incidents.

Dr Philip Hyland has been working with a wide range of community-based organisations and agencies during the conduct of his research including: the National Office for Suicide Prevention (to determine the occurrence and correlates of suicidal ideation, self-harm, and suicide in the Irish population); Mental Health Reform (to understand, for example, how people with mental health problems were functioning during the COVID-19 pandemic); the Dublin Rape Crisis Centre and the European Institute of Women's Health (to examine the occurrence and correlates of sexual violence in the Irish population); and a wide range of other agencies/organisations (e.g. the International Federation of the Red Cross Reference Centre for Psychosocial Support, The Danish Children Centres, The Probation Board of Northern Ireland, The Police Service of Northern Ireland and Spirasi) to examine the psychosocial impact of trauma on the lives of people across Europe.

Dr Rebecca Maguire is continuing to partner with the European Multiple Sclerosis Platform (EMSP) and a range of stakeholders on a project investigating the needs and experiences of those with paediatric MS and their caregivers. Dr Maguire's IRC New Foundations project with MS Ireland involves the co-design of a study aimed at exploring a framework for service evaluation in the organisation. Beyond this, a number of postgraduate students working with Dr Maguire are also involved in engaged research with a number of organisations and individuals (e.g. the Barretstown centre, MS Ireland and cancer survivors) by, for example, using patient or stakeholder panels to guide research priorities and interpret findings.

Professor Sinéad McGilloway leads a portfolio of projects in the Centre for Mental Health and Community Research, most of which involve extensive engagement with a wide range of community partners and stakeholders. For example, the four-year *PRIMERA* (*Promoting Research and Innovation in Mental Health seRvices for children and fAmilies*) research programme, funded by the Health Service Executive, involves a collaboration with 15 community-based adult mental health and Child and Adolescent Mental Health Service sites across the country to help embed evidence-based family-focused practice within mental health services. This project involves community partnerships across geographical, disciplinary and organisational boundaries, and engagement with practitioners, service providers, managers and NGOs in the community (e.g. the HSE, Tusla, St. John of God, Children and Young People's Services Committees and Advancing Recovery Ireland). The *PRIMERA* team have also organised and hosted events for statutory and voluntary sector practitioners and managers. The *PRIMERA* team members include Dr Mairead Furlong, Christine Mulligan, Sharon McGarr and Siobhan O'Connor.

As a founding committee member of the Alzheimer Cafe Northside, Dr Joanna McHugh-Power has engaged in community outreach by organising monthly informal support sessions for anyone affected by dementia. She has also been invited to join an international group of experts interested in loneliness (International Loneliness and Isolation Research Network) with whom she has been involved in a global effort to examine the impact of COVID-19 on loneliness (currently n = 20,436, from 100 countries).

FACULTY HIGHLIGHTS

FACULTY OF SCIENCE AND ENGINEERING

Dr Rebecca Murphy is currently working in partnership with Cairde, a national health advocacy organisation working to tackle health inequalities affecting minority ethnic communities. Together, they have co-designed a study to; 1) evaluate Cairde's Mental Health Peer Advocacy training programme for ethnic minorities; and 2) co-produce the role scope of Peer Mental Health Advocates for ethnic minorities.



Dr Rebecca Murphy is co-designing a study with Cairde, a national health advocacy organisation

Dr Richard Roche has been working closely with the Research and Innovation Office on the Age-Inclusive Maynooth (AIM) Initiative. This research programme focuses on making the town of Maynooth a unique ageing-inclusive environment, catering for and promoting both positive, healthy ageing and all forms of pathological ageing, including dementias and other conditions associated with old age. The initiative revolves around the promotion of positive ageing by linking with local businesses and the county council, as well as charities and ageing groups, to improve the physical infrastructure of the town, making it more age-friendly, and by engaging the local older population in a variety of university-based research projects focused towards improving their health, cognitive, mental and physical wellbeing through lifestyle and/or technology-assisted interventions. Meath County Council (the national contact point for age-inclusive societies) and Age-Friendly Ireland (AFI) have recently partnered with the University to pursue this initiative.



Dr Richard Roche, Department of Psychology, has been working closely with the Research and Innovation Office on the Age-Inclusive Maynooth (AIM) Initiative

DEPARTMENT OF THEORETICAL PHYSICS

The Department of Theoretical Physics noted some key highlights for the academic year 2019/2020. Dr John Regan secured a Royal Society/SFI Fellowship and Professor Jiri Vala was successful in the Disruptive Technologies Innovation Fund. The Department has six academic staff and four postdoctoral researchers and saw a notable increase in research outputs when compared with the previous academic year. These include:

- > Significantly increased level of research grants awarded compared with 2018/2019 (€1.3M v €120,000).
- > Significantly increased number of refereed journal publications compared with 2018/2019 (22 v 11).
- > Significantly increased number of PhD students since 2018/2019 (11 v 7).
- > Significantly increased number of postdoctoral researchers since 2018/2019 (4 v 1).

COSMOLOGY AND ASTROPHYSICS

The main focus of work by Professor Peter Coles is on statistical cosmology, with a particular emphasis on the large-scale structure of the Universe and the cosmic microwave background. In the period covered by this report his work has largely focused on developing and testing methods for the analysis of relevant data sets (either alone or in combination). A particular focus of this work is preparation for the European Space Agency's Euclid mission, which is due for launch around 2020 and which will be used to probe the nature of dark matter, dark energy and the geometry of the expanding Universe. Professor Coles is a full member of the Euclid Consortium and is in the Galaxy Clustering Working Group currently preparing analysis methods for the exploitation of the resulting survey data. The involvement of Maynooth University in the scientific exploitation of the Euclid mission gives the Department a unique opportunity, not only for research but also for its enormous potential for outreach and science communication.



Professor Peter Coles statistical cosmology work includes focusing on the preparation of the European Space Agency's Euclid mission

Dr John Regan joined the Department during the period covered by this report as a Royal Society/SFI University Research Fellow. The main focus of his work is on the formation mechanisms of massive black holes in the early Universe. Between October 2019 and December 2020, he published four important peer reviewed papers on: *The Formation of Very Massive Stars in Early Galaxies and Implications for Intermediate Mass Black Holes*; *Massive Star Formation in Metal-Enriched Haloes at High Redshift*; *The emergence of the first star-free atomic cooling haloes in the Universe in Monthly Notices of the Royal Astronomical Society*; and *ENZO: An Adaptive Mesh Refinement Code for Astrophysics (Version 2.6)*. In this period, he also opened up new collaborations with Fabio Pacucci (CfA Harvard) and Mar Mezcua (Institute of Space Sciences, Barcelona) and is in a collaboration with Yan-fei Jiang (Center for Computational Astrophysics, NY) investigating super-Eddington accretion.

The Department of Theoretical Physics also supports the *Open Journal of Astrophysics*, published by Maynooth University Press, an innovative and highly successful peer-reviewed Diamond Open Access Journal based on the arXiv overlay concept, which has so far published 33 papers with an average of 23.7 citations per paper. Professor Coles is the Editor-in-Chief of this Journal.



GENERAL RELATIVITY AND QUANTUM FIELD THEORY

From October 2019 to December 2020 the research programme of Professor Brian Dolan comprised three main threads under this heading:

1. Black-hole thermodynamics in the laboratory

It has been suggested that some aspects of black-hole thermodynamics might be reproducible under laboratory conditions via the Unruh effect: a uniformly accelerating observer sees the vacuum as containing a thermal bath of particles. The acceleration required are normally far too high for the effect to be observed but, together with Jason Twamley (McQuarie University, Sydney, Australia) and Aonghus Hunter-McCabe, the research showed that high speed vibrations of single atoms could make an analogous effect observable in the laboratory.

2. Topological and geometric aspects of quantum Hall effect

The quantum Hall effect (QHE) is a cryogenic phenomenon observed in very pure semi-conductors' layers when placed in strong magnetic fields. A sphere with a magnetic monopole at its centre is good model for understanding many aspects of ground state wave functions for quantum Hall states. Fermions constrained to the surface of a sphere must satisfy the Atiyah-Singer index theorem – one of the most beautiful and profound results of modern differential geometry – which relates the number of zero modes of the Dirac operator to topology of a surface. In collaboration with Aonghus Hunter-McCabe, Professor Dolan investigated the relation between Laughlin's ground state wave-functions for the QHE and zero modes of the Dirac operator on a sphere. A second aspect of this programme is the AdS/CFT model of the QHE, considering 2-dimensional QHE sample to be the boundary of a 4-dimensional space-time containing a black hole. The black hole acts as a thermal bath for the semi-conductor, via its Hawking temperature, and a black hole with both an electric and a magnetic charge (a dyon) provides a model for investigating properties of QHE conductivities using the renormalisation group equation.

3. Discrete symmetries of the Lorentz group, the CPT theorem and causality

A cornerstone of relativistic quantum field theory is the CPT theorem which states that the combination of charge conjugation (C), parity (P) and time reversal (T) is a symmetry of the fundamental forces. Professor Dolan has been investigating the group structure of C, P and T when acting on fermions. The two operations of C and P generate a discrete group with is identical to Hamilton's quaternion algebra. Causality, in the form of the statement that 2-point correlators must vanish for space-like separations, can then be derived from the assumption that charge conjugation commutes with P and T.

Professor Dolan is currently investigating the AdS/CFT approach to the QHE in more detail, using different dyonic black hole space-times with a dilaton and axion field, with electromagnetic duality symmetry, to model modular symmetry of the QHE hierarchies.

FACULTY HIGHLIGHTS

FACULTY OF SCIENCE AND ENGINEERING

FAR-FROM-EQUILIBRIUM QUANTUM DYNAMICS

During this period, the primary theme of research by Dr Masud Haque was that of dynamical phenomena in quantum many-component systems.

The theory of quantum many-particle quantum systems has traditionally focused on equilibrium situations, because in many contexts (such as solid-state physics) many-body systems relax rapidly to equilibrium. There was thus limited motivation in previous decades to study the temporal evolution of such systems. The situation has changed dramatically in the past two decades. Due to new classes of experiments now being able to explicitly observe quantum dynamics, it is now an exciting time to investigate new physics that appears only out of equilibrium. One important class of questions concerns the reconciliation of quantum dynamics with statistical physics and thermodynamics. How does quantum evolution of a multi-component system give rise to the properties obtained from statistical considerations, such as predictions obtained using the artificial notion of a 'bath'? Part of the answer is now believed to lie in the structure of eigenstates of many-body systems.

Dr Haque has been exploring the nature of many-body eigenstates in several projects. During 2020, he completed three papers in this area, the first of which has been published and the other two are in press. Furthermore, with two PhD students (Goran Nakerst and Phillip C. Burke), Dr Haque made considerable progress in understanding the connection between temperature and energy eigenstates in isolated quantum systems. Multiple publications from this work are expected to appear in 2021 and 2022.

Another class of quantum dynamics involves the propagation and scattering of quantum particles. During the period in question, two manuscripts were completed and published, one in collaboration with scientists based in Germany and Poland and the other with a Maynooth PhD student (Burke) and collaborators based in Germany.

With two research masters students, Dr Haque has explored other aspects of quantum many-body dynamics, on the analysis of quantum dynamics and many-body-eigenstates using the Bethe ansatz and on 'mean-field' dynamics of trapped Bose-Einstein condensates.



Dr Masud Haque, Department of Theoretical Physics

TOPOLOGICAL PHENOMENA IN CONDENSED MATTER PHYSICS AND THEIR APPLICATION TO TOPOLOGICAL QUANTUM COMPUTATION



Professor Jiri Vala secured a collaborative grant under the Disruptive Technologies Innovation Fund for Quantum Computing in Ireland: A Software Platform for Multiple Qubit Technologies

Professor Jiri Vala and collaborators continued their investigation of topological order in lattice systems, focusing specifically on a one-dimensional Kitaev model which exhibits topological superconductivity. They completed an investigation of the thermalisation/localisation trade off in the Kitaev model in the presence of interactions and disorder, specifically addressing whether signatures of many-body localisation can co-exist with the systems topological phase. Using methods applicable to finite size systems, they identified a regime of parameter space in the vicinity of the non-interacting limit where topological superconductivity survives together with a significant violation of the eigenstate-thermalization hypothesis (ETH) at finite energy densities. They further identified that the coexistence regime features an anomalous behaviour of the von Neumann entanglement entropy as a function of disorder strength, which they attribute to competing ETH violation mechanisms. This work was carried out with significant involvement of Maynooth PhD student Stephen Nulty, and involved a collaboration with Graham Kells (DIAS) and Dganit Meidan (Ben Gurion University, Israel).

Professor Vala's research in quantum control focused on issues of non-commutativity and non-convexity inherent in quantum control systems. Specifically, they addressed the non-commutativity of the control Hamiltonian at different times by the use of Magnus expansion and characterised its impact on the reachable set for Hamiltonians that are not operator controllable. To tackle the non-convexity, they employed non-commutative polynomial optimisation and non-commutative geometry to show that, for any fixed precision, there exists an efficiently-solvable convexification of the Magnus-expanded polynomial functionals in the control signal. His work involved collaboration with Jakub Marecek (IBM).

An important highlight in this area was the award of a collaborative grant under the Disruptive Technologies Innovation Fund for *Quantum Computing in Ireland: A Software Platform for Multiple Qubit Technologies* which establishes the Department as a major player in this burgeoning area.

Dr Joost Slingerland also carries out leading-edge research in this general area which receives ongoing Principal Investigator research funding from Science Foundation Ireland.

One of the highlights of his research was an investigation of pre-crystalline order, ruling out Pauli crystals and introducing Pauli anti-crystals. It had been proposed that non-interacting fermionic particles can have crystalline correlations ('Pauli crystals'). With Mikael Fremling (Utrecht) Dr Slingerland showed that, in many-particle systems, these structures are mostly an artefact of the data analysis used and not an actual physical phenomenon. Lattices of correlation holes, 'AntiCrystals,' can occur. They also introduced a more reliable method: neighbour counting statistics. Experimentalists have since claimed to have observed Pauli crystals, generating considerable interest in what remains a controversial area.

With Domenico Pellegrino, Graham Kells and Niall Moran, Dr Slingerland also investigated the existence and explicit construction of edge zero modes in topologically ordered spin chains, including para-fermionic chains. They found that the total domain wall angle symmetry gives rise to a local algorithm for the perturbative construction of zero mode operators and gave analytical formulas for the zero modes, incorporating some model-dependent coefficients.

With Darragh Millar and Babatunde Ayeni, Dr Slingerland constructed models of 'free' non-Abelian anyons hopping on a lattice and calculated spectral statistics to test them for solvability.

NON-PERTURBATIVE QUANTUM FIELD THEORY

Over the period covered by this report, Dr Jon-Ivar Skullerud has continued to work on:

- > Quantum chromodynamics (QCD) at high temperature and density, and phenomenology of heavy-ion collisions;
- > The problem of colour confinement; quark and gluon correlation functions;
- > Bayesian inference and methods for solving inverse problems; and
- > Philosophy of physics and in particular of quantum field theory.

The work by Dr Skullerud's group on two-colour QCD at high density towards the continuum and chiral limits has attracted significant attention and led to a workshop invitation in October 2020. With collaborators in Australia, Germany and Portugal he has completed the first lattice study of the quark-gluon vertex including dynamical quarks, and has been invited to write a review of the quark-gluon vertex with Dr Ayse Kizilersu (Adelaide).

Dr Skullerud is a leading member of the FASTSUM collaboration, comprising researchers from Florence, Sejong (Korea), Swansea and Trinity College Dublin as well as Maynooth University. The focus of the collaboration is on the study of the quark-gluon plasma using anisotropic lattice QCD. Dr Skullerud has been leading the effort of producing the next generation of primary data for the collaboration and has worked on novel methods for determining the width of bound states in the quark-gluon plasma.



Dr Jon-Ivar Skullerud, Department of Theoretical Physics

Together with Professor Sinéad Ryan (TCD), Dr Skullerud has been awarded a EuroHPC Academic Flagship award which will provide of 0.5 FTEs of software engineering support at ICHEC over two years to optimise lattice QCD code for the next generation of supercomputers. He was an invited speaker at the *EXALAT* virtual kick-off meeting in June 2020.

FACULTY HIGHLIGHTS

FACULTY OF SOCIAL SCIENCES



FACULTY HIGHLIGHTS

FACULTY OF SOCIAL SCIENCES

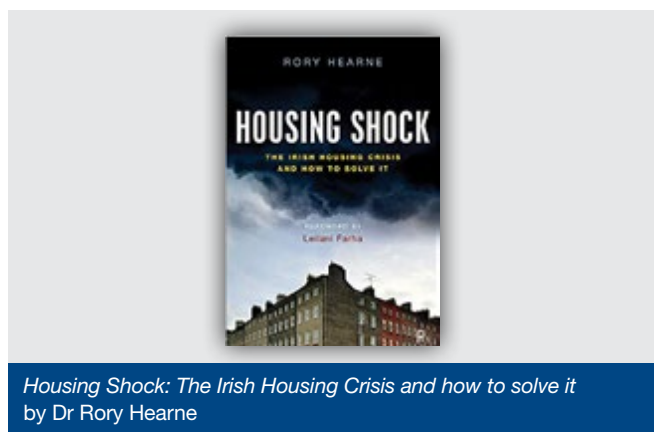
APPLIED SOCIAL STUDIES

The Department of Applied Social Studies encompasses the three disciplines of Community and Youth Work, Social Policy and Social Work, united in a shared mission of advancing understanding, policy and practice in the areas of social justice, human rights and equality.

Research activities and achievements in the Department of Applied Social Studies in 2019–2020 illustrate the disciplinary, interdisciplinary and multidisciplinary nature of the Department's scholarship. Research achievements also illustrate the broad range of academic, professional and public contribution interests and commitments of departmental staff. In 2019–2020 the 12 academic staff members of the Department published 56 publications and were awarded seven research grants. 15 new doctoral students commenced their studies and seven graduated.

The extensive scope of the Department's scholarship was reflected in the range of international peer-reviewed journals in which articles authored or co-authored by Applied Social Studies staff were published. This included *Qualitative Social Work* (Dr Niamh Flanagan), *Social Work Education* (Dr Flanagan), *Families, Relationships and Societies* (Dr Ciara Bradley), *Journal of Social Work Practice* (Dr Gloria Kirwan), *European Journal of Social Work* (Dr Kirwan), *Journal of Social Work in End of Life and Palliative Care* (Johanna O'Shea), *Child Care in Practice* (Johanna O'Shea), *Community Development Journal* (Dr Oonagh McArdle) and *Irish Political Studies* (Dr Rory Hearne).

During the year 2019–2020, Dr Kirwan served as editor of two international journals, namely, *Journal of Social Work Practice* and *Groupwork*.



A most timely book was published by Policy Press (2020), *Housing Shock: The Irish Housing Crisis and how to solve it* by Dr Rory Hearne. The book has been very favourably received and reviewed. It provides a critical analysis of the situation facing housing policy in Ireland today, an outline of the compelling need for a step change in government's role in the housing market, and a clear outline of policy and practical steps to get beyond the current crisis. This builds on Dr Hearne's engagement with and research on housing policy, housing initiatives and housing rights in Ireland.

The past year has seen the Department continue to develop its contribution to Social Work scholarship and research, including contributions in the area of Social Work and Mental Health. A significant new volume, *International Reflections on Approaches to Mental Health Social Work* was co-edited by Dr Gloria Kirwan (with M. Golightley) and published by Routledge (2019, London).

Reflecting the growth of digital technologies in the social professions, Dr Hilary Tierney co-authored a book chapter on *Digital Technologies in Youth Work* (2020), as well as co-authoring three online publications on *Communicating Youth Work*. Also, in the field of social professions and technologies, Dr Gloria Kirwan co-authored an article in the *Journal of Social Work Practice* on social work relationships and communication technologies.

Reflecting the continued development of Social Work teaching and research within the Department, Johanna O'Shea was co-organiser with colleagues in NUIG, QUB, UCD and TCD of the All-Ireland Social Work Research Forum in 2020. Dr Niamh Flanagan, Dr Gloria Kirwan and Dr Brian Melaugh also contributed to this forum.

Staff continued to actively contribute to European Union funded research on youth work, old age and social exclusion.

Professor Maurice Devlin served as the Irish correspondent (appointed by the Department for Children, Equality, Disability, Integration and Youth (DCEDIY)) for the European Knowledge Centre on Youth Policy established by the Council of Europe. He was also a member of the National Working Group for the European Union Youth Dialogue convened by the DCEDIY as part of the EU Youth Strategy.

Dr Joe Larragy continued to serve as a member of the Management Committee for the ROSEnet COST Action (CA 15122) on Reducing Old Age Social Exclusion: Collaborations in research and policy.

Dr Hilary Tierney was the Principal Investigator for the Erasmus+ funded *Youth Work e-learning* Project, which concluded with a positive external evaluation at the end of 2019. In terms of societal and policy input, this research project directly informed the joint decision of the National Youth Council of Ireland and Léargas to invest in the development of the youth work e-learning resource through commissioning two further modules from Maynooth University.

More generally, partnerships with civil society and direct public contributions to the policy and practice domains continued to be key aspects and defining strengths of the Department's scholarship.

Dr Brian Melaugh served as Board level Director with Merchants Quay Ireland, Primary Care Safetynet Ireland and Curam (GP care for all). Through these directorships Dr Melaugh contributed to policy and service developments to improve the lives of people who use drugs, and to improvement of health outcomes for marginalised groups. Professor Maurice Devlin served as Director of LGBTI+ youth service BeLonG To (which won Board of the Year at the national Charity Excellence Awards 2020), and on the Youth Work Committee of the Education and Training Boards Ireland.

FACULTY HIGHLIGHTS

FACULTY OF SOCIAL SCIENCES

Dr Seamus Taylor served as Chairperson of the Irish Penal Reform Trust, Ireland's leading NGO in the penal reform area, and as independent chair of the criminal justice system, Hate Crime Scrutiny Panel for London. Dr Marianne O'Shea served as a Board member of Offaly Traveller Movement, and on the Liberia Solidarity Group. Johanna O'Shea served as a member of the Traveller Movement criminal justice system working group based in London. Dr Kathryn McGarry served as a Board member of the Sex Workers Alliance Ireland. Dr Ciara Bradley chaired the Maynooth University Social Justice Week Committee and Dr Joe Larragy served as chairperson of the Maynooth Green Campus, whose work reached another high point in 2019–2020, with the award of the All Ireland Pollinator Plan going to Maynooth University and the renewed receipt of the Green Parks award for Maynooth Campus.

Professor Maurice Devlin acted as consultant with Léargas, the National Agency for exchange programmes in Adult Education, School Education, Vocational Education and Training and Youth, on the Research-based Analysis and Monitoring of European Youth Programmes (RAY), a multi-national and multi-annual research study examining the beneficial outcomes for individuals and organisations participating in international and intercultural exchange. Professor Devlin was also a member of the Assessment Panel for the Children's Rights Alliance's *Report Card 2020*, an annual assessment of the government's progress in developing and implementing effective and appropriate policies and services for children.

Dr Niamh Flanagan, together with Dr Ciara Bradley and Dr Gloria Kirwan, are representing the University on the *Strategic Alignment of Teaching and Learning Enhancement Findings in Higher Education* project (SATLE 19). The team have developed a suite of feedback initiatives across Social Policy, Social Work, and Community and Youth Work contributing to embedding a culture of feedback in the Department.

Dr Joe Larragy served as a member of the Pensions Policy Research Group, a multidisciplinary research group undertaking research on Ireland's public and private pension system.

Dr Rory Hearne served on the steering group of the Right to Housing campaign – Home for Good. Dr Hearne actively disseminated the results of his research and analyses on housing, and other aspects of social policy through articles in national newspapers including the Irish Times, Irish Examiner and Irish Independent, and through online media including the popular podcast Reboot Republic.

Dr Kathryn McGarry has taken on the role of co-chair of the Irish Sex Work Research Network, and linked to this, has undertaken a community engaged research study of sex workers' health, safety and wellbeing.

Dr Seamus Taylor was appointed to a Department of Justice review on the role of the police in criminal prosecutions, overseeing comparative research on police roles in public prosecution. Dr Taylor served as a member of the Government's Expert Group on Equality Budgeting, whose aim is to support equality proofing of government budgets. Dr Taylor also served as a member of the Windrush Lessons Learned Review in Britain, the report of which was laid before parliament in March 2020.

SCHOOL OF BUSINESS

The School of Business employed 33 academic staff members during 2019–2020. 12 faculty members in Finance and Accounting joined the School of Business in September 2020. In 2019, School faculty members published 28 peer-reviewed journal articles, eight book chapters, 28 conference publications and 11 other publications, such as mass media articles, working papers and policy reports. The faculty presented over 50 papers at various leading international conferences. In 2020, the School faculty published 33 peer-reviewed journal articles, six book chapters, 16 conference publications and 10 other publications, such as mass media articles, working papers and policy reports. The faculty presented over 40 papers at various leading international conferences.

The Chartered Association of Business Schools (ABS) *Academic Journal Guide* is a leading international benchmark for the range and quality of journals in which business and management academics publish research. 1,400 journals are ranked as 4*, 4, 3, 2 or 1, with 4* being reserved for 33 journals of distinction, which are recognised worldwide as exemplars of excellence (top 2.4%). ABS 4 journals (top 6%) publish the most original and best-executed research, and typically have high submission and low acceptance rates. 22% of these journals are ABS 3 and considered excellent.

In 2019, 19 of the 28 peer-reviewed journal articles from the School of Business were published in ABS ranked journals, with one of these in an ABS 4* journal, one in an ABS 4 journal, and nine in ABS 3 journals. In 2020, 27 of the 33 peer-reviewed journal articles from the School of Business were published in ABS ranked journals, with one of these in an ABS 4* journal, five in ABS 4 journals, and 13 in ABS 3 journals. In summary, 39% and 58% of all journal articles published by the School of Business faculty in 2019 and 2020 respectively appeared in journals that are classified as publishing original and well-executed research (ABS 3, 4 and 4*), and 7% (2019) and 18% (2020) appeared in the outlets that publish the most original and best-executed research in the field (ABS 4 and 4*). This is an excellent outcome relative to international Schools of Business performance.

These ABS 4 and 4* papers are (in alphabetical order with Maynooth colleagues in bold):

1. **Prato, M., Kypraios, E., Ertug, G., Lee, Y.,** (2019). *Middle-status conformity revisited: The interplay between achieved and ascribed status*. *Academy of Management Journal*, 62(4): 1003-1027. (ABS 4*)
2. **Ryazanova, O., McNamara, P.,** (2019). *Choices and consequences: Impact of mobility on research-career capital and promotion in business schools*. *Academy of Management Learning and Education*, 18(2): 186-212. (ABS 4)
3. **Broda, S., Arismendi Zambrano, J.,** (2020) *On quadratic forms in multivariate generalised hyperbolic random vectors*. *Biometrika*, ahead of print. (ABS 4)
4. **Garzon-Vico, A., Gibbons, P., Rosier, J., and McNamara, P.,** (2020). *The impact of failure and success experience on drug development*. *Journal of Product Innovation Management*, 37(1): 74-96. (ABS 4)

5. **Gruda, D., Kafetsios, K.,** (2020). *Attachment orientations guide the transfer of leadership judgments: Culture matters*. *Personality and Social Psychology Bulletin*, 46(4): 525-546. (ABS 4)
4. **Mountford, N., Geiger S.,** (2020). *Duos and duels in field evolution: How governments and interorganizational networks relate*. *Organization Studies*, 41(4): 499-522. (ABS 4)
7. **O'Connor, E.P., Crowley-Henry, M.,** (2020). *From home to host: The instrumental kaleidoscopic careers of skilled migrants*. *Human Relations*, 73(2): 262-287. (ABS 4)
8. **Tasselli, S, Zappa, P, Lomi, A,** (2020). *Bridging cultural holes in organizations: The dynamic structure of social networks and organizational vocabularies within and across subunits*. *Organization Science*, 31(5): 1292-1312. (ABS 4*)

These successes reflect the overall situation in the School where faculty members at various stages of their career are supported to deliver top-level research outcomes. It also demonstrates that the broad field of Management is a particular area of research excellence at the School of Business.

Publication trends in the school since 2014 indicate a steady shift towards a higher share of peer reviewed journal publications, and a shift towards a higher share of ABS 3 and 4 papers, which is an explicit strategic goal of the School.



Dr Emmanuel Kypraios, School of Business

The quality of the research done at the School of Business is also evidenced by the research paper awards received by the faculty. In particular, the paper *Employing finance in pursuit of the sustainable development goals: The promise and perils of catastrophe bonds* by Dr Emmanuel Kypraios was shortlisted for The Moskowitz Prize for outstanding research on sustainable and responsible investing by Northwestern University Kellogg School of Management, as well as selected as one of the 20 most important articles among the resources related to COVID-19 by the Academy of Management (AOM). This is in the context of the AOM being the largest professional association in the field of management in the world, with thousands of publications. Dr Kypraios also received the Best Paper Award from the European Academy of Management 2020 for his paper *Trading rare events and status inconsistency*. Dr Julius Nyiwung received the Best Paper

Award at the 6th Africa Research Group International Conference (2019) for his paper *Leveraging power from the shifting geopolitical Landscape to Shape the Adoption of Indigenous HRM Practices in Multinational Companies*. Dr Jon Gruda received the Benedictine University Award for Outstanding Paper on Ethical Issues in Consulting at the Academy of Management conference 2020 for his paper *Can we trust them again? A framework for repairing trust in SMEs in an economic crisis context*. Dr Sanjay Singh received the 'Highly Commended Paper' at the *Literati Awards for Excellence 2020* for his paper *Employee perception of impact of knowledge management processes on public sector performance* in the *Journal of Knowledge Management* (2019).

The service contributions of the faculty to the international academic community have been recognised too. For example, Dr Olga Ryazanova received the Best Reviewer Award from the Academy of Management Learning and Education (ABS 4) in 2020. Dr Jean Cushen received the Best Reviewer Award from the *Baltic Journal of Management* (ABS 1) in 2019. Dr Thomas O'Connor received the Outstanding Reviewer Awards from the *Corporate Governance: The International Journal of Business in Society* (ABS 2) in 2019 and in 2020. Dr Patrick Rigot-Muller was invited to be a Guest Editor for an issue of *Transportation Research Part A: Policy and Practice* (ABS 3). Dr O'Connor was invited to be the Topic Board Editor for the *Journal of Risk and Financial Management*. Dr Ruifang Wang has been elected as a Representative-at-Large (Newsletter/Website Officer) for the Research Methods Community of Strategic Management Society (SMS), 2019–2021. Dr Ryazanova has been elected as Research Coordinator for the Management Education and Development Division of the Academy of Management (2019–2020). Dr Julius Nyiwung co-chaired the *Proudly Made in Africa* conference in 2020. Dr Bridget McNally organised and chaired two seminars of the Pension Policy Research Group in 2020. Dr Bastian Rake co-organised the international *Workshop on Medical Innovation and Healthcare* in December 2020.

All these achievements indicate the recognition of the expertise of the faculty and acknowledgement of their contribution to the field by the international research community.

External funding secured by members of the School exceeded €865,000 in 2019–2020 with the largest successes being Professor Markus Helfert securing funding through the EU Project *PERFORM* (funded under the Marie Skłodowska-Curie -Innovative Training Networks), the SFI Research Centre Lero, as well as Enterprise Ireland and industry-co-funding for the project *Retail in a digital age – An Interactive Retail Platform and Business Service that allows to Investigate Design and Experience based on Customer Behaviour Data (Re-Direct)*. These successes demonstrate the strength of the Management Information Systems area in the School of Business in attracting external funding. Furthermore, Dr Nicola Mountford has secured funding from EU Horizon 2020 for the project *CHAMELEONS: Championing A Multi-Sectoral Education and Learning Experience to Open New Pathways for Doctoral Students*.

FACULTY HIGHLIGHTS

FACULTY OF SOCIAL SCIENCES

The School of Business faculty actively engages with industry and the broader community through collaborative research with industry and the dissemination of research to the wider community through various forums. This includes organising workshops for various stakeholders, membership in various industry bodies and committees, and consulting for industry. The School's dissemination efforts include a wide range of invited presentations at different practitioner-focused forums and opinion pieces published in various mass media, including four opinion pieces published in RTÉ Brainstorm, two opinion pieces in the international website Conversation, and three radio interviews on various Irish radio shows.

An example of engaged research collaboration with industry is the collaboration by Dr Adegboyega Ojo with the Health Information Quality Authority (HIQA) on the *Patient-Centred Service Improvement Project (PaCSI)*. The project involved a comprehensive secondary data analysis of textual feedbacks from HIQA's National Care Experience Programme and the development of an analytics dashboard to explore results and findings. Another example of School of Business research engagement with external stakeholders and wider community is a project by Dr Jean Cushen in collaboration with Kildare-based Recruitment and Coaching firm, Clark Recruitment, Grant Thornton and County Kildare Chamber. The project aimed to design and report on a significant workforce survey of employers and employees along five counties on the M7 corridor focusing on talent resourcing, skills, workplace culture and future trends for business success. Another example is the collaboration by Dr Fabiano Palonetto with several EU universities and power system companies to develop an analytics software and optimisation model for power systems with high penetration of renewable energies. The objective is to develop a generic framework for scaling the optimal economic dispatch and unit commitment for large power systems.

WORKSHOPS AND SEMINARS ORGANISED OR DELIVERED

- > *Shaping health and wellbeing for 2025*, 24th October 2019
Professor Markus Helfert, 24th October 2019.
- > *International Workshop on User Decision Support and Human Interaction in Digital Retail*, November 2020
Organisers: Dr Zohreh Pourzolfaghar (Maynooth University), Gültekin Cakir (PhD student, Maynooth University), Douglas Cirqueira (Dublin City University). An interactive workshop with the general public at Maynooth University during MU Research Week. This workshop aimed to bring together academics and practitioners who work in the disciplines of Human-Computer Interaction, Decision Support Systems, and its applications in Digital Retail industry and research. It was held in conjunction with the 4th *International Conference on Computer-Human Interaction Research and Applications (CHIRA 2020)*.
- > *Digital Transformation in the Construction Industry*, 17th December 2020
Workshop chair: Dr Zohreh Pourzolfaghar. This webinar explored how increased digitalisation will fundamentally change the industry over the next decade.
- > *Sustainability & Green Finance Breakfast briefing*, December 2019.
- > *Workshop on Medical Innovation and Healthcare*, December 2020
Organisers: Dr Bastian Rake (Maynooth University), Professor Maureen McKelvey (University of Gothenburg), Dr Ethan Gifford (University of Gothenburg). The workshop aimed to provide an opportunity to discuss current and emergent challenges in the study of innovation in healthcare organisations, medical devices and pharmaceutical industries, and the broader field of medicine and life sciences. Beyond 14 presentations of academic papers, the Workshop had a panel discussion on *How to study the coronavirus situation from a science and innovation perspective?* moderated by Professor Magnus Gulbrandsen (University of Oslo) and a panel discussion with Anna Sandström (Science Policy and Relations Director Europe at AstraZeneca). This conference, which was to take place in Maynooth, moved online due to COVID-19.

INVITED PRESENTATIONS AT PRACTITIONER-FOCUSED FORUMS

- > *Global Asia Matters Business Summit*, Professor Brian Donnellan, panel presentation, Dublin, November 2019.
- > *Fostering resilience in an agile world*, Dr Jean Cushen, invited presentation at the workshop for practitioners, organised by the Innovation Value Institute (IVI).
- > *COVID-19 and the lessons from supply chain disruptions*, Dr Patrick Rigot-Muller, invited presentation at the workshop for practitioners, organised by IVI.
- > *What HRM can do for knowledge management, and how it matters for return on assets?*, Dr Tatiana Andreeva, invited presentation at the practitioner conference *Applied Tools in Knowledge Management: Conference for Practitioners*, Higher School of Economics, Moscow (December 2019).
- > *Strategy and knowledge management: is there a connection, and if not – how to fix it?*, Dr Tatiana Andreeva, invited presentation at the practitioner conference *KnowledgeConf2020: Conference for Practitioners in IT*, Russia (held online, May 2020).
- > *Current knowledge management trends in Russian companies*, Dr Tatiana Andreeva, invited expert at the panel discussion (held online, September 2020).
- > *What happens to knowledge sharing among co-workers when we move to working remotely?*, Dr Tatiana Andreeva invited presentation at the *Knowledge Management. Standards and Practice* online expert session, Russia (held online, November 2020).
- > *Federal reserve communications sentiment's impact on target rate discovery*, Dr Juan Arismendi Zambrano, invited presentation at the *FinTech: A FINancial supervision and TECHnology compliance training programme* for the Central Bank of Ireland (February 2020).
- > *The business model of innovation*, Dr John Cullen, invited presentation and panel member at *Creating Economic and Business Opportunities from Climate Change* conference, Tullamore Court Hotel, Tullamore, Co. Offaly (October 2019).

MEMBERSHIPS IN VARIOUS COMMITTEES AND NETWORKS

- > *NSAI/ ETC 48/SC 26: Human Resource Management.* Dr Julius Nyiawung liaises with other committee members from various organisations operating in Ireland to advice and develop Human Resource Management (HRM) protocols (policy and practice standards) for professionals and HR departments.
- > *ISO/IEC/CEN/CENELEC: Human Resource Management (HRM) Standards Committee.* Dr Julius Nyiawung is Ireland's representative at the International Organization for Standardization (ISO), and helps to develop standards (best practice, guidelines, templates, dashboards, scorecards, and metrics) for HR adoption and application in member countries. He also votes on behalf of Ireland for any new or modified HRM standards.
- > *NSAI/TC 047/SC 22 to develop I.S. EN ISO 19650-2:2018 Irish National Annex to I.S. EN ISO 19650-2:2018:* Dr Zohreh Pourzolfaghar is a member of the National Standards Authority of Ireland and contributed to the development of ISO 19650 Irish Annex.
- > *Open Data Governance Board for the Department for Public Expenditure and Reform (DPER).* Dr Adegboyega Ojo serves as a member of the board and serves in the sub-committee for Data Literacy and Training for Civil Servants.
- > *Exploring Economic and Enterprise Opportunities from Climate Action:* Dr John Cullen is a member of the interdisciplinary working group focused on the development of economic and enterprise activities related to Climate Action Policy.
- > *National Supply Chain Academic Network (NSCAN):* Dr Patrick Rigot-Muller was invited to join this network, which was formed in response to the COVID-19 crisis to support businesses from a supply chain perspective. The group aims to work with companies and businesses based in Ireland to provide their expert knowledge and tools to ensure continuity of supply, and development of resilience and agility.

RESEARCH WITH/FOR INDUSTRY

In 2019, Dr Jean Cushen served on a consultation panel convened by the national Economic Social Research Institute (ESRI) on the topic of National Indicators of Decent Work. The work of this panel will serve to inform policy.

Dr Cushen and Professor Peter McNamara have been working since 2019 with the National Forum on a funded project relating to Enhancing Employability Skills for International Postgraduate Students – National Forum for the Enhancement of Teaching and Learning in Higher Education.

In 2020, Dr Cushen worked collaboratively with Kildare based Recruitment and Coaching firm, Clark Recruitment, Grant Thornton and County Kildare Chamber to design and report on a significant workforce survey of employers and employees along five counties on the M7 corridor focusing on talent resourcing, skills, workplace culture and future trends for business success.



Dr Jean Cushen workforce survey focused on the five counties on the M7 corridor

Dr Fabiano Palonetto has been working on a collaborative project with several EU universities and power system companies to develop an analytics software and optimisation model for power systems with high penetration of renewable energies. The objective is to develop a generic framework for scaling the optimal economic dispatch and unit commitment for large power systems.

Dr Adegboyega Ojo has been working with Health Information Quality Authority (HIQA) on the *Patient-Centred Service Improvement Project (PaCSI)*. The project involved a comprehensive secondary data analysis (SDAP) of textual feedbacks from HIQA's National Care Experience Programme and the development of an analytics dashboard to explore results and findings.

POLICY REPORTS

Cullen, J. Portfliet, M.V. Kierans, L. Kenny, K. Abazi, V. (2020) Submission to the Consultation on the Transposition of the EU Whistleblowing Directive. Policy Contribution.

STUDENT INVOLVEMENT IN ENGAGED RESEARCH

The *Business Research Project (BRP)* is an element of the MSc programmes that provides a significant opportunity for students, supervised by faculty, to gain real world experience of a business issue. This is an important method through which the practice engaged values of the School of Business are brought to life and how the School seeks to live their mission of developing both critical thinkers and impactful knowledge for society. The BRP enables students and faculty to apply their research and practice skills to a problem that a client organisation faces. Postgraduates at the School of Business carry out research on any one of a wide number of business areas of strategic importance to organisations. This year they had 53 BRPs across 24 organisations located in the Maynooth University region. These organisations are working in a range of industries including Recruitment, Consultancy, Ventilation, Education, Financial Services and Fast-Moving Consumer Goods.

FACULTY HIGHLIGHTS

FACULTY OF SOCIAL SCIENCES

In the 2019–2020 academic year, the School of Business engaged in two SPUR projects with four students:

- > *Generation migration. Document analysis of self-reporting blogs: Uncovering the themes*, supervised by Dr Marian Crowley-Henry.
- > *Understanding the luxury consumer on social media* supervised by Professor Joseph Coughlan.

RESEARCH OUTREACH: PUBLICATIONS IN MASS MEDIA

1. Andreeva, T. (2020). *Are you good at sharing what you know with your co-workers?*, RTÉ Brainstorm, 22nd July 2020.
2. Coogan, K. & Crowley-Henry, M. (2020) *Meet your new workmates: Generation Z's views on work and careers*, RTÉ Brainstorm, 10th January 2020.
3. Hayden, M. (2020). *COVID-19 and the agricultural industry*, Accountancy Ireland website, 29th July 2020.
4. Kypraios, E. (2020) *Coronavirus: les « catastrophe bonds » sont-ils vraiment le remède financier dont nous avons besoin?*, The Conversation, 25th March 2020.
5. Kypraios, E. (2020) *Pandemic bonds: The financial cure we need for COVID-19?*, The Conversation, 29th March 2020.
6. O'Connor, C. Moran, G. and Luethge, D. (2019): *Why saying hello is a good idea in third level education*, RTÉ Brainstorm, 18th Oct 2019.
7. Rake, B. (2020) *Can contact tracing apps stop the pandemic?*, Business & Society Blog, 25th June 2020.

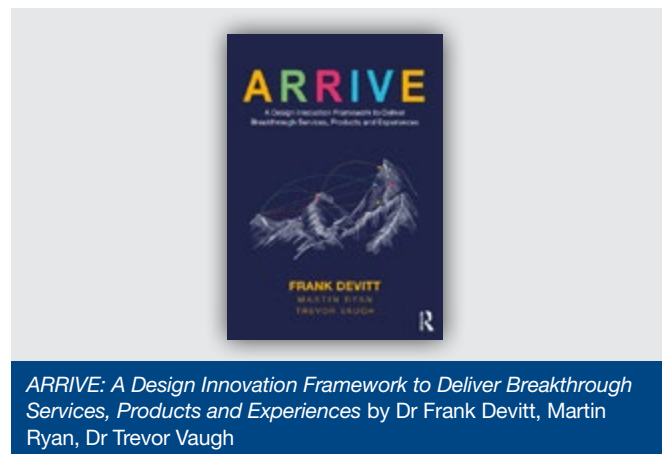
RESEARCH OUTREACH: OTHER APPEARANCES IN MASS MEDIA

1. Crowley-Henry, M. (2020) Media interview on Kildare FM (regional broadcast, Co Kildare) show Kildare Today focusing on GenZ with Clem Ryan (presenter). Aired live on 16th January 2020. <https://bit.ly/360NXbC> (starting ca. 3 minutes 40 seconds in on the podcast).
2. Crowley-Henry, M. (2020) Panel interview on Newstalk (national broadcast, Ireland) show Between the Lines focusing on the Future of Work with Andrea Gilligan (presenter). Aired on 25th January 2020 (recorded on 22nd January 2020). www.newstalk.com/podcasts/between-the-lines-with-andrea-gilligan/the-future-of-work.
3. Mockaitis, A. (2020) Mentioned in the article: *Millennials more 'burnt out' than other generations during pandemic, says new study*, The Journal, September 2020, www.thejournal.ie/millennials-burn-out-ireland-maynooth-research-covid-19-5199931-September2020/.
4. Mockaitis, A. (2020) Mentioned in the article: *Millennials may need more supports*, Women mean business, September 2020, www.womenmeanbusiness.com/2020/09/millennials-may-need-more-supports/.
5. Pourzolfaghar, Z. (2019). Invited interview at the Independent Big Tech radio show with Adrian Weckler (presenter) on Transforming Dublin into a 'smart city' www.independent.ie/business/technology/news/the-big-tech-show-transforming-dublin-into-a-smart-city-38608022.html Aired live in Oct 2019 (last 10 minutes of the radio show).

DEPARTMENT OF DESIGN INNOVATION

The Design Innovation Department grew from four active research academics to seven in 2019–2020. The *Maynooth Innovation Lab (Mi:Lab)* education project led by Dr Trevor Vaugh recruited three researchers on one year contracts, that have now been extended. There were four funded research awards totalling €63,071, and the Department authored 19 publications in the reporting period.

The 2019–2020 period saw the greatest number of research funded projects and outputs of any previous year in the Department of Design Innovation. The recruitment of three additional research active academics had an impact, two with established international networks, but most notably the publication output from Dr Vaugh and the HEA funded *Mi:Lab* project significantly increased the Department's contribution of internationally peer-reviewed publications and engaged research. Despite COVID-19 curtailing ambitions to hold industry workshops on campus, Dr Frank Devitt held online events that engaged audiences of over 150 on three weekly lunchtime sessions. Dr Devitt, Martin Ryan and Dr Vaugh are authors of the book *ARRIVE: A Design Innovation Framework to Deliver Breakthrough Services, Products and Experiences*, which was completed over 2019–2020, and published by Routledge in April 2021.



ARRIVE: A Design Innovation Framework to Deliver Breakthrough Services, Products and Experiences by Dr Frank Devitt, Martin Ryan, Dr Trevor Vaugh

The Department has long-established connections with industry, which is evident across various collaborations (both at staff and undergraduate level). The work of Dr Frank Devitt, Martin Ryan and Dr Trevor Vaugh has consistently been commended and featured by bodies such as the Industry Research Development Group (IRDG). Furthermore, in his role as Principal Investigator, Martin Ryan was awarded an Enterprise Ireland Commercial Case Feasibility Grant (€25,000). This competitive funding is awarded to support projects that have the potential to receive further funding from Enterprise Ireland. Mr Ryan is also Principal Investigator on a wholly funded industry research project, which saw him successfully secure €25,076 from Glenveagh PLC. This project adopts a novel research design, which explores the home buying journey so that Glenveagh PLC can inform their digital showcase offering. Dr Mary Galvin is a Co-Investigator on this project,

ensuring the development of research capacity across the Department. Mr Ryan's profile and expertise is also evident when it comes to his role as Programme Director of the BSc in Product Design, which includes regular embedded industry collaboration with undergraduates in line with the University's strategic plan.

Dr Galvin has been quick to make a positive impact on the Department and University, co-chairing the Faculty of Social Sciences Research Committee and taking on the management of the research masters and PhD programme. Her publications range from co-authoring peer reviewed journals, policy reports and several conference publications in the area of digital health, ageing and inclusion health. Dr Galvin has also been active in engaged research with public and patient involvement in her roles as Co-Chair of the All-Ireland Inclusion Health Forum research advisory group, as well as her role as Chair of the Coolmine Therapeutic Community research advisory group. She co-authored a report *Civil Society Actions at the National Level: Good Practices in the Drug Policy Field. Study of the Civil Society Forum on Drugs*, and has organised various online learning events, in collaboration with colleagues from Trinity College Dublin, St James' Hospital, the Royal College of Surgeons Ireland, and University College Dublin. She is also working with the HSE, Tata Consulting Services, Dublin City Council, and the ESB on a pilot programme to support older adults in the home via sensor-based technology.

Dr Linzi Ryan has been active in the field of our ageing population, working on industry projects that are leading to several papers that are in development and future publication. In 2019–2020 she received a €5,000 Enterprise Ireland innovation voucher to carry out user-centred research in the area of independent living for older people in the community. She is actively involved in various working groups across the University including the PPI and Age Friendly Maynooth groups.

Dr Iain Macdonald received his first Irish grant with a €15,000 IRC New Foundations award to work with the Irish Cancer Society in an international collaboration with Life Science and Design researchers from Edinburgh Napier University, to examine human papillomavirus (HPV) vaccine communication amongst teens. Due to COVID-19 this has been extended to the end of 2021.



Dr Iain Macdonald, Department of Design Innovation, received his first Irish grant with a €15,000 IRC New Foundations award to work with the Irish Cancer Society

Issue 7 of the Irish Design journal *Iterations* was edited by Martin Ryan, leading to an editorial and three articles co-authored by members of the Department (Mr Ryan, Dr Frank Devitt and Dr Trevor Vaugh). *Iterations* is Ireland's leading peer reviewed design journal, which is represented on the editorial board by All Irish Universities and 3rd level institutes with specialities in Design, receiving international and national submissions.

Some of Dr Vaugh's various outputs have been in collaboration with his researchers in the *Mi:Lab* project (for which he is Principal Investigator). Established in 2018–2019, *Mi:Lab*'s first projects began to bear fruit with three peer reviewed publications, including best new paper at the International Conference on Engaging Pedagogy. Dr Vaugh has been active in supporting the potential of his research assistants and postdoctoral researchers to publish, while furthering their own expertise in the area of design and education. In 2020, *Mi:Lab* collaborated with Maynooth University Access Programme and the MU Department of Law on the Public Service Innovation Funded project *Unlocking Potential*.



Dr Trevor Vaugh, Department of Design Innovation, on Ireland's television screens in RTÉ's documentary series *The Big Life Fix*

Dr Vaugh has also made an impact on Ireland's television screens with RTÉ's *The Big Life Fix*, a documentary series tasking a group of Ireland's leading designers to create innovations that could transform people's lives. This resulted in various interested parties contacting Dr Vaugh and the Maynooth Innovation Lab, in relation to potential collaboration. Other media and community-based contributions from Dr Vaugh include his essay, *The History of Personal Protective Equipment*, which was broadcast on RTÉ Radio 1.

FACULTY HIGHLIGHTS

FACULTY OF SOCIAL SCIENCES

DEPARTMENT OF ECONOMICS FINANCE AND ACCOUNTING

The Department is highly respected in Irish and international circles due to its high-quality research culture. This allows members of the Department to have influential leadership roles that shape the economics academic landscape.

In 2019 and in 2020, the Research Papers in Economics consortium ranked the Department in the top 8% of economics research departments/institutions worldwide. Among economics departments in Ireland, this put MU among the top three with UCD and TCD.

According to the same ranking, among Irish universities, the Department houses the top female economist (Professor Rowena Pecchenino), and one of the top two economists in international trade theory (Dr Dermot Leahy). The Department's position in research rankings in economics is a natural reflection of the Department's commitment to high quality research.

In September 2020, the Department was involved in a restructuring, by which the accounting and finance group migrated to the School of Business. As of September 2020, the Economics Department consists of 12 staff members in economics only. While the new Economics Department would not be considered as a large department, in 2019 and 2020, the economists in the Department contributed research in diverse areas such as gender wage gap, third level education financing, foreign direct investment, R&D in footloose industries, political clientelism, youth participation in politics, income inequality and redistribution, the effect of unemployment benefits on the economy, effects of alternative wage contracts such as shift work and zero-hour, teacher pay and educational outcomes, social psychology and wellbeing. In a notable interdisciplinary paper, one of the Department's most prolific staff members in 2019 and 2020, Dr Miquel Pellicer studied the effect of education on political participation in the context of the Arab Spring. Dr Irene Mosca employed unique Irish data to explore the effects of the Irish Marriage Bar, which provides a natural experiment to examine the effect of maternal employment on child outcomes.

In 2019 and 2020, the economists at the Department of Economics authored 22 publications, 19 of which are in international peer reviewed journals including *Economica*, *The Economics of Education Review*, *The Journal of Behaviour and Organisation*, *International Political Science Review*, *The Journal of the Royal Statistical Society*, *Journal of Human Resources*, *Economic Development and Cultural Change*, *Oxford Economic Papers*, *The Journal of Public Economic Theory*, *Perspectives on Politics*, *Journal of Theoretical Politics*, *Political Research Quarterly*, *South African Journal of Economics*, *Business Economics*, *Journal of Economics and Business*, *Revue de Philosophie Economique*, *The Economic and Social Review*.

Seven of the 22 publications are in the 3*/4* top quartile "internationally excellent journal bracket" including the *Journal of Human Resources*, which is ranked as the second- best industrial relations and labour journal in the world, and *Economic Development and Cultural Change* is ranked among the top three journals in the field of development economics. *Perspectives on Politics* is one of the flagship journals of the American Political Science Association, ranked 18 (out of 567) in political science and international relations. The maintained success in publications in top ranked international peer reviewed journals reflects an explicit strategic goal of the Department to target high impact journals.

Dr Tuvana Pastine was awarded the 2019 Walsh Prize for Economic and Social Research for her work on incumbency advantage in political contests, with co-authors from UCD and California Polytechnic State University. The paper is a theoretical examination of alternative campaign finance regulations that are likely to improve the quality of democracy.



Dr Tuvana Pastine, Head of Department of Economics, Finance and Accounting, was awarded the 2019 Walsh Prize for Economic and Social Research for her work on incumbency advantage in political contests

Dr Aedín Doris and Dr Gerda Dewit are the Editor and the Associate Editor of the *Economic and Social Review*, Ireland's leading peer reviewed international journal for economics and applied social science. Dr Doris is also an Associate Editor of the *Journal of the Statistical and Social Inquiry Society of Ireland*.

During this period, members of the Department have refereed for some of the leading journals in economics and related disciplines including *The Journal of Human Resources*, *Economics of Education Review*, *The Journal of Law and Economics*, *The Stata Journal*, *BMC Public Health*, *The Journal of Economic Inequality*, *Economic Journal*, *Industrial and Labor Relations Review*, *Small Business Economics*, *Scottish Journal of Political Economy*, *Personnel Review*, *Review of International Economics*, *International Tax and Public Finance*, *Demography*, *Journal of Economic Surveys*, *Journal of Population Economics*, *Health Economics*, *BMJ Open*, *European Journal of Health Economics*, *Research on Aging*.

EXTERNAL APPOINTMENTS

During this period there were notable appointments to key government advisory boards. Professor Donal O'Neill was appointed to the Labour Market Advisory Council by Minister Heather Humphreys to help evaluate the impact, effectiveness and efficiency of measures implemented as part of the Pathways-to-Work Strategy, and alternative labour market programmes and policies aimed at supporting unemployed individuals to access employment, ensuring that they align with sectoral needs.



Professor Donal O'Neill was appointed to the Labour Market Advisory Council

The Economics Department is also delighted that Dr Aedín Doris was appointed to the Commission on Pensions, established by the Minister for Social Protection. The Commission examine sustainability and eligibility issues in respect of state pension arrangements and will outline options for government to address questions that relate to qualifying age, contribution rates, total contributions, and eligibility requirements.

The research expertise of the members of the Economics Department is sought after by academic and non-academic bodies. Professor O'Neill is in the External Expert Panel of the European Commission Structural Reform Support Service. The panel supports the implementation of structural reforms in EU member states in the areas of labour market and social cohesion, and the welfare system. The need for the expert services is heightened as the number of people unemployed and the number of people on welfare payments are currently higher than ever.

Professor Rowena Pecchenino is a Council Member in the ESRI. This is a very prestigious position as the institute gives evidence-based policy recommendations to the government on the most difficult and pressing social and economic problems Ireland faces.

Another international contribution relates to promoting academic freedom worldwide. The Irish wing of the Scholars at Risk (SAR) Network is chaired by Professor Pecchenino. Maynooth University's contribution through the Department of Economics is significant in helping to alleviate the pressures that threaten academics' pursuit of knowledge without unreasonable interference or restriction from law, institutional regulations, or political and public pressure.

Dr Aedín Doris' expertise on the economics of education makes her a valuable member of the Irish University Association's Higher Education Access Route (HEAR) Review Group. Her guidance will help the group to revise the HEAR scheme, to improve its effectiveness, and to promote access of under-represented groups in higher education.

Dr Pellicer gave the keynote address in the annual meetings of Professional Development Service for Teachers (PDST) on the evolution of income inequality.

The Department members' consistent reach for excellence in economics research translates into external recognition. Dr Dermot Leahy and Dr Gerda Dewit are affiliated senior researchers at the Leuven Centre for Irish Studies (LCIS) at the Catholic University of Leuven. Their group conducts research on aspects of small open economies, like Ireland and Belgium, and their integration in the European Union and the global economy.

Professor O'Neill and Dr Mosca are Research Fellows at the IZA Institute for Study of Labor. IZA is the leading international platform that links and disseminates cutting-edge research in labour economics. Its global network of selected research fellows are distinguished by their excellence in research contributions.

Dr Olive Sweetman, Dr Doris and Professor O'Neill published an Op-Ed piece in the Irish Times on how to measure school performance. The press/public attention to the critical piece was well deserved as the research has important implications for resource allocation and for optimal parental school choices for children. Dr Sweetman presented the research article on the same question to the academic community at the *12th Annual Growing Up in Ireland Conference* organised by ESRI.

Dr Pastine's co-authored book on game theory, which is published in three languages, received high praise. In 2019 and 2020, the book occupied the Number 1 Top Best-Seller in Game Theory on Amazon.com. It was featured in multiple book review blogs such as Tiago Books, MindYourDecisions, and in the Strategy Chain Podcast.

FACULTY HIGHLIGHTS

FACULTY OF SOCIAL SCIENCES

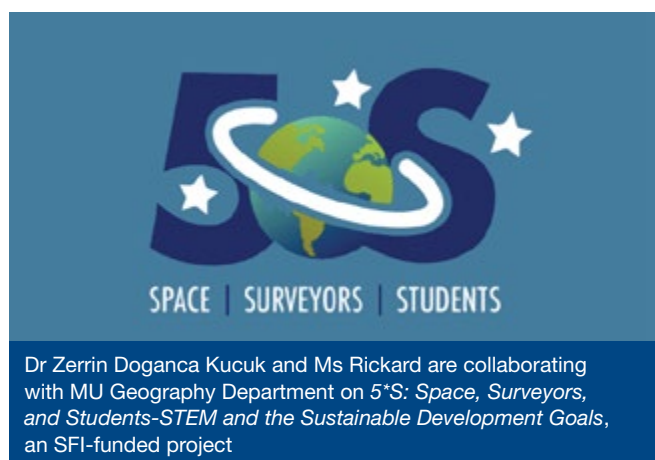
DEPARTMENT OF EDUCATION

The Education Department engages in significant research, policy and curriculum development work with external stakeholders. The Department has 16.5 academic staff and 1.4 Professors from The Centre for Public Education and Pedagogy (CPEP) who are affiliated. In the academic year 2019–2020 the Department was host to 61 PhD and Professional Doctoral students, published 109 publications and was awarded over €400,000 in research grants.

Dr Thomas Walsh collaborated with Dr Rory McDaid from Marino Institute of Education in publishing research relating to the lack of diversity in the teaching profession, excavating its historical origins, as well as the contemporary systemic issues propagating the status quo. Other historical work published by Dr Walsh includes an analysis of the evolving status and increasing professionalisation of national schoolteachers in the 1800s (*From Feckless and Impoverished” to “Respectable”*) and a critique of wider European nationalist thinking on curricular decisions relating to the Irish language in the 1920s.

The Department’s engaged research in team teaching continued in 2019. Ms Angela Rickard and Dr Walsh published an article on the outcomes of a partnership project with the Professional Development Service for Teachers in Irish Educational Studies, while Dr Walsh published a further article on experienced teachers’ perspectives of team teaching as a form of professional learning in Professional Development in Education. Further research with two post-primary schools supported by the Teaching Council progressed well during 2019.

Ms Rickard is also currently collaborating on a teaching and research project entitled *Among Others*, with Dr Marianne O’Shea from the MU Department of Applied Social Studies. The work has the support of a Teaching Fellowship Grant from the Centre for Teaching and Learning.



Dr Zerrin Doganca Kucuk and Ms Rickard are collaborating with MU Geography Department on the teacher education part of a large scale SFI-funded project entitled *5*S: Space, Surveyors, and Students-STEM and the Sustainable Development Goals*. In the project, Dr Doganca Kucuk and Ms Rickard are working with the teacher and student-teacher groups on professional development for teachers and student teachers. The research focuses on teacher agency to include Geographical Information Systems (GIS) in classroom teaching in both Science and Geography. Dr Doganca Kucuk was also the Project Supervisor in *STEM Leader Teacher Career Development Program* (2017–2019). This involves working with middle and high school mathematics and science teachers. She continues to collaborate with the STEM Center in Bahçeşehir University in Turkey.

Dr Jolanta Burke and Dr Majella Dempsey carried out research to explore the impact of the COVID-19 pandemic on schools. They published a series of rapid reports, commissioned by stakeholders, including the Department of Education, which shared best practice between schools about how they coped with the pandemic a week after the school closure *COVID-19 Practice in Primary Schools in Ireland*, and again two months later *COVID-19 Practice in Primary Schools in Ireland – two-month follow-up*. They have also assessed the preparedness of schools to reopen after the pandemic, in a report commissioned by the Catholic Primary Schools Management Association *Primary School Leaders’ Concerns about Reopening Schools After the COVID-19 Closure*, a report on how teachers coped with the pandemic *Lessons learnt: The experiences of teachers in Ireland during the pandemic*. Dr Burke published another rapid report about the experiences of students completing their Leaving Certificate during the pandemic *The Class of 2020: The Experience of Leaving Certificate Students During COVID-19 in Ireland*. Dr Burke has also contributed with two books *The Ultimate Guide to Implementing Wellbeing Programmes for School* published by Routledge, and *Positive Psychology and School Leadership: The New Science of Educational Leadership* published by Nova Science Publishers.

Dr Majella Dempsey is also chair of the Biology Development group in the National Commission for Curriculum and Assessment (NCCA), which has met 11 times over the last 18 months to finalise the new second level Biology specification. She has also been involved in a public panel of the future of Science Education, organised by the Irish Science Teachers Association. With Dr Delma Byrne, she is conducting research with the current first year MU undergraduates.

Ms Paula Kinnarney is continuing to engage with Professional Development for Service for Teachers (PDST) on the development of a certification pathway for school leadership teams engaged in innovative practice, as well as supporting policy development/engagement with school managerial bodies on school leadership roles.

Dr Bernie Grummell is currently involved in two research projects during 2019–2020, as well as acting in an advisory and support capacity on research about inclusion practices and cultures in schools, social justice and inclusive learning in higher education and communities, and a Technical Advisory Committee to develop the 10-year strategy for adult literacy, numeracy and digital literacy. The *Disciplines Inquiring into Societal Challenges* (DISCs) project is funded by the National Forum for Teaching and Learning 2018–2020, with colleagues in the Centre for Teaching and Learning and the students union in Maynooth University, University College Cork and Dublin City University. The project is a collaboration with staff and student unions between UCC and DCU to support staff and create a strategy and implementation plan for the development of teaching for social justice, particularly in the areas of gender, interculturalism and community-based learning. The team completed research with the Further Education and Skills Service (SOLAS; An tSeirbhís Oideachais Leanúnaigh agus Scileanna) SOLAS, the Education and Training Boards Ireland (ETBI) and the National Adult Literacy Agency (NALA) on the implementation of the Guidelines on the inclusion of adults with intellectual disabilities in Adult Literacy Services (2018–2020). In 2020, SOLAS commissioned this team to develop a series of briefing papers to consolidate the findings of research to support inclusion and further guide informed decision-making about literacy, numeracy and digital literacy in the Further Education & Training (FET) Sector during the 2020–2024 FET Strategy.



Dr Celine Healy, Department of Education

Dr Celine Healy is an invited expert member (languages and initial teacher education) on the Department of Education Foreign Languages Advisory Group (FLAG), which advises on, oversees and monitors progress on the implementation of Languages Connect – Ireland’s Strategy for Foreign Languages in Education 2017-22. In an additional role, she is an expert member on the FLAG Post-Primary sub-committee, which is the management committee of the Post-Primary Languages Ireland.

She is leading a research project on the National Content and Language Integrated Learning (CLIL) pilot project for Modern Foreign Languages (MFL) in Irish Post-Primary Schools funded by the Department of Education and acts as an adviser on the Department of Education National Pilot Projects for introduction of CLIL in Irish post-primary schools, specifically advising on the development of CLIL resources and Continuing Professional Development (CPD) workshops for MFL teachers and co-facilitate the CPD workshops. She is a member of the steering committee planning and overseeing the development of a national CLIL pilot project for Gaeilge in early years, primary and post-primary schools. Dr Healy chaired the NCCA Leaving Certificate Foreign Languages Development Group, which developed the new Senior Cycle Specifications in Lithuanian, Mandarin Chinese, Polish and Portuguese. These languages were offered for the first time as senior cycle curricular subjects in Irish post-primary schools in September 2020. She is currently chairing the Leaving Certificate Foreign Languages Development Group, which is developing a new Senior Cycle Specification in Arabic.

She is Co-Researcher on the IRC New Foundations Award Collaborative Research Project HPV IMMUNITY COMMUNITY – raising awareness on youth HPV vaccine awareness and communication with colleagues from with MU Department of Design Innovation, Edinburgh Napier University Departments of Design and Life Sciences, and the Irish Cancer Society. Dr Healy is also Vice-President of the Executive Committee of Educational Studies Association of Ireland (ESAI), which is dedicated to the advancement of educational research in Ireland.

Professor Aislinn O’Donnell was a partner in *Embracing Cultural Diversity*, in partnership with the Chester Beatty Library, Mary Immaculate College (MIC), Heritec, and the Intercultural Education Service (IES), Northern Ireland. Along with Dr Anthony Malone and Dr Joe Oyler in the Education Department, and colleagues from the Departments of Law and Applied Social Studies, Professor O’Donnell is part of the EDURAD (Education and Youth: A Critical and Comprehensive Response to Violent Radicalisation, 2019–2021) research team. This project was funded by the European Commission under its Internal Security Fund – Police (ISF-P) and has a value of €662,392. It aims to develop Educational Responses to Extremism through participatory action research, with a focus on capacity building with educators, including youth workers, and wider stakeholders, and on sustainability through developing hubs of practice. Professor O’Donnell led *The Enquiring Classroom* Erasmus+ funded project (2016–2018) (€210,455) publishing the project handbook in 2019. The handbook has been shared by a number of organisations including the NCCA, Chester Beatty Library, and Educate Together.

FACULTY HIGHLIGHTS

FACULTY OF SOCIAL SCIENCES

Dr Anthony Malone continues in his leadership role on the long-running Teaching and Learning for the 21st Century (TL21) programme, funded by the Department of Education and Skills (DES), and running in 10 Education Centres across Ireland. A DES commissioned external review of TL21 underlined the impact of the programme. With Dr Majella Dempsey, he recently completed the Erasmus+ funded project *Learning to Disagree* project supporting the development of social, civic and democratic competences. In collaboration with Professor Sinéad McGilloway and Dr Rita Sakr, he is Co-Investigator on the *Study of Adolescent Lives after Migration (SALaM)* Ireland project.

Professor Sharon Todd began her one-year research leave in September 2019 as a Visiting Scholar at the Centre for Sensory Studies at Concordia University, Montréal, where she spent a period of four months participating in seminar activities and offering presentations. She also developed the initial stages of a book project (accepted by State University of New York Press, deadline May 2021), and was awarded, as Co-PI, a Swedish Research Council grant in October 2019 (approx. €540,000) for conducting a project on the centrality of the body for understanding classroom interactions through the lens of gender and social equality. As Co-PI, Professor Todd secured an MSCA-ITN grant entitled *Solidarity in Diversity* (€4M total granted in November 2020). During this period, she worked with colleagues from Sweden and Norway, to negotiate a Special Issue with Studies in Philosophy and Education, entitled *Educating the Senses* (due out in 2021). In 2020, she published two peer-reviewed articles in highly respected journals in the field, along with one chapter in a volume published by Cambridge University Press and an afterword in a book on mindfulness and teaching for Palgrave.

Dr Seán Henry has published internationally recognised, peer-reviewed articles in the following journals: *Philosophy of Education*, *Philosophy and Theory in Higher Education*, and *Sex Education*. Dr Henry also made a blog contribution to an online education series organised by the Museum of Childhood Ireland. His scholarly and outreach work was complemented by further public engagements, particularly by his collaborations with external LGBTQ+ advocacy groups such as BeLonGTo, the Transgender Equality Network of Ireland, and ShoutOut. Along with colleague Ms Angela Rickard, and PME students Aishling McNeill and Gareth Fisher, Dr Henry worked with these organisations to design and resource a workshop for Initial Teacher Education students on LGBTQ+ equality in Irish schools. Throughout the academic year 2019–2020, Dr Henry also served as a steering committee member of Maynooth University's Sexualities and Gender Research Network, where he assisted in the organisation of research networking events and keynote lectures.

Dr Grace O'Grady is continuing to develop her collaborative work with the Centre for Narrative Enquiry and organised the 6th *International Irish Narrative Inquiry* conference, which was scheduled for March 2020.

DEPARTMENT OF ADULT AND COMMUNITY EDUCATION

The Department of Adult and Community Education conducts and promotes high quality research on adult learning and education on national and international levels. Through their research, the Department fosters reflective and transformative approaches to learning that seek to create conditions for the co-creation of learning, which enhances inclusion, social justice and wellbeing in communities. This includes developing key initiatives in adult guidance and counselling, supporting inclusion in adult and community education, widening participation in education, supporting equality in employment and fostering participatory communities. The Department has a long history of commitment towards social justice and a desire to produce research and education that is sustainable for communities, movements and practitioners. The Department develops transformative learning using participatory research approaches that seek to know the world in collaboration with people, linking personal and professional experiences, which challenge hierarchical relations and create new collaborative spaces of learning and research. The rhythm and form of this research work does not always follow traditional academic patterns or results in typical research outputs, and so some of the key work occurring in 2019–2020 are highlighted in the following narrative.

The Department continued to consolidate and expand their international reputation as a leading centre of critical research on adult education and learning (particularly through their expertise on participative research methodologies, critical pedagogy, community education, transformative learning and access). They continue to be key actors in a range of European and national research consortiums, policy consultations, and innovative research activities. Notable achievements in 2019–2020 include the *Turn to Teaching* HEA funded initiative being extended to a second cycle, four new Erasmus+ research projects being awarded, research funding awarded for national policy initiatives in community development, social justice initiatives in higher education, inclusion in adult literacy and further education and training. The Department has 43 research students enrolled in 2019–2020 on the Structured PhD and Doctorate in Higher and Adult Education programmes.

The work of the Centre for Research in Adult Learning and Education (CRALE) has enabled the Department to continue to consolidate and communicate their research activities. The annual CRALE postgraduate forum saw 16 doctoral students presenting their innovative and diverse research on higher and adult education in February 2019, and 18 doctoral students in the online forum in February 2020. The Department hosted 37 public events in 2019–2020, which have brought a wide range of national and international community and adult education practitioners, policy actors, community representative groups, academic and research groups to the Maynooth University space to share practice, engage in collaborations and dialogue, professional learning, policy discussions and transformative actions.

SUSTAINING NATIONAL PARTNERSHIPS THROUGH ENGAGED RESEARCH

In 2019–2020, the Department of Adult and Community Education has been involved in 10 key research projects at national level with policymakers and communities across the sector. This includes the flagship *Turn to Teaching* project, which promotes diversity in the teaching profession through a series of social justice orientated widening participation initiatives. During 2019, it was jointly led by the Department of Adult and Community Education, and the Maynooth University Access Programme (MAP) office and is located directly in the Department of Adult and Community Education in its second phase. This will embed the ground-breaking work of phase one into the structures and practices of partners working within and across Maynooth University, schools, further education centres, community-based organisations, communities and wider society.

The Department is currently engaged in research to develop a series of briefing papers, and a consultative process to guide informed decision-making and thought leadership on literacy, numeracy and digital literacy during 2020–2024 FET Strategy. The Department made policy submissions to the 10-year Adult Literacy, Numeracy and Digital Literacy Strategy and the Consultation for the Department of Further and Higher Education, Research, Innovation and Science Statement of Strategy 2021–2023. A staff member is a member on the Technical Advisory Committee for the 10-year strategy for Adult Literacy, Numeracy and Digital Literacy. The Department continues to engage with adult educators and learners in research about the inclusion of adults with intellectual disabilities in the Adult Literacy Sector with SOLAS, ETBI & NALA. They hosted a national professional development workshop in the Adult Literacy Tutors forum in January 2020, developed three regional workshops on inclusion in adult literacy for ETBI staff offered in 2019, and made four presentations to National Advisory Committee for Further Education and Training. The Department continued to work on the SOLAS and the National Adult Education Agency (AONTAS) *Learner Forum*, which seeks to give learners a voice in FET policy making. Building on research in 2018, a departmental member worked as special advisor to the Learner Forum and this initiative was ‘mainstreamed’ in national policy and expanded in scale.

The *Disciplines Inquiring into Societal Challenges (DISCs)* project is a collaborative partnership between students and staff from UCC, DCU, and Maynooth University (2019–2021), funded by the National Forum for the Enhancement of Teaching and Learning in Higher Education. They organised an inter-institutional workshop to support higher education (HE) staff in Maynooth in November 2019 and in UCC and DCU in 2020, conducted a national survey with over 1,600 students about their experiences, and contributed to the creation of a website and repository to support HE teaching from a social justice perspective. The Department conducted a piece of consultation and engaged research for Clondalkin Access Network to support them in developing their new strategy for access and widening participation in one of the most educationally disadvantaged areas in Dublin. The *Saolta*

community development project funded by Irish Aid (2020–2022) is a consortium of Development Perspectives, Maynooth University, Irish Rural Link, AONTAS and Concern Worldwide, with the goal of increasing accessibility, quality and effectiveness of development education within the adult and community education sector.

The Centre for Studies in Irish Protestantism, funded by the Department of Foreign Affairs Reconciliation, creates spaces for the Protestant community in both jurisdictions to engage in public discussions and engaged research in a post conflict society.



Research commissioned by Amal Women's Association explores Muslim women's experience of maternity care in Ireland

A Mother is Born Too research was commissioned by Amal Women's Association (The Islamic Foundation of Ireland) in 2020 to explore Muslim women's experience of maternity care in Ireland from a human rights perspective, and to identify barriers to access, so as to make informed recommendations that might improve outcomes for mothers, babies and their families. The Department conducted a review of the closures of community development centres across Ireland since 2008 for AONTAS in 2019. They completed research for *Suicide or Survive (SOS)* in the workplace (2019–2020), which focused on breaking down the stigma associated with mental health issues and ensuring that those affected are treated with dignity and respect, and experience a service that offers them hope, a safe place and a positive future. The Department continues to collaborate with the HSE Sexual Health and Crisis Pregnancy Programme in designing and delivering a series of masterclasses based on the Department's research on managing the challenges that present around unplanned pregnancy. In 2019–2020, six national masterclasses were attended by 93 professionals drawn from various medical, social care, psychological and educational contexts.

These activities involve extensive engagement with policymakers and practitioners across Ireland including SOLAS, HEA, Community Education Network, NALA, AONTAS, ETBI, HSE, Local Partnerships in Kildare and Dublin, Midland Regional Transition Team Working Group, Education and Training, and Dublin North East Local Drug and Alcohol Task Force. As is typical with such engagements, this ongoing work has ripple effects that impact on policy debate, thinking and development; sharing experiences and professional development with practitioners, co-creating participatory research and transformative learning with communities.

FACULTY HIGHLIGHTS

FACULTY OF SOCIAL SCIENCES

CONSOLIDATING AND EXPANDING THE DEPARTMENT'S INTERNATIONAL REPUTATION

The Department of Adult and Community Education continues to consolidate our international reputation in adult education with the international publication of two edited books by SENSE/BRILL, one of the leading international publishers in adult education research. The books bring together leading writers and researchers in contemporary adult education in *Power and Possibility: Adult Education in a Diverse and Complex World* (2019) and *Doing Critical and Creative Research in Adult Education* (2020). These are significant publications including key contributions by Department colleagues and doctoral students, which link engaged research, theoretical analysis and methodological innovation in a forum that ensures international scholarly recognition. During 2019–2020, the Department published two other significant edited books. *European perspectives on transformation theory* with Palgrave Macmillan, which is directly linked to a major theme of the Department's scholarship-transformative education. *Funding, power and community development* with Policy Press, is an international collection that focuses on a longstanding strategic concern of the Department's research on community development and empowerment.



Power and Possibility: Adult Education in a Diverse and Complex World (2019) and *Doing Critical and Creative Research in Adult Education* (2020)

Members of the Department have also published 14 book chapters in various international publications during this period and presented 20 papers at key national and international academic conferences in the field of adult education including in Serbia, Barcelona, Glasgow and Nottingham, as well as online international conferences (reflecting the impact of COVID-19). Colleagues continue to be involved in the organising groups and scientific committees of international conferences. One member served as Vice Chair, a member of steering committee and a convenor for a network in the European Society for Research on the Education of Adults (ESREA), the most significant academic organisation in European adult education.

The Department is currently involved in five international research consortia and funded projects, which continue to consolidate and enhance the Department's reputation on a European stage. These Erasmus+ projects focus on enhancing social inclusion and learning in research collaborations between policy, education and community partners. Their engagements and outputs will lead to multiple forms of dissemination relevant to practitioners and policymakers across Europe, including research reports, European level policy papers, literature reviews, continuous professional development programme, toolkits and guidelines, and are openly available through the Department's new research website.

- > **CREATE – Competitive Regions and Employability of Adults Through Education (2018–2021)**
The project intends to intervene at systemic level between EU Policy (EU2020) and regional bodies tasked with policy formulation and implementation of education programmes. Outcomes of CREATE will enhance policy formulation and promote evidence-based Adult Education policy and practice.
- > **DELSA – Enhanced Employability for Digitally Upskilling Adults (2019–2022)**
It aims to improve digital skills and competences of adults to enhance their socio-economic empowerment and increase their employability. DELSA pools the expertise and capacity of seven partners from 6 countries, representing the various dimensions of adult education and digital technology partners.
- > **SUMHEIs – Summer School Development Programme for European HEIs (2019–2021)**
This is a consortium of seven European partners from four different regions, aimed at bringing experience and expertise on designing and developing a Model Summer School Office as an innovative and prototype tool for the development of a successful summer school to be used by HEIs.
- > **DIVERSITY – Including Migrants through Organisational Development and Programme Planning in Adult Education (2019–2021)**
It will raise awareness of the challenges and opportunities arising from migration related diversity, explore inclusive approaches and develop training resources for adult education providers for a more diversity-informed Adult Education.
- > **SMILE – Social Meaning Impact through Lifelong Learning Universities in Europe (2020–2023)**
This is a collaboration between 12 European partners to upscale the partners' research on inclusive learning to a wider context and in institutional strategies to ensure sustainability, in the three intersectional areas of disadvantages in terms of gender, class & migrant background in HE.

Members of the Department contributed to national and international conferences and networks related to sociology, guidance and counselling, lifelong learning and higher education. Members also continue to be active in peer review and editorial work with international journals, sitting on the editorial boards of some key educational journals including Journal of Transformative Education, European Journal for Research on the Education and Learning of Adults, Policy and Practice: the development education review, as well as editing a special issue of Community Development Journal in 2019–2020. Colleagues are members of ESREA, a representative for Standing Conference on University Teaching and Research in the Education of Adults (SCUTREA), convenor of an ESREA active democratic citizenship and adult learning research network, and members of European University Continuing Education Network (eucen).

The Department seeks to continue this strong track record in research through the development of further research applications, supported by the research strategy plan of our Research Centre for Adult Learning and Education (CRALE). CRALE has enabled the Department to plan and work collaboratively to develop and communicate the

research strategy in a sustained manner, actively seeking research awards to fund staff, doctoral and postdoctoral research in adult and community education.

At a national level, members of the Department have been a special advisor on the AONTAS Learner Forum, on the Board of Directors of Partners Training for Transformation, Financial Justice Ireland, Board of the National Centre for Guidance in Education, AONTAS, Community Education Network, Three Pillars Community Education Collective and Social and Health Project (SHEP). Colleagues have been a member of the AONTAS led Mitigating Educational Disadvantage Emergency Working Group advising the Department of Education and Skills in 2020 and a member of the Technical Advisory Committee for the 10-year National Strategy for Adult literacy, Numeracy and Digital Literacy. Colleagues have offered a range of professional development workshops, presentations and seminars for ETBI, National Adult Literacy Tutors forum, Adult Education Officers Association, National Advisory Committee for SOLAS and NALA during 2019 and 2020.

The HEA funded *Turn to Teaching* PATH programme supports increased diversity in Initial Teacher Education (ITE). The programme hosted five Saturday workshops in 2019 and a further four workshops in 2020 attended by Rising Teachers and Rising Leaders. In 2019, colleagues worked collaboratively with students and teachers from Delivering Equality of Opportunity in Schools (DEIS) post-primary schools across the region, as well as running workshops for parents/guardians and teachers to provide guidance and support on HE applications. Colleagues worked collaboratively with the education offices of Kildare Leader Partnership, Ballyfermot/Chapelizod Partnership, Dublin South County Partnership, Dublin South City Partnership and Northside Partnership. A core part of Turn to Teaching has been the development and roll out of a prolonged media and social media campaign to raise awareness nationally about the importance of a diverse teaching profession, including an animated video and a series of four journey videos about participants' experiences. A national media campaign was developed around diversity, teaching and aspirations, and released on social media platforms and attracted considerable engagement.

The Communiversities is a three-way partnership between Maynooth University (MU); community-based organisations such as Local Development Companies and Local LEADER Partnership Companies; and the Public Library Service. The project is aimed at connecting with 'hard to reach' target groups, and those most distant from the Higher Education system, by running accessible and stimulating courses in local libraries. Department members collaborated with County Kildare LEADER Partnership Company and the Newbridge Library to begin a new Communiversities, as well as hosting the Communiversities Annual Celebration of Learning event to conclude the three Communiversities completed in 2019 academic year. Two Communiversities with the South Dublin City Partnership, the Northside Partnership and Dublin City Council were suspended in March 2020 due to COVID-19.

Joint Addiction-Psychology Studies Seminars: *What's Trending? A critical analysis of the digital self and addiction* in March 2019 and a Psychology Seminar: *Parental Alienation* in February 2020, were attended by 170 participants.

FROEBEL DEPARTMENT OF PRIMARY AND EARLY CHILDHOOD EDUCATION

There were 22.5 academic staff employed in the Froebel Department of Primary and Early Childhood Education in 2019–2020. 476 students were enrolled across a range of programmes, 15 of whom were students on the Master of Education (Research in Practice) programme. During the year, staff contributed to 41 conferences, produced 38 publications and successfully secured four research grants valued at €20,475.

Research achievements and activities in the Froebel Department of Primary and Early Childhood Education 2019–2020 illustrate a broad range of academic, professional and civic engagement interests and commitments from departmental staff. It was a productive year for the Department and a significant one in consolidating our research strategy 2018–2023. The Department's research goals focus on enhancing, through research and engagement with relevant agencies, the development of early-years and primary education as scholarly and practice-based disciplines, and contributing through research, scholarship, reflection and strategic engagement to national and international educational initiatives. Informed by Froebelian values, the Department aims to contribute through research and scholarship to the development of an education system and a society that promotes the values of human rights, social justice and equality. Arising from the strategy, the Department has identified key areas of interest, which include: Pedagogy of Teacher Education and Educator Professional Development, with particular emphasis on Froebelian philosophy and methods; The purposes, practice and quality of primary education, early-childhood education and teacher education; Language Arts and Arts Education; Social Justice and Inclusion; Practitioner-Based Research and Engaged Research.

PEER-REVIEWED REFEREED JOURNALS

Dr Suzanne O'Keeffe and Dr Craig Skerritt (DCU) published a co-authored paper entitled *Exploring teacher identity using Post-structural Tools* in the International Journal of Research and Method in Education. This article explores power in policy development, the politics of knowledge production, and highlights the value of teachers' embodied knowledge and their unique position to contribute to policy development.

Dr Leah O'Toole, Deirdre Forde and Dr Suzanne O'Keeffe, along with other colleagues within and beyond the university, published an article in the British Educational Research Journal entitled *Contested childhoods across borders and boundaries: Insights from curriculum provisions in Northern Ireland and the Irish Free State in the 1920s*. This co-authored paper examines the contested spaces of childhood North and South of the border in Ireland around the time of the formation of the Irish Free State. Dr Leah O'Toole also published three other journal articles in this period in the highly regarded Polish peer reviewed journal *Problemy Wczesnej Edukacji/Issues in Early Education*. Dr Patricia Kennon published *Reflecting Realities and Twenty-First-Century Irish Children's and Young-Adult Literature* in *The Irish University Review*.

FACULTY HIGHLIGHTS

FACULTY OF SOCIAL SCIENCES

Dr Triona Stokes published a paper on the use of participatory methods with young children with reflections on emergent 'ethically important moments'. This features in *Irish Educational Studies*. Dr Liam Mac Amhlaigh teaches and researches in the discipline of Modern Irish. Sa réimse sin, tugadh cuireadh dó alt a réiteach do Proceedings of the Harvard Celtic Colloquium dar teideal *Late modernism and Irish-language poetry: The INNTI project and the Black Mountain Poets of North Carolina*, a chríochnaigh sé sa bhliain 2020.

AUTHORED/CO-AUTHORED BOOKS

Four staff members have worked on the publication of books in the last year. Dr Leah O'Toole (with co-author Professor Nóirín Hayes of TCD) published a book with Routledge called *Supporting Positive Behaviour in Early Childhood Settings and Primary Schools: Relationships, Reciprocity and Reflection*. Leah has also been invited by Routledge to write a 2nd edition of her previous co-authored book *Introducing Bronfenbrenner: A Guide for Practitioners and Students in Early Years Education* (2017). This has become one of the most widely known recent texts on bioecological theory and is on reading-lists in universities nationally and internationally. It has been cited in 87 other publications including books and international peer-reviewed journal articles (a high citation rate in this field). Leah's reputation as a leading bioecological scholar led to the invitation to write the chapter on Bronfenbrenner in Barnett and Jackson's (2019) book – see below. Equally significant is Dr O'Keeffe's upcoming publication called *Masculinities in Primary Schools – Exploring the Lives of Irish Male Teachers*. This book explores the everyday realities of a cohort of Irish male primary teachers. It attempts to step inside the minds of the male teachers using the theoretical perspectives of emotions, power, and materiality, to view the world as they do.

Furthermore, Dr Máire Nic an Bhaird was co-editor of the book *Douglas Hyde My American Journey* (2019) published by UCD Press. With an introduction by President Michael D. Higgins and punctuated with entertaining pen pictures of prominent figures in US history (including President Theodore Roosevelt), this study recounts an important part of the life of one of Ireland's most under-appreciated leaders and captures an Ireland on the very brink of seismic change. Comh maith, bhí an Dr Liam Mac Amhlaigh ina chomheagarthóir ar *Léachtaí Uí Chadhain* (2020, Cló Léann na Gaeilge) – saothar ollmhór 700 leathanach leis an léachtaí is tábhachtaí i litríocht chomhaimseartha na Gaeilge a tugadh sa Choláiste Ollscoile, Baile Átha Cliath ó 1980–2017.

BOOK CHAPTERS

A number of Faculty staff have successfully published chapters in a range of books illustrating a breadth of research interests across the Department.

- > Dr Patricia Kennon's contribution to Eric Falci and Paige Reynolds book on Irish Literature in Transition, Volume 6, 1980–2020 is entitled *Writing Childhood: Young Adult and Children's Literature* which is published by Cambridge University Press.
- > Aoife Titley's chapter called *Africa as pedagogical playground: Problematising sending programmes for teachers* features in *Challenging perceptions of Africa in schools: Critical approaches to global justice education*.

- > Tony Sweeney co-authored a chapter titled *Shared Learning, Different Contexts: Understanding Teaching for Meaning in Pre-Service Physical Education Teacher Education* in the 2020 publication, *Textiles and Tapestries: Self-Study for Envisioning New Ways of Knowing* from edtech books.
- > Dr Liam Mac Amhlaigh was invited to contribute three chapters to the historic publication from Oxford University Press: *The History of the Irish Book, Volume 2: The Printed Book in Irish, 1567–2000*. Baineann na caibidlí seo leis an bhfoclóirí agus oideachasóir Tomás de Bhaldraithe, le tréimhseacháin aitheanta na Gaeilge le dhá chéad bliain anuas agus leis an tionscnamh eiseamláireach, *Portráidí na Scribhneoirí Gaeilge*. Chríochnaigh sé dhá chaibidil eile: *Amharcfhínéid na teilifise i bhfilíocht Mhichael Davitt* a bheid le foilsiú sa leabhar úr *Ó Chleamairí go Ceamaraí* (Ní Mhuircheartaigh, E. Denvir S. agus Ó Liatháin, P. eagí. Cló Léann na Gaeilge: Baile Átha Cliath) agus *Tairseach an aistir: Michael Davitt, Bligeard Sráide*, agus dánta deireanacha dá chuid' sa bhailiúchán idirnáisiúnta in *Ar an Imeall i Lár an Domhain?: An tairseachúlacht i litríocht agus i gcultúr na hÉireann agus na hEorpa* (Markus, R. Nic Eoin, M. Nic Mhathúna, D. Ní Mhuircheartaigh, E. Ó Liatháin, P. eagí. Leabhar Breac: Indreabhán).
- > Dr Leah O'Toole co-authored the chapter on Bronfenbrenner in the book *Ecologies for Learning and Practice: Emerging ideas, sightings and possibilities*, which was edited by Ron Barnett (Emeritus Professor at the Institute of Education, University College London) and Norman Jackson (Emeritus Professor at the University of Surrey) and published by Routledge.



Dr Liam Mac Amhlaigh was invited to contribute three chapters to the historic publication from Oxford University Press: *The History of the Irish Book, Volume 2: The Printed Book in Irish, 1567–2000*

CONFERENCE PRESENTATIONS

Many staff made interesting contributions at conferences across a diverse range of research topics. Dr Patricia Kennon has presented at a number of events at home and abroad in the UK and the USA. She was also a panellist for *The Irish Publishing Market* and *Telling Tales for Children Through Art and Pictures* at the World Science Fiction Convention, Dublin. Ms Aoife Titley made a contribution at a conference in DCU *Strengthening the practice of intercultural education in primary schools* called *Mapping the barriers to initial teacher education for young people from minoritised ethnic backgrounds*. Additionally, she was invited to contribute to the *Diversity in Teaching Symposium* in NUIG on diversifying teaching through 'doubled' research practice.

Dr Liam Mac Amhlaigh delivered four papers in this time period, including two invited keynotes, and two international papers. *Tá na coiscéimeanna tar éis fillleadh arís: leanúnachas agus nua-aoiseachas san fhilíocht iarChadhnach* was the subject of Léacht Uí Chadhain 2019, and Dr Mac Amhlaigh is the youngest scholar to be asked to deliver the most important keynote address in Irish-language literature. Additionally, he was invited to deliver the set-piece keynote lecture of 2019's Éigse Néil Uí Dhónaill, entitled: *Niall Ó Dónaill: foclóirí, eagarthóir agus fear teanga*. Two further papers entitled *Modernism at work in Irish-language poetry: the INNTI generation, and the Black Mountain poets of North Carolina* and *An examination of Irish-language terminography* were given at the Harvard Celtic Colloquium in October 2019, and at the International Celtic Colloquium in Bangor University in July 2019, respectively. Following his collaborative research study into the framework of Meaningful Physical Education (MPE) in Initial Teacher Education, Mr Tony Sweeney was invited to present at the American Educational Research Association (AERA) Annual Meeting in San Francisco and at the International Self-Study Castle Conference in the UK in 2020. He is listed as co-author on two papers from the AERA conference: *Exploring pedagogy and practice: meaningful physical education (MPE) in elementary pre-service teacher education* and *Meaningful Physical Education in Outdoor and Adventure Education: Perspectives from Preservice Primary Teacher Education* and these were published in the AERA Online Repository.

Dr Máire Nic an Bhaire and Laoise Ní Chléirigh (2019) were invited to give the keynote lecture *AgroCycle Kids - There Is 'No Away' For Changemakers* at the *Trends Seminar* NUIG on their Horizon 2020 funded project. Dr Máire Nic an Bhaire delivered her paper on Douglas Hyde *The Apple Doesn't Fall Far From The Tree* at the American Conference For Irish Studies, Boston College University (2019), which focused on his daughters' skills as writers and artists, highlighting new archival material that was kindly been shared by Dr Douglas Hyde's granddaughter-in-law, Mary Sealy. Niamh Fortune presented on *Promoting Reading for Enjoyment* at the Literacy Association of Ireland's International Conference in DCU in November 2019. She also co-presented with MEd student Cara Ellard on *Let it go! Having the courage to let children lead the writing process*. Dr Leah O'Toole delivered four keynote presentations at conferences, including the National Parents' Council Annual Conference, and conferences in Ireland, Portugal and Poland organised by the *THRIECE* project. She gave an invited address to the *Outdoor Play Symposium* in Maynooth University. Dr O'Toole also gave oral presentations at three other national and international conferences (ESAI, EECERA, OMEP), and accepted invitations to take part in an expert panel at the Early Childhood Ireland Research Symposium, to contribute to lectures for graduate students in University of North Carolina Greensboro, USA and to contribute to a doctoral defence in Northwest Nazarene University, Idaho, USA. Finally, Séamie O'Neill presented on the Emergence of Teacher Agency in Teaching Council Policy at the EuroACS Conference.

ORGANISED CONFERENCES

Dr Leah O'Toole jointly organised the *THRIECE* international conference, which took place in the Visual Arts Centre, Carlow in January 2020. Dr Suzanne O'Keeffe successfully organised a ResearchMeet, which took place at Maynooth University in March 2019. Guest speakers included Professor Emeritus Nel Noddings (via Skype), Medical Practitioner and best-selling author Dr Mark Rowe, as well as postgraduates from UCD, UL, and MU. This ResearchMeet was funded by the Teaching Council under the John Coolahan Research Development Fund. Dr Liam Mac Amhlaigh, together with three colleagues from other Irish institutions, organised the international conference in the Royal Irish Academy, *In agallamh iogair le dhá litríocht Ghaelacha* celebrating the links between Irish-language literature in Ireland and Scotland in May 2020 (postponed due to COVID-19).

OTHER RESEARCH PUBLICATIONS

Dr Máire Nic an Bhaire interviewed for the RTÉ Brainstorm online publication in 2019 and was invited to write about her research on Douglas Hyde, *Douglas Hyde: The Man Behind the Moustache*. Sharing research with a wider audience outside of academia is key for the successful integration of research into society. Dr Suzanne O'Keeffe was also published by RTÉ Brainstorm on the topic of teaching children about feminism. It advanced the point that feminism is a way of understanding how gender and gender relations silently govern our daily lives. Dr Nic an Bhaire and Laoise Ní Chléirigh published their research from the Horizon 2020 funded project *AgroCycle* about waste valorisation and the circular economy in *Primary Planet* (2019). This was a special Earth Day edition that helped disseminate this new research to primary school children in Ireland; *AgroCycle Kids – Earth Day*. Dr Máire Nic an Bhaire shared her research on Douglas Hyde for the book *Douglas Hyde My American Journey* (2019) published by UCD Press, via a video recording *Meet the Author* (UCD Press 2019). This was shared on various media platforms to ensure the research reached a wide audience. Niamh Fortune and Cara Ellard co-authored a chapter in *Literacy Without Borders*, a book based on conference proceedings published by the Literacy Association of Ireland. The chapter, which examined the teaching of writing by adopting child-centered approaches during the writing workshop, described action research in an infant class. Finally, lead author, Dr Leah O'Toole, worked on an extensive literature review on Parental involvement, engagement and partnership in children's education during the primary school years, which was published by the National Parents' Council. She also published an article in *Early Pedagogy* magazine on the impact of COVID-19 on children and early childhood educators.

FACULTY HIGHLIGHTS

FACULTY OF SOCIAL SCIENCES

MEMBERS OF EDITING OR REVIEW COMMITTEES

Dr Leah O'Toole sits on a Peer Review Committee for the *Relation-Centered Education Network Conference* in Sacramento State University. Dr Patricia Kennon is a Member of the selection committee for the next Laureate na nÓg (Ireland's laureate for children's literature). She is also a member of the Editorial Board for the new online journal, *The International Journal of Young Adult Literature* (the first-ever journal dedicated to scholarship on young-adult literature), and she acts as reviewer for *Children's Literature Association Quarterly*, *Children's Literature In Education*, *The International Journal of Young Adult Literature*, and *Papers: Explorations into Children's Literature*.

In addition, Dr Máire Nic an Bhaird acts as a reviewer for *Resource Pack 2020*, *Rogha Leabhar 2020* and *Children's Book Ireland* journal *Inis* (2019), where she reviews Irish language books for primary school children. Dr Liam Mac Amhlaigh acts as consultant editor for the academic peer-reviewed electronic journal *COMHARTaighde* (2020), having previously co-edited five editions of the journal. He sits on two award panels for major literary awards in the Irish language.

Dr Suzanne O'Keeffe contributes as a member of the Faculty of Social Science Ethics Committee at Maynooth University. She also sits on the editorial board for the Springer SN Social Sciences Journal, acts as a regular reviewer for *Irish Educational Studies* and has acted as an MU internal GOI Scholarship Application Reviewer (2019).

GRANTS AWARDED

Dr Leah O'Toole and Dr Suzanne O' Keeffe received funding to the value of €3,317 from SCoTENS (Standing Conference on Teacher Education North and South) to carry out research on *Contested childhoods across borders and boundaries*. Dr Leah O'Toole will act as Principal Investigator on this project. Additionally, Dr Leah O'Toole, Deirdre Forde and Dr Bernadette Wrynn were successful in a tender for the *Evaluation of the Partnership Schools Ireland Initiative* on behalf of the National Parents Council. This brought in funding to the value of €29,969.

Froebel Department staff (Professor Marie Mc Loughlin, Patsy Stafford, Dr Leah O Toole and Annette Kearns) along with colleagues from the Institute of Education, DCU, submitted a joint application for funding to the Froebel Trust. The successful application yielded €37,268 and will support a research project entitled *Froebelian Principles in the 21st Century: Play environments and play opportunities for young children experiencing stress*.

Dr Patricia Kennon was awarded The Kenneth and Sylvia Marantz Fellowship for a project entitled *Picturing the Past: Wordless Picturebooks and History Education*. Additionally, she was awarded a Fellowship from the Arne Nixon Center Research Fellowship for her project on the representation of asexuality in contemporary young-adult fiction.

In September 2019, Dr Triona Stokes was awarded a tender from the Department of Children and Youth Affairs. This small-scale desk study valued at €5,000 was funded by Creative Ireland and required the publication of a report into arts facilitation incorporating play and creativity aged 0-3. The report provides a theoretical framework for a Continuing Professional Development programme in the early years' sector in response to a stated goal of the Creative Ireland Youth Plan (2017–2022), building upon the recent policy thrust for delivering arts opportunities for all children and young people.

Séamie Ó Néill, Dr Máire Nic an Bhaird and Fiona Nic Fhionnlaioich successfully received an annual grant of €1,750 from an Chomhairle um Oideachas Gaeltachta agus Gaelscolaíochta (COGG) for the weekly production of the Irish Language primary school newsletter *Eleathanach*, which is shared with over 300,000 readers weekly.

Dr Liam Mac Amhlaigh coordinated the commitments of 12 partner Universities, to source €20,000 of initial seed-funding for the new academic publishing imprint for the Irish language *Cló Léann na Gaeilge* from Clár na Leabhar Gaeilge/University of Notre Dame, Indiana.

Dr Liam Mac Amhlaigh serves as the PI of the *ModEL (Modernisms advancing European Literatures)* project – housed in the MU Arts and Humanities Institute; he secured funding of €12,800 from Enterprise Ireland, resulting in the employment of a research assistant for the project. An application based on his project is being prepared for submission to the European Research Council for major Horizon Europe grant funding.

STUDENT INVOLVEMENT IN RESEARCH

STUDENT ENGAGEMENT IN HORIZON 2020 RESEARCH PROJECT

Arising from COVID-19 and building on *AgroCycle Kids* research, students from the Department, under the direction of Dr Máire Nic an Bhaird and Laoise Ní Chléirigh, co-created and published online home-schooling resources, with off-line learning opportunities using local environments as stimuli, avoiding excessive screen time. Students from the Department created and subsequently published home-schooling resources. These resources disseminate new research on the science-society gap, providing creative educational home-schooling resources. The research that was undertaken in primary schools in Ireland underpinned the *AgroCycle Kids* resources, which won 1st place in Europe in the *Think Biobased Challenge 2019*. The resources were based on Froebelian Eco-focused philosophy, which is a new philosophical educational theory that underpins the *AgroCycle Kids* research.

ENGAGED RESEARCH



An Roinn Leanaí, Comhionannais,
Míchumais, Lánpháirtíochta agus Oige
Department of Children, Equality,
Disability, Integration and Youth

The Department of Children, Equality, Disability, Integration and Youth commissioned Dr Triona Stokes to develop a discussion paper on *Facilitating the Arts in Early Learning and Care: Towards Best Practice*

More generally, partnership with civil society, and direct engagement with the external agents of policy and practice, continued to be key aspects of the Department's scholarship.

Dr Triona Stokes was commissioned following a competitive process, to develop a discussion paper on *Facilitating the Arts in Early Learning and Care: Towards Best Practice* by the Department of Children, Equality, Disability, Integration and Youth and funded by Creative Ireland. This discussion paper presents principles for arts facilitation to promote play and creativity in the early years.

Dr Leah O'Toole was Co-PI of the *THRICE (Teaching for Holistic Relational and Inclusive Early Childhood Education)* project, which ran from December 2017 to May 2020. This Erasmus+ funded community partnership project, led by Marino Institute of Education, and with MU as a partner, involved collaboration between university academics, primary teachers and early childhood educators from Ireland, Poland and Portugal. In this engaged, participant action research, children and adults (academics and educators) co-constructed the elements of quality early childhood and primary education, through creative methods including artwork, relational mapping, learning stories and photography.

Dr Leah O'Toole was Co-PI on a project funded jointly by the National Council for Curriculum and Assessment (NCCA) and the National Parents Council (NPC), and led by Marino Institute of Education, with MU as a partner. This research aimed to investigate experiences of parental involvement from the perspectives of parents, teachers, children and other stakeholders. This research has fed into policymaking by NCCA and NPC at national level.

Dr Liam Mac Amhlaigh is the PI for *Léitheoirí na Gaeilge/Read in Irish* initiative funded by Foras na Gaeilge to create of an all-Ireland strategy for the promotion of reading in Irish-language literature. This major national research project will combine with an in-development, multi-media platform for the review of books in the Irish language. He is also the editor of *Portráidí na Scríbhneoirí Gaeilge/Portraits of the Irish-language Writers* project working in partnership with Áisíneacht Dáiliúcháin Leabhar (ÁIS) (responsible for the distribution of Irish-language reading material), to initiate and develop the nature and concept of both the research-driven basis for the project, together with the high-level digital and print outputs. Dr Liam Mac Amhlaigh has acted as an advisor to Cill Dara le Gaeilge, a community organisation promoting the Irish language in Kildare, in their work in generating the first Language Plan for Irish for any county outside of a Gaeltacht area, launched in 2019.

DEPARTMENT OF GEOGRAPHY

The Department of Geography had 21 academic staff, 13 postdoctoral researchers, three external and six Emeritae in the academic year 2019–2020. The Department published over 300 publications and was awarded 23 research grants.

Highlights for the Department for the academic year 2019–2020 include:

- > Dr Patrick Bresnihan developed publications, exhibitions, and other public events from Environmental Protection Agency (EPA)-funded work on group water schemes;
- > Dr Conor Cahalane was awarded an SFI Discover Funding Programme award to develop materials for school teaching based on Geographic Information Science and space technologies;
- > Dr Rowan Fealy (Co-PI with Professor Tim Mc Carthy) secured €5M through the SFI Strategic Partnership Programme to examine Irish land use in the context of climate change, which is co-funded by Microsoft;
- > Dr Alistair Fraser and Professor Rob Kitchin published their book *Slow Computing* (Bristol University Press);
- > Dr Gavin McArdle, Professor Karen Till and Dr Debangana Bose developed a research and teaching partnership with the traveller group Pavee Roads Home;
- > Professor Conor Murphy was awarded a Wellcome Trust award to look at the health consequences of climate change;
- > Dr Helen Shaw published an important study on the effect of spatial scale on the interpretation of pollen data;
- > Professor Peter Thorne was selected as a Coordinating Lead Author on the 6th Assessment Report for the Intergovernmental Panel on Climate Change (Working Group 1);
- > Professor Karen Till was elected a member of the Royal Irish Academy.

Six doctoral theses were awarded in 2019–2020, including perhaps the first Irish Geography dissertation to include a musical composition as part of the research. Five new doctoral students began in 2019–2020 and there were 26 doctoral students and one M.Litt student continuing their studies in this year. Of these 38 students, 10 were funded by government agencies, 16 by research councils and seven by MU Hume scholarships. Hume awards were also the entry point for three students who subsequently gained research council awards.

For 18 permanent staff the average of 2.5 articles and one book chapter each year is a healthy average output: eight of the permanent staff published book chapters, 13 published articles, three authored books, and three published edited collections. The research fellow and 12 postdoctoral researchers each published an average of one article per year.

Maynooth geographers are notable for their engagement with society's problems, and for addressing not only policy, but also public debate. For example, for the EPA, Dr Patrick Bresnihan was co-author of a report on group water schemes. Additionally, as part of this work, three public exhibitions were curated, and one resulted in a catalogue that reported

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on the mutual learning of artists and academics during the project. In the period October 2018 to December 2019, Dr Bresnihan secured grants from the EPA and the IRC. In related research, Professor Karen Till has addressed the idea of an Irish Anthropocene and has been supported with grants from the IRC and Kildare County Council. Professor Till has curated conversations between artists and academics, producing two exhibitions on campus, with associated podcasts and a catalogue. In this way geographers contribute to a better understanding of the effects of environmental change and on this, Professor Till now edits, as *Earth Writings*, a book series for Cork University Press.

Professor Conor Murphy's work to extend and refine the useful record of rainfall data has produced articles in such leading journals as the *International Journal of Climatology*. This work is important pedagogically as an example of new ways to integrate undergraduate research into international research and is important for policy in replacing the less accurate and shorter time series currently at the heart of environmental management. In the review period Professor Murphy won grants from the EPA, EU, and Wellcome Trust. Postdoctoral researcher Dr Clare Noone and postgraduate Ciara Ryan are similarly developing these links between undergraduate teaching and the revision of spatio-temporal data on historical weather patterns. Meanwhile, Dr Conor Cahalane leads an SFI funded project to bring the techniques of a new geographical literacy, advanced Geographic Information Science, into school classrooms.



Professors Peter Thorne and Conor Murphy contributed to the discussion of climate policy at Ireland's Citizens' Assembly

Professor Peter Thorne's research on the data for measuring global climate change is contributed as Coordinating Lead Author on the 6th Assessment Report for the Intergovernmental Panel on Climate Change (Working Group 1), and during the calendar years 2018 and 2019, this included publications in journals such as *Bulletin of the American Meteorological Society*, *International Journal of Climatology*, and *International Journal of Remote Sensing*. In the academic year 2019–2020, he, as well as Professor Murphy, brought their expertise to the discussion of climate policy at Ireland's Citizens' Assembly. In this review period, in addition to on-going projects, Professor Thorne won grants from the EPA and European Space Agency (ESA).

For Ireland, it is vital to understand the current changes in circulation within the Atlantic Ocean and their likely impact on our local climate, and Dr Gerard McCarthy published on this in *Journal of Climate*, *Journal of Geophysical Research: Oceans*, and *Reviews of Geophysics*. Recent oceanic changes need to be set in the context of a better understanding of long-run change, as Dr Lisa Orme explores in articles for *Holocene and Climate of the Past*. The same is true of land-based ecological change, as Dr Helen Shaw investigated in articles for *Climate of the Past*

and *Holocene*. The study of long-run environmental change was given particular focus in 2019, with the largest ever meeting of the International Union for Quaternary Research, held in Dublin on this occasion. For the more than 2,000 delegates, Dr Stephen McCarron edited a series of Field Guides, including his own *Quaternary Geology of Killiney Bay*. In this period, Dr McCarthy added to ongoing projects, with a new grant from the EU, as did Dr Orme.

For Irish agriculture, determining the complexity of land/air interactions is important, which includes soils, vegetation, and insects, and Dr Rowan Fealy has published on these in *Agricultural and Forest Meteorology*, *Ecological Modelling*, and *Journal of Agronomy*. This research was also the basis for new grants to Dr Fealy from the EPA, EU and Teagasc, and the December 2020 announcement of a project valued at €5M, co-funded by Microsoft Ireland and SFI, to develop better information about land use change in Ireland and its relations with climate change. This was in addition to further new grants from: Department of Agriculture, Food and the Marine (DAFM), EPA, EU and Teagasc.

Climate and ecological change might produce a re-evaluation of different environments. The notion of a pristine nature has long since been abandoned by geographers, but green and blue natures continue to attract, energise, and to provide some refuge from unbalanced digital lives. Dr Ronan Foley co-edited a collection on *Blue Space, Health and Wellbeing* and has published related research in *Area*, *International Journal of Environmental Research and Public Health*, *Irish Geography*, and *Journal of Sport and Social Issues*. In contrast, the urban context of climate change is a particular focus of Professor Mark Boyle's work with the city government of Liverpool, which so far has produced articles in *Geoforum* and *Journal of Urban Regeneration and Renewal*. This is also one of the sets of challenges that Professor Rob Kitchin, and his collaborators, have been exploring through their investigation of the theory and practice of the Smart City, which included in 2019 edited collections on *The Right to the Smart City* and *How to Run a City like Amazon*, as well as articles in: *Annals of the Association of American Geographers*; *Environment and Planning C: Politics and Space*; *GeoJournal*; *International Journal of Human Computer Studies*; *International Journal of Geographical Information Science*; *Journal of Urban Technology*; *Regional Studies*; *Space and Polity*; and *Territory, Politics Governance*. A central element of this work on Smart Cities has been the presentation of information in real time as urban dashboards, while another has been the exploration of the nature of algorithmic governance and the impact upon humans of intensely networked lives, which Professor Kitchin and Dr Alistair Fraser evaluated in their book on *Slow Computing: Why We Need Balanced Digital Lives*. Dr Fraser has further considered the social and political implications of digital geographies in the context of colonialism and food security in articles for *Geoforum* and *Journal of Peasant Studies* respectively. Professor Kitchin's many grants are reported through the MU Social Sciences Institute.

Animated by climate and ecological crises, much of Maynooth Geography research is engaged with environment, but space and place are likewise braided through this work and come into particular focus as geographers address other public problems. Space and place are the focus of Dr Chris Van Egeraats work on Ireland's regional policy, and of Professor Chris

Brunsdon's work on geocomputation, as well as of Dr Rachel McArdle's work on temporary urbanism. Dr McArdle's work appeared in *Housing Studies*, while Professor Brunsdon's in *Annals of the American Association of Geographers*, *Environment and Planning B. Urban Analysis and City Science*, and *International Journal of Geographical Information Science*. Migration pre-eminently is a matter of spatial relations, with people seeking to make a home, find a place, on an Earth rent by asymmetries of power, wealth, and opportunity. In articles for *Administration*, *Journal of Ethnic and Migration Studies*, *Journal of Human Rights Practice*, and *Population, Space and Place*, Professor Mary Gilmartin examines the circumstances under which migrants try to make a home in Ireland, the legal and ethical context of their place-making. Reflecting on legacies of slavery for *Haven*, a book on the European refugee crisis, Professor Gerry Kearns asked whether migration entitlements might not serve as a form of reparations. Professor Kearns' work on legacies of colonialism included papers for *Antipode*, *Geography*, *GeoHumanities*, *Irish Geography*, and *Journal of Historical Geography*.

In the period October 2019 to December 2020, 23 (€4.41M) research awards were made to Geography staff.

LEARNED SOCIETIES

In 2019–2020, staff served learned societies in some 10 distinct roles: Geographical Society of Ireland (Business Manager, Committee Member, Vice President), International Hydrological Programme (Irish Committee), Irish Humanities Alliance (Medical Humanities Working Group), Regional Studies Association (Honorary Secretary), Royal Irish Academy (Committee on Climate Change and Environmental Sciences, Geosciences and Geographical Sciences Committee, Selection Committee for Humanities and Social Sciences), and Society of Chartered Surveyors of Ireland (Chair of Working Group on Earth Observation and Remote Sensing, Committee Member).

NGOS AND GOVERNMENT AGENCIES

In 2019–2020, staff gave academic service to at least 24 government agencies and NGOs: Arts Council of Ireland; Atmospheric Observation Panel for Climate (AOPC) of the Global Climate Observing System (GCOS); Climate and Clean Air Coalition; Common Ground; Create Ireland; Crossing Borders, Breaking Boundaries Research Group of Migrant Rights Centre Ireland; Department of Housing, Local Government and Heritage; Dublin City Council Culture Company; Environmental Protection Agency; GCOS Reference Upper Air Network Working Group for AOPC; Geological Survey of Ireland; Government Advisory Group for Implementation of the National Planning Framework; Intergovernmental Panel on Climate Change (IPCC) Synthesis Report; IPCC Working Group I; Irish Museum of Modern Art; Irish Regenerative Land Trust; Just City; Just Transitions Steering Group of the National Economic and Social Council; Kildare County Council Arts Service; National (Climate Change) Adaptation Committee; National Economic and Social Council; National Gallery of Ireland; National Water Forum; Ordnance Survey of Ireland; Pavee Point Traveller and Roma Centre, Phizzfest Community Arts Festival; and Standing Committee on Earth Observing Systems and Monitoring Networks of the World Meteorological Organization.

COLLABORATIVE RESEARCH

In addition to academic work that is commissioned by external agencies, some geographical research is more directly collaborative with stakeholders, integral to the conception, execution, composition, or promulgation of research. For example, Professor Mary Gilmartin's research on the integration of migrants into Irish society, is conducted in collaboration with migrants and the organisations that represent their interests. This includes service on the Advisory Group for the research group on Crossing Borders, Breaking Boundaries, that has been established by Irish Congress of Trade Unions Northern Ireland, Migrant Rights Centre Ireland, Community Intercultural Programme, and Ulster University.

Some of the doctoral research in the Department directly includes external stakeholders, as with the two Irish Research Council Employment Based Scholarships involving collaborations of Joseph Robinson with Glencree Centre for Peace and Reconciliation, and of Ciara Ryan with Met Éireann. The same is true of the Walsh Scholarships of Padraig Flattery, Azuccena Jimenez Castaneda and Kazeem Ishola, where the external research partner is Teagasc, of the scholarships of Samuel Diabate and Catherine O'Beirne with the Marine Institute, and of Mladen Cucak's scholarship with the Department of Agriculture, Food and the Marine.

Dr Conor Cahalane's SFI project on GIS for schools engages schoolteachers in collaboration to develop content and associated training that can bring advanced GIS technology into the learning experience of pupils. Thus far 40 teachers have received training and some 3,500 students in national schools have been introduced to ways of using GIS and Space technology to address the Sustainable Development Goals adopted by the United Nations in 2015.

In much geographical research, local experts are essential, and colleagues follow the injunction: 'Nothing About Us, Without Us'. In elaborating a greening strategy for Dublin 8, Dr Ronan Foley and UCD geographers worked with artists, activists and the local community. After the campaign to Repeal the Eighth Amendment, the local group in Dublin Bay North, immediately established a research group so that research on the campaign would give a central place to the voices of those most directly involved. Maynooth geographers, Professors Karen Till and Gerry Kearns, worked with postgraduates Jack Callan and Lorna O'Hara, as well as with undergraduates and taught postgraduates to elicit the testimonies of activists, and subsequently worked with other academics and activists to develop publications from this work. This work resulted in an IRC postgraduate award.

Through the Master of Arts (MA) in Spatial Justice, Dr Rachel McArdle, Professor Karen Till, Dr Conor Cahalane and Professor Gerry Kearns, together with research postgraduate Sasha Brown, have undertaken collaborative research with Pavee Roads Home, a project of the Men's Health Unit of Pavee Point Traveller and Roma Centre. This work has also been supported by Project Live of Maynooth University's Experiential Learning Office. Developing Story Maps to animate traveller family genealogies, students and staff worked with Pavee Roads Home to construct a website, that was highlighted by Pavee Point as its contribution to Ireland's Culture Night in September 2020.

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Collaboration to develop joint academic and artistic work is important for Maynooth geographers. Dr Patrick Bresnihan's research on Irish water and ecologies has been informed by work with the Lough Carra Catchment to curate an exhibition, and by joint work with artist Fiona McDonald to develop an audio piece about Dublin's Bull Island. Professor Karen Till is hosting at Maynooth artist Seoidín O'Sullivan for various collective ventures at the interface of art and the academy. Likewise, Professor Till is working with artist Rajinder Singh, who is developing a movement piece exploring aspects of carceral living by engaging some of the Department's master's students under lockdown. Professors Till and Kearns' engagement with artist Kate O'Shea and the *Just City* project has introduced graduates and undergraduate to spatial justice issues in Inchicore, leading to new research and arts ventures. Dr Ronan Foley's work with artist Sarah Malone focused upon sweatshouses in Leitrim to produce a video for the Leitrim Heritage video series.



Dr Ronan Foley, Department of Geography, explaining the heritage of sweatshouses in Leitrim

In addition to advising NGOs and government agencies, Maynooth geographers are also involved where science is translated into policy. Professor Conor Murphy gave evidence to the Citizens' Assembly, and as part of the National Adaptation Committee, advises on the implementation of the recommendations that emerged. Similarly, Dr Chris Van Egeraat gave expert testimony in the review of Ireland's spatial or regional planning strategy and engaged on an Advisory Group charged with translating advice into policy.

Maynooth Geography has an international reach and the stakeholders in collaborative research reflect this. For example, in efforts to decolonise universities, Uncomfortable Oxford worked with Professor Gerry Kearns to develop awareness of colonial legacies, through public events that focused upon Oxford Geography and upon the history of Irish resistance in Britain to British colonialism in Ireland and beyond. The body for UK Geography schoolteachers, the Geographical Association (GA), promoted this research by soliciting articles by Professor Kearns for their journal, and this resource has been used to develop anticolonial teaching in both schools and universities. Its impact was recognised when the first of these articles was voted by GA members as the best in their journal for 2020.

DEPARTMENT OF INTERNATIONAL DEVELOPMENT

There are five full-time academic staff members in the Department of International Development. Among full-time academic staff, there were 30 publications and one IRC research grant in the period of this report.

Following establishment of the Research, Engagement & Capacity Hub (REACH) in 2018, the Department focused on developing engaged research, learning and awareness, raising relationships and opportunities in conjunction with international development organisations, networks and activist groups in 2019 and 2020. These are detailed below. The Department continued to develop its expertise in the areas of development education and sustainable development, and to advance research and learning around these and other strategic themes – Leadership and Management for Change and Ethical Participatory Practice.

Among the achievements of the Department in research and publications in 2019 and 2020, were the following:

Dóchas, the network of international development NGOs in Ireland became partners in an IRC funded New Foundations research project with Dr Eilish Dillon in 2020, which explores ethical communications among international development NGOs in Ireland through research on representational practices in social media, advertising and public engagement communications, and on the role of the Dóchas Code of Conduct on Images and Messages in promoting ethical communications within the international development sector in Ireland.

The Department continued its solidarity partnership with Comhlámh, the Irish Association of Development Workers and Volunteers. In 2019 and 2020, Department staff moderated a range of *Comhlámh First Wednesday* public engagement events on issues such as Ethical Living and Social Change, Extinction Rebellion, Civil Disobedience and Social Change, The Green New Deal, Just Transition and COVID-19, Migration Voices across Europe – Experiences of migrant-led organisations during COVID-19, Representations of Africa in Film, Free speech and Racism, Global Solidarity and Health in the context of COVID-19, and Ireland, Palestine and the UN Security Council. These were streamed online and are available at www.youtube.com/channel/UCIF0pmIKOWjPu8fzbw0_LEQ.



Dr Eilish Dillon, Department of International Development, gave keynote addresses at the Dóchas launch of its Worldview communications project in October 2020 and at a European-wide Concord-organised online seminar in December 2020

Members of the Department organised, hosted or participated in a number of seminars and conferences on international development-related issues, most notably on development and global citizenship education. These included inputs by Dr Eilish Dillon at seminars organised for development and global citizenship education practitioners in Galway, with the Centre for Global Development, Belfast, at MU. Dr Dillon also gave keynote addresses at the Dóchas launch of its *Worldview* communications project in October 2020 and at a European-wide Concord-organised online seminar in December 2020 on what NGOs can learn from global citizenship education.

In December 2019, the Department planned and held a joint seminar at MU on *Education for Transformation* with a particular focus on South Sudan. In March 2020, the Department also organised, jointly with the Sierra Leone Ireland Partnership, a seminar on development and education in Sierra Leone. The Department held a seminar on *Research and Perspectives on Development Practice* with postgraduate students for Research Week in 2019 and held a seminar on Online Learning at Postgraduate Level with the MU Dean of Teaching and Learning in March 2020.

In October 2019, the Department established a new blog series on its website: *Stories of Change – From Knowledge to Action*. Between 2019 and 2020, it has successfully published 10 blogs in this series on a range of international development issues. Blogs by Department staff during this period were: *Generation Global Citizen* (October 2019), Niamh Rooney; *Why Words Matter* (December 2019), *Rethinking International Development Communications* (May 2020), and *Reflections on Learning at the End of this COVID-19 year* (December 2020), Dr Eilish Dillon; *Conversations and COVID-19 – Learning to Listen* (June 2020), Paddy Reilly; and *Learning from Pastoralism in a Time of Uncertainty* (September 2020), Dr Tom Campbell. Blogs have also been contributed by external experts, graduates and students. These include Dr Niamh Gaynor of the School of Law and Government at DCU, Stephen McCloskey of the Centre for Global Development, Belfast, and Ruth Powell of Comhlámh.

Department staff also published articles in peer reviewed journals and contributed to a number of podcasts. These included: Paddy Reilly's reflection on *Kimmage Development Studies Centre (KDSC) 1974–2018 – The Kimmage Experience*, published in *Policy and Practice: A Development Education Review* in Spring 2020 and Dr Eilish Dillon's articles on *Connecting the Personal and the Political, Feminist Perspectives on Development Education*, published in *Policy and Practice: A Development Education Review* in Autumn 2019 and *Poetry and Development Education* published in a *Policy and Practice Special Edition on COVID-19* in June 2020. She also published a book review of *The Development Dictionary: A Guide to Knowledge as Power* in the *Community Development Journal* in May 2020.

One staff member successfully completed Doctoral research in 2020 – Dr Tom Campbell.



Dr Tom Campbell, Department of International Development, successfully completed Doctoral research in 2020

A research and capacity development partnership with the Edmund Rice Foundation involving workshops were designed on Result Based Monitoring and Evaluation/Mainstreaming for Gender, Disability & HIV to Edmund Rice Mission staff in Kenya, and on Result Based Planning Review with an integrated Results Based Monitoring and Evaluation to Edmund Rice Mission staff in Zambia. These were postponed due to COVID-19.

As indicated above, external engaged research is central to the Department of International Development's approach to research. They see active engagement with those involved in the development of policy and practice as central to enhancing the quality, relevance and reach of the work at the Department. For many years they have developed partnerships with organisations in Ireland and internationally.

The Department is currently engaged with a number of organisations and initiatives including capacity development events and actions with various international third sector organisations, in partnership with a network of international facilitators. In 2019 and 2020 these were:

> **Erasmus+ CODET evaluation**

Niamh Rooney travelled to Hanoi, Vietnam on behalf of MU Department of International Development in May 2019 to co-facilitate a programme review and evaluation of the *CODET* programme, contributing to the final programme evaluation report. The *CODET* project was a joint initiative of 10 European, Asian, and Latin American organisations. The project took place over a two-year period and was funded by the European Union under Erasmus+ programme funding.

> **Results Based Planning and Management Action Research**

The Department of International Development designed and delivered a tailored capacity-building workshop to Edmund Rice Mission organisations in the EAD (East Africa District) at the Savelberg Retreat Centre, Nairobi, Kenya from 18th to 22nd March 2019. The facilitators also carried out an action research piece with participants to explore challenges in applying Results Based Planning skills and knowledge in practice. The contract was fulfilled by MU with the assistance of Mpala Nkonkomalimba, a Maynooth University consultant trainer.

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- > **Mainstreaming Gender, Disability and HIV – February 2020**
Niamh Rooney designed and developed content for a Mainstreaming Gender, Disability and HIV capacity building programme on behalf of MU Department of International Development for a consultancy (with Edmund Rice Development). The content was intended for use with organisations in Kenya and Zambia during planned March 2020 workshops and action research events. However, the events were postponed due to the pandemic.

In addition to work done jointly with a range of organisations and networks, partnerships have been established in Ireland – with the Edmund Rice Foundation (around capacity development for development practitioners), Dóchas, the association of international development NGOs (New Foundations research on development communications) and Comhlámh, the organisation of development workers and volunteers (First Wednesday events). Internationally, the Department has developed partnerships with the Mon Women's Organisation in Myanmar (developing research on sustainability and democracy), the Shalom Centre for Conflict Resolution in Kenya (project in development with Dr Kieran Doyle of the Edward Kennedy Institute on community-based leadership and peacebuilding in Northern Kenya), and with the University of Makeni in Sierra Leone (a peer learning and exchange partnership).

Mr Paddy Reilly is participating in a series of workshops with 14 other educators and facilitators, as part of a dissemination process of an Erasmus+ funded project known as *DEPAL – Digital Education and Participatory Adult Learning*.

On-going engagement with and membership of networks and bodies such as the Irish Development Education Association (IDEA), Dóchas, Bridge47, the Development Studies Association of Ireland (DSA) and the European Association of Development Institutes (EADI).

The Department has also been engaging with organisations in Ireland around research and international volunteering. Patrick Marren has developed and delivered an online community-based research training programme for overseas development workers through the Volunteer Missionary Movement (VMM) and Niamh Rooney represented the Department at the Irish Aid Volunteering for a Better World exhibition in November 2019, where she hosted a short presentation on critical engagement in global development issues.

Department staff have contributed to European-wide seminars and groups, e.g. Dr Eilish Dillon's contribution to the Concord seminar in December 2020 on global citizenship education, and Dr Tom Campbell's participation in a series of discussions organised by a Working Group on Pastoralism and Climate Change, under the umbrella of the Coalition of European Lobbies for East African Pastoralism network.

DEPARTMENT OF ANTHROPOLOGY



Professionalism across the Professions took place in the Law Society of Ireland (L-R) Dr Ruth Davis, Dr Jamie Saris Maynooth University, Dr Heinz Lechleiter DCU, Marie O'Shea Royal College of Surgeons in Ireland, Dr Kimberely Brownlee, Professor of Philosophy, University of Warwick, Professor Teresa Pawlikowska RCSI, Mr Ken Murphy, Director General, Law Society of Ireland and Rachael Hession, Law Society of Ireland

PUBLICATIONS

In 2019–2020, members of the Department of Anthropology authored 48 publications and participated in 44 conferences. The most notable publication achievements include Dr Mark Maguire's two books – *Getting Through Security: Counterterrorism, Bureaucracy, and a Sense of the Modern* (with D.A. Westbrook, Routledge 2020) and *Spaces of Security: Ethnographies of Securityscapes, Surveillance and Control* (co-edited with S.M. Low, NYU Press 2019). Dr Pauline Garvey's co-authored a monograph (with D. Miller), *Ageing with Smartphones in Ireland: When Life Becomes Craft*, which will be published University College London Press. Together with other members of the Department, including Dr Elzbieta Drazkiewicz, Dr Thomas Strong and Dr Jamie Saris, Dr Garvey contributed to a special section, *Repealing Ireland's Eighth Amendment: Abortion Rights and Democracy Today*, published in *Social Anthropology* and co-edited by E. Drazkiewicz and T. Strong. Importantly, Dr Drazkiewicz's ethnographic monograph, *International Dreams: The Art of Managing Foreign Aid*, was published by Berghahn Books in December 2020.



Getting Through Security: Counterterrorism, Bureaucracy, and a Sense of the Modern, Dr Mark Maguire, Department of Anthropology

Professor Hana Cervinkova's research resulted in the publication of seven peer-reviewed articles, six book chapters and two edited volumes in 2019–2020. Her co-authored articles on memory in post-socialist cities appeared in *Urbanities*, *Journal of Urban Ethnography* and *Journal of Soviet and Post-Soviet Politics and Society*, as well as in edited collections. Her research on civic education and historical memory was published in the flagship journal, *Anthropology and Education Quarterly*. An important outcome of her long-term project in introducing anthropological research in Polish educational discourse and teacher education, was the publication of the first edited collection of leading texts in North American educational anthropology in the Polish language, *Antropologia i edukacja* (ULS Academic Press, 2019). Her other articles and chapters were published for example by *Social Anthropology*, *Journal of Critical Education Policy Studies*, *Issues in Early Education*, or Sean Kingston Publishing.

Professor David Prendergast's chapter on ethnography, design and aging, appeared in the new 4th edition of award-winning book *The Cultural Context of Aging: Worldwide Perspectives* (Ed. J. Sokolovsky). Professor Prendergast also co-authored an extended paper on data flow and smart cities (*The Hackable City: Digital Media and Collaborative City-Making in the Network Society*, Springer, 2020). Professor Prendergast's work has been cited in over 300 peer reviewed publications during the last three years. As part of his Visual Ethnography Lab activities, Professor Prendergast co-created a series of ten short films with Daniel Balteanu, Dr Pauline Garvey and Professor Daniel Miller, University College London (UCL), capturing key insights through case study vignettes to support key chapter themes for the forthcoming interactive book *Ageing with Smartphones in Ireland* by Miller and Garvey.

Dr Jamie Saris continued his successful collaboration with the Clinical Lead in the HSE Epilepsy Service, with three further publications, two in *Epilepsy and Behaviour* and one in *The Journal of Professional Care*. While the formal research part of this project is now closed, its insights are having an impact in the journals that frontline healthcare practitioners read, and they are exploring ways of charting the effects of this collaboration of medicine and anthropology, on and in clinical practice. In addition, Dr Saris also continued his public intellectual activities and published a widely read article on Whiteness and Public Health in the run-up for the US Presidential Election in the November 2020, RTÉ Brainstorm.

Dr Chandana Mathur's contributed an article to the special issue *Encountering, explaining and refuting essentialism* in *Anthropology Southern Africa* and she co-authored *A Qualitative Report on Negotiating Water Lives in Ethiopia, Malawi, Uganda, and South Africa* (Waterspoutt.eu). Dr Steve Coleman collaborated on a research project for the COST-funded study group, the European Non-Territorial Autonomy Network (ENTAN). This collaboration resulted in the publication of a book chapter, *The Irish Gaeltacht as a Trans-Local Phenomenon* in the volume, *Non-Territorial Autonomy and Decentralization: Ethno-Cultural Diversity Governance* (Routledge 2020).

Other publications by Department staff appeared in peer-reviewed journals, including *Anthropology Now*, *Buffalo Law Review* or *Dialectical Anthropology*. It should be noted that members of the Anthropology Department are editors and active editorial board members of international peer-reviewed journals, including *Social Anthropology*, *Dialectical Anthropology*, *Urbanities*, *Journal of Urban Ethnography*, *Home Cultures: The Journal of Architecture, Design and Domestic Space*, *Nordic Journal of Social Research*, *sapiens.org*, *European Journal for Research on the Education and Learning of Adults*, *Journal for Critical Education Policy Studies* among others.

RESEARCH

Professor David Prendergast and Dr Jamie Saris are Co-Investigators in the H2020 *SHAPES* project, *Smart and Healthy Ageing through People Engaging in Supportive Systems*, which aims to create the first European open Ecosystem enabling the large-scale deployment of a broad range of digital solutions for supporting and extending healthy and independent living for older individuals who are facing permanently or temporarily reduced functionality and capabilities. In this project, which includes 36 institutional partners and has a total budget of €21M, Professor Prendergast and Dr Saris (with senior postdoctoral researcher Dr Katja Seidel) lead the work task responsible for conducting ethnographic research into the life worlds of older adults in over 100 households in eight countries across Europe. Ethnographic research has obviously been severely impacted by the COVID-19 Pandemic. These challenges, however, have spurred significant anthropological innovations, and Maynooth's Anthropology Department has led in this global transformation. The contribution of Professor Prendergast's and Dr Saris' work on the *SHAPES* project represents one of the most comprehensive examinations of ageing across the EU that has ever been attempted with ethnographic methods.

In addition, Professor Prendergast conducted fieldwork with researchers, developers and users of personal care robots and assistive devices in labs, commercial organisations and nursing homes in Japan. Insights from this research will be released during 2021 in the forthcoming 35-minute documentary *Circuits of Care: Ageing and Japan's Robot Revolution*. Dr Saris continued to participate in the *Medical Professionalism in Practice – developing and understanding relationship-centred professionalism in medicine for the public, students, teachers and clinicians [Med PiP]*, which has now evolved into a broader project *Professionalism Across the Professions*. The project team conducted six focus groups in August-September of this year, with a mix of the 'traditional' professions (Medicine, Law and the Clergy) with other so-called 'newer' professions (predominantly Guards, Accountants, and senior IT professionals), with Dr Saris running three of these groups.

Dr Pauline Garvey is a collaborator in the ERC funded research *Anthropology of Smartphones and Smart Ageing (ASSA)*, a multi-sited research project based at University College London Anthropology. The project employs a team of 11 researchers, who conducted simultaneous 16-month ethnographies. The ASSA team will publish

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eleven volumes, with the first three books coming out on May 6th, 2021. All of the books will be Open-Access and freely downloadable from the UCL Press website. The main comparative book *The Global Smartphone* is in press with University College London Press. The ASSA team are also creating a Youtube channel with short films from the fieldsites and have a website where team members post blogs every few days. May 6th, 2021 will also see the launch of a MOOC (Massive Open Online Course; an online free university course) based on the team's findings. This will be hosted on the FutureLearn platform.

Dr Thomas Strong's research achievements in 2019–2020 were centrally focused on sexuality, infectious disease, and the politics of risk. In 2019, with Co-PIs Dr Lisa Wynn (Macquarie University) and Dr Susanna Trnka (University of Auckland), Dr Strong was awarded a Rapid-Response Grant on COVID-19 and the Social Sciences from the Social Science Research Council (SSRC, USA) for the ethnographic project, *"Invisible Monsters": The Pandemic Imaginary of Infectious Pathogens and Infectious Bodies*. This study describes and analyses the importance of people's ideas about infectious disease in relation to the actions they take to prevent or avoid it and compares public discourse on the COVID-19 epidemic in three settings: Ireland, Australia and New Zealand. With the publication (currently in press) of a colloquium on *The Ethics of Proximity* in *Cultural Anthropology*, one of the discipline's most prestigious journals, Dr Strong's SSRC project makes a significant contribution to our understanding of the norms and forms of ethical reflection (or its opposite: ethical indifference) characteristic of the pandemic. This SSRC grant substantially drew upon findings yielded by Dr Strong's ongoing IRC COALESCE grant, *Culture and Sexual Risk: An Ethnographic Analysis of Gay Male Sexual Worlds in Ireland Today*.

Dr Chandana Mathur participated in two EU Horizon 2020 funded projects in 2019–2020. The social science work package for the *WATERSPOUTT* project (2016–2020 – €3M) was coordinated by an MU team comprising Professor Honor Fagan as the Lead PI and Dr Mathur as a PI. The *PANI Water* project (2019-present – €4,969,749) social science work package is coordinated by an MU team consisting of Professor Fagan as the Lead PI, with Dr Mathur as a PI.

Dr Mark Maguire continued to contribute as an Investigator to the international project, *Global Foresight: anticipatory governance and the making of geo-cultural scenarios* (PI: Professor Christina Garsten, Swedish Collegium for Advanced Studies) funded by the Riksbankens Jubileumsfond.

CONFERENCES

During 2019 and 2020 Professor David Prendergast gave 17 public talks in forums ranging from Cambridge University, SFI initiatives in Ireland, to anthropological, technology and digital health conferences in Europe and Japan. He was a keynote speaker at the *Future Technologies for Integrated Care Network* annual symposium in Tokyo, and an invited speaker at the Agile Ageing Alliance – International Standards Organisation (ISO) Ageing Societies Leaders Forum on *The Future of*

Multigenerational Neighbourhoods. Professor Prendergast appeared on a plenary panel on *Championing Socially Responsible AI* at the inaugural Anthropology+Technology Conference held in Bristol, UK.

Dr Chandana Mathur gave an invited plenary lecture at the conference of the International Union of Anthropological and Ethnological Sciences (Poznan, Poland), gave the theme keynote lecture at the conference of the Anthropological Association of Ireland, and was an invited speaker at an EASA (European Association of Social Anthropologists) webinar on the report of Code of Conduct Working Group and at a session at the 16th Annual Historical Materialism conference at SOAS University of London. She also actively participated in the 2019 American Anthropological Association annual conference in Vancouver, Canada, and presented as a team member of the Social Impact work package for the *PANI Water EU-India* research project General Assembly, Goa, India.



Dr Chandra Mathur, Department of Anthropology, gave the keynote lecture at the Anthropological Association of Ireland conference

Dr Strong organised a panel for the queer theory and gender studies conference at the University of Exeter, *Virial Masculinities*, where he also presented a paper as a result of his IRC-funded research project. As a leading researcher on the social dimensions of the HIV epidemic, as well as an outspoken advocate for people living with HIV, Dr Strong was invited to deliver two keynote addresses related to this work at the Irish Family Planning Association's conference on sexual and reproductive rights, and Ireland's National Conference for People Living with HIV. Additionally, Dr Strong was invited to speak about his research on witchcraft and modernity in Papua New Guinea, at the Senior Seminar in the Department of Social Anthropology at Cambridge University, Cambridge's Centre for Pacific Studies, and in the Social Anthropology Department at St. Andrew's University.

During 2019–2020, Dr Mark Maguire and Professor David A. Westbrook gave the keynote lecture to the 11th annual Slovenia Social Sciences Conference, on the topic of counterterrorism and bureaucracy. They also given this keynote address to the Buffalo Law School's in 2018, and in 2019 the lecture was published in *The Buffalo Law Review*. Dr Maguire also gave invited lectures in the Swedish Collegium for Advanced Studies, and the CUNY Cities seminar series, City University of New York Graduate School.

Dr Saris has presented at two conferences in this period with papers on *Reshaping the SHAPES Project in the COVID-19 era* and *Ageing Names and Naming Ages* – based on initial findings of the SHAPES project, with more scheduled in 2021.

Dr Steve Coleman gave an invited public talk in January 2020, *What is the 'Life' in 'Living Culture'?* This was the Third Annual Léacht Chiuimhneacháin Sheosaimh Uí Éanaí/ Joe Heaney Memorial Lecture, at NUI Galway, part of NUIG's Arts in Action series, and was a Galway 2020 European Capital of Culture event.

Dr Steve Coleman, in collaboration with Stephanie Ford (MU Department of Music), organised a bilingual workshop, *Talamh nua: sean nós singing in contemporary contexts* featuring a roundtable discussion, as well as performances from well-known sean-nós singers and researchers. This event was held in September 2019 at MU as part of the Annual Conference of the Anthropological Association of Ireland. Dr Coleman also participated at the 44th Annual Conference of the Semiotic Society of America, and the Annual Conference of the Anthropological Association of Ireland.

Dr Pauline Garvey participated in the Association of Social Anthropologist Conference, and the conference of the Irish Anthropological Association 2020. In 2019–2020, Professor Hana Cervinkova was a speaker at nine conferences and seminars (six of them invited appearances), giving papers based on her research in citizenship education, historical memory, heritage, belonging and participatory research practices.

ENGAGED RESEARCH

In 2019, Professor David Prendergast helped set up the new HSE Digital Academy MSc in Digital Health Transformation. This programme is a collaboration between the Health Service Executive and many of the universities in Ireland. In partnership with Professor Mac MacLachlan of the ALL Institute, the Departments of Anthropology and Design Innovation designed a module on Digital Health & Wellbeing in the community that trained 50 HSE staff to use ethnographic and design thinking methods to conduct target research into the challenges of loneliness and social isolation in later life.

Professor Prendergast and Dr Linzi Ryan carried out a collaborative research project funded by Enterprise Ireland Innovation Voucher on behalf of the technology SME Alwayswithyou and national home care provider Comfortkeepers. Building on findings from five focus groups with family caregivers held online due to COVID-19 restrictions, the report *Informal Caregivers and Digital Devices for Care Management* was produced providing insights and recommendations into the challenges faced by family support networks in relation to the provision and coordination of paid and unpaid personal and domiciliary care.

Professor Prendergast currently sits on the advisory boards of two research programmes: the ERC *Anthropology of Smartphones and Smart Ageing* and the H2020 Marie Skłodowska-Curie Actions Project *visuAAL – Privacy-Aware and Acceptable Video-Based Technologies*

and Services for Active and Assisted Living. He also continues to serve as a member of the Smart Dublin Advisory Network, which he joined as a founder member in 2015.

Dr Strong has a reputation as an activist scholar; as a result, he is frequently consulted for fresh thinking about HIV and other health crises. He was a consultant to the HSE for Ireland's first ever national campaign promoting treatment as prevention for HIV. For World AIDS Day 2020, Dr Strong was invited to take over the Instagram of the Association of Medical Students in Ireland (AMSI), using the opportunity to discuss insights into HIV stigma. Additionally, he delivered a keynote address, *Positive Sexuality: A PrEP Talk*, to AMSI for its first ever conference on sexuality. He was also a guest on the Glow West Podcast, the Queer Hedge School sponsored by Gay Project Cork, and spoke to the Philosophical Society of Trinity College.

Dr Chandana Mathur's participation in the project *WATERSPOUTT (Water – Sustainable Point-Of-Use Treatment Technologies)* project (EU Horizon 2020 Scheme) includes research in collaboration with social scientists based at Mekelle University, Ethiopia; the University of Malawi; Stellenbosch University, South Africa; and Makerere University, Uganda; and through these partners, with NGOs, schools and community organisations in the four countries. Regular shared dialogue workshops around community drinking water issues were a key component of this project.

Dr Mathur participates in the *PANI Water (Photo-irradiation and Adsorption based Novel Innovations for Water Treatment)* project (EU Horizon 2020 Scheme), which is concerned with water access for disadvantaged groups in India. The project's research partners for the social science work package are not universities, but two prominent Indian NGOs – Development Alternatives, and Technology and Action for Rural Advancement (TARA).

Dr Chandana Mathur is one of the two Maynooth academics named as expert contributors to the project *InSPIREurope (Initiative to Support, Promote and Integrate Researchers at Risk in Europe)*, awarded funding under the European Commission's Marie Skłodowska-Curie Actions and coordinated by Scholars at Risk – Europe. The grant enables a quintessentially engaged project, concerned with supporting and defending academic freedom and the human rights of scholars from around the world.

Dr Mathur also continues to serve as a member of the Editorial Advisory Board for *sapiens.org*, an editorially independent magazine of the Wenner-Gren Foundation for Anthropological Research (appointed in January 2019). This digital magazine was founded with a mission to bring anthropology to the public and contains articles by professional anthropologists directed at a general readership.

Besides publishing in RTÉ Brainstorm, Dr Saris regularly contributes tweets on Health and Society under various hashtags on Twitter. He has consulted with the Irish NGO Safetynet in relation to COVID-19-forced changes in the delivery of care to some of the most marginalised in Irish society. These changes have been successfully

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implemented on a permanent basis. He also consulted pro-bono for an architectural start-up company. Finally, Dr Saris continues to serve on the International Board of Consulting Editors, for *Culture, Medicine and Psychiatry* (1996-present) and that of *Reviews in Anthropology* (2011-present).



Dr Saris consulted with Safetynet, the Irish NGO, as COVID-19 changed delivery of care to some of the most marginalised people in Irish society

Dr Steve Coleman's and Stephanie Ford's (MU Department of Music) bilingual workshop, *Talamh nua: sean nós singing in contemporary contexts* featuring a roundtable discussion, as well as performances from three well-known sean-nós singers and researchers, Iarla Ó Lionáird (Princeton University), Saifí Ní Dhróighneáin (Roinn na Nua-Ghaeilge, MU), and Dr Síle Denvir (Fiontar, DCU) was open to the public, and a recording is available online via the ICTM (International Council for Traditional Music in Ireland) and the ITMA (Irish Traditional Music Archive).

Dr Pauline Garvey and Professor Daniel Miller, in collaboration with members of the MU Computer Science Department, developed several websites dedicated to Social Prescribing in Ireland and Milan, Italy. This applied aspect of the ASSA research project is on hold during the COVID-19 pandemic.

Professor Hana Cervinkova's engaged urban based research on silenced heritage of pre-war Jewish communities in Poland (with Dr J.D. Golden of Syracuse University) has been featured in EU's Open-Heritage database. Professor Cervinkova's and Golden's engaged educational projects include a web-based platform featuring student research on historical memory in Central European cities (awarded in 2016 the Excellence in Curriculum Design by Forum on Education Abroad).

Professor Hana Cervinkova has been active in giving seminars and workshops in teacher education programmes in Poland. Topics included educational inclusion, promoting participatory research methodologies in teacher education to strengthen teachers' capacities for transformative change in creating equal educational opportunities for students from minority and disadvantaged backgrounds.

DEPARTMENT OF LAW

The Law Department maintained its strong activities and publication record in 2019–2020. The Department is home to 38 academic staff.

Eight books were published by Department staff during this reporting period:

- > Broderick and D. Ferri, *International and European Disability Law and Policy. Text, Cases and Materials* (Cambridge University Press, 2019).
- > D.M. Doyle and L. O'Callaghan, *Capital Punishment in Independent Ireland: A Social, Legal and Political History* (Liverpool University Press, 2019).
- > C. Hamilton, *Contagion, Counter-terrorism and Criminology: Justice in the Shadow of Terror* (Palgrave, 2019).
- > L. Kierans, *Whistleblowing and the Protected Disclosures Act in Ireland: Law, Rights and Policy* (Clarus Press, 2020).
- > N. Higgins, *The Protection of Cultural Heritage During Armed Conflict: The Changing Paradigm* (Routledge, 2020).
- > N. Maddox and A. Adanan, *Irish Land Law: A Casebook* (Roundhall, 2020).
- > M.H. Murphy, *Surveillance and the Law: Language, Power and Privacy* (Routledge, 2019).
- > E. Richardson, *A Guide to Mooting in Ireland* (Clarus Press, 2019).

A number of other books (e.g. *Capital Crime and Punishment in Northern Ireland, 1923-73*; *Gender, Crime and Criminal Justice in Ireland*; *Legal Research and Writing Skills in Ireland*; *Legal Responses to Historical Child Sexual Abuse and Women, Murder and the Death Penalty in Ireland, 1922-64*) were accepted for publication during this period and will be published in the next reporting phase.

In terms of articles, staff members published a number of contributions in leading international peer-reviewed journals. These Scopus listed journals included, *inter alia*, the American Journal of International Law, Australasian Journal of Philosophy, British Journal of Criminology, Cambridge Quarterly of Healthcare Ethics, Cambridge Yearbook of European Legal Studies, Capital Markets Law Journal, Contemporary Justice Review, Criminology and Criminal Justice, Critical Criminology, Employee Relations, European Child and Adolescent Psychiatry, European Environmental Law Review, European Journal of Migration and Law, European Journal of Risk Regulation, European Law Review, Frontiers In Public Health, Health Economics, Policy and Law, Human Rights Law Review, Industrial Law Journal, International and Comparative Law Quarterly, International Journal of Human Rights, International Journal for the Semiotics of Law, Irish Studies in International Affairs, Journal of Environmental Law, Journal of Human Rights Practice, Journal of Law and the Biosciences, Journal of Law and Medicine, Journal of Medical Ethics, Medical Law Review, Monthly Review, New Genetics and Society, Punishment and Society, Rechtsgeschichte, Social History of Medicine and UCLA Law Review.

Staff members published a number of contributions in leading, non-Scopus, international peer-reviewed journals; for example, Public Law, European Intellectual Property Review, European Labour Law Journal, European Yearbook on Human Rights 2019, and Northern Ireland Legal Quarterly.

Staff members also produced important contributions aimed primarily at law practitioners and policy makers in Ireland and beyond (e.g. Administration, Arab Law Review, Chapman Law Review, CIPD In a Nutshell, Commercial Law Practitioner, Conveyancing and Property Law Journal, Conveyancer and Property Lawyer, Dirittifondamentali.it, Estonian Journal of Social Work, European Current Law, Harvard National Security Journal Online, International Journal of Restorative Justice, Intellectual Property Quarterly, Irish Law Times, Irish Prison Service Newsletter, Irish Probation Journal, Irish Supreme Court Review, Italian Labour Law e-Journal, Jacobin, Journal of Business Law, LAWFARE: Hard National Security Choices, Medico-Legal Journal of Ireland, New England Journal of Public Policy, Nigerian Yearbook of International Law, Northern Ireland Legal Quarterly, N8 Policing Research Partnership Annual Review, Probation Quarterly, Restorative Teaching Tools, Supreme Court Law Review (Canada), University of Pennsylvania Journal of Constitutional Law and Zeitschrift für Gesetzgebung).

Similarly, staff members made a number of important contributions to edited collections aimed at both domestic and international audiences (publishers include Brill, Cambridge University Press, Clarus Press, Hart Publishing, Mare & Martin, Oxford University Press, Palgrave, Routledge and Wolters Kluwer). Staff members have been invited to contribute to a number of highly influential texts, edited by highly regarded legal scholars from around the world. These include:

- > C. Bracken-Roche, *The governance of emerging security technologies: towards a critical assessment in Emerging Security Technologies and EU Governance* (Routledge, 2020).
- > M. Enright and S. Ring, *Shame, Sovereignty and Legal Responses to Historical State Violence in Ireland in Philosophical Perspectives on Contemporary Ireland* (Routledge, 2020).
- > D. Mangan, *Situating Canadian defamation and Privacy Law in comparative context in Research Handbook on Comparative Privacy and Defamation Law* (Edward Elgar, 2020).
- > A. McMahon, *Contractual Enforceability and Surrogacy Arrangements: Mapping the Moral Limits in Contractual Law and the Legislature: Autonomy, Expectations and the Making of Legal Doctrine* (Hart Publishing, 2020).
- > J. Reynolds, *Colonial Apologism and the Politics of Academic Freedom in Enforcing Silence: Academic Freedom, Palestine and the Criticism of Israel* (Zed Books, 2020).

- > F. Ryan, *Repackaged Goods? Interrogating the Heteronormative Underpinnings of Marriage in Same-Sex Relationships, Law and Social Change* (Routledge, 2020).
- > O. Suttle, *Reasons, Institutions, Authorities: Three Models of Exceptions in World Trade Law in Exceptions and Defences in International Law* (Oxford University Press, 2020).
- > Dr Noelle Higgins, Dr Amina Adanan, Dr David Doyle and Professor Michael Doherty also co-edited a book entitled, *The Universal Declaration of Human Rights at Seventy: A Review of Successes and Challenges* (Clarus Press, 2020). This book included contributions from staff (Dr Cliodhna Murphy and Dr Maria Murphy) and PhD students (Gerard Maguire, Jean Molloy and Muiread Murphy) in the Department.

Traditionally, research funding has not been hugely significant in legal scholarship (as such work was primarily doctrinal, library-based, and carried out on an individual basis), but the research culture in the Department has changed significantly over the last number of years. In 2020, Professor Delia Ferri was awarded an ERC Consolidator Grant for her project, *Protecting the Right to Culture of Persons with Disabilities and Enhancing Cultural Diversity through European Union Law: Exploring New Paths* (DANCING). The project explores the right of all persons with disabilities to take part in cultural life as an essential aspect of enhancing cultural diversity in the European Union. Professor Ferri is also Co-PI on the H2020 funded projects *ReCreating Europe* (with Dr Higgins) and *SHAPES: Smart and Healthy Ageing through People Engaging in Supportive Systems* (with Professor Malcolm MacLachlan).

Other successful applications were also submitted to a variety of influential international funding programmes (e.g. EU Horizon 2020, Glasgow Law Scholars Award, Society of Legal Scholars Small Projects and Events Fund etc.). For example, Professor Tobias Lock was awarded a Jean Monnet Chair in EU Law and Fundamental Rights, while Dr Oliver Bartlett is a Co-PI on the project *Better Regulation for Better Health*, which is funded by the UK Research and Innovation (UKRI) Future Leaders Fellowship scheme.



IRISH RESEARCH COUNCIL
An Chomhairle um Thaighde in Éirinn

Six staff members received funding from the IRC New Foundations Scheme

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In addition to these funding awards, there was a notable increase in the number of applications for research funding at a domestic level over the course of the year. For example, 12 staff members applied to the IRC New Foundations Scheme in 2019/2020, six of whom received funding (Dr Lynsey Black, Dr Ciara Bracken-Roche, Dr David Doyle, Dr Treasa Kenny, Dr Neil Maddox and Dr Etain Quigley). Dr Ian Marder was also awarded funding by the Department of Justice and the Irish Prison Service (e.g. *Restorative Justice: Strategies for Change and Restorative practices and the Irish Prison Service*), while Professor Claire Hamilton was awarded funding from the Department of Public Expenditure and Reform (e.g. *Unlocking Potential: Developing a Fair Approach to Higher Education Applicants with Criminal Records*). Dr Sinéad Ring was also awarded a Charlemont Grant by the Royal Irish Academy.

Notably, Siobhán Buckley was awarded an IRC Government of Ireland doctoral scholarship, while Emily Dunne and Stephanie Thompson were awarded MU John and Pat Hume Scholarships. Growth of the PhD cohort is a key strategic priority for the Department.

Staff members in the Department are active in communicating and disseminating research with many speaking at a large number of virtual national and international conferences, and public webinars. Staff members from the Department of Law appeared regularly in national (e.g. RTÉ, Today FM) and international media outlets (e.g. CNN) speaking on matters relating, *inter alia*, to “Golfgate,” Mother and Baby Homes Commission, Labour Law and Industrial Relations, and the US Presidential Election. Moreover, staff contributed pieces to the European Forum for Restorative Justice, Howard League for Penal Reform Early Career Academics Network (ECAN) Bulletin, Oxford Business Law Blog, Penal Reform International, RTÉ Brainstorm, the Sunday Times, The Atlantic and the United Nations Office on Drugs and Crime blog during 2019–2020.

The Department places a priority (as one of its underlying core values) on public engagement, and contribution to public policy reform (law reform, in particular). This year saw numerous contributions:

Reports: *inter alia*, for the Department of Justice (on domestic violence and human trafficking); the Irish Council for Civil Liberties (on the impact of the new evidentiary exclusionary rule); Inspector of Prisons (Cocooning in Prisons) and the Irish Human Rights and Equality Commission (on Inclusive Education).

Law Reform: for the Council of Europe (drafting a new Recommendation concerning restorative justice in criminal matters); for the Irish Parliament (oral evidence before the Oireachtas Joint Committee on Enterprise, Trade and Employment; for the Northern Ireland Assembly (oral and written evidence to the Bill of Rights Ad Hoc Committee) and numerous briefs filed in US State and Federal trial and appellate courts.

Consultant/Advisor: Staff members acted in an advisory capacity, *inter alia*, to the Estonian Ministry of Justice, the Scottish Parliament, Irish Transport Workers’ Federation, the United Nations Secretary-General’s High-Level Panel on Internal Displacement and the World Health Organisation.

State Boards: Dr Sinéad Ring was appointed to the Sentencing Guidelines and Information Committee of the Judicial Council.



ENGAGED RESEARCH

- > Dr Lynsey Black, (with the National Museum of Ireland), *Living Borders: Cattle Smuggling on the Ireland/Northern Ireland Border*. Funded by IRC New Foundations Scheme 2019.
- > Dr David Doyle (with An Taisce: The National Trust), *On the Brink: The Legal and Cultural Implications of Extinction and De-Extinction*. Funded by IRC New Foundations Scheme 2019.
- > Dr Treasa Kenny (with the Mediators’ Institute of Ireland), *Engaging the Community in Developing a Public Policy Framework for Mediation in Ireland*. Funded by IRC New Foundations Scheme 2019.
- > Dr Neil Maddox (with the Irish Cancer Society), *Regulating Fertility Preservation Treatment for Children with Cancer: Medical, Legal and Ethical Challenges*. Funded by IRC New Foundations Scheme 2019.
- > Dr Aisling McMahon (with Access to Medicines Ireland), *Global equitable access to diagnostics, medicines and vaccines against COVID-19*.
- > Dr Etain Quigley (with the Association for Criminal Justice Research and Development), *Juvenile Sexual Offending: An EU Prevalence and Criminal Justice Research and Development*. Funded by IRC New Foundations Scheme 2019.

DEPARTMENT OF SOCIOLOGY

The Department of Sociology continues to engage strongly in research of national and international importance, published in high quality outlets, across the full range of departmental staff and in a number of key areas.

Significant volumes published during 2019–2020 included Dr Laurence Cox *The Irish Buddhist* (Oxford University Press), Dr Paul Ryan *Male Sex Work in the Digital Age* (Palgrave), Dr Eoin Flaherty *Complexity and Resilience in the Social and Ecological Sciences* (Palgrave) and edited volumes on *Parental Involvement Across European Education Systems* (Dr Delma Byrne, Routledge), *Working for the Clampdown* (Professor Colin Coulter, Manchester University Press), *Poverty, Crisis and Resilience* (Professor Jane Gray, Elgar) and *Producing Knowledge, reproducing gender* (Dr Pauline Cullen and Professor Mary Corcoran, UCD Press).

The work of departmental colleagues was published in leading national and international journals, a small sample of which includes *Advances in Life Course Research*; *African Journal of Environmental Science & Technology*; *Big Data and Society*; *Capital and Class*; *Capitalism, Nature, Socialism*; *Gender, Work and Organisation*; *International Journal of Sociology and Social Policy*; *Irish Political Studies*; *Irish Journal of Sociology*; *Journal of Agrarian Change*; *Journal of Ethnic and Migration Studies*; *Latin American Perspectives*; *Media, Culture and Society*; *New Media and Society*; *Social Movement Studies*; *Socio-Economic Review*.

A number of important awards were made to members of the Department during the period.

- > Professor Aphra Kerr was accepted into the Academy of Europe (Film, Media and Visual Studies section) in the 2020 intake of members. She was nominated by academic peers for her academic excellence in the field of game studies and digital media.
- > Dr Eoin Flaherty was awarded the Maynooth University 2020 Early Career Faculty of Social Science Research Achievement Award. Dr Flaherty's research focuses on financialisation and inequality, and on socio-ecological systems, with relevance for a wide range of disciplines across both the social and natural sciences.
- > Dr Rebecca King-O'Riain was awarded the Maynooth University Teaching Award in 2019–2020, in part for her integration of teaching with research, her teaching of research design and methods to undergraduate and postgraduate students, and her promotion of undergraduate research.
- > Dr Nuala Whelan (Postdoctoral Researcher, MU Social Sciences Institute and Department of Sociology) was awarded the Early Career Researcher Peter Saville Award for Advances in Organisational Psychology of the Division of Work & Organisational Psychology (DWOP), Psychological Society of Ireland (PSI). The award is for her work on the case for Capability-led Work-Life Inspired Employment Services.

Major grant awards were secured that will underpin research centres. These included Professor Kerr's leading role in the ADAPT SFI Centre, examining people's engagement in an increasingly digitalised world and the new technologies that shape it, and Professor John O'Brennan's Jean Monnet Centre award, which will support the consolidation of inter-disciplinary research on South Eastern Europe at Maynooth.

The research group of Professor Mary Murphy (PI) and postdoctoral researchers Dr Philip Finn, Dr Michael McGann and Dr Nuala Whelan published a series of studies and organised a number of conferences on the reconfiguration of the welfare state, employment services, the eco-social state and the challenges of COVID-19 (funded through the IRC and Horizon 2020). President of Ireland Michael D. Higgins' all-day attendance and speech at the February 2020 conference on *A Just Transition* was a particular highlight.



President Michael D. Higgins attended and spoke at the February 2020 conference on *A Just Transition*

The Department hosted the annual conference of the Political Studies Association of Ireland for the first time in October 2019. The Department is home to a wealth of methodological expertise and the Irish Qualitative Data Archive continues to be an important part of Ireland's research infrastructure, through the Digital Repository of Ireland.

RESEARCH AREAS

The Department of Sociology continued its highly active research and publication activity across four broad areas, linked to a number of conferences and ongoing public engagement.

CULTURE, TECHNOLOGY AND GLOBALISATION

Departmental researchers continue to make significant international contributions to our understanding of the politics of culture, particularly in an increasingly digitalised and globalised world.

A variety of work examined how religious, national and racial categories have intersected in Ireland's relations with the wider world. Dr Laurence Cox published his co-authored monograph on *The Irish Buddhist: the forgotten monk who faced down the British Empire* with Oxford University Press. The book examines the transnational social relations of religion and their link to various forms of social and political resistance – and was reviewed, among other places, in the *Wall Street Journal*. Dr Rebecca King-O'Riain's article in the *Journal*

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of Ethnic and Migration Studies examined *How the Irish Became More Than White*, similarly locating the politics of identities and social categories in historical and transnational social structures. A seminar organised by Dr Barry Cannon on *Hospitality/'Hostipitality': Tensions and Contradictions in the reception and treatment of migrants in the University, Ireland and Europe* explored related issues in the contemporary university.

Other research examined sexuality, gender and the politics of knowledge. Dr Paul Ryan published his book on *Male Sex Work in the Digital Age: Curated Lives* with Palgrave, exploring the lives of male sex workers living in Dublin, including how they seek to use their micro-celebrity on social media to construct a brand that can be converted into financial advantage within the sex industry. Dr Pauline Cullen and Professor Mary Corcoran edited a volume on *Producing Knowledge, reproducing gender* (UCD Press), and Dr Cullen co-edited a special issue of *Gender, Work and Organisation* on a similar topic. Dr Cullen, Professor Corcoran and Dr Anne O'Brien published an article on *Reporting on domestic violence in the Irish media* in *Media, Culture and Society*. For 2020 International Women's Day the Department hosted a salon of cross-faculty scholars presenting on gender/sexuality/feminist research.

Other research examined the social and political struggles around the mediation of culture. Professor Colin Coulter's edited volume *Working for the Clampdown* examined how the Clash were situated at the intersection of the dawn of neoliberalism and the political promise of punk. Dr Rebecca King-O'Riain's research on the online fan communities in K-Pop was published in *New Media and Society*. Professor Aphra Kerr's research explored the ethical questions around artificial intelligence, internet policy and the 'smart city' in *Big Data and Society, Ethics and Politics and Internet Policy Review*. Dr Robert Hamm edited a special issue of *Other Education* and organised a symposium on *Collective Memory-Work*.

SOCIAL MOVEMENTS, THE STATE AND POLITICS

The Department has a particular strength in the study of politics, and particularly in the study of social movements and the State.

Research on social movements this year included studies of relationships between movements and parties (Dr John Brown, *Latin American Perspectives*), right wing political mobilisation (Dr Barry Cannon, *Oxford Encyclopedia of Latin American Politics*); media and protest (Professor Colin Coulter, *Irish Political Studies*); institutionalisation of movements (Dr Valesca Lima, *Political Studies Review*) and the practice of sustainable activism and movement pedagogy (Dr Laurence Cox; *Capitalism, Nature, Socialism*).

Other research focused on the politics of public policy in the State. This included publications on workfare (Dr Michael McGann, Professor Mary Murphy and Dr Nuala Whelan; *International Journal of Sociology and Social Policy*); housing policy and protest (Dr Lima; *Cities, Housing Studies*); lone parents and housing entitlements (Professor Murphy, *Social Policy and Administration*); marketisation of public services (Professor Murphy and Dr Rory Hearne; *Irish Political Studies*);

Dr McGann, *Public Administration*; Cullen, *Policy and Society*). Other publications specifically examined responses to COVID-19 – in comparison with the UK's responses (Dr Rod Hick, Cardiff University and Professor Murphy; *Social Policy and Administration*) and how these interacted with gender and age (Dr Pauline Cullen and Professor Murphy, *Gender, Work and Organization*; Professor Murphy, *Irish Journal of Sociology*). Further research examined the nature of the State itself. This included questions of political design and bureaucratic structures (Dr McGann, *Social Policy and Society and Policy and Politics*).

POLITICAL ECONOMY, ENVIRONMENT AND DEVELOPMENT

These concerns are linked to questions of social and economic development in a further body of research in the Department that is increasingly focused on environmental issues. Dr Eoin Flaherty's book *Complexity and Resilience in the Social and Ecological Sciences* examined these questions in theoretical terms, while other work examined them historically (*Journal of Agrarian Change*). Professor Honor Fagan's *PANI Water* project began, continuing her research on the politics and policy of water, with publications in *Integrated environmental assessment and management and African Journal of Environmental Science & Technology*. Professor Mary Murphy and colleagues organised symposia on *Just Transition and Reconfiguring Welfare in an eco-social state* in 2020. Professor John O'Brennan extended this research on international relations through publications that examined the effects of Brexit on UK-Irish relations (*Capital and Class*), as well as co-editing a special issue of *Irish Political Studies on Ireland and the European Union*.

INSTITUTIONS, COMMUNITIES AND UNEQUAL LIVES

Other research examined how our lives are shaped in unequal ways by the institutions we live within, and the resources available to us. Dr Delma Byrne published a range of research on families and education including the co-edited *Parental Involvement Across European Education Systems*. Professor Jane Gray examined the intersection of lives, families and poverty – including welfare systems (*Social Policy and Society*), and her co-edited book on *Poverty, Crisis and Resilience*. Other research examined the changing and comparative dynamics of inequality, linked to the relationship between capital and labour (Dr Eoin Flaherty and Professor Seán Ó Riain, *Socio Economic Review*), and financialisation (Dr Flaherty, *Journal of Comparative Policy Analysis*).

Dr Alberto Arribas Lozano and Dr Robert Hamm hold MSCA/IRC CAROLINE (Collaborative Research Fellowships for a Responsive and Innovative Europe) fellowships. These are by definition intersectoral; this programme was specifically designed to promote collaboration between academic and non-academic actors around one or more of the Sustainable Development Goals.

Between May 2018 to October 2020, Dr Arribas Lozano was in Peru with the *Andean Project of Peasant Technologies (PRATEC)*, a civil society organisation that for the last 30 years has been working with Andean and Amazonian communities around Bio-Cultural Diversity, Climate Change, and Intercultural and Community-based Education.

His project was linked to SDG Target 4.7, Education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship, and appreciation of cultural diversity and of culture's contribution to sustainable development.

Professors Aphra Kerr and John O'Brennan produced a consultancy report for the Gambling Awareness Trust Ireland, titled *Gambling Trends Harms and Responses. Ireland in an international Context*.

Kerr, Aphra, Savage, J. D. and Twomey-Lee, V. (2020) *Decoding and Recoding Game Making Events for Diversity, Inclusion and Innovation*. Report from the Network in Play and ReFiG research projects. Maynooth: Maynooth University. ISBN: 978-1-9998055-1-7. Final report of the *Refiguring Innovation in Digital Games* project funded by the Social Science and Humanities Research Council of Canada and research conducted with a range of local community, voluntary, educational and creative groups including Coding Grace Ireland.

Professor Kerr was an invited member of the Media and Technology multistakeholder Committee of the AI4people initiative run by the Atomium European Institute for Science, Media and Democracy (2020). Advisory member on the Media and Technology sectoral report, presented to the European Parliament in December 2020. The aim was to develop common, internationally recognised, industry-specific frameworks on trustworthy AI.

Professor Kerr is also the Maynooth Lead, and a funded PI in phase 2 of the SFI funded ADAPT Centre (2021–2026). The ADAPT research centre involves eight Irish HEI institutions with a wide range of industry partners. It is an interdisciplinary research centre focused on human centric AI-driven Digital Content Technology. Professor Kerr will research the social and ethical issues raised by the design and use of AI driven digital content technologies in a range of domains, including media, health and finance. ADAPT has received €32.7M from the SFI, and Professor Kerr and other Maynooth based ADAPT academics will be recruiting postdoctoral researchers and students to work on new projects over the next two years.

Dr Eoin Flaherty, Professor Kerr and Professor Jane Gray are working with The Rights Platform on a project titled *Re-House that Data: Building Data and Communication Skills for Social Change*. This project aims to build the capacity of students and the Rights Platform, regarding the re-use and presentation of existing quantitative and qualitative data that pertains to housing and active citizenship. The Rights Platform is a membership organisation of 40 members who focus on social inclusion in the South County Dublin area. It has an anti-poverty and equality focus. They will supplement existing learning objectives on two graduate sociology modules (SO617 Quantitative Research Methods & SO637 Social Science Data Studio), with additional experiential learning objectives related to the re-use of data by their project partner.

The project will involve:

- > A guest presentation from the Rights Platform on their data needs and who they need to communicate data to;
- > The development of classroom resources to support the analysis of relevant data sets;
- > The development of appropriate assessments to facilitate experiential learning activities and outputs related to housing;
- > The incorporation of teaching activities focused on data communication and presentation to different audiences; and
- > The presentation of group or individual work to the Rights Platform Evaluation of project partnership.



From September 2020, Dr Laurence Cox has been coordinating social movements cluster for Oxfam/LSE research project *Emergent agency in a time of COVID-19*. He has been involved since July 2020 in the *Strengthening European social movement ecology (SESME)* action research project with Ulex movement training centre, Catalonia. In April-May 2020, he sourced and edited 38 short pieces on social movements under COVID-19 from every continent except Antarctica for the practitioner/researcher social movement journal *Interface*. He also co-edited two issues of the journal and one of the *Field Centre Journal of Research and Practice*. He made a keynote talk to activist/academic State Violence Research Network conference, in April 2020. He also contributed to other webinars such as the Rosa Luxemburg Foundation, Oxfam, Movements of Movements/encuentro5 and UK popular education events.

Professor Mary Murphy is involved in engaged research that spreads across statutory actors (Department of Employment Affairs and Social Protection (DEASP), trade unions (Forsa, SIPTU, and Connect) and civil society organisations (National Women's Council Focus Ireland, National Organisation of the Unemployed, Irish Local Development Network and Local Employment Services Network, and Community Work Ireland as well as numerous others).

FACULTY HIGHLIGHTS

FACULTY OF SOCIAL SCIENCES

Professor Murphy and Dr Nuala Whelan are working with the Department of Social Protection, National Organisation of the Unemployed, Irish Local Development Network and Local Employment Services on the *ACAPES Project – A Collaborative Approach to building Public Employment Services*.

It is also supported by an international academic advisory committee with members from MU, the University of Warwick, the University of Edinburgh, and the University of Geneva. The project has also collaborated strongly with Dr Michael McGann (Governing Activation in Ireland (GAIL) project, MU) who is also a member of the academic advisory committee.

For more information on project activities (including the Leave No One Behind Conference (June 2019), the *High Road Back to Work: Developing a Public Employment Eco-System for a Post-Covid Recovery* report and online launch (June 2020), the Digitalisation in Public Employment and Guidance Services online Conference (September 2020), and additional publications please see: ACA PES: A Collaborative Approach to building a Public Employment Service, Maynooth University, www.maynoothuniversity.ie/social-sciences-institute/research/ACAPES.

Professor Murphy's CommSoc Partnership with Community Work Ireland (CWI) gained IRC New Foundations funding of €11,900. CWI is a full project partner with equal engagement in research and dissemination. Co-production of *Winners and Losers Research* report (March 2020) and co-organisation of symposia and national conference for 150 participants. (July 2020). CWI generated matched funding from Pobal, Department of Rural and Community Development and St Stephens Green Trust.



Sex Worker Lives under the law, Dr Paul Ryan and Dr Kathryn McGarry, published September 2020

Dr Paul Ryan's project with Dr Kathryn McGarry on *Sex Worker Lives under the law: a community engaged study of access to health and justice in Ireland* was published in September 2020. The project had two external partners, HIV Ireland and Sex Workers Alliance Ireland (SWAI) (based in the Migrant Rights Centre) and used peer facilitators to explore sex worker access to health and justice.



Dr Pauline Cullen was Lead PI for the report (2019) *Women Beyond the Dáil: More Women in Local Government*, which was commissioned by National Women's Council of Ireland NWCI, and was funded by the Department of Housing, Planning and Local Government (Electoral Reform). This research includes the first ever survey of local elected representatives and focus groups with unsuccessful female candidates and stakeholder organisations on experiences of candidacy for local office. Collaborators included AkiDwA, (a national network of migrant women living in Ireland) Women for Election, Limerick Women's Network, Immigrant Council of Ireland, Longford Women's Links, Association of Local Government in Ireland. The project launched in November 2019.

Dr Cullen and Shane Gough's Irish Research Council New Foundations project commenced in December 2020 on *Assessing Supports for the Political Inclusion of Racial, Ethnic Minority & Migrant Women in Ireland (ASPIRE)*. It is a research study in collaboration with the National Traveller Women's Forum and AkiDwA. It seeks to learn about Traveller, ethnic minority and migrant women's experiences of, and access to, local government and politics in Ireland, and aims in particular to centre the experiences of racialised and minoritised women interested in political office.

Dr Cullen was appointed lead gender expert for the public submission process for the 2020 Citizens' Assembly on Gender Equality. This involves ongoing analysis and public dissemination of the public submissions for the Citizens' Assembly on Gender Equality 2020–2021, development of a methodological approach for the analysis of survey and individual submissions. Production of thematic reports for the Expert Advisory Group of the Citizens' Assembly and meeting oriented papers for the citizens, alongside video summaries for remote meetings are also required.

MAYNOOTH UNIVERSITY LIBRARY



MAYNOOTH UNIVERSITY LIBRARY

The MU Library hosts 44 staff with a vibrant publication history, and in the academic year 2019-2020 the Library authored 20 publications including, two books (edited collection), five book chapters and 13 articles. Articles were published in peer-reviewed journals, professional journals and newspapers. Two open access books were published by Daraja Press. The Library collaborated with the Department of History and with Departments of English and Sociology for two book chapters and the edited collection in 2019.

Publications with significant international interest would include *Treason: Last Writings of Ken Saro-Wiwa* (2nd ed. Daraja Press, 2019) and *I am a Man of Peace: Writings inspired by the Ken Saro-Wiwa Collection* (Daraja Press, 2020), with a significant number of essays by writers and activists from the Global South. Strong national/international library community impact was achieved with the delivery, and subsequent publication of presentations, from the first Irish Libraries and COVID-19 seminar.

The Library supports the Open Access publication of peer-reviewed journals in collaboration with MU staff. These include:

- > The Open Journal of Astrophysics (via Scholastica).
- > Journal of Military History and Defence Studies (via Open Journal System).
- > Journal of Electronic Dance Music Culture (via Open Journal System).
- > Journal of Mediation and Conflict Analysis (via ePrints).

The Library maintains the Institutional Repository, Mural, Maynooth University Research Archive Library, which is an institutional repository of ePublications that showcases the research output of Maynooth University and St. Patrick's College staff and postgraduate students. There were 1,576 items submitted to MURAL with 654,017 downloads in the last year.

The Library, along with the Arts and Humanities Institute, has established three visiting fellowships to facilitate greater research engagement in the Library's unique and distinctive collections, and to further the research mission of the Institute.

A Library staff member serves on the United Kingdom Serials group (UKSG), an international association made up of librarians, publishers and vendors, that connects the scholarly information community and encourages the exchange of ideas on scholarly communication.

Furthermore, Library staff members are involved in editorial roles and professional associations including:

- > Associate Editor of New Review of Academic Librarianship (NRAL), a peer-reviewed Taylor & Francis Journal;
- > Chair and information Coordinator of International Federation of Library Associations (IFLA) Buildings Group; and
- > Vice-presidency of Library Association of Ireland (LAI)

The Library is represented on the following research support groups :

- > National Open Research Forum (NORF) Skills Working Group;
- > Library Association of Ireland (LAI) Publishing Group;
- > Library Association of Ireland (LAI) Open Access (OA) Group;
- > Liber Linked Open Data Working Group;
- > Irish Research electronic Library (IReL) ORCID consortium, DOI consortia; and
- > CONUL Research Group and CONUL Research Data Management (RDM) Group.

RESEARCH INSTITUTES AND CENTRES



RESEARCH INSTITUTES AND CENTRES

MU ARTS AND HUMANITIES INSTITUTE

The Arts and Humanities Institute (AHI) was instituted in January 2018. In line with the University's Strategic Plan 2018-2022, AHI has a threefold objective: to support and enhance research culture in the Faculty of Arts and the University generally; to increase volume and quality of Faculty research outputs; to grow external research grant income. The COVID-19 pandemic affected Institute activities during the second half of the year under review. Nevertheless, the Institute was pleased to welcome a number of new, externally funded research projects listed below.

IN THE ROOM AUDIO

Funder: Enterprise Ireland

PI: Professor Victor Lazzarini (Music)

The Information Technology Research Academy project, funded by Enterprise Ireland's Commercialisation Fund, ran from March 2019 to November 2020. The project sought to implement a platform for the delivery of realistic 3D audio through headphones using personalised head-related transfer functions. The platform was designed around three elements: capture of anthropomorphic features and head mesh generation; head-related transfer function (HRTF) computation from head mesh; and a rendering engine for binaural audio, which used the user's measured HRTF data. This platform was successfully developed and is ready now for commercialisation.

MACMORRIS

MACMORRIS (Mapping Actors and Contexts: Modelling Research in Renaissance Ireland in the Sixteenth and Seventeenth Century)

Funder: IRC

PI: Professor Patricia Palmer (English)

MACMORRIS is an Advanced Laureate digital-humanities project that seeks to map the full range and richness of cultural activity, across languages and ethnic groups, in Ireland from 1541 to 1661. COVID-19 affected some activities, preventing travel to archives and conferences but, otherwise, good progress was made. The research team assembled the project's cast list of primary and secondary cultural actors from the Dictionary of Irish Biography (DIB) and Bardic Poetry Database (BPD), databases which were kindly shared by Cambridge University Press (CUP) and Dublin Institute for Advanced Studies (DIAS), respectively. The existing team – Professor Palmer, Dr Deirdre Nic Chárthaigh, and Dr Evan Bourke – was joined by programmer Rupavathi Subramani in September 2020, who is charged with designing the back end of the project's infrastructure. Dr Bourke has overseen that process and has cleaned the data from the back end of the DIB; Dr Nic Chárthaigh has done similar work with the BPD; and together, they have completed work on the bardic poet patronage network. Dr Nic Chárthaigh, in addition, has been editing what will eventually be a '*MACMORRIS* anthology'. The project also recruited a PhD student, Alan Waldron, who is working on theatre in mid 17th century Ireland. Dr Kevin Tracey was awarded an IRC Government of Ireland Postdoctoral Fellowship for a project, *AMERGIN*, linked to *MACMORRIS*. The project has presented our results – virtually at University of Connecticut, UCD, UL, and in the Digital Frameworks workshop in Maynooth. The project also launched its bilingual website, www.macmorris.maynoothuniversity.ie. The project has a Twitter account, @macmorris1s.

CLERICUS PROJECT (FIRST PHASE)

Funder: St Patrick's College Maynooth, €74,000

PI: Professor Thomas O'Connor AHI

January-June 2020. Project team, consisting of PI, technical lead, software-engineer and research assistants developed a central infrastructure to ingest and host prosopographical data on the Irish clergy for the early modern and modern periods, from multiple types of resources, including St Patrick's photographic collections. This included a comprehensive cataloguing environment and a modern content delivery front-end; data modelling i.e. identifying main entities and their relations; AI-assisted data import and cataloguing; data analysis; data delivery/representation. The resulting infrastructure is sufficiently flexible to allow the cataloguing of a broad range of resources (i.e. books and manuscripts, photos, portraits etc.). This developing project intends to set a digital standard for the field.

MOTHERHOOD PROJECT

Funder: European Commission

PI: Professor Valerie Heffernan

September 2020–September 2024

The MU Motherhood Project, a research group composed of seven researchers in the Faculty of Arts, Celtic Studies and Philosophy, and six researchers in the Faculty of Social Sciences, successfully applied for funding through the H2020 *Twinning* programme in November 2019. This funded project, which involves a collaboration with Vilnius University in Lithuania and Uppsala University in Sweden, formally began in January 2021. It is due to last for three years, i.e. until December 2023.

In 2019–2020, researchers in the MU *Motherhood Project* published peer-reviewed research on motherhood in prestigious journals such as *Journal of Popular Film and Television* (Dr Julie Rodgers), *Families, Relationships and Societies* (Dr Ciara Bradley), and *International Journal of Intercultural Relations* (Dr Marian Crowley-Henry). Dr Moynagh Sullivan published a chapter on a new book entitled *Anne Enright, Feminine Aesthetics, Writing, Mothering, Spiralling* (ed. by Caroline Eufrausino, Peter Lang: 2020). Members of the MU *Motherhood Project* also presented their research on motherhood at a number of research events during this period, including for example a symposium at MU on 'Mediating Motherhood' (Professor Valerie Heffernan), the British Graduate Shakespeare Association (Orlagh Woods), and the Women in French Conference in Leeds (Dr Julie Rodgers).

The research produced by the members of the MU *Motherhood Project* was also featured in mainstream media in 2019–2020. Dr Julie Rodgers and Professor Valerie Heffernan were quoted in an Irish Times article by Sheila Wayman on outsourcing motherhood in July 2019 www.irishtimes.com/life-and-style/health-family/parenting/outsourcing-parenting-from-night-nurses-to-homework-helpers-1.3967328#. XUBVJTXRDs and Professor Heffernan's research on mothers who regret their motherhood was mentioned in the Canadian magazine *Véro* in September 2020 www.veroniquecloutier.com/famille/je-deteste-etre-mere. She was also interviewed about the MU *Motherhood Project* on Kildare FM in August 2019.

The researchers' recent grant success also bodes well for the future. Two members of the MU *Motherhood Project* were successful in the recent round of New Foundations grants from the Irish Research Council: Dr Moynagh Sullivan was awarded €11,774 for a collaboration with the Irish Cancer Society entitled *Mama Ecology: Making Mediums to Mediate breast cancer through sustainable narrative, art, and poetry practices* and Dr Ciara Bradley was awarded €11,521 for a cooperation with Pavee Point Traveller and Roma Centre entitled *Pavee Mothering during COVID-19*.

DEVELOPING A DIGITAL FRAMEWORK FOR THE MEDIEVAL GAELIC WORLD

Funder: IRC/AHRC; €39,000

Co-Investigator: Dr Deborah Hayden

Funding to run a programme of four workshops and write four working papers exploring how digitisation has changed, and will change, the nature of research in medieval Celtic Studies and allied fields. Key participants include academics from MU (Professor David Stifter), QUB (Professor Greg Toner), UCC, the University of Glasgow and the University of Cambridge, as well as representatives from the British Library, the National Library of Scotland and the Royal Irish Academy.

CONTINUING EXTERNALLY FUNDED PROJECTS HOSTED IN THE INSTITUTE

CHRONOLOGICON HIBERNICUM

Funder: ERC, €1.8M

PI: Professor David Stifter

was extended to April 2021 and supported through the MU HEA COVID-19 support fund. This will allow for completion of the crucial final stage of the project, building and finishing the project database CorPH (Corpus PalaeoHibernicum) and preparing it for a public launch.

MEDIEVAL IRISH MEDICINE IN ITS NORTH-WESTERN EUROPEAN CONTEXT PROJECT

Funder: IRC, €190,640

PI: Dr Deborah Hayden (Early Irish)

The *MIMNEC* project was severely affected by the pandemic, and consequently extended to September 2021. The core *MIMNEC* project conference, *Medicine in the Medieval North Atlantic World*, organised in collaboration with Dr Sarah Baccianti (QUB) and jointly funded by the IRC and the British Academy was rescheduled as a virtual event for 13th–15th May 2021. The project team presented five conference papers (including three invited talks) over the course of the academic year. The PI and Research Assistants published six peer-reviewed journal articles and one book chapter in 2019–2020 (listed below); the PI submitted seven project related articles, currently still at various stages of the peer-review process, many of them very delayed due to the pandemic. At the start of 2020, the PI took over as Lead Editor of the interdisciplinary, peer-reviewed journal *Language & History* (published by Taylor & Francis).

THE LETTERS OF FRANK DUFF PROJECT

Funder: Irish Legion of Mary, €70,000

PI: Dr Jacinta Prunty

July 2019–April 2020

The project was successfully completed.

POSTDOCTORAL RESEARCH AWARDS HOSTED IN INSTITUTE

> Project: A Triad of Medical Glossaries (Government of Ireland Postdoctoral Fellowship)

Awardee: Siobhán Barrett

Funder: IRC, October 2020–September 2022

> Project: MACMORRIS (Mapping Actors and Contexts: Modelling Research in Renaissance Ireland in the Sixteenth and Seventeenth Century)

Awardee: Alan Patrick Waldron

Funder: IRC, October 2020–September 2022

> EU Marie Skłodowska-Curie Global Fellowship

Awardee: Dr Joe Davies

Mentor: Professor Lorraine Bodley Byrne (Music) with University of California Irvine (2021–24)



Dr Joe Davies awarded a Marie Skłodowska-Curie Global Fellowship from the European Commission

INSTITUTE PUBLICATIONS

- > Professor Thomas O'Connor, *Irish captives in the British and Spanish Mediterranean 1580–1760* in Ana Sáez-Hidalgo and Berta Cano Echevarría (eds), *Intersections: Exile, diplomacy and texts: exchanges between Iberia and the British Isles, 1500–1767* (Leiden, 2020), pp. 55–73.
- > Professor O'Connor, *La réception de la Geschichte der Päpste de Ludwig Von Pastor dans le monde anglophone* in Andreas Sohn and Jacques Verger (eds), *Ludwig von Pastor (1854–1928): Universitätsprofessor, Historiker der Päpste, Direktor des Österreichischen Historischen Instituts in Rom und Diplomat... historique autrichien de Rome et diplomate* (Regensburg, 2020), pp. 161–74.
- > Professor O'Connor, *Prequels: the Irish European Diaspora in Gisela Holfter, Bettina Migge (eds), Ireland in the European Eye* (Dublin, 2019), pp. 3–19.
- > Thomas O'Connor, *Navigating Irish networks with a Roman compass British Catholic History*, 34, 4 (2019), pp. 643–53.

RESEARCH INSTITUTES AND CENTRES

- > Professor O'Connor (ed.): *Archivium Hibernicum* LXXIII, (2020).
- > Keynote address: Professor Thomas O'Connor, Leuven University Conference, November 2019.
- > Invited participant: Professor O'Connor In our Time BBC Radio 4 broadcast, November 2019.
- > Invited speaker: Professor O'Connor, Vanderbilt University, early modern religion conference, April 2020 (postponed due to COVID-19).
- > Richard Fitzpatrick, *Catholic inheritance under the penal laws in Ireland in Irish Historical Studies*, xlv, no. 166 (2020), pp 224-247.

INSTITUTE SENIOR RESEARCHER SEED FUNDING SCHEME

The *Atlas na Gaeilge* project (PI An tOllamh Fionntán de Brún) is a long-term research project with Cork University Press that was granted €10,000 in seed funding by AHI in September 2019, co-funded by the School of Celtic Studies and Roinn na Nua-Ghaeilge. The initial stage of project, called *Scríobhaithe na Gaeilge* employed Dr Fintan Keegan as chief researcher, Miriam Fitzsimons and Helen Kelly were research assistants. The team prepared digital biographies for 220 scribes active in Ulster and North Leinster (1650-1900). The Database was completed in May 2020, and launched at an online Léachtaí Cholm Cille in December 2020, with publication for mid-2021.

NEW RESEARCH CENTRES SCHEME

AHI and the Dean of Arts Celtic studies and Philosophy collaborated in 2020 to run a competition for the establishment of two new research incubation centres, funded jointly by AHI and Dean's office, for two years at €5,000 each per annum. The scheme facilitates colleagues in collaborative areas of research that can enhance research activity in the Faculty, and lead to research funding bids and grant capture in the future. Its awardees work closely with the Research Development Office to write a bid for external funding at or before the end of the two-year period, and to promote their work, to create research networks, to host a symposium or conference, and to produce at least one peer-reviewed article during the initial two-year period. Proposals involve at least three members of the Faculty from at least two separate faculty departments. The competition ran in spring 2020, attracting six applications. The two successful applicants were:

- > *Motherhood Project* led by Professor Valerie Heffernan (German), with Dr Sarah Arnold, Dr Mercedes Carbayo Abengozar, Dr Anne O'Brien, Dr Julie Rodgers, Dr Moynagh Sullivan and Orlagh Woods
- > *Storytelling Across Media* led by Dr Jeneen Naji (Media Studies), Dr Ann O'Brien and Dr Stephen O'Neill.

There were 23 visiting fellowships offered by the Institute. COVID-19 restrictions obliged visiting fellows that were scheduled to come to Maynooth in 2020, to postpone their visits. However, the Institute is working with the fellows concerned to reschedule their visits for 2021 and 2022.

Name	Home Institute	Mentor
Shaun Blanchard	Franciscan University, Baton Rouge	Thomas O'Connor, AHI
Carmen Casaliggi	University of Cardiff	Colin Graham, English
Jeffrey Klenotic	University of New Hampshire	Denis Condon, Media Studies
Stephen Lahey	University of Nebraska Lincoln	Michael Dunne, Philosophy
Henning Laugerud	University of Bergen	Thomas O'Connor, AHI
Nioclas NacCathmhaoil	University of Ulster	Fionntán de Brún, Gaeilge
Ciaran McDonough	NUI Galway	Elizabeth Boyle, Early Irish
Shane McMahon	Maynooth University	Thomas O'Connor, AHI
Stephen Morgan	Kings College London	Sarah Arnold, Media Studies
Andrei Nacu	Romanian Academy	Thomas O'Connor, AHI
Barry Nevin	TUD Dublin	Julie Rodgers, French
Lesia Ni Mhunchaile	NUI Galway	Fionntán de Brún, Gaeilge
Martin O'Donoghue	University of Northumbria	Terence Dooley, History
Deana Rankin	Oxford University	Pat Palmer, English
John-Stewart Gordon	Vytautas Magnus University Kaunas	Philipp Rosmann, Philosophy
Michael Robinson		MUSSI shared
Elaine Pereira Farrell	University College Dublin	Elizabeth Boyle, Early Irish
Mark McGowan	University of Toronto	Thomas O'Connor, AHI
Thomas Bak	The University of Edinburgh	Ann Gallagher, School of CS
Lucis Boldrini	University of London	Rita Sakr, English
Thomas Herron	East Carolina University	Stephen O'Neill, English
Michele Mangini	University of Bari	Philipp Rosemann, Philosophy
Bridget English	University of Illinois, Chicago	Lauren Arrington, English

The Institute hosted Annemarie Ní Churreáin and Sue Rainsford as Writers-in-Residence in 2019–2020.

GENDER POLICY

AHI is committed to the achievement and maintenance of equality and diversity across all its activities. The AHI Director is a member of the institutional Athena Swan Self-Assessment Team (2017–2021), the Faculty of Arts Athena Swan Self-Assessment Team (2020–2021) and the institutional Aurora mentoring scheme.

AHI Director continued as member of the board of the Irish Humanities Alliance, member of the advisory board of Beyond 2022, member of the Fondation Irlandaise (Paris), member of the Irish Cultural Centre Paris strategy committee; completed term as member of Irish Manuscripts Commission (2020).

HAMILTON INSTITUTE

In 2019–2020 the Institute was host to five full time Professors; one half time Professor; 1.5 Admin; one postdoctoral researcher; 33 PhD students; and two research master's students. The Institute acts as a multi-departmental focal point for 38 affiliated university faculty staff with research expertise and interests in the Numerate Disciplines. In addition to its Director, it hosts four seconded MU faculty staff and their research teams drawn from the Departments of Computer Science, Electronic Engineering, and Mathematics and Statistics. Affiliates of the Institute participate as principal and funded investigators in several of the SFI Research Centres including CONNECT, Insight, I-FORM and Lero. The institute co-hosts the SFI Centre for Research Training in Foundations of Data Science.

RESEARCH GRANTS

Seconded faculty staff at the Institute currently hold and are delivering on over €9M of active grants. In response to the COVID-19 pandemic, however, led by Professor Andrew Parnell a sizeable group of MU faculty staff, postdoctoral researchers, and students drawn from across the Hamilton Institute (Dr Hoda Binaei, HoChan Cheon, Professor Ken Duffy, Professor Subhrakanti Dey, Professor David Malone, Amin Shoari Nejad, Professor Damien Woods, Bruna Wundervald), the Department of Mathematics and Statistics (Dr Niamh Cahill, Dr Rafael De Andrade Moral, Dr Catherine Hurley), the Department of Geography (Rebecca Dempsey, Dr Gerard McCarthy), and the Department of Biology (Professor Paul Moynagh) were awarded SFI emergency COVID-19 funding for a grant, *Computational tools for medium-term impact and recovery forecasting from COVID-19*. Novartis gifted monies towards computational resources for the project, while staff from their data science group volunteered time to it. The team developed a broad range of data-scraping, mathematical modelling, statistical inference, and extrapolation tools to aid in understanding the epidemiology of COVID-19. Output from the grant can be found at www.hamilton.ie/covid19.

In another successful application, Professor Parnell forms part of the core PI team of the new €5M *Terrain-AI* SFI Strategic Proposal co-funded by Microsoft. This grant was led by Hamilton Institute affiliate, and Professor of Computer Science, Tim McCarthy. It aims to quantify, and ultimately reduce, Ireland's Greenhouse Gas emissions. Hamilton faculty and affiliates will play a key role as many of the technologies behind these goals involve new data science and machine learning technologies.

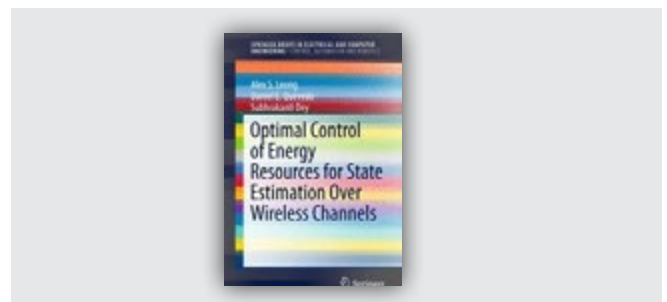
Seconded Hamilton Institute (HI) faculty staff continued to assist Institute affiliates and the broader MU academic community by providing grant proposal feedback for agencies including SFI, the ERC and other European Union entities. A significant, forward-looking initiative of the Institute is its plan to host a dedicated grant writing research support post from 2021, to assist seconded faculty staff and affiliates in conceptualising, writing, and coordinating funding opportunities.

RESEARCH IMPACT

The published work of seconded faculty staff encompassed a broad spectrum of materials in top-tier transdisciplinary and discipline-specific venues. Examples of high-profile transdisciplinary research include work by Professor Woods on molecular computing published in *Nature*, Professor Parnell's work on ancient tsunamis published in *PNAS*, and Professor Duffy's work on rescuing blood production during severe infection published in *Nature Cell Biology*.

In collaboration with colleagues from California Institute of Technology and the University of California Davis, Professor Woods paper in *Nature* reports on a set of DNA molecules capable of running a wide variety of programs in a test tube. The reprogrammability of the system took inspiration from the pioneering work of the late Alan Turing, and the notion that the ability to run any type of software program without having to change the hardware is what led to computers being ubiquitous. The work also provides a mathematical foundation showing that larger instances of the system can run any algorithm. This research generated significant public interest, and resulted in media coverage, both national (*Futureproof*, *Newstalk* radio; *Irish Times*; *Silicon Republic*) and international (*Wired*; *IEEE Spectrum*; *Chemistry World*; *Physics World*; *Europa Press*; *Nature Asia*; *The California Aggie*).

In collaboration with colleagues from Nanyang Technological University, Syiah Kuala University, and the University of Oxford, Professor Parnell's paper in *PNAS* presents archaeological evidence that a late 14th century tsunami devastated the coast of northern Sumatra and redirected history. This work piqued general interest, with popular article coverage in the *Irish Times* and *National Geographic*, amongst others.



Professor Dey's book is among the top publications on SpringerLink

Examples of discipline-specific highlights include; Professor Dey's book on control of energy resources over wireless channels, which, according to Springer Nature, is among the top publications on SpringerLink that concern one or more of the United Nations Sustainable Development Goals; Professor Woods' work on uncontrollability of so-called noncooperative self-assembly, which was published in one of the most highly ranked theoretical computer science conferences, *STOC*; Professor Malone's work, in collaboration with Professor Ronan Farrell's group at MU and

RESEARCH INSTITUTES AND CENTRES

colleagues from Northeastern University, developing physical layer encryption systems published in IEEE Transactions on Circuits and Systems; Professor Parnell's work with a colleague from Universidad de León on information theoretic approach to quantify the stability of feature selection and ranking algorithms published in Knowledge-Based Systems; Professor Duffy's work with colleagues from MIT providing a new proof of one of the core theorems of information theory that underwrites all communication systems, published in IEEE Transactions on Information Theory.

INNOVATION, INDUSTRY AND ENTERPRISE

Seconded faculty staff at the Institute maintained collaborations with industry partners. Professor David Malone's long-running relationship with IBM resulted in a second IBM employee registering for a PhD at MU. Novartis engaged the expertise of Professor Andrew Parnell to inform them about statistical approaches to inference with missing data. Professor Ken Duffy's industry funded collaboration with AstraZeneca and the Walter and Eliza Hall Institute using mathematical modelling to inform the development of immunotherapies was renewed.



Novartis engaged the expertise of Professor Andrew Parnell, Department of Mathematics and Statistics to inform them about statistical approaches to inference with missing data

With Professor James Gleeson (UL) and Professor Claire Gormley (UCD), Professor Duffy co-directs the SFI Centre for Research Training (CRT) in Foundations of Data Science. At MU, the centre currently funds 20 doctoral students registered in the Institute's structured PhD programme that are supervised by a body of 30 colleagues drawn from across MU faculty staff. The centre's enterprise alliance consists of sixteen entities: Alkermes, Analog Devices International, the Central Bank, the Central Statistics Office, Ericsson, Grant Thornton, Hertz, HP Enterprise, Met Éireann, Novartis, Microsoft, Pramerica, RenaissanceRe, Susquehanna International Group, UL Hospitals Group, Valeo. Members of the alliance contribute financially to the centre, and their employees have availed of over 140 training days from it. They also contribute to the training experience of students by hosting three-month placements that provide exposure to data science work practices in enterprise environments.

For the nine MU students who entered the programme in 2019, placements were provided remotely due to COVID-19 restrictions by Ericsson, Grant Thornton, Met Éireann, Novartis, Pramerica, UL Hospitals Group, and Valeo. The relationships formed with enterprise entities through the centre have blossomed into seconded faculty and affiliate collaborations that extend beyond the CRT, including with Met Éireann, Novartis and Valeo. The CRT programme hosted by the Institute is reaching a level of research maturity. In cooperation with MaynoothWorks, a scoping exercise aimed at understanding the innovation, patent and commercial potential of student's research can be conducted.

Innovation and technology transfer has been a consistent element of Institute activity, which currently has four licenced patents. Professor Malone's collaborations with IBM have resulted in four awarded US patents to date. His recent work has resulted in two additional invention disclosures to MU, one with IBM on graph algorithms in fog computing. Professor Duffy's fundamental research on forward error correction algorithms with collaborators at MIT, resulted in two awarded patents, and three published patent applications. The hardware realisation of that technology led to an additional patent application with collaborators at MIT and Boston University. Supported by MaynoothWorks and MIT's Technology Licensing Office, the transfer push for this technology will begin in 2021.

HAMILTON INSTITUTE RESEARCH COMMUNITY ACTIVITIES

The Institute hosts two seminar programmes. One was run by graduate students for graduate students of Institute affiliates, and hosted 23 talks throughout 2019 and 2020, moving online after the start of the COVID-19 pandemic. The main seminar series hosted 39 in-person talks from cognate colleagues across Ireland, the UK, Europe and the US. Embodying "when life gives you lemons, make lemonade" in response to the pandemic, the Institute joined forces with Professor Muriel Médard at MIT and Professor Flavio du Pin Calmon at Harvard, to host a tripartite series that, in 2020, saw 12 speakers give virtual seminars jointly organised by the three institutions. This online series has been a significant success, regularly having over 80 attendees. With its lower barrier for attendance by both speakers and audience, this arrangement proved to be one silver lining to the significant disruption being experienced in the research community.

Under the auspices of the SFI CRT in Foundations of Data Science, the Institute hosted two one-day Master Classes. These were delivered by Professor Muriel Médard from MIT's Research Laboratory for Electronics on a *Compressed Introduction to Compression*, and Professor Regina Barzilay from MIT's Computer Science and Artificial Intelligence Laboratory on *Deep Learning Approaches for Modeling Small Molecules*. These were attended by over 60 graduate students and faculty from MU, UCD and UL, as well as industry employees.

The annual Hamilton Institute Research Day brings affiliates and other faculty staff together to facilitate collaboration. Organised in 2020 by Professors Woods and Dey, it had 17 contributed talks on a broad range of topics.

OUTREACH AND RELATED ACTIVITIES

Institute faculty staff and research students contributed to outreach activities through eleven PhD student presentations during MU's Love Data week. Professor David Malone contributed expertise to the debate on the EU proposal to end daylight savings. He made a submission to the Department of Justice and Equality Consultation on Seasonal Clock Changes and engaged in the public debate on the issue (Newstalk, BBC 1 NI, BBC Website), where he may have been the first to identify the risk of two time-zones on the island of Ireland arising from Brexit. The Irish government's decision was to oppose the end of daylight savings due to that risk.

Professor Parnell's work on excess mortality in the COVID-19 pandemic led to an RTÉ Brainstorm article on the topic, and his work on Extreme Climate Change was reported in the Irish Times in March 2020.

RECOGNITION

In 2020, Professor Subhrakanti Dey was selected to be a Senior Editor for the IEEE Transactions on Control of Network Systems, a journal for which he served as an Associate Editor for 5 years. He also continued to serve as Associate Editor on IEEE Transactions on Wireless Communications, and IEEE Control Systems Letters during 2019–2020.



Professor Subhrakanti Dey, Department of Electronic Engineering and the Hamilton Institute, was selected to be a Senior Editor for the IEEE Transactions on Control of Network Systems

ENGAGED RESEARCH

Through the SFI CRT in Foundations of Data Science: Alkermes, Analog Devices International, Central Bank, Central Statistics Office, Ericsson, Grant Thornton, Hertz, HP Enterprise, Met Éireann, Novartis, Microsoft, Pramerica, RenaissanceRe, Susquehanna International Group, UL Hospitals Group, Valeo. The EA and Skillnet Ireland have contributed >€900,000 in cash funding to the centre, with a third of that, >€300,000 coming directly to MU. Each of Ericsson, Grant Thornton, Met Éireann, Novartis, Pramerica, UL Hospitals Group, and Valeo hosted MU PhD students on three-month internships, with agreements arranged by MaynoothWorks.

Professor D Malone's interactions have continued with IBM around the area of network analysis, as part of the SFI CONNECT Research Centre and identification of problems for the second phase of the CONNECT centre. Through previous work with Jonathan Dunne, an ex-MU PhD student, at IBM, they have identified interesting problems in the performance analysis of queueing systems now widely used in the IT industry, and an IBM employee is beginning PhD research at MU in this area.

Professor Malone's interactions with the network operations community has also continued, with students attending events such as HEAnet's annual conference and the UK Network Operators Forum. That enabled the retention of HEAnet as a partner in the ADVANCE CRT programme.

In 2020, a member of the Novartis Real-World Evidence team in Dublin engaged Professor Parnell to produce a course on Missing Data Analysis for their teams in both Ireland, Europe, and Asia. The course was well-received and has led to a further course being planned in 2021 (on interactive visualisation), a set of internships for MU Data Science MSc students, and a new co-supervised PhD student through the SFI Insight Centre for Data Analytics. Further collaboration opportunities are being explored in 2021.

Since 2017, with colleagues from the Immunology division at the Walter and Eliza Hall Institute of Medical Research in Melbourne, Professor Duffy has been working with AstraZeneca, using mathematical and statistical time-series models to assess the impact of novel immune-modulating interventions for cancer therapeutics. The work is supported through an EU ITN and direct funding from AstraZeneca.

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MU SOCIAL SCIENCE INSTITUTE

Maynooth University is recognised as a leading national and international centre for interdisciplinary social science research. Since July 2016, the MU Social Science Institute (MUSSI) has coordinated and conducted several social science projects across a range of disciplines, including projects collaborating with researchers in STEM and the humanities. The Institute incorporates and builds on the longstanding success of several existing research institutes, centres and research active Departments at MU, and in the last five years, has expanded its range and remit into new research themes.

MUSSI's current component research groups and centres include projects and PI's associated with the National Institute for Regional and Spatial Analysis (NIRSA) and also the National Centre for Geocomputation (NCG), which has recently expanded (one new lecturer and 5 million euros in new research projects). The institute also consolidates, develops, and supports a number of other projects and critical national data infrastructures, which leveraged c.€10M funding in 2020–2021, including the All-Island Research Observatory (AIRO), the Irish Qualitative Data Archive (IQDA), International Centre for Local and Regional Development (ICLRD), the Centre for Mental Health & Community Research, Digital Repository Ireland (DRI), and Scholars at Risk (Europe). Departments involved in current funded projects in the Institute include Psychology, Geography, Anthropology, Computer Science, Law, Sociology, the Innovation Value Institute (IVI) and the Hamilton Institute. MUSSI is very well known across the HEI sector, and by social and economic stakeholders across Ireland. This is reflected in the large amount of contract research undertaken for public and third sector agencies. The Institute is regularly asked to partner international organisations and other HEIs as part of transnational research bids. These awards have generated cutting edge research for policy and society in a wide range of areas.

This report provides just a snapshot/sub sample of the Institute's activities and PI's and researchers achievements in 2019–2021 specifically.

RESEARCH AWARDS

Institute members participated in 45 research projects with c.€11.8M for activities at Maynooth. Some research grant highlights:

- > Professor Tim McCarthy and Dr Rowan Fealy (ICARUS Climate Research Centre and Department of Geography) were successful in securing €5M from SFI (with 50% funding contributed by Microsoft) for *Terrain-AI*, which deals with research of Decision Support Systems for Managing Carbon. This 24-month project, coordinated by MU, involves c.50 researchers drawn from Teagasc, TCD, UCD, DCU and UL in collaboration with a number of government departments and agencies including DAFM, EPA, Met Éireann and National Parks and Wildlife Service (NPWS).
- > The *Data Platform for Emergency Response Management (DPERM)* project led by Professor McCarthy was funded under the SFI 2020 COVID-19 Rapid Response Research call to research and develop

various geospatial data technologies for monitoring outdoor spaces and regional-based human-activity in an ethically and legally compliant manner. Spaceborne, Drone and Mobile Telecom Network data was acquired, fused and analysed on a cloud-based platform to produce performance metrics (Crowd Counts, Capacity, Pinch-points) relating to use of public spaces such as public parks and beaches, as well as develop occupancy and flow metrics of human-activity at the Small Area Polygon (SAP) level across a number of counties in Ireland.

- > The *All-Island Regional Observatory (AIRO)* has worked on numerous key national projects, including the National Planning Framework, and the recent Regional Spatial and Economic Strategies. In collaboration with the Central Statistics Office, AIRO developed a national census mapping toolset aimed at improving evidence-informed planning that is widely used by government, educational institutions, private consultancies and the public. Environmental projects include a Strategic Environmental Assessment analysis tool for the EPA, and a new Local Authority Renewable Energy Strategy tool for the Sustainable Energy Authority of Ireland. This EPA funded project is now also supported by the Office of the Planning Regulator. Over the course of the last year, the team at AIRO and UCD have run five stakeholder workshops with participants from local authorities, government departments and other State bodies. Funding to-date; c.€50,000 with a further €25,000 p.a. over a five-year period.
- > Dublin Housing Observatory: AIRO have and continue to work with Dublin City Council on the development of the Dublin Housing Observatory. This mapping toolkit contains a wide variety of housing data across the Dublin Region and will be a key asset in the development of the new Dublin City Housing Strategy, and the Housing Needs and Demand Analysis (HNDA). Funding to-date; c.€107,000 with a further €254,000 over the next three years.



- > Professor John O'Brennan, Jean Monnet Chair, was awarded a Jean Monnet Centre of Excellence. Jean Monnet activities are designed to promote excellence in teaching and research in the field of European Union studies worldwide. The activities also foster the dialogue between the academic world and policymakers, in particular with the aim of enhancing governance of EU policies.

- > Dr Michael McGann was awarded a Marie Skłodowska-Curie Individual Fellowship (Department of Sociology and MUSSI). His research will look at governing activation in Ireland, comparing Ireland's mixed economy of employment services. Dr McGann was co-awarded the Ken Young Prize, which is awarded the best article judged to represent excellence in the field published.

RESEARCH IMPACT

The Institute has a strong record in research publication. It was another productive year, with staff and Institute members publishing 25 books, 255 peer-reviewed articles, 131 book chapters, 28 conference proceedings, 32 reports and 360 "other" publications.

The Institute's contribution to informing policy is ongoing as evidenced by some of our publication outputs e.g.

- > *The High Road Back to Work* policy report authored by Professor Mary Murphy, Dr Nuala Whelan, Dr Michael McGann and Dr Philip Finn. The report focuses on re-imagining a post-COVID-19 Public Employment Eco System, which needs to be included in this strategy, and how it could be implemented in terms of institutions, governance, digitisation and income supports. The report was launched by Professor Rory O'Donnell, National Economic & Social Council (NESC).
- > The *ECHO (European network of Cybersecurity centres and competence Hub for innovation and Operations)* project, with MU PI Dr Michael Cooke, published a whitepaper *The COVID-19 Hackers Mind-Set*.
- > Ongoing cutting edge, HSE funded research on mental health conducted by Professor Sinéad McGilloway and her team.

Institute staff and members had significant media exposure during the year, including RTÉ Drivetime, the Irish Times, Irish Examiner and Silicon Republic. Some topics discussed include, Brexit, Women and the Irish Revolution, Emergency Response Management/Geospatial Science, Data Analytics.

The Institute offers a number of supports for Early Career Researchers. Dr Valesca Lima, IRC Postdoctoral researcher, has achieved six peer reviewed publications during her two-year fellowship with the Institute. It has been a busy year for some of the Institute's researchers who have contributed to the COVID-19 response. Professor Chris Brunsdon, Director of NCG, has participated on the NPHET Modelling Expert Group throughout the pandemic. AIRO jointly developed and have continually updated a new national COVID-19 dashboard, along with Ordnance Survey Ireland and CSO Ireland. AIRO also manage and analyse data relating to the spread of COVID-19, on behalf of the Department of Health and the National Public Health Emergency Team.

MUSSI and Faculty of Social Science launched a co-funded Small Research Grants (2020–2021) scheme to the value of €32,841. Current recipients include Dr John Cullen, Dr Paola Zappa & Dr Olga Ryazanova (Business), Dr Rebecca King-O'Riain, Professor John

O'Brennan & Professor Aphra Kerr (Sociology), Dr Aldo Valencia (Design Innovation), Professor Karen Till & Dr Rachel McArdle (Geography), and Dr Edana Richardson, Dr Aisling McMahon, Dr Brian Flanagan, Dr Donal Coffey and Maria Murphy (Law).

The Institute's Visiting Fellowship Scheme continued this year, which is designed to enhance collaboration between MU's research community and the Institute's Visiting Fellows and academic staff at MU. While COVID-19 disrupted some travel, the Institute was delighted to host the following Visiting Fellows:

- > Stefan Ramaekers, KU Leuven
- > Sandra Jasper, HU Berlin
- > Michal Rzeszewski, Adam Mickiewicz University Poznan
- > Michael Robinson, University of Liverpool
- > Denis Bracken, University of Manitoba
- > Luigina Cioffi, Sheffield Hallam University
- > Mark Chadwick, Nottingham Trent University

Two Fulbright awards located in MUSSI were also advertised and one is currently being filled.

OTHER ACTIVITIES

Two MU departments, Biology and Geography, received Athena SWAN Bronze Department Awards at a ceremony hosted by the Royal College of Surgeons. The awards were presented to each department by the Minister of State for Higher Education, Mary Mitchell O'Connor TD. Professor Linda Connolly is Chair of the Maynooth University Gender Equality Steering Group and contributes to these submissions in partnership with the Office of the Vice President for Equality and Diversity. The Departments of Law, Psychology and Chemistry also applied for and received Athena SWAN bronze awards.

INSPIREUROPE AT MAYNOOTH UNIVERSITY SUPPORTS SCHOLARS AT RISK (SAR) OF PERSECUTION



(l-r): Robert Quinn, Founding Executive Director, Scholars at Risk Network; Sinead O'Gorman, Director, SAR Europe; Professor Linda Connolly, Director, Maynooth University Social Sciences Maynooth University; Professor Philip Nolan, President, Maynooth University

RESEARCH INSTITUTES AND CENTRES

A new EU-funded initiative to support researchers at risk was launched by ten European partners at Maynooth University, Ireland. The initiative, InSPIREurope, is a Europe-wide alliance for researchers who are at risk due to discrimination, persecution, suffering or violence, and is hosted by MUSSI.

In 2020, SAR received nearly 500 applications for assistance and arranged 143 positions of academic refuge, with the majority of scholars coming from Turkey, Yemen, Syria, Brazil and Iran. Inevitably, however, there are more qualified candidates for academic positions than places available. At the same time, a study by the European Centre for the Development of Vocational Training found that 40% of EU businesses have difficulties finding staff with the right skills, particularly in ICT, medicine, science, technology, engineering and maths (STEM), and teaching. Now, the *InSPIREurope* project, coordinated by SAR Europe at MU, is exploring ways to support the placement of highly skilled researchers into industries with skills shortages.

InSPIREurope has been exploring opportunities across Europe, with partners including Google, EuroScience, and Enterprise Europe, helping researchers at risk generate hugely valuable rewards for regional economies. For more information, contact inspireurope@mu.ie.

MUSSI also hosted a workshop on *Unlocking the Potential of Rural Ireland* in May 2019. In this workshop, leading thinkers on rural development discussed the state of rural Ireland, reflected on the legacy of the Commission for the Economic Development of Rural Area (CEDRA) in putting rural economic development higher on the national agenda and considered directions for future development. Keynote speaker; Mr Phil Hogan, EU Commissioner.



EU Commissioner Phil Hogan, keynote speaker, at the *Unlocking the Potential of Rural Ireland* event at MUSSI

Professor Mary Murphy hosted a workshop/conference in September 2020 on *Digitalisation in Public Employment & Guidance Services*, which was attended by approx. 200 participants and was viewed by nearly 300 people via the Institute's Facebook page and YouTube channel.



President Michael D. Higgins honoured Professor Linda Connolly, Department of Social Sciences and MUSSI, with a letter acknowledging the publication of her new book *Women and the Irish Revolution*

President Michael D. Higgins honoured Professor Linda Connolly with a letter acknowledging the publication of her new book in December 2020, *Women and the Irish Revolution* (funded by an IRC New Foundations Grant). She has been invited to speak in Áras an Uachtaráin at a forthcoming Machnamh seminar. She also contributed to several public papers and media discussions in 2019–2020 on this research (including Drivetime and the Irish Times).

The Digital Repository of Ireland (DRI) and MUSSI launched a new project that will provide long-term preservation and access to at-risk materials generated by the women's reproductive health movement during the campaign in the approach to the 2018 referendum on the 8th Amendment. The Institute Director participated on the management team of DRI and leveraged full funding for a DRI position in MUSSI in 2020, through full membership of DRI.

A 2020 paper by MUSSI's Professor Rob Kitchin, *Using digital technologies to tackle the spread of the coronavirus: Panacea or folly?* examines whether digital technologies will be effective in tackling the spread of the coronavirus, considers their potential negative costs vis-a-vis civil liberties, citizenship, and surveillance capitalism, and details what needs to happen.

KATHLEEN LONSDALE INSTITUTE FOR HUMAN HEALTH RESEARCH

The Kathleen Lonsdale Institute for Human Health Research has a strong inter-disciplinary focus that reaches across several departments including, Biology, Chemistry, Psychology, Computer Science, Psychology and others. At the heart of the Institute is the multi-disciplinary approach to improve Human Health through research spanning biological, psychological, social, physical and environmental factors across the life course. The primary focus includes healthy ageing and chronic inflammatory diseases, obesity and antimicrobial resistance.

In the past year researchers from the Institute took leading roles in addressing COVID-19 with funding provided by SFI and the HRB under the COVID-19 Rapid Response Research and Innovation Programme. Dr Fiona Walsh, of the Department of Biology and the Kathleen Lonsdale Institute for Human Health Research, collaborated on a Teagasc led national approach to the sequencing of COVID-19 involving hospitals, third level institutes, the National Virus Reference Laboratory and APC Microbiome Ireland.

Professor Sean Doyle, Dr Ozgur Bayram and Dr David Fitzpatrick also collaborated with the National Virus Reference Lab and the Irish Blood Transfusion Board to develop amalgamated bioinformatic and molecular assays to optimise testing for past exposure and potential immunity.

Dr Mark Robinson collaborated with Queen's University Belfast and St Vincent's Hospital investigating why people with liver disease are more at risk of dying from COVID-19.

Research awards associated with the Institute amounted to €5.4M in the reporting period. In September 2020, Dr Lorna Lopez from the Department of Biology won a prestigious European Research Council Starter grant, which is part of the EU's Research and Innovation Programme, Horizon2020. Dr Lopez received the €1.5M award to conduct research on disrupted circadian rhythms and its relationship with autism spectrum disorder (ASD) in families.

Two prestigious H2020 Marie Skłodowska-Curie Individual Fellowships were also awarded to Dr Assis Leandro and Dr Ailbhe Brazel. Under the mentorship of Dr Ozgur Bayram, Dr Leandro will aim to uncover novel proteins involved in the regulation of hydrolytic enzymes and secondary metabolites production in the *Aspergillus nidulans* that can be explored for biotechnological processes. Dr Ailbhe Brazel, under the mentorship of Dr Emmanuelle Graciet, aims to determine if major changes to the epigenetic landscape underlie (i) gene expression changes in response to hypoxia and/or immune response in plants; (ii) the trade-off between the hypoxia and immune programs. Fundamental mechanisms will first be established at Maynooth and the potential for crop adaptation to climate change will be explored during a secondment at the state agency Teagasc, using barley, Ireland's most widely grown tillage crop.

PUBLICATION HIGHLIGHTS

In the academic year 2019–2020 researchers affiliated with the Institute published 299 publications, including 218 peer reviewed journals. Of particular note was a Nature Communication paper published by Andrew Hogan looking at how cytokines alter the intestinal microbiome and can protect against obesity and metabolic dysfunction.

In 2019 and 2020 two papers published by research in the Institutes were classified as 'hot papers' by Web of Science. Dr Fiona Walsh and Thuy Do published in Sciences Advances with collaborators from Italy, Germany, Finland, Portugal, Spain, Cyprus, China and USA, studying antimicrobial resistance (AMR) in European wastewater treatment plants. The study compared the influent and final effluent of 12 wastewater treatment plants in seven countries, analysing 229 antibiotic resistant genes and 25 mobile genetic elements. The data indicated that the profiles of AMR in urban wastewater treatment plants mirrors that of the AMR gradients observed in clinics, therefore highlighting the necessity for regular analysis and implementation of control measures, that may be geographic region specific.

Dr Elisa Fadda, Aoife Harbison and Carl Fogarty published an article on the roles of glycans in the SARS-COV-2 spike protein, in collaboration with US researchers. The article published in ACS Central Science in October 2020, utilised multisecond-long, all-atom molecular dynamic simulations to provide an atomistic perspective on the roles of glycans, and on the protein structure and dynamics. The team built a full-length model of the protein and found a structural role at two N-glycan sites, which modulated the conformational dynamic of the spike's receptor-binding domain. The deletion of these sites (N165 and N234) significantly reduced binding to ACE2 receptor. This research offers functional and structural insights into the SARS-COV-2 protein, which could be harnessed for vaccine development.

RESEARCH INSTITUTES AND CENTRES

ALL INSTITUTE (ASSISTING LIVING AND LEARNING)

The Assisting Living and Learning (ALL) Institute at MU, launched in November 2017, focuses on: Assisted Living, research to help people who may be challenged by disability, chronic illness, frailty or cognitive decline to benefit from the equitable application of technological, personal, community and societal initiatives, which assist and enable them to live a full life as valued participants of their community; and Assisting Learning, removing barriers to accessing and benefiting from education, especially at third level. The Institute's mission is to enable people across their life course – especially those who have been marginalised – to achieve well-being in their preferred ways: including through the development and application of appropriate technologies, person-centred systems and evidence-based policies and laws, which empower users and those supporting them to understand and address living and learning challenges. Members of the Institute work with health and care services, civil society, and industry in Ireland; and with governments, industry, civil society and United Nations agencies across more than 50 countries.

MAJOR RESEARCH HIGHLIGHTS 2019/20

The ALL Institute led two COVID-19 related research projects.

- > Professor Mac MacLachlan was a member of the steering group which developed the *Health Service Executive's Psychosocial Response to the COVID-19 Pandemic* – the evidence-informed framework for psychosocial services in Ireland during this time. He led research in ALL evaluating the impact of the pandemic on individuals with intellectual and developmental difficulties.
- > Dr Katriona O'Sullivan developed an extension to the DreamSpace HomeSpace series in collaboration with Microsoft and RTÉ, as part of the provision to families with remote support for home-based learning and more structured and accessible learning activities.



Several major projects are ongoing. The H2020 funded *Smart and Healthy Ageing through People Engaging in Supportive Systems (SHAPES)* launched in November 2019. SHAPES is a four-year Innovation Action project including 36 partners across 14 countries, led and coordinated by ALL which was awarded €21M by the European Commission. This is the largest EU grant for healthcare research ever awarded to an Irish institution. SHAPES focuses on large-scale integration of technology to support independence and enhance quality of life for older people. The consortium includes service users, industry, academia, hospitals, community service providers, disabled people's organisations, and civil society. Irish partners include UCC and Access Earth Ltd (a Maynooth Campus Company) along with the University of Ulster and the Northern Health and Social Services Trust, in Northern Ireland.

Professor Deirdre Desmond, Co-Director of ALL, is MU lead on the Science Foundation Ireland Centre for Research Training in Advanced Networks for Sustainable Societies, a doctoral training centre in collaboration with TCD, UCC, DCU, MTU and UL. MU supervisors are drawn from STEM and Social Sciences disciplines, including Psychology, Electronic Engineering, the Hamilton Institute, Law, Mathematics and Statistics, and Sociology. This major initiative, with €18M of total funding, is aimed at addressing the technical and societal challenges of connectivity between large numbers of people and things.

Professor Delia Ferri, Co-Director of ALL was the winner of the MU Research Achievement Award in 2020. Professor Ferri's European Research Council consolidator project, *Protecting the Right to Culture of Persons with Disabilities and Enhancing Cultural Diversity through European Union Law: Exploring New Paths*, commenced in 2020.

ALL is also home to doctoral and postdoctoral researchers funded from a range of other sources, including the H2020 Marie Curie Scheme, the Canadian Institutes for Health Research, the Irish Research Council, UK Aid and Maynooth's own Hume doctoral programme; constituting an international and dynamic environment of strongly engaged research.

Other projects ongoing include *Disability inclusion and structural change*, Holly Wescott, IRC, 2019 Government of Ireland Postgraduate Scholarship, 1st September 2019 for 3 years, €72,000.

PUBLICATIONS

ALL continues to create a substantial body of scholarship. This includes authored and edited books, book chapters and academic papers published in the following journals: *Ethics and Behavior*, *BMJ Open*, *Technological Innovation and Entrepreneurship*, *BM Health Services Research*, *Societies*, *Frontiers in Psychology*, *Ageing Research Reviews*, *Disability and Rehabilitation: Assistive Technology*, *Studies in Higher Education*, *Journal of Intellectual Disability Research*, *International Journal of Environmental Research and Public Health*, *International Perspectives in Psychology*, *Maritime Studies* and *PLOS One*.

One ALL paper was classified as a 'hot paper' by Web of Science in 2020. Dr Philip Hyland co-authored the article 'Anxiety, depression, traumatic stress and COVID-19-related anxiety in the UK general population during the COVID-19 pandemic' in *BJPsych Open* in November 2020.



IMPACT

Professor Mac MacLachlan was a member of the steering group which developed the *Health Service Executive's Psychosocial Response to the COVID-19 Pandemic*.



Professor Mac MacLachlan, Department of Psychology and the ALL Institute

The partnership between the ALL Institute and Microsoft DreamSpace was recognised in the RIA 2020 US-Ireland Research Innovation Award for Innovation in Talent Development. In 2018 Microsoft and the ALL Institute embarked on a research partnership led by Dr Katriona O'Sullivan which examined the impact of the DreamSpace education activity.

Microsoft Ireland's DreamSpace is an immersive, research-based STEM experience for students to enhance their STEM skills, develop their understanding of Machine Learning (ML) and Artificial Intelligence (AI) concepts, promote an understanding of the technology sector career pathways, and support and inform classroom curriculum development. It creates and delivers authentic and experiential learning experiences, focused on teachers and students.

CONTRIBUTION TO UN SUSTAINABLE DEVELOPMENT GOALS

ALL takes pride in its contribution to the UN SDGs and to the profile of the University in this area. The Institute asked ALL members in 2020 to complete a survey created identifying where their work aligns with the UN SDGs in five broad areas – education, policy, engagement, research, and funding. Below are examples of some of the projects, policy developments, and civil society organisations the Institute is working with.

EDUCATION

ALL is contributing to the development and delivery of inclusive technology education through involvement with DreamSpace, Enable Ireland, Microsoft data centre, *Turn to Teaching* Programme, *College Connect* Programme, Enable Ireland teacher project, GreenCovid, Girls in STEM – Microsoft Data Centre.

POLICY

ALL is contributing to policy development via:

- > **DreamSpace:** Curriculum Design for Blended Learning (CDBL) project;
- > **sKATIE:** Evaluation of barriers and facilitators to assistive technology innovation in Kenya;
- > **InnovateNow Evaluation:** Network Analysis and Mapping of Kenyan Innovation Ecosystem, African led innovations in COVID-19;
- > Global data repository and systematic review for assistive technology supply and demand, Innovation success metrics systematic review;
- > **AT2030 Country Investment Fund** (investments in up to five African countries to advance assistive technology access), COVID-19 and assistive technology global survey, Assistive technology as a facilitator of sport participation, Global mapping of assistive technology ministerial responsibility, Assistive Product List Implementation Creating Enablement of inclusive SDGs; and
- > **STEM for Girls**, scaling community social innovation to promote inclusion in the implementation of the SDGs: an international, interdisciplinary and intersectoral perspective on women and girls with disabilities.

CIVIL SOCIETY

ALL members are collaborating with more than 20 NGOs and companies on civil society initiatives, including Microsoft, Enable Ireland, Breakthrough, Accenture, Clinton Health Access Initiative, AMREF, Motivation Kenya, InnovateNow, Malawi Against Physical Disability, Malawi Council for the Handicapped, Motivation Africa, CHAI Malawi, CBM Malawi, Parents of Disabled Children Association of Malawi, AT2030, WHO, UNICEF, UNDP, Motivation Trust, CBM International, Sightsavers and World Vision International, Disability Federation of Ireland, Age Inclusivity Centre & Age Friendly Maynooth, ASI & ALONE Clinton Health Access Initiative.

RESEARCH INSTITUTES AND CENTRES

INNOVATION VALUE INSTITUTE

In June 2020, Innovation Value Institute (IVI) Professor Markus Helfert was appointed as the new Director for the Institute. He subsequently refocused and reorientated the Institute's vision; with a renewed concentration on researching the business and technical dimensions of digital transformation, and organisation capability improvement driven by interdisciplinarity research, distributed across 10 connected research domains or 'clusters', namely, Digital Construction; Digital Health; Digital Retail; Fintech; Gov tech; Food Tech; Smart Cities and Regions, and Mobility of the Future. IVI comprises three core members of academic staff and a total of sixteen postdoctoral researchers, and eleven PhD students also contributed to IVI's research agenda during the academic year 2019–2020.

Within these domains, IVI staff and researchers have built strategic partnerships with IVI members (Companies and Public Sector Bodies). They actively engage with industry, the public sector, and the broader community, through a range of initiatives including collaborative research and the dissemination of research. Engagement activities include organising workshops for various stakeholders, membership in various industry bodies and committees, and consulting for industry. The Institute's research dissemination activities include a range of invited and guest presentations at different practitioner-focused forums, articles published in popular publications including *Silicon Republic*, research centre blog posts, and IVI's Webinar Series, which showcases the Institute's research agenda and industry collaborations.

The outputs of these research clusters contributed to the understanding and Digital Transformation Paths across seven Digital Transformation Capabilities:

1. Planning and Execution Management
2. Ecosystem Management
3. Delivery and Operations Management
4. Talent Development and Organisational Design
5. Investment and Financial Management
6. Information Exploitation Management
7. Risk, Controls, and Cybersecurity Management

Over the course of the reporting timeframe, IVI researchers disseminated over 90 research outputs across a range of channels including peer-reviewed journals, conference publications, among others. In 2019, IVI staff and researchers published in seven international peer-reviewed journals, 17 conference publications, two conference workshops, one EU policy report, and two working papers. In 2020, IVI researchers published 16 papers in international peer-reviewed journals, 17 leading international Information Systems Management conference publications, and three mass-media outlets.

New external funding secured by members of IVI exceeded €403,000 in 2019–2020 with the largest award grant recipient being IVI Director Professor Markus Helfert, who secured funding through the EU Project *PERFORM* (funded under the Marie Skłodowska-Curie Actions – Innovative Training Network Programme), the SFI Research Centre Lero, as well as Enterprise Ireland and industry co-funding for the project *Retail in a digital age – An Interactive Retail Platform and Business Service that allows to Investigate Design and Experience based on Customer Behaviour Data (Re-Direct)*. This and other substantive grant awards demonstrate the value of IVI's research and the Institute's competency in attracting external funding. A complete list of awarded external funding is listed below.

Despite the disruptions to typical working practice occasioned by the onset of the COVID-19 pandemic in March 2020, IVI researchers delivered substantial academic contributions, and for civic welfare in a range of areas.

EXAMPLES AND SUMMARY OF EXTERNAL ENGAGED RESEARCH HIGHLIGHTS INCLUDE:

LEADING STANDARDS' DEVELOPMENT

IVI contributed to the National Standards Authority of Ireland (NSAI) working group for the published Irish annex for ISO 19650: Organisation and digitisation of information about buildings and civil engineering works, including building information modelling (BIM). The aim of the programme is to harness the potential of ICT in the Irish Construction Industry. IVI's contribution as part of the NSAI working group, was to ensure that the Irish implementation of the specification conformed with the ISO 19650 criteria in areas including improved safety; faster and more efficient processes; increased productivity; controlled whole-life building costs; controlled environmental data; avoidance of rework costs; reduced on-site waste; error prevention; clash detection, and improved likelihood for firms to have the opportunity to secure Government contracts with regard to Building Information Modelling and relates BIM certification. With Professor Markus Helfert chairing the steering committee of the ELITE-S Cofund Programme *Future Leadership in ICT and Standardization in Europe* at the SFI ADAPT Research Centre, the Institute contributes to the skills and standards development in Ireland and internationally.

PROVEN COMPANY ENGAGEMENT AND INNOVATION PROCESS – CO-DEVELOPING DIGITAL TRANSFORMATION PATHS AND ROADMAPS

Working with a number of SMEs, IVI's 'Discovery for Innovation' process is a design thinking influenced method for establishing the conditions for innovation among stakeholders/participants by identifying:

- A) Characteristics of the contextual landscape to be explored in the business or research domain; and
- B) Specific problems and opportunity areas to be analysed, listed, and prioritised.

Techniques for ideation and development of innovative and agile solutions are used to mediate the problem/opportunity nexus across four domains:

1. Competency development;
2. Organisation capability improvement;
3. Business process optimisation; and
4. Technology utilisation.

The goal of the process is to roadmap digital transformation paths guiding companies on digital technology adoption and skills development. The process is used in community engagement and outreach programmes including the Age-Friendly Ireland and Smart Cities projects described below, as well as the ReThink|ReDesign initiative supported for example by the Enterprise Ireland Innovation Voucher Programme described in Section 3.

LEADING THE ALL-IRELAND SMART CITIES FORUM

Hosted at IVI, the All-Ireland Smart Cities Forum is a community of practice focused on the advancement of cities and communities in both the Republic of Ireland and Northern Ireland. The Forum is made up of city officials who have a wealth of knowledge and experience of the evolving smart city agenda, and the opportunities this provides for future growth and investment. The primary objective is that this will be a co-operative Forum for the advancement of smart city agendas across all partner cities. The cross-border initiative includes local authority representation from Cork, Dublin (all four local authorities), Limerick, Galway, Waterford, Belfast, Derry, and Newry, who together will explore common challenges related to implementing smart city policies and projects.

DATA MANAGEMENT AND DATA GOVERNANCE RESEARCH

IVI is developing work in Data Management and Data Governance, as the lead applicant in the SFI Spokes Programme *Empower: Citizens and Organisation to Control, Share, and Extract Value from their Data*. A proposal has been funded in 2021 for an SFI Spoke for Data Platforms, Governance and Ecosystems to be jointly proposed by the SFI centres ADAPT, FutureNeuro, Insight and Lero. Members of IVI have contributed to research related to Data Management and have actively contributed to a number of Standardisation Committees, including:

- > ISO/IEC JTC 1/SC 40 *IT Service Management and IT Governance*;
- > NSAI/TC 047/SC 22 *BIM Building Information Management*; and
- > NSAI Health Informatics Standards Consortium with HISC SC6 advising on the Health Information Architecture.

SMART CITY RESEARCH

Enterprise Architecture and Building Ireland's First Digital City Limerick Digital Strategy 2017–2020 and Task lead in the EU Lighthouse Project +CityXChange.

Cities and their environs, as the main drivers of world economic growth, are attracting an ever-increasing number of people that are seeking new opportunities, prosperity and a better quality of life. Alongside the ongoing urbanisation, the past two decades have seen advances in digital technologies that have changed the world. It is no surprise therefore, that cities across the world are examining how they can increasingly use integrated digital technologies, ICT, data, and analytics to operate in a smarter, more efficient way. Funded by SFI and Lero, they have developed a Smart City Enterprise Architecture and a reference Methodology to digitalise and transform public services (www.scriita.lero.ie). They also supported the development of the Limerick 2030 plan, which aims to take advantage of digital technologies, transform the way we work at local and regional level, enable better citizen engagement through digital channels, double the number of digital start-ups in Limerick, double the number of SMEs trading online, double the use of data, create equal opportunities for all citizens and accelerate the development of a Sustainable Smarter Limerick. Members of IVI participated in the EU Lighthouse Project +CityXChange (www.cityxchange.eu).



DIGITAL TRANSFORMATION AND CAPABILITY MATURITY FRAMEWORK

This framework is underpinned by the ongoing Digital Transformation across all sectors, including business and value chains. Societies are radically changing and will look significantly different within the next five years, due to factors including: massive and increasingly pervasive use of digital technologies; rapid, service-driven disruptive innovation, and a changed post-Brexit and post-COVID-19 economic paradigm and business environment. These social and economic changes will result in challenges that, while disrupting established systems, can create new value propositions and revenue streams. IVI aims to continue supporting organisations, both private and public in the digital transformation. IVI plays a key role in enabling business, public sector actors, wider stakeholder groups and academia to come together and actively participate in positively shaping the future of our society. IVI facilitates open innovation communities to address those significant Digital Transformation challenges across a range of sectors.

RESEARCH INSTITUTES AND CENTRES

COMMUNITY PARTNERSHIP PROJECTS

- > The All-Ireland Smart Cities Forum is a community of practice focused on the advancement of cities and communities in both the Republic of Ireland and Northern Ireland. The Forum is made up of city officials who have a wealth of knowledge and experience of the evolving smart city agenda, and the opportunities this provides for future growth and investment. The programme aims are:
 - **Provide Better Services:** Develop, drive, and facilitate public services that are better, easier, more efficient and accessible for citizens.
 - **Promote Innovative Solutions:** Provide new, innovative, and better solutions to existing and future challenges that impact citizens, businesses and visitors.
 - **Improve Economic Activity:** Support regional economic development by helping to create an ecosystem that attracts and provides opportunities for entrepreneurs, investors and businesses, and communicates this to the wider world.
 - **Increase Collaboration and Engagement:** Create effective internal and external collaborations and partnerships with local authorities, other public sector organisations, academia, external agencies, businesses, citizens and international partners.
- > **Maynooth University & Age Friendly Ireland (via Meath County Council) Ageing Partnership**

The programme provides a means to operationalise the Dublin Declaration and to plan, to share resources, and to support the needs of an ageing population. This includes fostering international research opportunities. A scoping exercise on priority research areas for the partnership was facilitated by IVI in November 2020 to inform future work streams.
- > **Business model and service innovation**

With a particular focus on developing knowledge on platform design and governance in the contexts of industrial sensor-as-a-service, advanced manufacturing co-creation, fintech, and public experiment-as-a-service.
- > **Urban digital strategy**

Collaborating with all Irish cities, the research is focused on the process of planning, governing and scaling of technology in urban settings.
- > **Digital enterprise ecosystem management**

The focus is on ecosystem structure, governance, and knowledge transfer through boundary spanning. The contexts studied are advanced communication networks and urban digital districts.
- > **Socio-tech**

A study of the attitudes of the elderly to mobility and autonomous vehicle technology (AV) as input to AV user experience design.
- > **City Project Management Ethics**

Where an ethics framework was developed for use by cities in their project management practices. Developed in collaboration with Irish, Northern Irish, and Swedish cities.

- > **Contributed as member to the NSAI working group for the published Irish annex for ISO 19650**

Organisation and digitisation of information about buildings and civil engineering works, including building information modelling (BIM).
- > **National Digital Skills and Jobs Coalition (NDSJC)**

Membership of NDSJC Steering Group, a European Commission-led partnership in Ireland supporting the Skills Agenda for Europe.
- > **Collaborations with Health Information and Quality Authority (HIQA)**

Successful completion of the first *Patient-Centred Service Improvement Project (PaCSI)*, which involved a comprehensive secondary data analysis of textual feedbacks from HIQA's National Care Experience Programme and the development of an analytics dashboard to explore results and findings.
- > **Collaboration with Department of Public Expenditure and Reform (DPER)**

Membership of the Open Data Governance Board for the Department for Public Expenditure and Reform.
- > **Rethink|Redesign programme with Kildare Chamber of Commerce and Meath Enterprise.**

In November 2019, IVI designed the Rethink| Redesign programme as a hands-on support initiative to help companies ideate new opportunities to reconceive their business model and value proposition in order to adapt to the challenges of doing business in the post-COVID-19 world.



- > **Webinar: Accelerating SME Digital Transformation and Competitiveness through Collaboration and Partnership**

In this IVI webinar and panel discussion – in collaboration with the Institute's research partners Lero, ADAPT Centre, and with the Ireland Mid-East region's newest Digital Innovation Hub, MERITS – the webinar showcases Irish firms who have embraced Big Data, AI, and IoT to digitally transform for success and also introduces EIT Digital, Europe's leading digital innovation and entrepreneurial education organisation.

> **Webinar: Holistic Organisation Transformation**

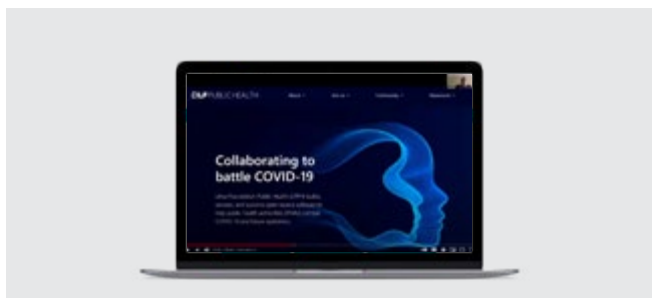
When it comes to implementing organisation transformation and change, it is important to understand in a holistic manner the technology, strategy, processes and people. This webinar explores how an increased emphasis on the holistic interoperation of strategy, organisational culture and process innovation can improve the likelihood of a successful transformation.

> **Webinar: Organisational Agility: Enabling digital transformation**

The current ongoing pandemic has highlighted the need for organisational agility and resilience. It has accelerated the digital transformation of many organisations and this has highlighted the need to rethink the leadership, organisational culture, operating models, and other aspects of the 'future of work'.

> **Webinar: Shaping an innovative mobility and payment service**

There is no doubt that the mobility sector will look significantly different within the next five years. Technological advances enabling modern e-cars, ride-sharing and autonomous/augmented driving etc. are reshaping mobility services and individual transportation experiences.



Webinar: The use of technology in the fight against COVID-19

> **Webinar: The use of technology in the fight against COVID-19**

During the current COVID-19 pandemic, many countries have deployed contact tracing applications with mixed success rates. Ireland's efforts have been more successful than others and have been recognised as such internationally. Hear from the team responsible on the challenges faced and their experiences in deploying the app to date in this webinar.

> **Webinar: Open Innovation – An opportunity to address current challenges**

To address the disruptions brought about by the current pandemic situation, many organisations are turning to open innovation models to innovate faster. In this webinar, some case studies in health care, retail, food, and manufacturing are explored to see what can be learned from the current experiences and the future journey.

> **Webinar for Association of Data Protection Specialists**

Increasing efficiency and value Frameworks are essential tools enabling organisations to quickly assess capabilities and to take improvement steps without compromising organisational performance. IT Capability Maturity Framework™ (IT-CMF) from IVI at Maynooth enables professionals to accelerate engagements with real added value.

> **Research Workshop: Holistic Digitally Powered Healthcare**

With the aim of shaping a vision for healthcare in 2025, this workshop was designed to analyse and discuss possible scenarios, options and challenges ahead. With a small group of experts and leaders, the Institute has sought to define the new holistic digitally powered healthcare ecosystem, together with its business models and enabling technologies.

> **Research Workshop: Smart Cities Engagement**

With the aim of shaping a vision for smart cities engagement in 2025, this workshop was designed to analyse and discuss possible scenarios, options and challenges ahead. With a small group of experts and leaders, the Institute sought to define the new cities ecosystem, together with its business models and enabling technologies.

> **Research Workshop: Agile IT Enterprise Architecture**

Research Proposal: Shaping a Framework and Model for agile Enterprise Architecture Management.

> **Research Workshop: Digital Construction and BIM Vision**

Digital technologies and streamlined processes will transform the entire building and construction sector. With this initiative, the Institute aims to facilitate and help the industry to explore its potential, and to understand how best to adopt and implement Digital technologies.

> **Research Workshop: Advanced Manufacturing**

The central aim of this workshop is to identify emerging manufacturing technologies that open up new industrial possibilities in terms of design freedom, streamlined production stages and reduced cost, along with enhanced performance from the final product.

> **Research Workshop: Digital Retail**

The Digital Retail sector is radically changing and will look significantly different within the next five years. The massive use of digital technologies, such as big data analytics, AI, IoT, smart devices, cloud services, virtual reality, robotics and blockchain, is transforming the face of retailing dramatically. This workshop analyses and discusses possible scenarios, options, and challenges, in order to shape a vision of the Digital Retail sector.

> **Research Workshop: Mobility Payments Research.**

The near-term future of the automotive industry will bring improvements in making money from connectivity, for automakers and consumers, as well as advancements for autonomy and mobility. IT leaders of automakers can use these predictions to help create technology roadmaps for their organisations. This workshop analyses and discusses possible scenarios, options and challenges, in order to shape a vision of the autonomous vehicle payments sector.

> **Research Workshop: Agile Software Portfolio Planning**

Can agile practices work across a large portfolio of many teams and lots of developers? This workshop analyses and discusses possible scenarios, options and challenges, in order to shape a vision of the use of agile project management.

RESEARCH INSTITUTES AND CENTRES

> A comparison between ASG principles and the ICT principles in enterprises/cities

This research aims to make a comparison between the created principles by Architecture & Standards Group (ASG), sub-group of the Heads of Information Systems ICT Committee of the Local Government Management Association (LGMA), and the ICT principles in 3 other organisation/cities, including: IT Strategy and Architecture-Plymouth University; Barcelona city principles; and the Irish National ICT Strategic Principles.

> The process to specify the requirements for smart city context, and to develop smart services

This research looks at the Context layer including the crucial requirements from smart city contexts, which have to be considered to design smart services. These requirements are associated with the various stages of design of smart services/initiative. The aim is to present all the requirements and their associations with other stages, as a taxonomy of the requirements.

> Analysing the Impact of Citizen's Feedback in Service Design Process: An Architectural Approach in Smart City Context

There are various means of citizen participation for obtaining citizen feedback and utilising this in the decision-making process and design of services. However, there is a lack of understanding on how citizen's feedback/inputs are incorporated for designing and providing improved quality of services. This project aims to investigate the role of citizen engagement in service design process and how their feedback can be incorporated for designing better quality of the services.

> Enterprise Architecture and Formal Modelling (EAFM)

The Enterprise Architecture and Formal Modelling (EAFM) research group is a joint research group from Business Informatics and Formal Methods Groups at MU. EAFM mainly focuses on the role, importance, modelling verification and simulation within the extended organisational and enterprise context. The research and projects cover the gamut from Business Processes and Information System design to Mathematical Modelling and Formal Verification.

> Netanya Smart City

This project is an illustration of Enterprise Architecture Modelling by modelling of the futures of the waste management service by digitising certain activities that impact garbage collection: in the recycling of garbage from the production source during the recycling activity; in the dynamic adaptation of routes that affect the collection of waste during the collection activity.

> Limerick Enterprise Architecture

This project involves the adoption of Enterprise Architecture best practices to provide a set of Enterprise Architecture guidelines for any local government-related project in Limerick, in order to guide its involvement with business processes, application, data and technology architectures in the region. *Limerick Enterprise Architecture (LEA)* project focuses on different case studies to illustrate how EA can be applied to add value to Limerick City and County Council services.

> Identifying Key Stakeholders as Part of Requirements Elicitation in Software Ecosystems (SECOs).

Stakeholder identification is critical to the financial and functional success of software development projects. However, the task of identifying all stakeholders in a SECO is often not possible due to the high volume of stakeholders and open interfaces. Key stakeholders could potentially be identified to represent other passive stakeholders in the SECO. The objective of this research is to design a reference process model to support managers in the identification of key stakeholders in complex SECOs before requirements elicitation takes place.

> Enhancing the data lifecycle modelling in smart city architectures

In a smart city, a huge amount of data is collected from different sources and from different providers. Therefore, various challenges and concerns arise from a data management perspective. This research proposes the improvement of how data lifecycles are modelled, in order to show the transformation of data throughout the process, from its collection, processing and service delivery to the end-user, as well as identifying the various stakeholders involved in the process.

> A Method and Process Model for Consent Withdrawal Management

New demands have been placed on information systems (IS) for the management of consent withdrawal under GDPR. This research proposes to identify the relationships between the underlying variables for consent withdrawal management in IS. The resulting research will be utilised in approaches to designing, deploying, or improving information systems for consent withdrawal requirements of GDPR.

PARTNERSHIPS WITH CIVIC BODIES

- > Health Service Executive Sláintecare People Change Programme e-Learning Modules. Designed, developed and delivered to support the implementation of the HSE Change Guide, one of the initiatives in fulfilment of the Sláintecare strategy.

ENTERPRISE PARTNERSHIPS

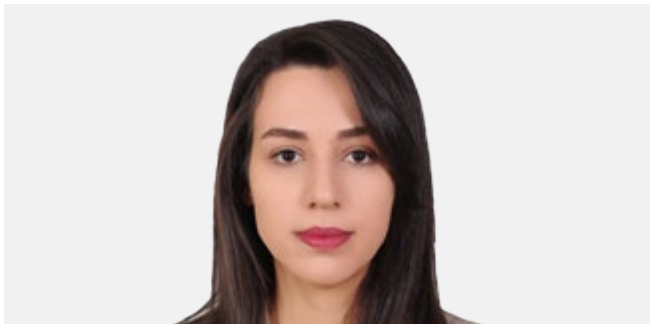
- > Innovation Partnership Programme with high-profile Irish retailer: innovating augmented and virtual reality approaches to enhance the customer experience (CX).

CENTRE FOR OCEAN ENERGY RESEARCH

The Centre for Ocean Energy Research (COER) is an active international research centre involved in fundamental and applied research, and part of the Electronic Engineering Department. It is headed by Professor John Ringwood and funded by a range of external sources including industry, national agencies (such as SFI, Enterprise Ireland etc.) and international agencies including the EU H2020 research programmes. COER has a wide range of national and international collaborators, and a staff complement consisting of academic staff, postdoctoral researchers, research students and interns, all of which have a strong international dimension. Further information is available at coer.maynoothuniversity.ie.

NEW PROJECTS FROM OCTOBER 2019 TO DECEMBER 2020

- > In November 2019, COER's EU Horizon 2020 *LiftWEC* project got underway. It is a three-year project with 10 consortium members. COER's focus is the development of a control strategy for a lift-based Wave Energy Converter.
- > COER also saw the commencement of a PhD project co-funded by the MaREI SFI Research Centre and the Swedish Wave Energy Company CorPower, looking at the control of wave energy converters.



Mahdiyeh Farajvand was awarded a John and Pat Hume WISH PhD scholarship

- > Mahdiyeh Farajvand was awarded a John and Pat Hume WISH PhD scholarship and began her studies in October 2020. Her studies concern the estimation of wave energy model uncertainty bounds in the optimal control of wave energy devices.
- > In December COER were awarded the 2020 Marine Institute Eoin Sweeney PhD Scholarship for the project *Wave Powered Data Buoy*, recruitment for which is now underway.

- > In December 2020, COER were awarded funding under US-Ireland R&D Partnership Programme, with a project proposal entitled: *Control Co-Design of Heterogeneous Arrays of Wave Energy Converters*. It will be funded by SFI and the National Science Foundation (US). The project will focus on the development of numerical optimisation-based control strategies for the linear and nonlinear models of Wave Energy Converter (WEC) array. Recruitment is currently underway.
- > During this period, COER was also awarded funding for EPE activities from the conferences and workshop MU fund, SEAI, EPA and MaREI.

ONGOING PROJECTS

> Marie Skłodowska-Curie Individual Fellowships

Dr Bingyong Guo continued his project entitled *Control parametric resonance of wave energy conversion systems*, which is due to finish in June 2021.

> SFI Investigator Award

Development of the next generation of controllers for wave energy devices, which began in 2014, continued. The project is due to reach its successful conclusion in June 2021.

> MaREI funded project *Estimation and forecasting for wave energy devices using moment methods*, which funds a PhD student for four years, continues.

> MaREI PhD funded project *Real time control of oscillating water columns* continues.

TEAM MEMBERS

From October 2019 to December 2020, COER have celebrated the graduation of three PhD students: Dr Nicolas Faedo (now at Politecnico di Torino as a Marie Skłodowska-Curie Fellow, in collaboration with COER), Dr Yerai Pena Sanchez (currently a postdoctoral researcher in COER) and Dr Christian Windt (now as a postdoctoral researcher at the Technical University of Braunschweig, Germany).

COER have welcomed externally funded postdoctoral researchers Dr Valerio Grazioso, Dr Yerai Pena Sanchez, Dr Andrei Ermakov and Dr Mustafa Abdelrahman. Simon Thomas joined as a part industry-funded PhD student in May 2020, Mahdiyeh Farajvand joined in late 2020 as a WISH John and Pat Hume-funded PhD student, and MaREI-funded PhD student Marco Rosati joined the team shortly thereafter.

RESEARCH INSTITUTES AND CENTRES

COLLABORATIONS

Industry collaborators have included:

- > CorPower, Sweden;
- > Resolute Marine, USA;
- > TechWorks Marine, Ireland;
- > WaveVenture, UK;
- > Monterey Bay Aquarium Research Institute, USA;
- > INNOSEA, UK;
- > WAVEEC, Portugal; and
- > Floating Power Plant, Denmark.

Academic collaborators have included:

- > Imperial College London;
- > Quilmes University, Argentina;
- > Universidad Nacional de la Plata;
- > Dundalk IT;
- > Queens University Belfast;
- > Ecole Centrale de Nantes;
- > Hamburg University of Technology;
- > Aalborg University; and
- > University of Strathclyde.

PUBLICATIONS – 2019 AND 2020

Over the course of 2019 and 2020, COER team members produced 52 publications; 20 of which were conference proceedings and 32 of which were in high quality, international publications, as well as one book chapter.

CONFERENCES ATTENDED

In 2020, COER team members attended and presented at international conferences including: Conference on Decision and Control, International Federation of Automatic Control and the European Control Conference.

COMMUNICATIONS AND PUBLIC ENGAGEMENT ACTIVITIES OCTOBER 2019–DECEMBER 2020

- > **The Wave Energy Control Competition**, coordinated by MU, in partnership with Aalborg University, National Renewable Energy Laboratory (NREL, US), Sandia Labs concluded, following experimental tank testing of the various controllers in Aalborg.
- > **The Maynooth Wave Energy Workshop** took place in January 2020 in Maynooth, bringing together 76 researchers and industrialists from both Ireland and abroad.
- > Three invited sessions on wave energy control technology were organised by COER at the 21st **IFAC Triennial World Congress** in Berlin, July 2020, involving the main stakeholders in wave energy control systems worldwide.
- > **Science Week 2019 at MU**
Approximately 500 primary school aged children were entertained by the COER group, through interactive small-scale wave tank/device experiences, posters, videos and small-scale models.
- > **Engineers' Week 2nd March 2020**
Two COER PhD students took part in MU Department of Engineering Engineer's Week with poster, static model and questionnaire for 190 Secondary School children.
- > **Research Week 2020** – COER intern gave a wave energy seminar to MU undergraduates.
- > **Science Week November 2020** – COER took part in virtual activities with Let's Talk science festival, UCC/SFI Science Week and MU Science Week, reaching over 7,500 young people.

Media coverage for the period includes:

- > 22nd November 2019 – Irish Times article
www.irishtimes.com/business/energy-and-resources/ireland-needs-to-take-a-gamble-now-on-wave-energy-1.4080749.
- > 28th February 2020 – article in Silicon Republic
www.siliconrepublic.com/machines/wave-energy-ireland-john-ringwood-maynooth-university.
- > March 2020 – Interview on Kildare FM
www.soundcloud.com/kfmradiokildare.

Commencement of a MaREI and industry-funded PhD project in collaboration with Swedish Wave Energy Company CorPower, looking at the control of wave energy converters. www.corpowerocean.com.

ICARUS CLIMATE RESEARCH CENTRE

The Irish Climate Analysis and Research UnitS (ICARUS) Climate Research Centre is a vibrant group of climate scholars with 23 members of staff, including 14 researchers and 13 PhD students. It focuses on the analysis of change in atmospheric, marine and terrestrial climate components. There are eight faculty associated with the centre, and 14 postdoctoral researcher and research assistant staff. Over 2019, there were a total of 22 peer reviewed articles published. This substantially increased in 2020, when 48 peer reviewed articles were published. The number of active grants over 2019–2020 was 33, with a total value of €5.7M.

PUBLICATIONS

The period 2019–2020 has seen a step change in publication in the peer-reviewed literature by ICARUS staff and students. Numerous publications have been led by PhD students, while several other publications emanated from masters theses. Publications have been in highly ranked journals including Nature Climate Change, Nature Geoscience, Science, Environmental Research Letters, Journal of Geophysical Research, Bulletin of the American Meteorological Society, Reviews of Geophysics. Topics published have been across the full range of ICARUS activities. Several papers are community papers attesting to the significant national and international engagement undertaken by members of the ICARUS community.

GRANTS AND CONSULTANCIES

There has been an increased focus on oceanography research in ICARUS since 2019. Dr Gerard McCarthy has assembled a team of seven oceanographers working on four separate projects. The A4 project (*Aigéin, Aeráid, agus athrú Atlantach, (Oceans, Climate and Atlantic Change)*) valued at €2M (€1.6M to Maynooth), studies how changes in the Atlantic impact Ireland and North-western Europe through e.g. changes in ocean circulation and sea level and works on developing predictive capacity for these regions. The A4 project is carried out with the support of the Marine Institute under the Marine Research Programme funded by the Irish Government.

There is strong ongoing collaboration with Copernicus, the European Union's Earth observing programme and the European Centre for Medium-Range Weather Forecasts (ECMWF). Since 2017, ICARUS has been leading C3S311aLot2 Access to Observations from Global Climate Archives, an innovative service that supports the collection of historical records globally of land and marine variables going back 150 years, to create a centralised climate data store. In 2019, MU signed its second contract for this service and was recently extended up to June 2021. The total value of this contract is €2.4M. ICARUS also participates as a sub-contractor in two further contracts.

Terrain AI is an innovative and ambitious new project co-funded by Microsoft Ireland and SFI and has a value of €5M. The project uses multimodal sensing technologies and builds artificial intelligence models that can inform more effective and sustainable management

practices to help reduce global carbon outputs. The research will be carried out by Maynooth University and will be led jointly by Dr Rowan Fealy in ICARUS and Professor Tim McCarthy of the National Centre for Geocomputation. The project will be conducted in collaboration with Teagasc, TCD, UCD, DCU, and UL.

Ireland's first national climate assessment will start in 2021. Of the six author awards made in 2020 two went to ICARUS – the only centre to be awarded multiple authorship roles. ICARUS was also successful in securing the coordination research fellow post award. ICARUS will therefore take a leading role in all aspects of this high-profile activity.

INTERNATIONAL ENGAGEMENT

Professor Peter Thorne was appointed to the core writing team of the Intergovernmental Panel on Climate Change (IPCC) synthesis report and will be one of 30 authors of this report. He was also appointed to the World Meteorological Organization (WMO) Infrastructure Commissions Standing Committee on Observational Networks and as the Co-Chair of the Global Climate Observing System's Atmospheric Observations Panel for Climate. Solicited talks have been given at events such as the WMO data conference. Dr Gerard McCarthy was nominated as a national representative to the European Science Advisory Council Working Group on ocean circulation.

NATIONAL ENGAGEMENT

ICARUS have been heavily involved over 2019–2020 with the instigation of the All-Island Climate and Biodiversity Research Network. This has been facilitated and supported by Dr Elaine McCarthy of the Research Development Office. Together with colleagues from across Irish academia a green paper was prepared and circulated to government and relevant public bodies. Conversations have been held with key representatives and bodies.



All-Island Climate and Biodiversity Research Network green paper

MEDIA

ICARUS research and ICARUS researchers have a strong media profile nationally. Several print, TV, radio and news media pieces have been undertaken including RTÉ, RTÉ Brainstorm, Irish Independent and Irish Times. ICARUS research has featured in several international media outlets.

MAYNOOTHWORKS

TECHNOLOGY TRANSFER, ENTERPRISE PARTNERSHIPS, AND COMMERCIALISATION



MAYNOOTHWORKS

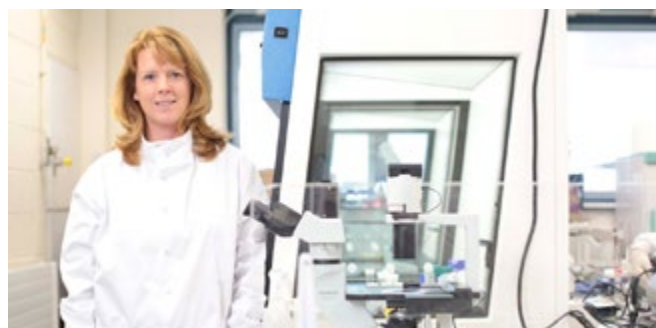
TECHNOLOGY TRANSFER, ENTERPRISE PARTNERSHIPS, AND COMMERCIALISATION

Despite the challenging societal and economic conditions of the year, MaynoothWorks, its Business Incubation Centre (BIC), and client companies had a successful year in 2020: in part due to the agility of the team and their partners in adapting to the challenges and restrictions imposed by the COVID-19 pandemic. One such response was the ReThink ReDesign programme, a business support initiative in partnership with the Innovation Value Institute, which was designed to help Irish companies adapt to the twin stresses of COVID-19 and Brexit, by digitising their product or service offerings. The programme is free to eligible companies, and the pilot events run to date have been met with overwhelmingly positive feedback from attendees.

INDUSTRY PARTNERSHIPS

Avectas

In April 2020, MU spin-out and BIC tenant Avectas closed a Series C investment round for €20M, taking total investment in the company to €40M. The funds raised in this latest equity round will be used to accelerate the clinical translation and commercial scale-up of Avectas' proprietary cell engineering technology platform (Solupore®), alongside an expansion of its commercial, regulatory and technical organisation, with new hires in Ireland and the U.S. Avectas currently employs 29 people including 19 with doctorate degrees in Ireland, and these funds permit the creation of many more high-value jobs in the Maynooth region.

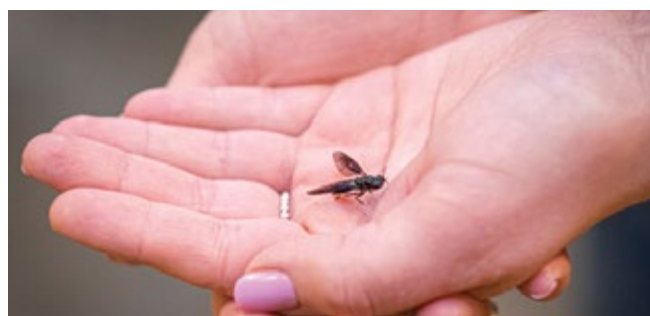


Dr Shirley O'Dea, Department of Biology

Founded in 2012 by Dr Michael Maguire and Dr Shirley O'Dea (both of Maynooth University), Avectas is a cell engineering technology business developing a novel delivery platform to enable the effective bulk production of novel cell therapy products via *ex vivo* bioprocess techniques. Cell and gene therapies offer the potential to transform the treatment of diseases, including cancer, for millions of patients worldwide – however, a major bottleneck is presented by the process development and production of these therapeutics. Avectas' unique system presents a potential step-change in the way these exciting new treatments may be rolled out, offering hope to millions of patients worldwide.

SwiftQueue

A BIC tenant since 2018, SwiftQueue have had an extremely busy year. Through their successful cloud-based appointment coordination service, they have managed the Irish governments COVID-19 testing programme and have now moved across to delivering online appointment booking for vaccinations in Ireland and many NHS trusts in the UK. When you receive your vaccine later this year, it is likely to be SwiftQueue that have arranged it for you.



Hexafly, has collaborated with the Department of Biology in a programme coordinated by MaynoothWorks

Hexafly

This is an award-winning Irish company pioneering the use of vertical farming to produce insects and insect-based products for inclusion in feeds and as plant nutrients. Hexafly cultures black soldier flies (*Hermetia illucens*) to produce animal food additives, fine chemical starting materials, and soil enhancers. They have collaborated extensively with MU's Department of Biology in a programme coordinated by MaynoothWorks, to exploit our unique expertise in high-value antimicrobial peptide identification and isolation. There is an urgent global search underway for novel molecules with broad antimicrobial action, as increasing numbers of front-line antibiotics lose efficacy: it is hoped that this collaboration will generate the basis for a new class of medicines, from a truly sustainable source.

MAYNOOTHWORKS

TECHNOLOGY TRANSFER, ENTERPRISE PARTNERSHIPS, AND COMMERCIALISATION

REGIONAL ENGAGEMENT

MaynoothWorks has engaged closely with Kildare County Council as they designed the region's new enterprise centre, the Mid-East Region Innovation Think Space (MERITS) in Naas Co. Kildare. The new centre is being funded by Enterprise Ireland and will deliver close collaboration with MU for all its tenants. MERITS will support start-up and SMEs in Kildare, and rely on MU to provide research resources, innovation knowhow and talented graduates to help grow company capabilities.

MaynoothWorks assisted in the design of the MERITS space and will support delivery of innovation programmes through the newly developed Balance Innovation Model framework. It plans to extend this support approach to its other Mid-East Region Partners in Meath and Wicklow county enterprise offices.



The Mid-East Region Innovation Think Space (MERITS) in Naas Co. Kildare

BUSINESS INCUBATION CENTRE NEWS

Despite the pressures of COVID-19 restrictions, the MaynoothWorks Business Incubation Centre (BIC) has remained open throughout the pandemic to allow its tenants (such as SwiftQueue) to continue their delivery of critical national infrastructure. Inevitably the change in working and business conditions led to a number of tenants opting to work from home or to furlough staff for the duration, but by adapting and implementing safety processes, the BIC has successfully maintained a safe level of occupancy throughout the pandemic.

In response to the changes in working conditions imposed by the year's events, the BIC has developed its business model to better serve those who wish to work remotely – whether from home or from another country altogether. The new virtual membership programme allows companies to establish a bridgehead in Ireland and the EU, while providing entrepreneurs who would rather work from home with a registered business address and hub for university collaboration. BIC's innovative new FlexiRoom provides industry-standard recording and digital environment generation, to allow companies to deliver sales meetings or investor briefings to remote stakeholders. Finally, BIC's proprietary business evaluation and support tool, the Balanced Innovation Model developed by BIC Director Joe Moore, has undergone a major evolution into a cloud-based platform capable of providing scalable support to the expanding client base.

To know more about any of these services, please contact maynoothworks@mu.ie.



Dr Duncan Casey took up the position of Director of MaynoothWorks in September 2020

Dr Duncan Casey took up the position of Director of MaynoothWorks in September 2020. Duncan started his first company during his PhD studies at Imperial College London. Since then, he has established a successful career as a multidisciplinary researcher, an entrepreneur, and then later at the interface between industry and the academic sector. With a foot in both camps, he played a significant role in the development of the technology SME ecosystem in Bristol and South West UK, from his role within the University of Bristol's Centre for Functional Nanomaterials.

As Director of MaynoothWorks, he will focus on maximising the impact of Maynooth University's leading research programmes upon the regional ecosystem: streamlining access for companies to the University's bank of facilities, talent and expertise, while providing researchers with direct, industry-led challenges. He has a particular emphasis on developing the pipeline of talent and commercial experience amongst research students and early-career researchers, and has established a successful programme to support the entrepreneurs of today through training those of tomorrow.

GLOSSARY

AARG	Aids and Anthropology Research Group	DCU	Dublin City University
ABS	Chartered Association of Business Schools	DEIS	Delivering Equality of Opportunity in Schools
ACM	Association for Computing Machinery	DES	Department of Education and Skills
AERA	American Educational Research Association	DIAS	Dublin Institute for Advanced Studies
AHI	Arts and Humanities Institute	DIB	Dictionary of Irish Biography
AHRC	Arts and Humanities Research Council (UK)	DISCs	Disciplines Inquiring into Societal Challenges
AI	Artificial intelligence	DkIT	Dundalk Institute of Technology
AIRO	All-Island Research Observatory	DPER	Department of Public Expenditure and Reform
AIT	Athlone Institute of Technology	DRI	Digital Repository Ireland
AMR	Antimicrobial Resistance	EA	Enterprise Architecture
AMSI	Association of Medical Students in Ireland	EAD	East Africa District
AoIR	Association of Internet Researchers	EAFM	The Enterprise Architecture and Formal Modelling
AOM	Academy of Management	ECML	European Centre for Modern Languages
AONTAS	Aos Oideachais Náisiúnta Trí Aontú Saorálach (National Adult Education Through Voluntary Unification) (National Adult Education Agency)	ECMWF	European Centre for Medium-Range Weather Forecasts
AOPC	Atmospheric Observation Panel for Climate	EI	Enterprise Ireland
APC	Alimentary Pharmabiotic Centre	EPA	Environmental Protection Agency
ASD	Autism Spectrum Disorder	EPSRC	Engineering and Physical Sciences Research Council (UK)
ASG	Architecture & Standards Group	ERC	European Research Council
ASSA	Anthropology of Smartphones and Smart Ageing	ESA	European Space Agency
AULC	Association of Language Communities in the UK and Ireland	ESAI	Educational Studies Association of Ireland
BBSRC	Biotechnology and Biological Sciences Research Council	ESREA	European Society for Research on the Education of Adults
BIC	Business Incubation Centre	ESRI	Economic Social Research Institute
BIM	Building Information Modelling	ETBI	Education and Training Boards Ireland
BPD	Bardic Poetry Database	euцен	European University Continuing Education Network
BRP	Business Research Project	EUSIPCO	European Signal Processing Conference
CEDRA	Commission for the Economic Development of Rural Area	FACSP	Faculty of Arts, Celtic Studies & Philosophy
CEFR	Common European Framework of Reference	FET	Further Education & Training
CLIL	Content and Language Integrated Learning	FLAG	Foreign Languages Advisory Group
CNR	Consiglio Nazionale delle Ricerche (Italian National Research Council)	FTE	Full time equivalent
COER	Centre for Ocean Energy Research	GA	Geographical Association
COGG	An Chomhairle um Oideachas Gaeltachta agus Gaelscolaíochta	GCOS	Global Climate Observing System
COST	Cooperation in Science and Technology	GDPR	General Data Protection Regulation
CPD	Continuing Professional Development	GIS	Geographical Information Systems
CPEP	Centre for Public Education and Pedagogy	GMIT	Galway-Mayo Institute of Technology
CPS	Cyber Physical Systems	HE	Higher Education
CRALE	Centre for Research in Adult Learning and Education	HEA	Higher Education Authority
CRT	Centre for Research Training	HEAR	Higher Education Access Route
CSO	Central Statistics Office	HEI	Higher Education Institution
CUP	Cambridge University Press	HI	Hamilton Institute
CWI	Community Work Ireland	HIQA	Health Information Quality Authority
DAFM	Department of Agriculture, Food and the Marine	HPV	Human papillomavirus
DCEDIY	Department for Children, Equality, Disability, Integration and Youth	HRB	Health Research Board
		HRM	Human Resource Management
		HRTF	Head-Related Transfer Function
		HSE	Health Service Executive
		IAC	Irish Archaeological Consultancy Ltd

GLOSSARY

IADT	Institute of Art, Design and Technology	NSF	National Science Foundation (USA)
ICA	Irish Country Women's Association	OSA	The Optical Society
ICARUS	Irish Climate Analysis and Research UnitS	OSI	Ordnance Survey Ireland
ICC	International Conference on Communications	PaCSI	Patient Centred Service Improvement
ICI	Institute of Chemistry Ireland	PACT	Programming Algorithms Computational Thinking
ICT	Information and Communications Technology	PDST	Professional Development Service for Teachers
IDEA	Irish Development Education Association	PI	Principal Investigator
IEEE	Institute of Electrical and Electronics Engineers (IEEE)	PME	Professional Master of Education
IFAC	International Federation of Automatic Control	PPI	Public and Patient Involvement
IMMA	Irish Museum of Modern Art	QUB	Queen's University Belfast
INGENIC	Irish Network for Gender Equality in Computing	RAY	Research-based Analysis and Monitoring of European Youth Programmes
IoT	Internet of Things	REACH	Research, Engagement & Capacity Hub
IPCC	Intergovernmental Panel on Climate Change	SAR	Scholars at Risk
IRC	Irish Research Council	SATLE 19	Strategic Alignment of Teaching and Learning Enhancement Findings in Higher Education 2019
IRDG	Industry Research & Development Group	SCE	Societas Celtologica Europaea
IS	Information Systems	SCUTREA	Standing Conference on University Teaching and Research in the Education of Adults
ISO	International Organization for Standardization	SDAP	Secondary Data Analysis Projects
IVI	Innovation Value Institute	SDG	Sustainable Development Goals
IZA	Forschungsinstitut zur Zukunft der Arbeit (Institute of Labor Economics)	SECO	Software Ecosystems
KTI	Knowledge Transfer Ireland	SFI	Science Foundation Ireland
LGBTQI+	Lesbian, Gay, Bisexual, Transgender, Queer, Intersex, plus	SME	Small and Medium-sized Enterprises
MA	Master of Arts	SMLLC	School of Modern Languages, Literatures and Cultures
MACMORRIS	Mapping Actors and Contexts: Modelling Research in Renaissance Ireland in the Sixteenth and Seventeenth Century	SMS	Strategic Management Society
MAP	Maynooth University Access Programme	SOLAS	An tSeirbhís Oideachais Leanúnaigh agus Scileanna (Further Education and Skills Service)
MaREI	Marine and Renewable Energy Ireland	SOS	Suicide or Survive
MERITS	Mid-East Region Innovation Think Space	SPUR	Summer Program for Undergraduate Research
METLA	Mediation in Teaching, Learning and Assessment	SSPC	Solid State Pharmaceutical Centre
Mi:Lab	Maynooth Innovation Lab	STEM	Science, Technology, Engineering, and Mathematics
MIC	Mary Immaculate College	TCD	Trinity College Dublin
MIT	Massachusetts Institute of Technology	TEG	Teastas Eorpach na Gaeilge
MPE	Meaningful Physical Education	TII	Transport Infrastructure Ireland
MSc	Master of Science	TL21	Teaching and Learning for the 21 st Century
MUSSI	Maynooth University Social Science Institute	TUD	Technological University Dublin
NALA	National Adult Literacy Agency	UCC	University College Cork
NATDaP	National Autonomous Technologies Data Platform	UCD	University College Dublin
NCCA	National Commission for Curriculum and Assessment	UCL	University college London
NCG	National Centre for Geocomputation	UGV	Unmanned Ground Vehicles
NGO	Non-Governmental Organisation	UL	University of Limerick
NIBRT	National Institute for Bioprocessing Research and Training	WMO	World Meteorological Organisation
NIRSA	National Institute for Regional and Spatial Analysis		
NPC	National Parents Council		
NPHE	National Public Health Emergency Team		
NSAI	National Standards Authority of Ireland		
NSCAN	National Supply Chain Academic Network		

APPENDIX

A full list of MU publications for 2019 and 2020 can be found at:

www.maynoothuniversity.ie/research/research-and-innovation-maynooth-university/research-reports

A full list of external funding awards for 2019/20 can be found at:

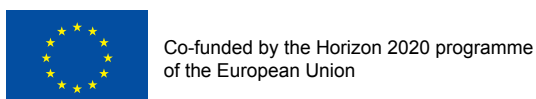
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SFI PARTNER CENTRES



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**Maynooth
University**
National University
of Ireland Maynooth

Maynooth University
Research Development Office
Maynooth, Co. Kildare,
Ireland, W23 X021

☎ + 353 1 708 6682

✉ research.development@mu.ie

🖱 www.maynoothuniversity.ie/research

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