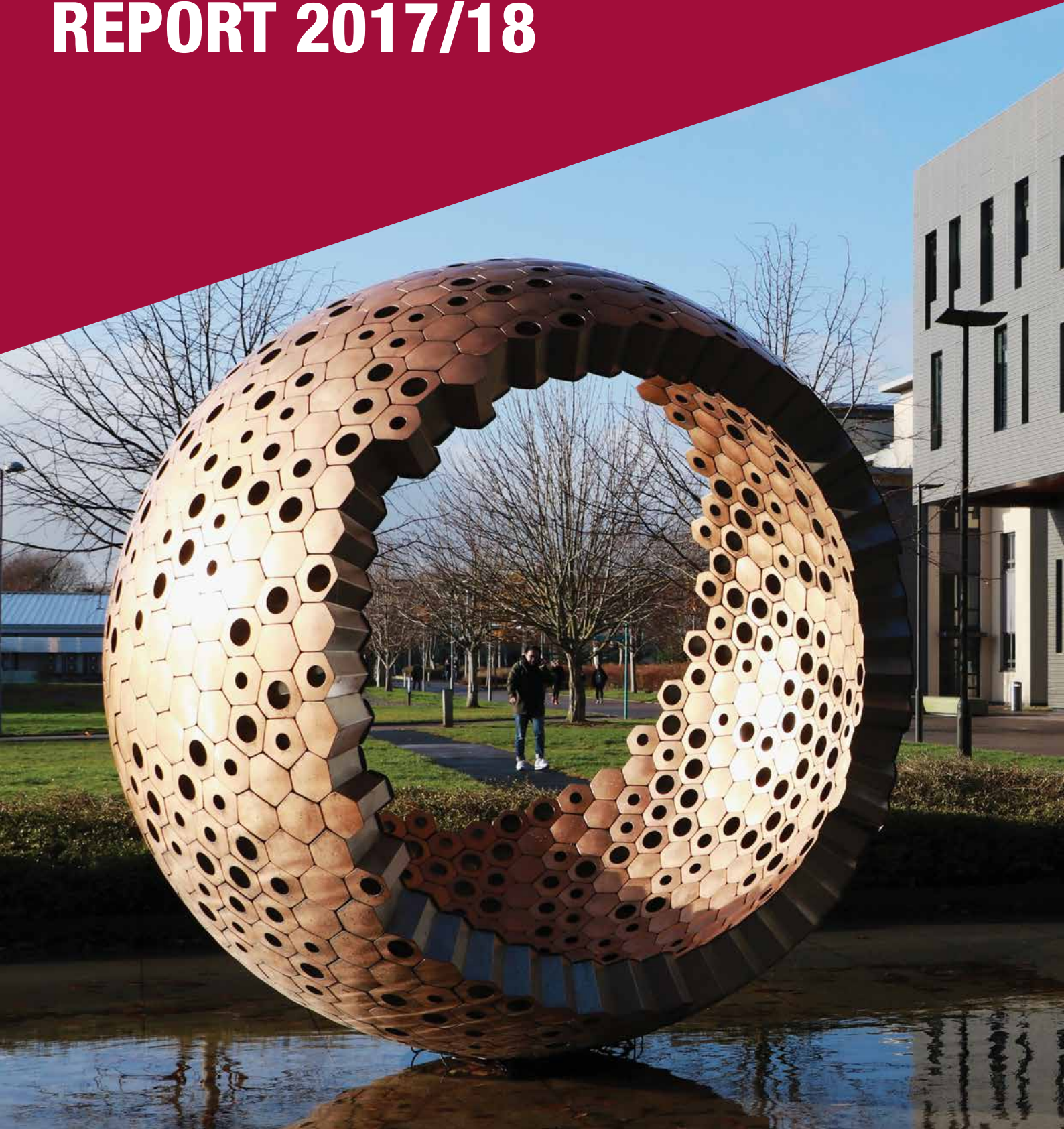




**Ollscoil
Mhá Nuad**
Ollscoil na hÉireann
Má Nuad

MAYNOOTH UNIVERSITY RESEARCH AND INNOVATION REPORT 2017/18



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INTRODUCTION

IT IS A PLEASURE TO INTRODUCE THIS 2017/18 REPORT ON RESEARCH AND INNOVATION AT MAYNOOTH UNIVERSITY. THE REPORT PROVIDES AN OPPORTUNITY TO HIGHLIGHT THE UNIVERSITY'S NOTABLE ACHIEVEMENTS AND POINTS OF PRIDE IN RESEARCH AND SCHOLARSHIP ACROSS ITS RANGE OF DISCIPLINES.





Professor Philip Nolan,
President



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

Maynooth was formally established as an autonomous, public university in 1997, but the institution traces its origins to the foundation of the Royal College of St. Patrick in 1795; from these deep scholarly roots has grown a dynamic research university which in 2018 was placed in the global top 100 universities under 50 years old in the Times Higher Education World University Rankings.

We believe firmly that the two fundamental pillars of the University, research and education, are of equal importance and mutually reinforcing. A primary purpose of the University is to provide an excellent education at both undergraduate and postgraduate levels, with our teaching and curricula informed by a deep knowledge of the highest achievements of accumulated knowledge and wisdom across our fields of expertise. A second fundamental purpose is to extend the boundaries of important knowledge by undertaking research and scholarship, and to share the results of that research and scholarship with the world. It is an essential central point that, by working at the forefront of knowledge today, our academic staff will be in a position to develop and teach the curricula that will be important tomorrow.

Of course, excellent research and scholarship rarely take place in isolation; if it was ever the case that the University was an ivory tower, then it certainly no longer is. Deep and meaningful interactions with civic society, with industry and enterprise, with the international community of knowledge, are central to the role of the University. How the expertise of the University can be brought to bear in addressing major global and societal challenges, such as the United Nations' Sustainable Development Goals, is an important part of the value of the University. This value is expressed at international, national and regional levels.

It is for these reasons that the first goal of the Maynooth University (MU) Strategic Plan 2018–22 is: *“to further enhance our reputation as a research university of international significance, and secure our future standing, through focused investment in research capacity in a number of priority areas, a commitment to both fundamental and engaged research, and by empowering our staff and students to bring their collective creativity to bear on major societal challenges.”*

This report sets out the starting position for the MU strategic plan for research and innovation. The picture presented is one of high quality research and scholarship across the three Faculties of the University, and in our interdisciplinary research institutes and centres. Maynooth’s research makes a strong contribution to Ireland, and to the international community of knowledge. Reflecting the latter, it is perhaps sufficient to note here that over the five years 2013–2017 Maynooth University researchers authored 2662 publications that were captured in the Scopus database, and that those publications had a field weighted citation index of 1.70, representing citation impact at 70% above world average for our fields of research. As we seek to extend the University’s activities over the next 5 years, and to ensure the impact of Maynooth University research, this is a strong base from which to grow and achieve our strategic goals.

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

351-400

Times Higher Education World University Rankings 2018

80TH IN THE WORLD

Times Higher Education Young University Ranking 2018

TOP 200 INSTITUTIONS WORLDWIDE

2018 QS World University Rankings by Subject for two of its departments: English and Geography, both of which ranked in the 151-200 range.

TALENT DEVELOPMENT 2017/18

111 NEW POSTGRADUATE RESEARCH STUDENTS

89 Doctoral students
22 Research Masters

68 RESEARCH GRADUATES

55 Doctorates
13 Research Masters

65 POSTDOCTORAL RESEARCHERS

PUBLICATIONS & IMPACT 2017

32

Books published

505

Publications listed in Scopus

52%

Publications with international collaborators

5%

Publications with industry collaborators

6

Publications highly cited in field and 1 hot paper: 2017 Web of Science

188

Book chapters

1.71

Scopus field weighted citation impact 2013-17

17%

Of 2017 publications in top 10% of cited publications worldwide (field weighted)

INNOVATION & IMPACT 2017

2

Spin out companies

83

New collaborations with Industry

10

Licence Agreements

2

Patents filed

RESEARCH GRANTS AWARDED 2017/18

€17,169,124

Total Value of research grants awarded

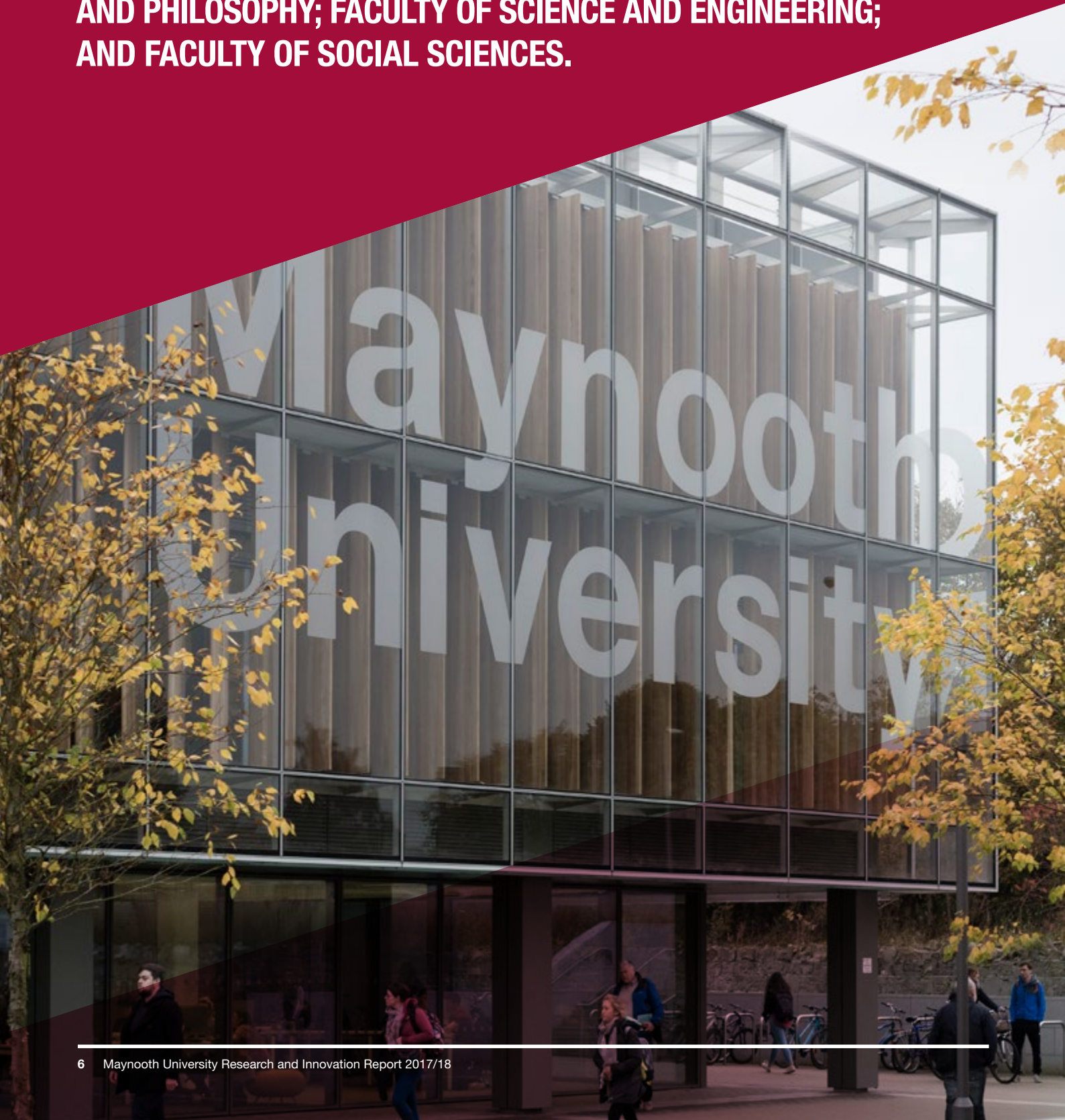
165

Research Grants



RESEARCH AND INNOVATION AT MAYNOOTH UNIVERSITY

RESEARCH AND SCHOLARSHIP AT MAYNOOTH UNIVERSITY IS CARRIED OUT IN 28 ACADEMIC DEPARTMENTS AND SCHOOLS ACROSS THREE FACULTIES: FACULTY OF ARTS, CELTIC STUDIES AND PHILOSOPHY; FACULTY OF SCIENCE AND ENGINEERING; AND FACULTY OF SOCIAL SCIENCES.



Emphasizing interdisciplinary approaches to global and societal challenges is a central tenet of the Maynooth institutional strategy. Driven by this overall strategic intent to develop critical mass by promoting co-operation between institutes and departments, four cross-university research institutes are the University's primary strategic vehicles for interdisciplinary research and critical mass towards addressing global challenges. They are:

- > Maynooth University Social Sciences Institute (incorporating the National Institute for Regional and Spatial Analysis and the National Centre for Geocomputation)
- > Maynooth University Hamilton Institute (interdisciplinary applied mathematics and statistics, computation, communications, data analytics, and artificial intelligence)
- > Maynooth University Arts and Humanities Institute
- > Maynooth University Institute for Human Health

Each of these has an identified research strength and priority area of the University at its core, and a strong focus on external collaboration. The Institutes' membership is composed primarily of academic staff who are also members of academic departments. In this way we seek to emphasize and develop balanced excellence in the two fundamental purposes of the University; research and teaching.

In addition, there are a number of research centres, both within departments and linking departments, which have a particular research focus. These include the ICARUS Climate Research Centre, the Innovation Value Institute, and the Centre for Ocean Energy Research. In 2017, the Assisting Living and Learning Institute (ALL) was founded by Professor Mac MacLachlan of the Department of Psychology.

In 2017 Maynooth University researchers published 526 refereed journal articles, 32 books, 188 book chapters, and 28 policy reports. In addition, 24 books and collected editions were edited by Maynooth experts.

Approximately two-thirds of the University's research output is recorded in the Scopus database. That is far from the whole story, since Scopus is 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.

Between 2013 and 2017 the Maynooth publication numbers recorded in Scopus were relatively constant, with between 500 and 550 publications in any year. Any one year represents only a snapshot, however, with inevitable fluctuations, and so it makes sense to look at the University's progress over a longer timescale. In total, over the five years 2013–2017 Maynooth University researchers authored 2662 publications that were captured in the Scopus database. These publications had a field weighted citation impact¹ (FWCI) of 1.71, the fourth highest of the Irish universities over that period (the highest being University College Dublin at 1.74). The field weighted citation impact is a key measure of the quality of publication output of the University as a whole.

Another measure of the quality of Maynooth publications between 2013–2017 is that 13.7% were in the top 10% of cited publications worldwide, and 31% were in the top 10% of journals (citescore). In 2017, 17% of MU's publications were in the top 10% of cited publications worldwide, and 2% in the top 1% of cited publications (field weighted).

The strong international quality of the University's leading researchers is also evidenced by external peer review for prestigious funding awards. Particularly noteworthy are the five European Research Council projects that Maynooth has hosted over the last five years. These include two awards to Geography (Professor Kath Browne and Professor Rob Kitchin, MU Social Sciences Institute), one award to Sociology (Professor Sean Ó Riain, MU Social Sciences Institute), one award in medieval Irish (Professor David Stifter, MU Arts and Humanities Institute) and one in Computer Science (Professor Damien Woods, Hamilton Institute). The total value of new research grants awarded to the University in 2017/18 amounted to €17.2M. This included €2.8M from European Union sources.

Research at the highest levels is a truly global endeavour, and addressing global and societal issues requires that universities are strongly collaborative, with a focus on important challenges. 51% of Maynooth publications are authored in collaboration (Figure 1) with institutions in other countries, indicating that this is a highly international effort. Nonetheless, this figure is just below the average for Ireland's publication output (54%). There is significant collaboration with other universities in Ireland, with Trinity College Dublin, University College Dublin and Dublin City University being in the top ten partner institutions. 13% of MU publications are in collaboration with other Irish universities; 16% are authored by teams within MU; and 20% are single author publications. International collaboration correlates with significantly higher citation rates.

¹ The FWCI is a citation index that takes account of differing citation rates between disciplines, by comparing Maynooth publications to the world output in same areas and over the same time window. www.scival.com/overview/citations?uri=Institution/319004 May 2019.

RESEARCH AND INNOVATION AT MAYNOOTH UNIVERSITY

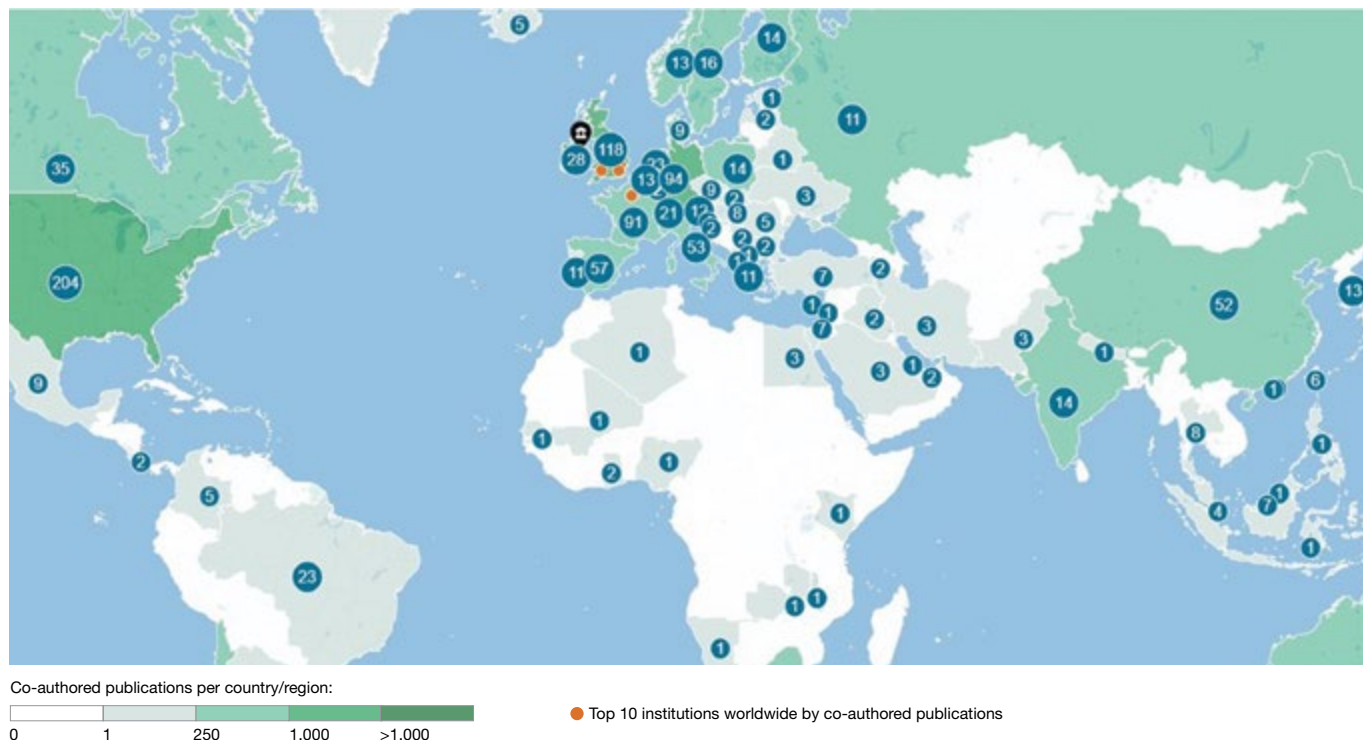


Figure 1 Worldwide MU collaborative publications 2013-17. Darkness of green indicates density of collaborations in a given country.

The University has a strategic goal to increase collaboration with industry, and currently 5.3% of our publications include a co-author from industry. This matches the national average.

Figure 2 on page 10 presents the profile of MU publications, grouped according to the categories of journal in which the publications appear.² This gives a useful overview of the publication profile of the University, both in volume and the extent to which they are important within their international community. The latter is indicated by the FWCI of the various categories, all of which are close to or above world average of 1.00. Within this catalogued publication output, a number of sub-areas stand out as representing very high quality. They include terahertz space optics; geography and planning; sociology and political science; economics and econometrics; biological and biomedical sciences; business, management and innovation.

Significant niche clusters of research topics are present in a range of areas of expertise including astrophysics; wave energy engineering; climate modelling; muscular dystrophy; cognitive radio systems; Ireland and Britain; cultural studies; morals and behaviour; and computer vision. Most of these areas align well to the established research institutes and centres of the University.

² Note that these do not map to academic departments and institutes of the University; for example, Computer Science Applications, includes contributions from numerous departments, not only Computer Science. Also, a particular publication may be associated with more than one category.

A number of 2017 papers by Maynooth authors feature in the Web of Science Essential Science Indicators for “Hot” and Highly Cited papers.

Professor Peter Thorne of the Department of Geography and director of the ICARUS Climate Research Centre was a co-author of *Extended Reconstructed Sea Surface Temperature, Version 5 (ERSSTv5): Upgrades, Validations, and Intercomparisons* by Boyin Huang et al, published in the *Journal of Climate* (October 2017). This paper was cited 118 times up to July 2019, and in January 2019 was in the top 0.1% most highly cited papers in the last two years in the field of geosciences (hot paper).

A second paper co-authored by Peter Thorne was in the top 1% of highly cited papers in geosciences in January 2019. *Estimating Changes in Global temperature since the Pre-Industrial Period*, by E. Hawkins et al, *Bulletin of the American Meteorological Society*, (September 2017) has garnered 47 citations up to July 2019.

A third climate change paper in the top 1% for citations in geosciences was co-authored by Dr Conor Murphy of the Department of Geography and ICARUS Climate Research Centre. The paper *Changing climate shifts timing of European floods* was published in *Science*, by G. Bloeschl et al, in August 2017. It has received 77 citations up to July 2019.

Professor Anne Huff of the School of Business co-authored *Shades of Grey: Guidelines for Working with the Grey Literature in Systematic Reviews for Management and Organizational Studies* which was published in the *International Journal of Management Reviews* in October 2017. This paper was cited 49 times up to July 2019, and in January 2019 was in the top 1% most highly cited papers in the last two years in the field of economics and business.

Professor Rob Kitchin of the Department of Geography and Maynooth University Social Sciences Institute published *Thinking critically about and researching algorithms* in *Information Communication and Society*, in January 2017. This paper was cited 48 times up to July 2019, and in January 2019 was in the top 1% most highly cited papers in the last two years in the field of social sciences.

Two Web of Science highly cited papers came from the Department of Biology. Dr Ozgur Bayram co-authored *Comparative genomics reveals high biological diversity and specific adaptations in the industrially and medically important fungal genus Aspergillus* which was published in *Genome Biology* in February 2017. This paper was cited 80 times up to July 2019, and in January 2019 was in the top 1% most highly cited papers in the last two years in the field of molecular biology and genetics.

Professor Paul Moynagh of the Department of Biology and director of the Human Health Research Institute was a co-author of *Regulatory T cells promote myelin regeneration in the central nervous system* by Y. Dombrowski et al, published in *Nature Neuroscience* in May 2017. This paper was cited 50 times up to July 2019, and in January 2019 was in the top 1% most highly cited papers in the last two years in the field of neuroscience and behaviour.

MU SCOPUS PUBLICATIONS 2013–17

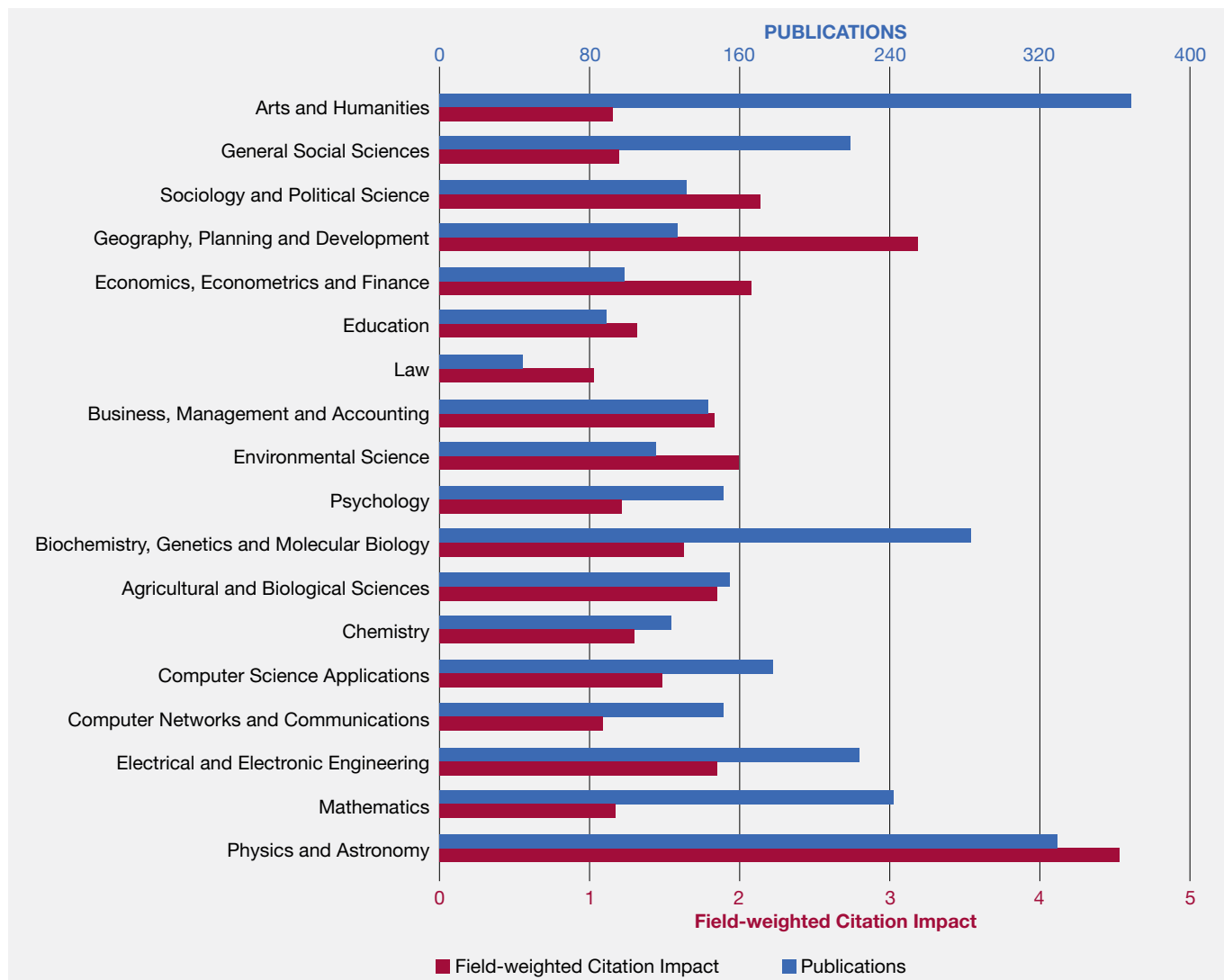


Figure 2 MU Scopus publications 2013-17

While publication in leading international journals or through international publishers is the normal expectation for all academic staff, the dissemination of research outputs and transfer of knowledge to the wider world via open access and participation in international conferences is also a central part of the University’s research culture. There is a strong commitment to other forms of knowledge transfer to communities beyond the University, and community-engaged research is a feature of the University; Maynooth University is an active participant in the *Campus Engage* National Network. Many staff from the humanities and social sciences contribute in a variety of ways to the arts, culture, social and economic development, and environmental policies. Specific 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. These activities represent the very strong public service and civic engagement commitment of the University, and many are detailed in the section on each Faculty below.

Enhancing and amplifying the excellence of MU research through high quality collaboration is an important element of the Maynooth institutional strategy. The MU Social Sciences Institute hosts the Irish Social Sciences Platform, and the University is a significant participant in a number of the national Science Foundation Ireland (SFI) Research Centres.

During 2017/18, Maynooth University staff held key roles in seven of the SFI Research Centres. Collectively, our SFI Research Centre involvement spans co-Principal Investigators, Funded Investigators, Academic Investigators, Research Fellows, Post-doctoral Researchers roles as well as PhD and Masters students, totaling 26 staff, and funding 13 PhDs and 2 Masters students. Professor Ronan Farrell, Professor Brian Donnellan and Professor John Ringwood, continue to hold co-Principal Investigator positions in the Connect, Lero and MaREI centres respectively. In addition, MU Funded Investigators Dr David Malone (Hamilton Institute and Department of Mathematics), Dr Oliver Mason (Hamilton Institute and Department of Mathematics), Dr Tim McCarthy (National Centre for Geocomputation and Department of Computer Science), Professor Andrew Parnell

(Hamilton Institute and Department of Mathematics), and Professor Brian Donnellan (IVI and School of Business) played prominent and ongoing roles through funded research projects in Connect, Lero, Insight, iCrag, I-FORM and Confirm. Of particular note Dr Jennifer McManus (Department of Chemistry), Professor Kevin Kavanagh (Department of Biology and Human Health Research Institute) and Dr Rob Elmes have joined the Pharmaceuticals Research Centre (SSPC) as funded investigators. Phase 2 applications for a number of centres are under review in 2019 and if funded will extend our research expertise into the Adapt Research Centre through Dr Aphra Kerr (MU Social Sciences Institute and Department of Sociology) as well as increasing our researcher numbers in Connect, Insight, Lero, Confirm and iCrag (Figure 3).

SCIENCE FOUNDATION IRELAND RESEARCH CENTRES AT MAYNOOTH UNIVERSITY

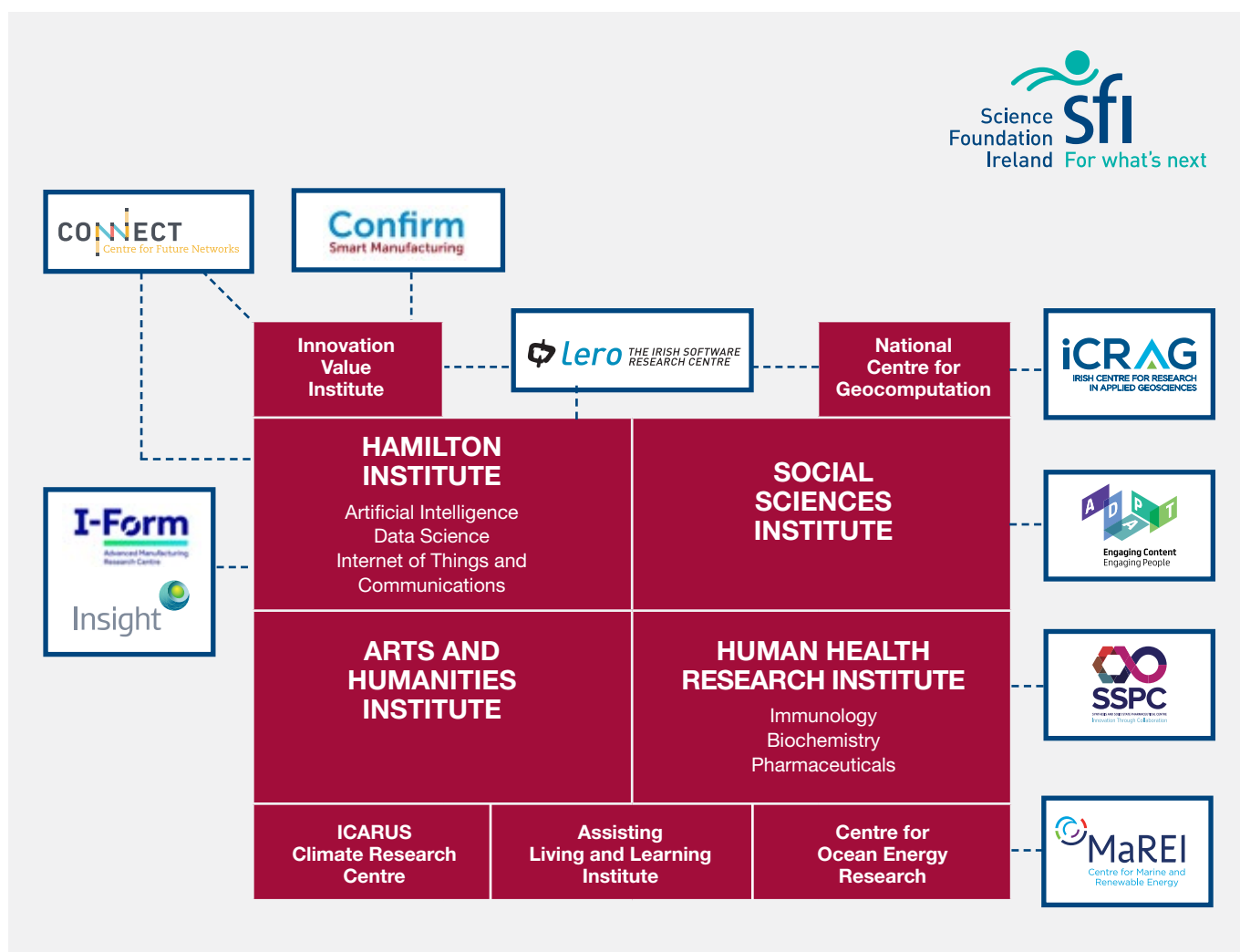


Figure 3 SFI Research Centre activity at Maynooth University

RESEARCH AND INNOVATION AT MAYNOOTH UNIVERSITY

TECHNOLOGY TRANSFER, ENTERPRISE PARTNERSHIPS AND COMMERCIALISATION

Collaborative research with enterprise and commercialisation activity is a core activity of the University. MaynoothWorks is jointly funded by the University and Enterprise Ireland, as part of the Knowledge Transfer Ireland National Technology Strengthening Initiative (TTSI). Under this initiative the office supports Maynooth researchers in knowledge transfer, and also leads a consortium offering supports to the Waterford, Athlone and Carlow Institutes of Technology. Its focus is on developing a commercialisation and innovation culture within the University, exploiting university IP and linking researchers to industry.

The MaynoothWorks business incubator provides state of the art office space as well critical advice and support for both spin-out and spin-in technology start-ups, and is currently running at approximately 90% occupancy. Client companies have created, and MaynoothWorks has supported, over eighty jobs since its opening.

In 2018 MaynoothWorks initiated partnership agreements for access to its expertise with Kildare County Council and with the University

of South Florida. The latter is to provide reciprocal expertise on both sides of the Atlantic for US companies seeking a bridge to the EU, and Irish companies seeking to access the US market.

More generally, the effectiveness of the supports by the enterprise partnership and commercialisation office is measured annually by a suite of metrics that form a component of the University performance framework.

These can be summarised as annual averages for the period 2010-2017:

- > 2 spin-outs per annum with 12 of the 17 spin-outs since 2010 still active in 2018;
- > 8 license agreements p.a.;
- > 4 patents filed and 14 invention disclosures p.a.

In addition, there have been 468 industry collaborations with an annual average of 92 new collaborations over the four years 2014–2017. This performance in commercialisation, when considered in light of the external research income of the University (an essential precursor to innovation) is amongst the best in the country.



AWARDS AND PRIZES

A NUMBER OF MAYNOOTH UNIVERSITY RESEARCHERS WERE RECOGNISED FOR THEIR CONTRIBUTION BY EXTERNAL AWARDS IN 2017/18, AND WE ARE PROUD TO ACKNOWLEDGE THESE, WHICH REFLECT THE EXCELLENCE OF THE UNIVERSITY ACROSS THE FULL SPAN OF ITS FACULTIES.



AWARDS AND PRIZES

2018 GRUBER COSMOLOGY PRIZE

PROFESSOR ANTHONY MURPHY



Professor Anthony Murphy,
Department of Experimental Physics

Maynooth University Professor Anthony Murphy among recipients of 2018 Gruber Cosmology Prize for work on the Planck Satellite.

Professor Anthony Murphy of the Department of Experimental Physics was a member of the European Space Agency Planck Satellite Team of 350 investigators that was awarded the 2018 Gruber Cosmology Prize at the XXXth General Assembly of the International Astronomical Union, in Vienna in August 2018.

Professor Murphy was a co-investigator on the development of the high frequency instrument (HFI) on board the satellite. Dr Vladimir Yurchenko was a visiting research fellow in Maynooth University working on the development of Planck Surveyor for a number of years, was also listed as a member of the Planck Team. Dr Creidhe O'Sullivan, and a number of graduate students and post doctoral researchers also worked on Planck at MU.

The Gruber Cosmology Prize is awarded annually to honour a leading cosmologist, astronomer, astrophysicist or scientific philosopher for theoretical, analytical, conceptual or observational discoveries leading to fundamental advances in our understanding of the universe. It was the second major prize for the Planck team in 2018, as they were also honoured by the Royal Astronomical Society in January.

ROYAL IRISH ACADEMY GOLD MEDAL

PROFESSOR MALCOLM MACLACHLAN



Minister Mary Mitchell O'Connor, RIA President Michael Peter Kennedy, and Professor Malcolm MacLachlan, Department of Psychology

Minister of State for Higher Education Mary Mitchell O'Connor TD presented the Royal Irish Academy Gold Medal to Maynooth University Professor of Psychology and Social Inclusion Malcolm 'Mac' MacLachlan. The award recognises his outstanding contribution to the Social Sciences, and in particular, his research into how psychological, social and technological factors can be used to make society more accessible for all, especially to people with disabilities.

Mac MacLachlan is Professor of Psychology and Social Inclusion and Director of the ALL (Assisting Living & Learning) Institute. He is also Research & Innovation Lead for the WHO's Global Collaboration on Assistive Technology programme, and Knowledge Management Lead for the United Nations' Partnership for the Rights of Persons with Disabilities.

He has worked as an academic, clinician, organisational consultant and policy adviser in Europe, Asia, Africa and South America; with national government and United Nation agencies, as well as in the private sector.

Professor Mac MacLachlan also won the 2018 British Psychological Society Award for Promoting Equality of Opportunity. The honour is given to psychologists who make an exceptional and sustained contribution to challenging social inequalities in relation to gender, race, ethnic origin, nationality, religion, sexual orientation, disability or age.

FRANCE'S CHEVALIER DES PALMES ACADÉMIQUES

PROFESSOR JOHN RINGWOOD



Ambassador Stéphane Crouzat and Professor John Ringwood,
Department of Electronic Engineering

Professor John Ringwood of the Department of Electronic Engineering was recognised by his peers as a key pillar of French-Irish scientific and academic cooperation and was awarded France's Chevalier des Palmes Académiques, one of the highest accolades the country bestows on academics and researchers.

Professor Ringwood's research is focussed on the development and application of modelling and control systems techniques, with a particular emphasis on wave energy. He leads the Centre for Ocean Energy Research at Maynooth, and is a co-PI in the SFI MaREI Centre for Marine and Renewable Energy. Professor Ringwood's research involves determining the optimal shape for a wave energy device and forecasting the dynamics of on-coming waves to allow the device to maximise the energy take-off from the wave.

His commitment and dedication to the training of researchers has extended to France, as many French PhD and postdoctoral students and interns have benefited from his expertise and mentoring.

INSTITUTE OF INORGANIC CHEMISTS IN IRELAND DR DAVID BROWN PRIZE

DR MALACHY MCCANN



Dr Malachy McCann,
Department of Chemistry

Dr Malachy McCann of the Department of Chemistry was awarded the David Brown Prize from the Institute of Inorganic Chemists in Ireland in 2017. Dr McCann began working in the Department of Chemistry at MU in 1983 as a lecturer and then senior lecturer (1990) in Inorganic Chemistry. He completed a BSc in Chemistry at the University of Ulster in 1977 and a PhD at Queens University Belfast under the supervision of Professor S.M Nelson in 1980 on the Synthesis and Coordination Chemistry of Binucleating Macrocyclic Ligands.

The research focus of Dr McCann's group was on the synthesis and structural characterisation of novel metal complexes and their use as catalysts for selected organic transformation. In later years, his research focus shifted to the utilisation of metal complexes as drug candidates for inhibiting the growth of both mammalian and cancer tumours and pathogenic microorganisms. Dr McCann's contributions to the Department over more than three decades are many and varied.

AWARDS AND PRIZES

MAYNOOTH UNIVERSITY RESEARCH ACHIEVEMENT AWARDS

THE FOUNDATION FOR FISCAL STUDIES MIRIAM HEDERMAN O'BRIEN PRIZE FOR OUTSTANDING WORK ON FISCAL POLICY

DR AEDÍN DORIS



Dr Aedín Doris, Department of Economics, Finance and Accounting with Dr Bruce Chapman

Dr Aedín Doris of the Department of Economics, Finance and Accounting was awarded the 2017 Miriam Hederman O'Brien Prize. The prize is awarded by the Foundation for Fiscal Studies and recognises outstanding contributors to matters relating to fiscal, economic and social policy.

Dr Doris is a labour economist, whose research focuses on issues related to labour supply, labour market policy evaluation and the economics of education. She received the prize along with her co-author Dr Bruce Chapman (Australian National University) for their research on Modelling Higher Education Financing Reform in Ireland.

The prize is further recognition of the continued key role played by economists in Maynooth University in shaping social and economic policy in Ireland.

COUNCIL OF ECONOMIC AND SOCIAL STUDIES BRENDAN WALSH PRIZE FOR ECONOMIC AND SOCIAL RESEARCH

PROFESSOR DONAL O'NEILL



Professor Donal O'Neill, Department of Economics, Finance and Accounting and Niamh Holton of Central Statistics Office

Maynooth University Labour Economist, Professor Donal O'Neill of the Department of Economics, Finance and Accounting and co-author Niamh Holton (Central Statistics Office) have been awarded the prestigious 2018 inaugural Brendan Walsh Prize for Economic and Social Research.

The prize has been instituted in honour of the memory of Professor Brendan Walsh and his long and distinguished career in Irish economics and is awarded by the council of Economic and Social Studies for the best paper published in the Economic and Social Review.

Professor Donal O'Neill and Niamh Holton were awarded the honour for their paper *The Changing Nature of Irish Wage Inequality from Boom to Bust* which analyses the changing nature of wage inequality in Ireland, from the height of an economic boom, through a very deep recession, to the start of a recovery. The paper finds that while wage inequality increased towards the height of the boom, driven largely by rising returns to skill, the economic crisis of 2008–2013 was accompanied by a significant reduction in wage dispersion. Although the improving characteristics of the workforce increased wages for all workers over this period, this was offset by falling returns to these skills. Only workers in the lowest decile were unaffected by declining returns, resulting in a reduction in wage inequality during the recession. The analysis highlights the important role played by the National Minimum Wage in this process.

Much of the work for this paper was carried out while Niamh was completing her MA in Economics at Maynooth University and is a testament to the quality of the graduate economics programs offered by MU.

THE IRISH ASSOCIATION OF LAW TEACHERS KEVIN BOYLE BOOK PRIZE FOR OUTSTANDING LEGAL SCHOLARSHIP

DR JOHN REYNOLDS



Dr John Reynolds, Department of Law

Dr John Reynolds of the Department of Law was awarded the 2017 Kevin Boyle Book Prize for Outstanding Legal Scholarship by the Irish Association of Law Teachers (IALT). Dr Reynolds' book, *Empire, Emergency and International Law*, was published this year by Cambridge University Press.

The prize was presented to John by High Court judge Ms Justice Úna Ní Raifeartaigh at the beginning of the IALT annual conference. The IALT Council said of the book: *"Highly relevant for contemporary times, this book focuses on the colonial lineages that have shaped current emergency law and argues for an understanding of emergency law as part of an ongoing historical constellation of racialised emergency politics. The Council felt this text was an exceptional book which went to the very core of law itself and its relationship with power. It is simultaneously engaging and penetrating. Presenting very serious and complex issues in a highly accessible way, it is masterful and assured in its depth of analysis. There is no doubt that this is going to be a very important book."*

DISTINGUISHED SERVICE AWARD AT THE CLOSING CEREMONY OF THE 18TH WORLD CONGRESS OF THE INTERNATIONAL UNION OF ANTHROPOLOGICAL AND ETHNOLOGICAL SCIENCES

DR CHANDANA MATHUR



Dr Chandana Mathur, Department of Anthropology

Maynooth University anthropologist, Dr Chandana Mathur, was presented with a Distinguished Service Award at the closing ceremony of the 18th World Congress of the International Union of Anthropological and Ethnological Sciences (IUAES) in Florianopolis, Brazil.

The award was made in recognition of her contribution to the unification in November 2017 of the IUAES and the World Council of Anthropological Associations (WCAA) as two chambers of a single global organisation: the World Anthropological Union (WAU).

Referring to the Distinguished Service Award, Dr Mathur commented: *"I had the exceptional privilege of serving as WCAA Chair during the process of the unification of the IUAES and the WCAA, and I am very grateful for this acknowledgement of my efforts to facilitate this historic outcome for the sake of our discipline."*

AWARDS AND PRIZES

MAYNOOTH UNIVERSITY RESEARCH ACHIEVEMENT AWARDS

MAYNOOTH UNIVERSITY RESEARCHER OF THE YEAR 2018

PROFESSOR ROB KITCHIN, DEPARTMENT OF GEOGRAPHY AND THE MU SOCIAL SCIENCES INSTITUTE



Professor Rob Kitchin, Department of Geography and the MU Social Sciences Institute

The 2018 winner of the MU Research Achievement Award, Professor Rob Kitchin, Department of Geography and the MU Social Sciences Institute, was recognised for numerous achievements since 2013, and his role as an academic leader of exceptional standing both nationally and internationally.

Since moving to Maynooth University in 1998 Professor Kitchin has advanced to become a scholar and academic leader of exceptional standing in Geography and the Social Sciences, both nationally and internationally. He has made a number of highly significant contributions to conceptual thought and empirical research, disciplinary and research leadership, and pedagogy and teaching. In the last five years he has held both a European Research Council advanced investigator award (the only advanced award winner at Maynooth) and a Science Foundation Ireland Investigator award.

Concurrent with his ERC project – The Programmable City – Professor Kitchin has produced a substantial body of new work that has had an immediate impact. His output since 2013 is 2 written books, 4 edited books, one edited special issue, 30 refereed articles (5 more submitted), 17 other articles, 25 book chapters (10 others in press/submitted), and 3 reports. These recent pieces have already been collectively cited 3700 times, with a number of them quickly becoming important reference points (3 of the pieces have been cited over 500 times and 6 more over 100 times).

His article in *Regional Studies*, *Regional Science*, co-authored with Tracey Lauriault and Gavin McArdle, won the Regional Studies Association best paper prize in that journal for 2015. Since 2013 he has organized 8 workshops and presented 121 invited talks, 28 conference talks, and taken part in 23 panel discussions.

The research undertaken on the ERC project – The Programmable City – builds on and extends two decades of work on the relationship between digital technology, space and mapping. As well as elaborating his concepts of code/space, data assemblage, and automated management, the research has provided a critical examination of three significant new phenomenon – big data, spatial media, and smart cities. The research is inherently interdisciplinary and in addition to making important contributions to the fields of digital geographies, software studies, critical data studies, and smart cities, it is having a wider impact across a number of disciplines, including Urban Studies, Sociology, Science and Technology Studies, Communication Studies, Computer Science, and others. Beyond citation, an indication of this cross-disciplinary impact is that 75% of his invited talks during his career have been presented outside of his home discipline of Geography (in the last five years more than 90%) and he currently receives c.75 invites for talks per year. Furthermore, the work is having traction beyond academia, with the research feeding into smart city policy globally. A key report in this respect was one commissioned by the Data Forum of the Department of Taoiseach on smart cities, privacy and security (a revised version of which was published in *Philosophical Transactions*, the flagship journal of the Royal Society). In addition, work from the project has been featured 60 times in national and international media (including RTÉ, BBC, Die Welt, Boston Globe, ABC Australia, The Guardian, New Scientist).

The significance of Professor Kitchin's work has been acknowledged nationally and internationally by the presentation of the Gold Medal for the Social Sciences by the Royal Irish Academy in 2013, four international book awards, including the Meridian Prize in 2011 for best book in the discipline of Geography by Association of American Geographers, and most recently being awarded the Media Achievement Award by the Association of American Geographers in 2015.

FACULTY OF SCIENCE AND ENGINEERING RESEARCH ACHIEVEMENT AWARD

PROFESSOR PAUL MOYNAGH, HEAD OF THE DEPARTMENT OF BIOLOGY AND DIRECTOR OF THE MU HUMAN HEALTH RESEARCH INSTITUTE



Professor Paul Moynagh, Head of the Department of Biology and Director of the MU Human Health Research Institute

Through his research Professor Moynagh has achieved an international reputation of distinction in understanding the process of inflammation, and he is a recognised world leader in drawing out the particular role of Pellino proteins, which have specific importance. Inflammation is a component of almost every major disease process and especially in chronic and degenerative diseases and therefore is one of the central medical problems of our time.

Over the period 2013–2017, Professor Moynagh authored 22 international journal articles, all of high merit, but in the context of the achievement award, six of these publications were highlighted due to their high quality and impact. These top-level publications include 1 senior authored publication in *Nature Immunology*, 1 co-authored paper in *Nature Neuroscience*, 3 senior authored publications in *Nature Communications* and 1 senior authored paper in *Immunity*. He has also sole authored an invited review to *Nature Reviews Immunology*. *Immunity* and *Nature Immunology* are the #1 and #2 world ranked journals that publish original research articles in Immunology. *Nature Neuroscience* is the #1 world ranked journal for original research in Neuroscience. These publications in the last five years encompass research of the highest international standing and impact, and have been cited by peers over 300 times.

Professor Moynagh's track record of leading research has previously garnered peer recognition, as indicated by his receipt in 2009 of the National University of Ireland (NUI) Centennial Prize for Academic Publishing in Medical and Health Sciences. Paul was also awarded the 2014 Irish Area Section Biochemical Society (IASBS)

medal in recognition of an Irish-based researcher who has made an outstanding contribution during his/her career in the broad area of Biochemistry.

Professor Moynagh's research has been made possible by his very significant successes in competing for major external research support. In the last 5 years he had active external funding of over €8M million for basic research in his laboratory, including three successive SFI Investigator awards. His research expertise has also led to collaboration with companies such as Pfizer and Alltech and in the last 5 years he has successfully competed for €1.04 million funding from industry partners and innovation awards. Four patents have been filed. All the funding secured has been directed exclusively to cutting-edge research of fundamental importance and has made a major contribution to the research profile of Maynooth University in recent years.

Professor Moynagh has also played a pioneering role in postgraduate research in Ireland. He was the Director of the Health Research Board PhD scholars programme in Immunology that partnered Maynooth University with TCD and Queens University Belfast and was responsible for training 24 PhD students from 2010-14. This was one of the first structured PhD programmes in Ireland and represented a new approach to PhD training resulting in graduates with skills and experience beyond expertise in a specialised research area. He was also MU Director of the HEA-funded PhD programme in Therapeutics and Bioanalytics (2011–2015) that partnered MU with RCSI, DCU and IT Tallaght and trained 29 students.

AWARDS AND PRIZES

MAYNOOTH UNIVERSITY RESEARCH ACHIEVEMENT AWARDS

FACULTY OF ARTS, CELTIC STUDIES AND PHILOSOPHY RESEARCH ACHIEVEMENT AWARD

PROFESSOR DAVID STIFTER, SCHOOL OF CELTIC STUDIES, MU ARTS AND HUMANITIES INSTITUTE



Professor David Stifter, School of Celtic studies, MU Arts and Humanities Institute

Professor Stifter was, in 2015, the first researcher ever to receive an ERC grant in the field of Celtic Studies, and one of the first ERC award winners in the broader field of historical linguistics.

Through his project Chronologicon Hibernicum (ChronHib), which is establishing a Probabilistic Chronological Framework for Dating Early Irish Language Developments and Literature, Professor Stifter has shown that it is possible to combine diachronic linguistics and medievalist scholarship with modern computational techniques, and has demonstrated the relevance of Old Irish as a significant subject of investigation within general linguistics.

Aside from his contribution to the study of Old Irish, Professor Stifter is also an expert in the field of Ancient (as opposed to Medieval) Celtic languages. He has edited a number of newly-discovered inscriptions and was one of the first scholars to exploit the potential of interactive online databases for the lexicography of fragmentarily attested languages. As a result of this work he was invited to join the managing committee of the European research network AELA W (Ancient European Languages and Writing).

Since 2013, he has published 5 journal articles, 9 book chapters, 1 monograph and has edited one collection. During this time, he has also organised or co-organised eight conferences and symposia at Maynooth.

Examples of recent publications include his *Language of the Poems of Blathmac* in 2015, which represents an important advance in the understanding of two eighth-century Irish poems, which were only discovered in the mid twentieth century; and his 2016 study of the Metrical Systems of Celtic Tradition, was the first ever comparative study of poetic art in all ancient and medieval Celtic languages.

AWARDS AND PRIZES

EARLY CAREER RESEARCH ACHIEVEMENT AWARDS

EARLY CAREER RESEARCHER OF THE YEAR

DR KAREN ENGLISH, FACULTY OF SCIENCE AND ENGINEERING, DEPARTMENT OF BIOLOGY AND MU HUMAN HEALTH RESEARCH INSTITUTE



Dr Karen English, Faculty of Science and Engineering, Department of Biology and MU Human Health Research Institute

Dr Karen English is an alumna of Maynooth having graduated three times from this university with BSc, MSc and then PhD in 2008. She was subsequently awarded a Marie Curie Fellowship to carry out her postdoctoral training at the University of Oxford (2009–2011) before returning to Maynooth University, first as a Health Research Board Translational Medicine Research Fellow and later as a Science Foundation Ireland Starting Investigator. She was appointed as a Lecturer in the Department of Biology in 2015, and in 2018 is one of just 36 academics in Ireland, across all fields of research, to be awarded an Irish Research Council Laureate Award to progress her work.

Dr English leads the Cellular Immunology Laboratory in the Department of Biology. The major focus of her research is the development of cellular therapy for the treatment of inflammatory diseases. Mesenchymal stromal cells (MSC) are cells from adults found in many tissues including bone marrow, adipose tissue and umbilical cord, and these have potent anti-inflammatory and potentially reparative properties and for this reason are being developed as a cellular therapy for inflammatory disorders. The mechanisms of action used by mesenchymal stromal cells in protecting against inflammation and promoting repair are not well understood. The overall goal of English's research is to further understand how these cells lead to positive effects and identify their interactions with cells of the immune system to optimise MSC therapy for the treatment of inflammatory disorders.

Dr English has made several significant contributions and is well-known internationally and highly respected in her chosen field. Over the 3 years 2015-2017 she has published 10 articles (and 35 in total since 2005) in peer reviewed journals of high international standing including 5 senior author primary papers, 2 middle author primary papers, 2 senior author review articles and 1 senior author book chapter. She graduated six PhDs in that time. Her work has been cited nearly 900 times in the past 3 years. Her most important contribution to date has been to define mechanisms of action by which mesenchymal stem cells influence immune responses. Specifically, her work has demonstrated a role for a particular cell surface protein (called Jagged-1) and provided the first report of the importance of Jagged-1 signalling in MSC protection against inflammation *in vivo*. Other recent work on B cell:MSC interactions has significant clinical implications in the area of chronic lung disease. Dr English has demonstrated that therapeutic efficacy of MSC therapy is mediated through MSC production of hepatocyte growth factor. In collaboration with the cell therapy company Athersys, Dr English uncovered the mechanism by which clinical-grade cell therapy can control T cell activation. She has collaborated in research with two existing Irish SME's (Sigmoid Pharma and Avectas) and has brought her expertise to assist their development.

AWARDS AND PRIZES

EARLY CAREER RESEARCH ACHIEVEMENT AWARDS

EARLY CAREER RESEARCH ACHIEVEMENT AWARD IN THE FACULTY OF SOCIAL SCIENCES

DR CONOR MURPHY, DEPARTMENT OF GEOGRAPHY AND ICARUS CLIMATE RESEARCH CENTRE



Dr Conor Murphy, Department of Geography and ICARUS Climate Research Centre

Dr Murphy is a part of the deep fabric of Maynooth University having started as an undergraduate, graduated with his PhD in Geography in 2007, and now senior lecturer in that department. His research contributions over the three years 2015–2017 have been outstanding, with 25 papers in a range of leading international journals in his field. These included high impact publications in journals such as *Science*, *Proceedings of the National Academy of Sciences* and *Bulletin of the American Meteorological Society*. During that time he also published 5 book chapters. Unusually, Dr Murphy works across the physical and social sciences and has published at the highest levels in both – highly regarded work relating to the latter has been published in *Annals of the Association of American Geographers* and *Climatic Change*. His overall body of work has been cited over 800 times.

Dr Murphy's body of work on Irish rainfall and streamflow records makes him a recognised leader in the study and understanding of hydroclimatology and the records he has compiled are making a telling contribution nationally and internationally. In three years his research has transformed understanding of historical climatology in Ireland. A recently published paper brings together the leading international experts in the field, including several current and former authors in the Intergovernmental Panel on Climate Change, and is testament to their respect for his work.

His research has advanced understanding the historical rainfall climatology of the Island of Ireland through development of a quality assured monthly rainfall network for Ireland from 1850, a drought catalogue from 1766, and a continuous monthly rainfall series that extends to 1711. In addition, his work on developing

quality assured time series of historical river flows for the Island of Ireland has made a significant contribution to understanding changes in flood characteristics in Europe, contributing to publications in *Science* and the *Journal of Hydrology*.

Dr Murphy's research consistently displays high levels of innovation. Together with third year undergraduates, postgrads and others he has led the rescue of in excess of 3,500 years' worth of early Irish rainfall records. Not only will this rescued data transform our understanding of long-term local and regional rainfall changes over Ireland, but the method has been recognised by the World Meteorological Organization as representing a new and innovative best-practice.

In the three years 2015–2017, Dr Murphy has been directly awarded over €1 million in research funding, including a prestigious Career Development Award (CDA) from Science Foundation Ireland. Other funding sources include the Environmental Protection Agency, the Office of Public Works, and Irish Water. Dr Murphy works directly with the OPW and Irish Water to integrate climate information into decision making. Dr Murphy's research has developed novel approaches for stress testing allowances for climate change in the development of flood protection infrastructure. His work on historical droughts and future climate change is also underpinning Ireland's first national water plan. He sits on the National Adaptation Committee which oversees implementation of climate change adaptation planning across all sectors.

EARLY CAREER RESEARCH ACHIEVEMENT AWARD IN THE FACULTY OF ARTS, CELTIC STUDIES AND PHILOSOPHY

DR DEBORAH HAYDEN, SCHOOL OF CELTIC STUDIES, AND MU ARTS AND HUMANITIES INSTITUTE



Professor Philip Nolan, President and Dr Deborah Hayden, School of Celtic Studies and MU Arts and Humanities Institute

Dr Hayden completed an MPhil (2006) and PhD (2010) in Anglo-Saxon, Norse & Celtic Studies at Cambridge University, and subsequently carried out postdoctoral work at Christ Church, University of Oxford (Junior Research Fellow, 2011-2013) and the Dublin Institute for Advanced Studies (O'Donovan Scholar, 2013-2015). In 2015 she joined Maynooth University as a contract lecturer in the School of Celtic Studies.

Dr Hayden's main research interests centre on medieval Irish, Latin and Welsh language, literature and textual culture, in particular the history of linguistic thought and education in classical and medieval tradition, early Irish medical manuscripts and medieval Irish and Welsh law. She has been recently working on editions and translations of two medieval Irish texts: one a tract on literary analysis and rhetorical doctrine, and the other a discussion of practical medical matters. Her contributions have received significant international recognition and her publications have been accepted in a range of prestigious peer-reviewed journals, both in Celtic Studies and the broader area of historical studies.

A recent edited book was published as Volume 125 of the *Studies in the History of the Language Sciences* series (John Benjamins), and constitutes the first such volume to focus entirely on linguistic scholarship in the Celtic languages. Over the last three full working years she has authored seven book chapters and 3 journal articles; has co-edited two books; as well as numerous conference presentations and published review articles.

Dr Hayden has also achieved significant success in securing research grants from funding bodies that are extremely competitive at both an international and cross-disciplinary level. In 2018 she was one of just 36 academics in Ireland, across all fields of research, to be awarded an Irish Research Council Laureate Award to conduct a project on two medieval Irish medical texts that she discovered, and which significantly alter our understanding of Ireland's contribution to medieval European scientific literature in the vernacular.

FACULTY HIGHLIGHTS

2017/18 SAW NUMEROUS ACHIEVEMENTS IN RESEARCH, SCHOLARSHIP, INNOVATION AND ENGAGEMENT ACROSS ALL THREE FACULTIES. A SELECTION OF THOSE ACHIEVEMENTS IS PRESENTED HERE.



FACULTY OF ARTS, CELTIC STUDIES AND PHILOSOPHY

ANCIENT CLASSICS

2017 was a notable year for Ancient Classics in which Dr Michael Williams had both a monograph (*The Politics of Heresy in Ambrose of Milan*, Cambridge University Press) and an edited book (*Peace and Reconciliation in the Classical World*, Routledge) published. Other members of the Department also contributed three chapters to books and two articles to peer reviewed journals and conference proceedings in 2017. Other publications in the academic year 2017-2018, were *Diogenes and the meaning of life*, in *The Meaning of Life and the Great Philosophers*, ed. S. Leach & J. Tartaglia (Routledge), and *Between gods and mortals: The piety of Homeric kings*, in *Homer and the Good Ruler in Antiquity and Beyond*, ed. J. Klooster and B. van den Berg, (Brill) by Dr William Desmond.

Contribution to conferences was also significant in 2017/18, with members of the Department speaking to international audiences in the UK, Germany, Italy, Greece, and Australia. These included The Fowler Lecture at the University of Oxford delivered by Professor David Scourfield in May 2017, entitled *Fragmentations and Forgetting: (An)atomizing Classics in English Modernist Fiction*, and a keynote lecture at the international conference “The Once and Future Kings: Roman Emperors and Western Political Culture from Antiquity to the Present,” held at the University of Queensland (Brisbane, Australia), July 2017 entitled “Fictions of Power: Thornton Wilder’s *The Ides of March* and John Williams’ *Augustus*.” Dr Gordon Campbell delivered a number of conference papers including *Botticelli, Lucretius and Empedocles on Love and Strife, Material World: the Intersection of Art, Science and Nature in Ancient Literature and its Renaissance Reception*, Istituto Universitario Olandese di Storia dell’Arte, Florence, April 2018, and *The Influence of Lucretius in Lactantius, Divine Institutes, Lucretius in Prose*, University of Patras, Greece, June 2018. Dr William Desmond spoke on *Plato’s mythology of reason*, at the conference “Philosophy in its Beginnings: On the Conceptualisation, Criticism, and Justification of Philosophy in Antiquity,” at Humboldt University, July 2017, on ‘Between the Classical and Romantic: Hegel on lyric poetry,’ in *(Anti-) Classicism & (Anti-) Idealism*, Department of German, University College Cork, June 2017, on ‘Hercules among the Germans,’ Hercules Project Conference, Leeds University, July 2017, and on ‘Hegel and Herodotus: Knowledge and History,’ at the conference “Ancient Knowledges, Modern Knowledges,” at Sheffield University, June 2018.



Dr Eoghan Moloney and Dr Michael Williams with Dr Kieran McGroarty, Head of the Department of Ancient Classics

CELTIC STUDIES

The School of Celtic Studies encompasses Nua Ghaeilge (Modern Irish), Early Irish and Lárionad na Gaeilge (Centre for Irish Language Research, Teaching and Testing).

During the year the Department of Early Irish strengthened its reputation as a world-leading centre for research into the language, literature and culture of early medieval Ireland (c.400–c.1200 CE). This status was recognised locally, nationally and internationally in the form of research grants, prizes, awards, publications and prestigious invited lectures.



Dr Deborah Hayden, School of Celtic Studies and MU Arts and Humanities Institute

Of particular note, Dr Deborah Hayden was awarded an inaugural Irish Research Council Starter Laureate Award in 2018. The project, entitled ‘Medieval Irish Medicine in its North-western European Context: a Case Study of Two Unpublished Texts,’ will focus on the contents and context of two interrelated Irish-language medical tracts that have – like much of the substantial corpus of medical writing that survives from medieval Ireland – remained almost entirely untouched by modern scholarship. One of these texts consists of questions and answers on fairly practical medical matters, mainly pertaining to anatomy, while the other is a large compendium of mostly herbal recipes and charms for various ailments. This prestigious grant is valued at €190,641.

Some of the Department’s key outputs produced in 2017–18 arise from Professor David Stifter’s ongoing ERC-funded ChronHib project. Members of the ChronHib team hosted a highly successful conference on Variation and Change in the Syntax and Morphology of Medieval Celtic Languages, held at Carton House, Maynooth, in October 2017 and attended by many of the world’s leading scholars of the comparative and historical linguistics of Celtic.

The 2017 volume of *Ériu*, the leading journal in medieval Irish studies, published by the Royal Irish Academy, contained no fewer than three contributions by members of the ChronHib team: Dr Bernhard Bauer published an article on *New and Corrected MS Readings of the Old Irish Glosses in the Vienna Bede*; Dr Elliott Lash on *A Quantitative Analysis of e/i Variation in Old Irish etar and ceta*; and Professor David Stifter has a shorter piece: *Varia II: The Origin of Time*. These publications range over fields such as syntax, etymology, palaeography, and historical linguistics and demonstrate the important work being done by the ChronHib team.

CELTIC STUDIES CONTINUED

Early Irish staff also published articles in other major peer-reviewed journals in the field, including *Celtica* (Dr Deborah Hayden); *Journal of Celtic Linguistics* (Dr Elliott Lash, co-authored with Dr Aaron Griffith (Utrecht)); *Indo-European Linguistics* (Dr Elliott Lash); and *International Journal of the Platonic Tradition* (Daniel Watson, PhD student).

Earlier publications by members of Early Irish received highly positive reviews in prestigious journals. For example, a co-edited volume by Dr Boyle and Dr Hayden (published by the Dublin Institute for Advanced Studies in 2014) had laudatory reviews appear in the 2017–18 academic year in international journals such as *Speculum* (the journal of the Medieval Academy of America) and *Early Medieval Europe*. Another co-edited volume by Dr Hayden (with Professor Paul Russell, University of Cambridge) was very widely and positively reviewed in 2017–18, in journals such as *Zeitschrift für celtische Philologie* and *Studia Celtica*.



Dr Elizabeth Boyle, Department of Celtic Studies

Dr Elizabeth Boyle was invited to give a number of prestigious international lectures, including at Stanford University, California; University of Liverpool, UK; and Aberystwyth University, UK. She was also invited to give a seminar to a joint meeting of the Irish Historical Society and the Trinity Medieval History Research Seminar on “Writing the History of the Assyrian and Persian Empires in Medieval Ireland.” Similarly, Dr Bernhard Bauer was an invited speaker at conferences in the Dublin Institute for Advanced Studies, NUI Galway, and Universität Marburg; Professor David Stifter gave three invited lectures, at Universiteit Göteborg, University of Oslo and University of Limerick; and Dr Deborah Hayden gave invited lectures to the Department of Classics at Maynooth University and to the Ó Cléirigh Seminar at UCD, as well as presenting conference papers at Harvard and Paris-Sorbonne III.

Members of the Department made a number of significant contributions to handbooks, edited volumes and encyclopaedias, including Professor David Stifter’s articles on The Phonology of Celtic in the *Handbook of Comparative and Historical Indo-European Linguistics* and on Irish Language in The *Encyclopedia of Literature in Medieval Britain*; Dr Elizabeth Boyle’s

article on *The Forms and Functions of Medieval Irish Poetry and the Limitations of Modern Aesthetics* in *From Eald to New: Translating Early Medieval Poetry for the Twenty-First Century*; and Dr Deborah Hayden’s article on *Language and Linguistics in Medieval Europe* for the Oxford Research Encyclopedia of Linguistics.

Both Dr Deborah Hayden and Professor David Stifter were recognised with Maynooth University research achievement awards in 2018. Lars Nooij, a PhD candidate, was awarded the Mícheál Ó Cléirigh Prize for best graduate paper delivered at the 31st Irish Conference of Medievalists (2017). His winning paper was published in the 2018 volume of *Peritia*, a leading peer-reviewed journal of medieval Irish studies.

Research in the Department of Nua-Ghaeilge involves the study of Modern Irish (13th cent. to the present day) and is undertaken in a range of areas including textual studies, literary criticism, linguistics, lexicography, oral traditions, pedagogy and cultural history.

Dr Aisling Ní Dhonnchadha’s 2017 publication of *Aois na hÓige: Diolaim Próis (Cló Iar-Chonnacht, 2017)*, an anthology of writing on childhood co-edited with Professor Máirín Nic Eoin of DCU, was a significant development in the growing field of Childhood Studies.

Along with this, Dr Tracey Ní Mhaonaigh’s publication of *Tháinig do Litir (An Sagart 2017)* is an important contribution to the editing and dissemination of archival material from the Russell Library. This volume contains correspondence by An tAthair Peadar Ó Laoghaire (1839–1920), a prodigious figure in modern Irish literature and one of the key architects of the Gaelic League Revival era. Dr Ní Mhaonaigh’s ongoing work on the Maynooth archive was also the basis of two further scholarly articles published in 2017–18.

During 2017–18 Dr Eoghan Ó Raghallaigh continued his work on Bardic poetry, and was a guest speaker at several events including the 40th Annual UC Celtic Studies Conference, UCLA, March 2018. Dr Ó Raghallaigh’s work has also been used by the www.learnh.org project in workshops at recent conferences at Oxford University and Queen’s University Belfast. Originally funded by a seed grant from Connecticut’s Humanities Institute in 2012, this project was envisioned as a means to facilitate the greater use of early modern Irish sources in scholarship across fields and disciplines.

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 and is, as such, of great importance to the tradition of research in Irish. *LCC* is the published proceedings of the Department’s annual conference, which in 2019 will be celebrating its 50th anniversary.

FACULTY OF ARTS, CELTIC STUDIES AND PHILOSOPHY

The two latest issues of *Irisleabhar Mhá Nuad*, falling in the period 2017–18, have marked a strategic reorganisation of the journal's remit and content. The main feature of this is to include a specific role for postgraduate students as contributors and as assistant editors. This allows postgraduate students vital experience of academic publishing while maintaining IMN's profile as a scholarly journal featuring articles by scholars at various different career stages. Work has also begun to digitise the extensive archive of IMN. The themes of the last two published issues of *LCC* were, *Ecology in the Irish tradition* (2017) and *The life and work of Msgr Pádraig Ó Fiannachta* (2018). This year's publication will be on the O'Nolan family of writers and intellectuals.

Areas of research in *Lárionad na Gaeilge* include language testing, the Common European Framework of Reference for Languages: Learning, Teaching, Assessment (CEFR), multilingualism, language policies, corpus linguistics, gender studies, plant lore, sean-nós singing, applied linguistics, translation studies, terminology and contemporary French literature.

The Centre is the Irish member of the prestigious Association of Language Testers in Europe (ALTE). A major focus of the work of the Centre is the development of tests in Irish for adult learners (*Teastas Eorpach na Gaeilge*) which are administered in Ireland, Europe, North America and Australia (www.teg.ie). As national pioneers in the development of tests linked to the CEFR, the Centre acts as advisor to state bodies on the CEFR and language testing and has been commissioned on several occasions to produce research on aspects of Irish language learning. Most recently, in 2017, Siuán Ní Mhaonaigh published *Leasuithe ar Scrúdú Gaeilge na hArdteistiméireachta: Anailís ar a dTionchar*, the second research report on the impact of changes to the Leaving Certificate Irish syllabus first examined in 2012. In January 2018, the meetings of ALTE Special Interest Groups were hosted by the Centre, welcoming delegates from fifteen countries. Guest speakers included Professor David Little, formerly of TCD, Joe Shiels, former Head of the Modern Languages Section of the Council of Europe, and Dr Waldemar Martyniuk of the Jagiellonian University in Cracow and former Director of the European Centre for Modern Languages (ECML) in Graz, Austria.

In February 2018, the Centre hosted the Inter-Varietal Applied Corpus Studies (IVACS) one-day conference. IVACS is an international research network that brings together researchers and postgraduate students working in corpus linguistics. The conference was organised by corpus linguist Aoife Ní Ghloinn on the theme of Corpus Research in Challenging Contexts and attracted over 40 delegates.

With funding secured from the National Forum for the Enhancement of Teaching and Learning in Higher Education: 2017–18 Seminar Series, Aoife Ní Ghloinn also organised a one-day conference at Maynooth in June 2018 on *Aligning Language Assessment in Higher*

Education with the Common European Framework of Reference for Languages (CEFR): a Quality Assurance Approach. The conference attracted over 100 delegates.



Anna Ní Ghallachair, Department of Celtic Studies and Centre for Irish Language Research, Teaching and Testing

Anna Ní Ghallachair was invited by the Department of Education and Skills to comment on the final draft of the Languages Connect national strategy for foreign languages prior to its launch in December 2017. On European Day of Languages 2018, she was keynote speaker at an event in the National University of Ireland, Merrion Square, where she addressed invited guests, principally members of the diplomatic services, on language learning in Ireland.

Anna Ní Ghallachair was reappointed Cathaoirleach/Chairperson of *Údarás na Gaeltachta* in January 2018. She is also a member of the Executive Committee of the Association of Language Testers in Europe (ALTE), the Committee for the Study of Languages, Literature, Culture and Communication at the Royal Irish Academy, the Indicator Expert Group on Multilingualism (European Commission), the UK Unilang language recognition scheme and the Steering Group of the *Ionad Náisiúnta Barr Feabhais do Ghairmeacha Gaeilge san Aontas Eorpach/The National Centre of Excellence for Irish-language Positions in the European Union*.

Helen Hegarty is a member of the *Coiste Téarmaíochta/National Terminology Committee (Foras na Gaeilge)* and the Steering Group of the *Ionad Náisiúnta Barr Feabhais do Ghairmeacha Gaeilge san Aontas Eorpach/The National Centre of Excellence for Irish-language Positions in the European Union*.

Aoife Ní Ghloinn is a member of the advisory committee for *Comasan Labhairt ann an Gàidhlig*, Glasgow University, a three-year research project funded by *Bòrd na Gàidhlig*, which aims to build a learner corpus of the speech of adult learners of Scots-Gaelic, in order to develop proficiency profiles of Gaelic learner language according to the CEFR (2015-18) and a member of the Inter-Varietal Applied Corpus Studies (IVACS) research network.

ENGLISH

In 2017 members of the Department of English published 7 book chapters, 4 refereed journal articles, and edited one collection. The Department of English was ranked by QS in 2018 in the top 200 globally for English Language and Literature. This ranking is largely based on the Department's strong reputation for high quality scholarship over recent preceding years.

In 2017, notable publications included an edited volume by Stephen O'Neill, entitled *Broadcast Your Shakespeare* (Bloomsbury). The collection approaches Shakespeare as a series of media stories at once old, new and ongoing. Contributors consider a variety of media from television, radio and film to social media networks and look at the continuities between historical and contemporary media representations of Shakespeare. Writing at the intersection of Shakespeare studies and media studies, this book investigates the impact media has upon us as readers, viewers and users of Shakespeare. It also explores fan reactions to Shakespeare through media of their own, from Tumblr fan art to vlogging and Twitter.



Dr Stephen O'Neill, Department of English

Professor Peter Kirwan, University of Nottingham, described the book as “*An urgent and lively collection [that] operates at the intersection of new technologies and new Shakespeares. Its diverse, sensitive and politically engaged contributions interrogate the value accrued by Shakespeare in creative play and broadcasted identities across a wide range of media, calling for both attention and action*”

Similarly, in October 2017, *The Shakespeare User: Critical and Creative Appropriations in a Networked Culture* (Palgrave 2017) includes a chapter by Stephen O'Neill, entitled *Theorizing User Agency in YouTube Shakespeare*.

HISTORY

In 2017 members of the Department of History authored or edited 8 books, published 9 book chapters, 5 refereed journal articles and 5 refereed conference articles. In terms of Irish history, these include the full breadth of subjects covered in the Department, which ranged from the medieval period to the contemporary. The number of contributors (eleven) to the overall list of authors illustrates the Department's strength in depth; and the presence by one member of the Department, Professor Terry Dooley, in two emblematic publications of the year – *The Cambridge Social History of Modern Ireland* and *The Atlas of the Irish Revolution* (this in addition to his own edited and single-authored publications) – is noteworthy. Further afield, and worthy of special mention, are Dr David Lederer's edited collection of essays on German history, which included a piece by Professor Christopher Clark (Cambridge); Dr JoAnne Mancini's essay *American Art's Dark Matter: Uncirculation from Revolution to Empire*, which appeared in a volume published by the Terra Foundation for American Art; Dr John Paul Newman's chapter in *The Cambridge History of Communism*, another seminal 2017 publication; and a special issue of the E-Journal of Portuguese History, published jointly by Brown University and the University of Oporto, which brought together the papers delivered at a conference organized by Professor Filipe Ribeiro de Meneses in Brown in 2016. Professor Ribeiro de Meneses also has a chapter in *The Routledge Companion to Iberian Studies*. All of this illustrates that Maynooth University's historians are present in key debates in their respective fields – and that these range widely.

In terms of research funding, the highlights were the securing of a two-year IRC Government of Ireland postdoctoral fellow (Dr Frances Nolan) and a four-year IRC Postgraduate Scholarship (Sven Milekic). Sven Milekic's arrival is especially important, suggesting as it does that Maynooth has a bright future, in the post-Brexit age, as a centre for scholarship on contemporary European history. Continental issues that are still too controversial to be pursued in their respective domestic context can be investigated – and the findings disseminated to the English-speaking academic community – from the peaceful vantage of Maynooth. Dr Newman's success in this regard was compounded by the awarding of a National University of Ireland Travelling Scholarship to another of his PhD students, Keith Harrington, whose work focuses on Moldova and Transnistria. Three PhD students graduated from the Department in 2017/18.

The Department also showed itself able to avail of new sources of funding, notably the Government of Ireland Academic Mobility Scheme, in order to continue to shore up its relationship with very significant international institutions: the University of Toronto and Command and General Staff College, Fort Leavenworth, Kansas. Meanwhile, the Centre for the Study of Historic Irish Houses and Estates continued to attract significant contributions and donations from public bodies and private individuals with which to fund its activities.

FACULTY OF ARTS, CELTIC STUDIES AND PHILOSOPHY

Department members were frequent speakers at home and throughout Europe. Ten invited speakers from outside Maynooth University spoke at the Department's seminar series in the academic year 2017/18. Just as important was the series of conferences and other events organized in and outside Maynooth by members of the Department.

Regarding conferences held in Maynooth, mention should be made of the Centre for Military History and Strategic Studies' "Europe, Maritime Security and Small Navies" conference, held in January 2018; the "Cultures of Victory and Victorious Societies in the 20th Century" conference (November 2017), organized by Dr John Paul Newman, which included a keynote address by Professor John Horne (TCD); and the "Commemorating the 100th Anniversary of Votes for Women" panel discussion (May 2018) organized by Professor Marian Lyons and Dr Jennifer Redmond. Outside Maynooth, one highlight was the conference organized by Dr Alison Fitzgerald at the National Museum of Ireland, "Silver in Georgian Ireland" (May 2018). Involving the Irish Georgian Society, it was funded by the Paul Mellon Centre for Studies in British Art. Another was the "Reformation 500" Conference, organized by Professor Marian Lyons, which brought together the Catholic Historical Society and the Church of Ireland Historical Society and took place in Christ Church Cathedral and Dublin City University (October 2017).

In June 2018 Dr David Murphy was a Visiting Lecturer at the South African Military Academy – building on existing links between the Centre for Military History and Strategic Studies and the South African defence establishment – and was also elected, that same month, a Fellow of the Royal Historical Society.

The dissemination of research by members of the Department was conducted in a variety of other ways, including two special exhibitions held in the University. The first of these was entitled "On Active Service": Maynooth College, Chaplains & the Anti-Conscription Crisis." Inaugurated 18 April 2018, it was curated by Professor Marian Lyons and Barbara McCormack, of the Library's Special Collections and a doctoral student in the Department. This event was supported by the Maynooth University Commemorations Committee. Meanwhile, the Centre for the Study of Historic Irish Houses and Estates, hosted another exhibition, "The Country House Revived." Supported by Maynooth University Library, it was on display April–May 2018.



'On Active Service': Maynooth College, Chaplains & the Anti-Conscription Crisis.

MODERN LANGUAGES, LITERATURES AND CULTURES

The research output for 2017 for the School of Modern Languages, Literatures and Cultures amounted to 59 publications (including 20 conference presentations). These included 2 monographs, 1 edited conference publication, 1 edited journal issue, 12 peer-reviewed journal publications, 10 book chapters, 7 review articles, 3 articles and 1 magazine article. Renowned publishers such as Routledge are features, and a number of the peer-reviewed articles were published in top ranked journals, such as *German Life and Letters*, *Journal of Romance Studies*, *Journal of European Studies* and *Modern Language Review*. Other articles were published in peer-reviewed journals of high standing, such as *Wirkendes Wort* or *Acta Germanica*.

Publications in top ranked journals included: *Dementia narratives in contemporary German women's writing*, by Dr Valerie Heffernan (*Journal of Romance Studies*); *Retrospective and futuristic idealization: Defining German coloniality after the loss of empire*, by Professor Florian Krobb (*Journal of European Studies*); and *German Life and Letters: Von uns aus betrachtet – eben verrückt! Louise von Coburg, profligacy, and Felix Salten's campaign for a civil consensus* (*German Life and Letters*), also by Professor Krobb.



German Life and Letters

FACULTY OF ARTS, CELTIC STUDIES AND PHILOSOPHY

MEDIA STUDIES

Research in the Department of Media Studies covers a wide range of disciplines concerned with the central importance of media in all facets of contemporary society. It spans a diverse range of established research topics, such as film, radio and television studies, gender and media, political economy, creative industries, cultural and media history, the politics of race and journalism. The Department is committed to researching contemporary, trending and emerging topics, such as interactive art installations, social media platforms, the mediated city, digital writing and posthumanism. Members of the Department of Media Studies published 1 book, 5 book chapters and 10 peer-reviewed journal articles in 2017.

Dr Anne O'Brien's work with media monitoring programme *Headline on suicide and mental health reporting* is an important example of the external engagement of the Department of Media Studies. The report from the project has informed the national agency's research strategy for 2019. *Headline* will also host a symposium based on the research at the World Congress of the International Association of Suicide Prevention in Derry in September 2019.

Dr Gavan Titley researched intercultural education in an era of populism and 'post-truth' which was commissioned by the Directorate of Youth and Citizenship of the Council of Europe. The project involved reviewing dominant understandings and practices of intercultural learning in socio-political context since the early 1970s, and examining the field in relation to contemporary challenges. His report from the project formed the basis for a consultative meeting held in the European Youth Centre, Budapest, in November 2018, and will be published in 2019.



Minister Culture, Heritage and the Gaeltacht, Josepha Madigan TD, with IFI director, Ross Keane and Professor Philip Nolan at the launch of The IFI Irish Film Archive @ Maynooth University

A partnership between Maynooth University and the Irish Film Institute (IFI) led to the opening in 2018 of a new custom built Research and Preservation Centre on the north campus at Maynooth. The IFI Irish Film Archive @ Maynooth University was officially opened in March 2018 by the Minister for Culture, Heritage and the Gaeltacht, Josepha Madigan TD. The project was funded by the Irish Film Institute, together with Maynooth University and key partners, the Department of Culture, Heritage and the Gaeltacht, Bord Scannán na hÉireann/the Irish Film Board and the Broadcasting Authority of Ireland.

The new facility contains 120 sq m (1,300 sq ft) of climate-controlled vault space to help house part of the IFI Irish Film Archive's vast collection of 30,000 cans of film dating from 1897. The Centre will allow the IFI to ensure that future generations can continue to enjoy, and learn from, Ireland's moving image heritage.

The IFI Irish Film Archive is custodian of one of Ireland's most remarkable resources – our nation's film. The IFI collection spans over one hundred years of stories from everyday life to the great achievements of Ireland's filmmakers on the global stage. Collectively this material tells Ireland's artistic, social and political story over the last century as well as being a record of Irish film culture. Films from directors including John Huston, Neil Jordan, Jim Sheridan, Lenny Abrahamson, Mary McGuckian, and Alan Parker amongst many others will be stored at the facility as part of the Institute's collections, in addition to a large number of amateur films from the IFI Film Archive's vast repository.

The University and the IFI also have initiated a new academic partnership that uses the archive as a teaching and research resource. Students in MU's Master's in Critical and Creative Media course have the opportunity to take a module in Media Archives that is co-taught by IFI's Kasandra O'Connell and Maynooth's Dr Denis Condon and Professor Maria Pramaggiore, also an IFI Council Member.

James Hickey, Chief Executive, Bord Scannán na hÉireann/the Irish Film Board said "*Bord Scannán na hÉireann/the Irish Film Board are delighted to support this initiative. The Archive is vitally important in collecting, preserving and documenting Ireland's screen history. The new archive Preservation and Research Centre will ensure that Ireland's film heritage will now be safe and accessible for years to come.*"

FACULTY OF ARTS, CELTIC STUDIES AND PHILOSOPHY

MUSIC

Research in the Department of Music reflects the breadth and rich diversity of the discipline. Encompassing musicology, composition, performance and music technology, it crosses the borders between art and science, theory and practice. The Department continued to significantly enhance its profile in 2017 through a diverse range of outputs, outreach, hosting, grant acquisition and external engagement. Two PhD students graduated from the Department in 2017/18.

In 2017, researchers in the Department produced three monographs and an edited volume. Professor Victor Lazzarini's *Computer Music Instruments: Foundations, Design and Development* represents an important new textbook for teachers and students of digital signal processing (metrics indicate 4,000 downloads in ebook format to date). Described by *Music and Letters* as "a stellar example of what a study of conductors and conducting can achieve...a distinctive addition to scholarship on British musical culture," by *Nineteenth-Century Music Review* as "a masterly survey," and by the *English Historical Review* as "a valuable contribution," Professor Fiona M. Palmer's *Conductors in Britain c. 1870-1914: Wielding the Baton at the Height of Empire* offers a historical and critical account of the professionalisation of conducting in the British marketplace. The first scholarly investigation of an influential body of music, Dr John O'Keeffe's *The Masses of Seán and Peadar Ó Riada: Explorations in Vernacular Chant*, is praised in *The Furrow* as "an absorbing study" in which the "complexity of the commentary and the scholarship, like all good expressions of art, is masterfully hidden and unassuming." Professor Lorraine Byrne Bodley edited the anthology *Music in Goethe's Faust: Goethe's Faust in Music*, summarised by *The Journal of European Studies* as "an absorbing and fascinating volume" and by *Notes* as "a valuable collection of essays."

In 2017 ten book chapters were produced by researchers in the Department from the presses of high-profile international publishers including Routledge, Boydell Press, and a key Irish publisher, Four Courts Press. Professor Byrne Bodley contributed three chapters to *Music in Goethe's Faust: Goethe's Faust in Music* as well as a chapter in *A Musical Offering. Essays in Honour of Gerard Gillen*, which also includes a chapter by Dr Adrian Scahill in which the place of traditional music within the Catholic church is reconsidered. Professor Christopher Morris's "Back from the Dead: Kubrick, Music and the Auteur" re-evaluates questions of authorship in the score for Kubrick's *Barry Lyndon*, and Professor Lazzarini's *Towards a Gradus ad Parnassum for Computer Music* explores pedagogical innovation in the field of music technology.

Researchers from the Department published five peer-reviewed articles, all in top-level international journals. In an article in *Music and Letters* (Oxford Journals), Dr Estelle Murphy considered the implications of her identification of the author of previously unattributed or misidentified music manuscripts dating from the turn of the eighteenth century, while in *Cambridge Opera Journal* (Cambridge University Press), Dr Antonio Cascelli explored the potential of a work by Monteverdi to enrich our understanding of Venetian culture in the seventeenth century. Professor Victor Lazzarini was author of an article in *Applied Sciences* (MDPI) exploring new developments in computer programming language CSound and co-author of articles in *Organised Sound* (Cambridge University Press) and *Musica Theorica*.

Composer Dr Ryan Molloy's *Amhrán Fheilimidh*, commissioned by Dr Sarah Watts (University of Sheffield), was premiered at the International Clarinet Association's ClarinetFest in Orlando, Florida, while *Between the Tunes* was selected by the Association of Irish Composers to represent Ireland at the ISCM 2017 World New Music Days in Vancouver, Canada. Several other works were given high-profile performances, including his Violin Concerto (performed by the Ulster Orchestra and broadcast on BBC Radio 3), and a national tour of Innisfail (Alexander Bernstein, piano). Composer and pianist Dr Martin O'Leary presented an all-Irish programme of piano music, including his own Caoineadh Malachy McGeeny and Dr Molloy's For Morton O'Leary at Rikkyo University, Tokyo.



Dr Ryan Molloy, Department of Music

Dr Gordon Delap's *Ashes to Ashes* (Exploration of Impossible Instruments) was exhibited in Summer 2017 at the Science Gallery, Dublin. It features the synthesis of sounds from virtual instruments constructed from uranium. Sounds were created through physical modeling technology developed by the Next Generation Sound Synthesis (NESS) project, a European Research Council funded project at Edinburgh University, which ran between 2012 and 2016.

FACULTY OF ARTS, CELTIC STUDIES AND PHILOSOPHY

MUSIC CONTINUED

During 2017, four Irish Research Council Postdoctoral Fellows were associated with the Department of Music. Dr Francesca Placanica concluded her two-year practice-based project *En-Gendering Monodrama* (mentor: Professor Christopher Morris) with the international symposium ‘Embodied Monologues,’ hosted by the Department (March 2017). Meanwhile Dr Candida Mantica entered the second year of her project *Gaetano Donizetti’s ‘école-mosaïque’* (2016-18, mentor Dr Antonio Cascelli), while Dr Laura Anderson (*Disruptive Soundscapes: Music and Sound Design in French Post-War Cinema, 2017-19*, mentor Professor Christopher Morris) and Dr Anja Bunzel (*Johanna Kinkel’s Lieder Compositions as a Socio-Political and Cultural Mirror of Her Time, 2017–18*, mentor Professor Byrne Bodley) commenced fellowships in October 2017.

In February 2017 the Department hosted the annual Irish conference of the International Council for Traditional Music (ICTM). In March 2017 it hosted the international symposium ‘Embodied Monologues,’ organised by Dr Francesca Placanica as part of her IRC Postdoctoral Fellowship. In November 2017 it hosted the symposium ‘Live Cinema and its Audiences,’ organised by Christopher Morris and featuring Dr Sarah Atkinson (King’s College London).

PHILOSOPHY

In 2017 members of the Department of Philosophy published 10 refereed journal articles or book chapters, co-edited a book, and authored 12 dictionary entries.

Dr Mette Lebech produced several entries for the *Edith Stein-Lexikon*, a dictionary of concepts central to Stein’s work which was published by Herder in Germany to accompany the philosopher’s complete works. In addition, Dr Lebech also authored several full-length articles on Stein for publications in three different languages: English, German, and Polish. Finally, in collaboration with Dr James Smith (PhD, Maynooth, 2013), she published a volume of English translations of ethical texts by the phenomenologist Adolf Reinach.

Dr Amos Edelheit published three articles on the philosophy of the Renaissance, all in very well-established venues. His piece on the “rise of classical scholarship” in the Renaissance appeared in the *Routledge Companion to Sixteenth-Century Philosophy*, which may well come to be regarded as a standard handbook in the field.

In 2017, Dr Cyril McDonnell published a long article in *Brentano-Studien*, an international journal that is devoted to the study of Franz Brentano’s thought. Dr McDonnell devotes much of his research to the precursors and sources of twentieth-century phenomenology, especially Husserl and Heidegger. In this context, Franz Brentano functioned as an important conduit of scholastic material into the phenomenological movement.

In June 2017 Dr Mette Lebech and Dr Gaven Kerr organized a half-day workshop on “essence” at Maynooth University, and in December 2017 at MU Dr Lebech organized a one-day conference on “The Idea, History and Institutional Foundations of Science.”



FACULTY OF SCIENCE AND ENGINEERING

BIOLOGY

In 2017, the Department of Biology made significant advances as it continued to develop innovative and competitive research programmes across a range of important areas within the life sciences. The research activities of its 24 academic staff ranged from fundamental studies to a strong engagement with industry in the areas of Immunology, Biomedical Sciences, Molecular and Medical Microbiology, Bioinformatics and Evolutionary Biology, Molecular Plant Sciences and Ecology. During 2017, the Department published 58 original research articles, 6 review articles and 8 book chapters. These studies included publications in top ranked journals including Nature Neuroscience; Nature Ecology and Evolution; Cell Death and Differentiation; Cellular Microbiology; and Journal of Clinical Investigation Insights.

MU Department of Biology was also very successful in securing external research funding. 20 grants were awarded in 2017/18 with total costs of €4.1M. Notably Professor Paul Moynagh secured a SFI Investigator Award with direct costs of €2.1M; Dr Fiona Walsh secured an award from the EU Joint Programming Initiative on Antimicrobial Resistance with direct costs of €250,339; Dr Jim Carolan secured funding from the Department of Agriculture, Fisheries and Food with direct costs of €142,700. The Department of Biology was also very successful in securing a total of six Irish Research Council (IRC) Postgraduate Scholarships and Postdoctoral Fellowships. Nine PhD students and two research masters students graduated from the Department in 2017/18.



Dr Karen English, Department of Biology and Human Health Research Institute

In March 2018 Dr Karen English of the Department of Biology and the Human Health Research Institute was awarded €400k for one of the first Irish Research Council Starter Laureate Grants entitled *Investigating the influence of MIF on mesenchymal stem cell therapeutic efficacy in allergic asthma*. The Laureate awards are highly competitive, and an important national programme, as they fund excellent investigator-led research across all disciplines. Dr English's research will focus on the development of novel cellular

therapeutic approaches for the treatment of severe asthma which affects approximately 300 million people worldwide causing 250,000 deaths per annum. In the US the total cost of disease per year is estimated to exceed \$18 billion. Standard treatments are ineffective for severe asthmatics (up to 15% of the asthma population) who suffer more frequent exacerbations and are susceptible to major respiratory failure and death.

In a notable achievement, an international team of scientists, including five researchers from the Department of Biology, sequenced and analysed the genome of the largest living organism on planet Earth, an enormous and deadly fungal organism, *Armillaria ostoyae*. The mushroom is thought to be thousands of years old and covers an area of 10km² in Oregon, USA. The *Armillaria* species are amongst the most devastating fungal pathogens in the world, causing root rot disease in more than 500 plant species, contributing to deforestation and climate change.

The team of scientists, which included Dr David Fitzpatrick, Professor Sean Doyle and PhD students Nicola Moloney, Eoin O'Connor and Rose Waldron, as well as researchers from the Hungarian Academy of Sciences, the U.S. Department of Energy Joint Genome Institute (DOE JGI) sequenced the complete genome of four *Armillaria* species with a view to understanding how the *Armillaria* species grows to be so huge, the methods that it uses to seek food and how it has become such a proficient killer of its host plants. The team's research into the genetic mechanisms involved in the unique attributes of these extraordinary organisms was published in the prestigious *Nature Ecology and Evolution*.

In another success, an international team of researchers, led by Professor Paul Moynagh, Head of the Department of Biology and Director of the Human Health Research Institute at Maynooth University, made a significant breakthrough in understanding inflammatory diseases such as sepsis, Crohn's disease, psoriasis and multiple sclerosis (MS), through identification of a protein for potential therapeutic exploitation. The scientists discovered a protein in the body that is a key driver of inflammation. The blockade of this protein suppresses inflammation and so may offer a new approach to treating inflammatory diseases.

The findings were published in *Nature Communications* in April 2018. The research project that led to the discovery was funded by an Investigator's Programme Award to Professor Moynagh from Science Foundation Ireland (SFI). In addition, Professor Moynagh was awarded further funding of €2.1M from SFI under the Investigator Programme in 2017 to discover and exploit novel regulatory pathways in inflammation for therapeutic advantage.

FACULTY OF SCIENCE AND ENGINEERING

BIOLOGY CONTINUED

The Department of Biology is actively engaged in research projects with Patient Advocacy Groups at Our Ladies Children's Hospital Diabetes Parents Association and the Irish Association for the Study of Obesity patient groups. How childhood obesity can severely compromise the body's ability to fight off diseases such as type 2 diabetes and multiple cancers was described in a paper published in the prestigious Journal of Clinical Investigations Insight in December 2017.

Dr Andrew Hogan, Department of Biology and Human Health Research Institute, was co-senior author of the paper along with Professor Donal O'Shea (Diabetes Complications Research Centre at UCD), who is the HSE national lead for obesity. The first author of the study, which was funded by the National Children's Research Centre (NCRC) and Children's Medical Research Foundation (CMRF), was Dr Laura M. Tobin, who completed her PhD in Immunology at Maynooth University.

"We are aware that obesity in adults causes chronic inflammatory disease such as cancer and diabetes due to changes in their immune system. We wanted to see if the same changes were present in obese children. Our research team studied a group of 100 children between 6–17 years of age in Our Lady's Children's Hospital – 50 within healthy weight ranges and 50 who were obese. We found that in obese children, there was a significantly reduced frequency of Natural Killer cells present in the body," said Dr Hogan.

The Department currently hosts 39 PhD students, and 10 postdoctoral researchers. 7 PhD and 2 M.Sc. students graduated from the Department in 2017/2018 and 6 new students began their research studies.

Dr Fiona Walsh organized and hosted a meeting on Antimicrobial Resistance and One Health at Maynooth University. Fiona was also a session co-organiser at the Microbiology Society Spring meeting, in Edinburgh, UK, April 2017.

Dr Karen English was awarded the University Industry Engagement Award for her engagement with national and international companies including Sigmoid Pharma and ReGenesys. Karen's major focus of research is the translation of cellular therapies for the treatment of inflammatory disorders.

CHEMISTRY

The Department of Chemistry at Maynooth University is home to a team of 13 principal investigators, at early and established career stages with extensive global track records in the areas of synthetic (medicinal chemistry, inorganic and metals in medicine), computational and physical/analytical chemistry (covering astrochemistry, material science, biophysics and electroanalysis).



Research conducted by Dr Elisa Fadda was featured on the cover of Physical Chemistry Chemical Physics in 2017

In terms of publication outputs, 2017 was a productive year, with 31 research articles, 1 book chapter and 1 magazine article produced by PIs in the Department. From 2015–2017, 43.5% of publications from the Department are in the top 10% of journals, with 55% of the Department's publications written with international collaborators. 24% of the Department's research articles are in the 10% most cited in the world. Research conducted by Dr Elisa Fadda was featured on the cover of Physical Chemistry Chemical Physics in 2017.

A notable publication from Professor John Lowry's team and colleagues from the Lilly Centre for Cognitive Neuroscience and Bristol University published an article in Cell Reports in January 2017 that garnered significant citations. The paper dealt with detailed timing and location of acetylcholine release in the brain and its importance for behavioural functions. The paper demonstrated that coordinated acetylcholine release between the prefrontal cortex and hippocampus is associated with reward and arousal on distinct timescales, providing dual mechanisms to support learned behaviour acquisition during cognitive task performance.

The Department was successful in attracting over €700K in research funding in 2017/2018 and, significantly, initiated a new industry co-funding scheme with the MU Graduate Studies Office. Under this scheme Dr Jennifer McManus established a PhD studentship co-funded by MedImmune, Cambridge, UK to examine the self-assembly of proteins and peptides. Commenting on the partnership, Shahid Uddin from MedImmune said *"The collaboration with Dr Jennifer McManus and the Maynooth team is of strategic significance to MedImmune. As MedImmune's portfolio diversifies so do the challenges of developing these biologics. The team at Maynooth have a unique application that is of benefit to MedImmune which will enable the scientists at MedImmune to problem solve and deliver high value medicines."*

FACULTY OF SCIENCE AND ENGINEERING

Dr Eithne Dempsey received funding through the Irish Research Council Employment based Postgraduate Research Scheme with Glanbia, Ireland on “Rapid Electronic Sensor Technologies Applied to Fermentation Process Monitoring.” Dr John Stephens received an Enterprise Ireland Innovation Partnership with Dairygold on “Novel approach to the development of food products for pre-diabetics and those with impaired glucose tolerance (IGT).”

A number of Chemistry researchers were successful in winning prizes in 2017/2018, including the Dr David Brown award from Inorganic Chemists Ireland to Dr Malachy McCann (see Awards section). The Department hosted Professor Neer Asherie from Yeshiva University in New York as a Distinguished Visiting Scholar. The Department also hosted the 9th Conference for Analytical Sciences in Ireland 2018 and provided training to 12 PhD students as part of the RAMP, Horizon 2020 Initial Training Network in May 2018. Five PhD and two M.Sc. students graduated from the Department in 2017/2018 and six new students began their research studies. One postdoctoral researcher was hosted. Dr Eithne Dempsey delivered a keynote presentation at “Sensors in Food and Agriculture” in Norwich, UK, in July 2018.

COMPUTER SCIENCE

The Department of Computer Science has been growing significantly in recent years, and now comprises 23 staff with research expertise across a range of areas including geospatial data analysis, machine vision and machine learning, formal methods for software engineering, and information retrieval.

During 2017, the Department published 16 peer reviewed journal papers, 35 conference papers, 2 edited books and 2 book chapters. These studies included publications in significant titles including Optical Engineering; Transactions in GIS; Computer Science Review; Journal of Learning Analytics; IEEE Transactions on Vehicular Technology; Discrete Mathematics and Theoretical Computer Science; and International Journal of Educational Technology in Higher Education.

Of particular note, the journal article *Space-variant video compression and processing in digital holographic microscopy sensor networks with application to potable water monitoring* from the research group of Professor Tom Naughton was awarded the “Editor’s pick” by the Journal Applied Optics (publisher OSA – The Optical Society) on 1st August 2018. According to the journal, this serves to highlight articles with excellent scientific quality which are representative of the work taking place in a specific field.

Dr Peter Mooney was a contributing co-author on a significant World Bank Publication: *Global Facility for Disaster Reduction and Recovery (GFDRR) 2018*. This dealt with identifying success factors in crowdsourced geographic information use in government.

One PhD student graduated from the Department in 2017/18.

The Department of Computer Science was also successful in securing external research funding. Nine grants were awarded in 2017/18 with total costs of €4.2M. Within these Dr John McDonald (Computer Science and Hamilton Institute) secured two grants, including €228k from the SFI Software Research Centre LERO. Professor Barak Pearlmutter and Dr James Power both secured Irish Research Council Scholarships for postgraduate students. Dr Rosemary Monahan was awarded funding from both Failte Ireland and Science Foundation Ireland for the FMICS.iFM conference 2018. Dr Tim McCarthy (Computer Science, NCG, and Hamilton Institute) was the highest grant winner in the University with three awards totalling over €3.5M in 2017/18. These were for the U-Flyte Drone Innovation Platform (SFI and industry partners, €3.2M); as co-principal investigator on an SFI Investigator Award led by Dr Brian Kelleher of DCU, and in collaboration with Professor Andrew Parnell (Department of Mathematics and Statistics, and Hamilton Institute) “Integrating multidisciplinary geoscientific data into forecasting models to monitor and predict coastal change: Proof of concept in Dublin Bay.”; and an EU H2020 ERA-net project “TN-ITS GO.”



Margie McCarthy, Director of Innovation, Communications and Education, Science Foundation Ireland, Minister of State for Training, Skills, Innovation, Research and Development, John Halligan TD, Professor Philip Nolan, President, Maynooth University and U-Flyte project leader Dr Tim McCarthy, National Centre for Geocomputation and Department of Computer Science

U-Flyte is a €3.2M Strategic Research Partnership funded by Science Foundation Ireland and industry based at Maynooth University, that involves collaboration with partners across the aviation industry, and includes input from Airbus, Irelandia Aviation, Intel and other relevant companies and agencies with an active interest in the development and deployment of drone technology.

Futurists predict that drone technology will soon significantly transform our daily lives, changing how we deliver and collect goods, giving us new ways to monitor and understand the world around us, and even revolutionising emergency services. However, the roll out of drone applications is currently hampered by a lack of innovative technologies that can guarantee the safe and regulated operation of drones around our town, cities and rural environments.

COMPUTER SCIENCE CONTINUED

The Departments of Computer Science and Electronic Engineering made a substantial purchase of new robotics and AI infrastructure to support on-going research and the development of a joint robotics lab between Dr John McDonald and Dr Rudi Villing (Electronic Engineering). This purchase included a Rethink Robotics Sawyer Collaborative Robot Manipulator, a PAL Tiago Mobile Robot Manipulator, a Deep Learning multi-GPU cluster, and state-of-the-art augmented reality hardware. This equipment was funded as part of an SFI Research Infrastructure Award.

On other topics, the research group of Professor Tom Naughton participated in an international image analysis competition called the “HER2 Scoring Contest” in 2018, the results of which were published in the journal *Histopathology*. In this international competition (warwick.ac.uk/fac/sci/dcs/research/tia/her2contest) the group’s deep learning algorithms were up against those from 103 competitors from such prestigious institutions as University of Oxford, Carnegie Mellon University, and IIT Guwahati. Their three submitted algorithms were ranked 2nd, 3rd and 4th in the points leaderboard.

In Sept. 2017 Dr John McDonald, Dr Charles Markham, and Professor Adam Winstanley hosted the Irish Machine Vision and Image Processing Conference (IMVIP) 2017 (imvip2017.cs.nuim.ie), the annual all Ireland conference of the Irish Pattern Recognition and Classification Society (IPRCS). The conference attracted both national and international delegates, including three keynote speakers from Oxford University, Imperial College London, and Oculus Research. There was an active participation from the Irish computer vision industry at the conference with demonstrations of the latest technology in areas ranging from autonomous vehicles, embedded AI, to movie visual effects. Sponsors for the conference included Maynooth University, FotoNation, and Movidius.

Dr Rosemary Monaghan, Dr James Power, Dr Kevin Casey, and Dr Hao Wu were all involved in the successful running of the 14th International Conference on Integrated Formal Methods in September 2018. Sponsors included Maynooth University, Science Foundation Ireland, Springer, EASST, Fáilte Ireland, Meet in Ireland, the Embassy of France in Ireland and ACM SIGLOG.

Dr Liadh Kelly was an organizer, in the capacity of programme chair, of the 8th International Conference and Labs of the Evaluation Forum conference. The CLEF Initiative (Conference and Labs of the Evaluation Forum, formerly known as Cross-Language Evaluation Forum) is a body whose main mission is to promote research, innovation, and development of information access systems. This event took place in Avignon, France in September 2017, (clef2017.clef-initiative.eu)



Maynooth University chosen to coordinate European wide Copernicus Relay and Academy'

The Department of Business, Enterprise and Innovation (DBEI) announced in November 2017 that Maynooth University had been selected by the European Commission to coordinate the Copernicus Relay and Academy in Ireland. Copernicus is a European Union programme aimed at developing European information services based on satellite Earth Observation and in situ (non-space) data with the goal of enhancing strategic decision making regarding climate change.

The announcement was made as Maynooth University held the first ever Copernicus Information Day in Ireland, with over 220 delegates drawn from public sector, research and industry attending. Maynooth University is one of the world’s leading research centres in climate change and earth observation. Maynooth University will also provide scientific support input for the new National Earth Observation Scientific Advisory Group.

Commenting, Minister Halligan, Minister of State for Training, Skills, Innovation and Research and Development, said: *“I am delighted that Maynooth University has been chosen to coordinate the Copernicus Relay and Academy and host the new National Earth Observation Scientific Advisory Group. The awarding of this position will help drive awareness of the value of the important “Big Data” opportunity developing in Ireland. I would urge my Ministerial colleagues to encourage their Departments to examine opportunities to implement activities based on the Earth Observation data now available to Ireland.”*

Dr Tim McCarthy, from the Department of Computer Science and National Centre for Geocomputation at Maynooth University, said, *“Maynooth University is committed to supporting the long-term development of Earth Observation (EO) activities here in Ireland through coordination of the Copernicus Academy and Relay and expanding our broader EO data-science teaching and research programmes. Earth Observation (EO) is making an increasing impact on our all our lives in recent years, from rapid storm damage-assessment through to supporting natural resource-management and strategic decision-making for climate change.”*

FACULTY OF SCIENCE AND ENGINEERING

ELECTRONIC ENGINEERING

The Department of Electronic Engineering comprised eight academic staff in 2017/18. Members published 19 journal papers, and a further 19 peer reviewed conference papers, with the majority in highly regarded outlets. These have already garnered 328 citations (using Publish or Perish and Google Scholar), the most highly cited being from Professor John Ringwood and the team in the Centre for Ocean Energy Research.



Professor John Ringwood, Department of Electronic Engineering

Professor John Ringwood was recognised by his peers as a key pillar of French-Irish scientific and academic cooperation and was awarded France's Chevalier des Palmes Académiques, one of the highest accolades the country bestows on academics and researchers (see awards section). In advising on policy, Professor Ringwood also acted as a Member of Offshore Renewables Stakeholders Group for the Government Department of Communications, Climate Action and Environment, and was a Member of Oversight Group for the Oireachtas Committee on Climate Action.

Seven grants, totaling €380,351, were awarded to six investigators which does not reflect the strong participation of two PIs in SFI national centres, currently seeking funding renewal. Professor John Ringwood is a PI in MaREI, the Centre for Ocean Energy, and Professor Ronan Farrell is a PI in CONNECT, the telecommunications research centre.

In academic year 2017/18, there was a strong pipeline of research student graduations, with 4 PhD students graduating.

Of further note, Dr Bryan Hennelly was co-chair of the 2018 Photonics Ireland conference in September 2018, and the Department hosted a Fulbright Scholar, Professor Miriam Leeser from Northeastern University, MA, USA.

EXPERIMENTAL PHYSICS

The eight PIs of the Department of Experimental Physics published 7 journal articles, and 5 refereed conference papers in 2017. Research was active across Space Terahertz Optics, Observational Astronomy, Atmospheric Physics, Fluid Dynamics and Molecular Physics. Two PhD students and three research masters students graduated from the Department in 2017/18.

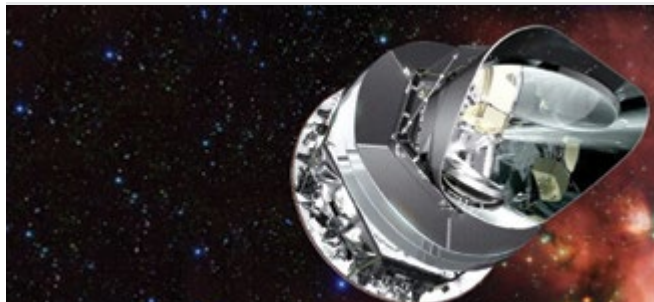
During the year 2017/2018, the Atmospheric Physics Group published three papers one of which was entitled *Hurricane simulation using different representations of atmosphere-ocean interaction: the case of Irene (2011)*, was published in *Atmospheric Science Letters* in collaboration with Priscilla Mooney, a Maynooth Graduate, now working at the US National Center for Atmospheric Research, Boulder, Colorado. The article was one of the journal's top 20 most downloaded papers in 2017, with 655 downloads by year end.

The Observational Astronomy Group secured 25 hours of time on the European Southern Observatory Very Large Telescope for various projects, and Emma Whelan was awarded an IRC Ulysses Grant in collaboration with the Institute de Planetologie et d'Astrophysique de Grenoble.

The Space Terahertz Optics Group (Dr Creidhe O'Sullivan, Dr Marcin Gradziel, Dr Neil Trappe & Professor J. Anthony Murphy) were involved in a number of important collaborative projects on astronomical instrumentation for both ground-based and space-based telescopes.

The Q&U Bolometric Interferometer for Cosmology (QUBIC) is a ground-based experiment that aims to measure the extremely faint (B-mode) polarisation features of the Cosmic Microwave Background (Maynooth PI, Dr Creidhe O'Sullivan). Members of the Department of Experimental Physics have been part of the QUBIC collaboration since its inception and have played a leading role in the design of its optics. As a first step on the way to the full QUBIC instrument, a technological demonstrator (TD) was completed in 2018, in order to demonstrate the feasibility of the novel bolometric interferometry technique both in the laboratory and in the field. The TD is similar in many respects to the full instrument but has smaller mirrors, smaller array of input horns and a quarter of the full focal plane. The testing phase is due to end in Spring 2019, when QUBIC will be shipped to Argentina and installed at the site for first-light tests. It is planned to deploy the full instrument in 2020.

EXPERIMENTAL PHYSICS CONTINUED



Professor J Anthony Murphy was a member of the European Space Agency Planck Satellite Team that was awarded the 2018 Gruber Cosmology Prize

In February 2018, the group completed a four-year European Space Agency (ESA) research contract entitled *New Technology High Efficiency Horn Antennas for Cosmic Microwave Background (CMB) Experiments and Far-Infrared Astronomy* (ESA Contract N° 4000105705/12/NL/Cbi). In this wide-ranging contract the Maynooth group developed a number of simulation tools and experimental techniques relevant for future millimeter-wave and terahertz satellite missions. The simulation techniques developed specifically targeted efficient alternative horn designs for future CMB polarization missions. In addition, in collaboration with the Space Research Organisation of the Netherlands, Groningen (SRON) the MU group developed simulation tools related to the electromagnetic analysis of superconducting detectors (Transition Edge Sensors) in waveguide structures relevant to future terahertz missions. The simulation methods developed at Maynooth University were successfully applied to the cryogenic measurements of terahertz horns in SRON. In parallel, the Maynooth group also established precise calibration and multiple reflection analysis techniques critical to the operation of higher frequency measurements. An SFI Research Infrastructure Grant of €680,444 (PI, Neil Trappe) entitled Development of a high frequency Terahertz measurement and characterisation facility is funding the setting up of a terahertz measurement facility at Maynooth operating between 0.5 and 1.1 THz.

Of greatest note, Professor J. Anthony Murphy was a member of the European Space Agency Planck Satellite Team that was awarded the 2018 Gruber Cosmology Prize at the XXXth General Assembly of the International Astronomical Union, in Vienna in August 2018. Professor Murphy was a co-investigator on the development of the high frequency instrument on board the satellite. Dr Vladimir Yurchenko was a visiting research fellow in Maynooth working on the development of Planck Surveyor for a number of years and was also listed as a member of the Planck Team. A number of graduate students and post docs also worked on Planck at MU. The Gruber Cosmology Prize is awarded annually to honour a leading

cosmologist, astronomer, astrophysicist or scientific philosopher for theoretical, analytical, conceptual or observational discoveries leading to fundamental advances in our understanding of the universe. It was the second major prize for the Planck team in 2018, as they were also honoured by the Royal Astronomical Society in January of that year (see awards section).

MATHEMATICS AND STATISTICS

The Department of Mathematics and Statistics has a strong research community of academics and postgraduate students with research groups working in the areas of Algebra and Number Theory, Geometric Analysis, Mathematics Education and Statistics. Members of the Department of Mathematics and Statistics published 44 peer-reviewed journal publications in 2017, and 2 PhD students graduated in 2017/18.

In external funding Professor Andrew Parnell was awarded €530,000 in 2018 for a Science Foundation Ireland Career Development project entitled Industrial Supervised Learning. Professor Parnell was appointed to the Department as a Hamilton Professor in June 2018. The project deals with the twin disciplines of statistical and machine learning which have led the ‘big data’ revolution. With only the basics of programming knowledge, anyone can take a large data set and create a predictive model. However, such standard prediction models perform poorly for many common problems faced by industry. This project will develop four different extensions of the standard toolkit for specific situations, each of which is a PhD project, and which includes backing from several industry partners. The outputs of each project will be licensed to these partners to enable them to compete better on the international stage.



Professor Andrew Parnell, Department of Mathematics and Statistics

FACULTY OF SCIENCE AND ENGINEERING

PSYCHOLOGY

The Department of Psychology is a highly research active department, with a strong record of research publication and other outputs. In the calendar year 2017, there were 89 peer reviewed international journal articles published by members of the Department, representing high research productivity for what is still a small-to-medium sized department by international standards.

The Department of Psychology staff authored a number of notable and significant books during the year. *Why Science Needs Art*, co-authored by the Department's Drs Richard Roche and Sean Commins explores the complex relationship between these seemingly polarised fields. Reflecting on a time when art and science were considered inseparable and symbiotic pursuits, the book discusses how they have historically informed and influenced each other, before considering how public perception of the relationship between these disciplines has fundamentally changed. *Behavioural Neuroscience* by Dr Sean Commins describes how brain and behaviour are intrinsically linked. Animals demonstrate a huge and complex repertoire of behaviours, so how can specific behaviours be mapped onto the complicated neural circuits of the brain? Highlighting the extraordinary advances that have been made in the field of behavioural neuroscience over recent decades, this book examines how behaviours can be understood in terms of their neural mechanisms.

Research by members of the Department of Psychology was published in some of the highest ranked Psychology and inter-disciplinary journals. For example, work was published in *The British Medical Journal*, *Psychological Science*, *Clinical Psychology Review*, *Cochrane Database of Systematic Reviews* and *Science of the Total Environment*.



The ALL Institute was established in 2017

The Department of Psychology is the base academic department for the ALL Institute (Assisting Living & Learning; www.maynoothuniversity.ie/all-institute). The ALL Institute was established in 2017 and is led by Professor Mac MacLachlan, with Dr Deirdre Desmond serving as Co-Director. Professor MacLachlan is Professor of Psychology and Social Inclusion at Maynooth University, and is also Research and Innovation Co-ordinator for the World Health Organisation (WHO's) Global Cooperation on Assistive Technology (GATE) programme. While the largest number of members of the Institute are from psychology (8), it spans 12 Departments with over 50 registered members. The mission of the Institute is to enable people across their life course, especially those who have been marginalized, to achieve well-being in their preferred ways; through the development and application of appropriate technologies, person-centred systems and evidence-based policies and laws that empower users and those supporting them. A distinctive feature of the Institute is its development of the interface between the user of technologies and the broader societal infrastructure required to make this use beneficial. This interface is where some of the most exciting and empowering developments will occur in the coming decades. With longer-living populations, there is a clear need to embrace the concept of "assistive." Whilst retaining ideas of promotive, preventive, curative, rehabilitative, and palliative services and care, assistive technologies, assistive services and assistive independent living will become perhaps the defining features of life over the next few decades.

The Centre for Mental Health & Community Research (CMHCR) was established, and is led, by Professor Sinéad McGilloway, and is a constituent centre of the Maynooth University Social Sciences Institute. The Centre conducts high quality, interdisciplinary, community-engaged research on innovative and often large-scale health services and social care research programmes and projects across a number of practice – and policy-relevant subject areas of national and international importance. The centre also offers a stimulating learning environment for, and leadership in, the training/mentoring of doctoral/other postgraduate students and early career researchers. It is the only dedicated centre in Ireland undertaking applied mental health and well-being research across the lifespan and in a community context. More information on the Centre is available here: cmhcr.eu.

The Department has been successful in attracting significant amounts of external research funding. As of September 2018 there was live research funding of €2,366,491 active in the Department of Psychology, and in the academic year 2017–18, the Department achieved new funding of €1,423,866.

FACULTY OF SCIENCE AND ENGINEERING

PSYCHOLOGY CONTINUED

The Department has a strong commitment to the supervision and mentoring of doctoral research students and post-doctoral researchers. As of September 2018 there were 28 registered post-graduate research students in the Department. During the 2018 graduations, 15 students graduated from the Department with Doctoral Degrees. In the 2017-2018 year, there were 12 postdoctoral researchers and fellows hosted in the Department, including scholars on prestigious and mobile Marie Skłodowska Curie International Fellowships.

Professor Mac MacLachlan was awarded the highly prestigious Gold Medal for Social Sciences by the Royal Irish Academy in 2018 (see awards section). The medals are awarded to individuals who have made a demonstrable and internationally recognised outstanding scholarly contribution in their fields. Professor MacLachlan's award was in recognition of his sustained and excellent work on how psychosocial factors and technology can be used to help marginalised people 'break into' society, and its potential to affect people's lives in a very tangible way.

Professor Mac MacLachlan also won the 2018 British Psychological Society Award for Promoting Equality of Opportunity. The honour is given to psychologists who make an exceptional and sustained contribution to challenging social inequalities in relation to gender, race, ethnic origin, nationality, religion, sexual orientation, disability or age.



Dr Richard Roche receives the 2018 Commercialisation Award, from VP Research Ray O'Neill and Karen Griffin

Dr Richard Roche was awarded the 2018 Maynooth University Commercialisation of IP Award. Richard formed Empathy Test Limited with promoters Dr Kenneth McKenzie & Conor McCarthy. Empathy Test uses psychological, science-driven, validation for products, services and experiences, with a view to increasing product adoption and reach at launch. The company plans to work with multiple clients on an ongoing basis, carrying out validation and facilitating the refinement of their product. Online learning tools will also be developed, with the aim of developing training workshops.

The SMART cognitive enhancement training programme produced by RaiseYourIQ and developed by Dr Bryan Roche was put on the curriculum of one of the largest secondary schools in the country, after several years of pilot work and research collaboration with

Summerhill College Sligo. RaiseYourIQ continues to penetrate into the education sector and to increase uptake and scientific credibility, with partner business now launched in Holland and relationships established with German and Chinese partners. The company has recently developed a new cognitive enhancement tool for young children, in collaboration with Zayed University in the United Arab Emirates. This will be launched in 2019 as part of a significant business pivot towards the health sector.

A number of significant projects are ongoing. The 'EMPOWERABILITY' project, led by Dr Padraic Fleming (TCD), Professor Sinéad McGilloway and Dr Sarah Barry (TCD) investigated the development and implementation of (new) personalised budgets for people with a disability in Ireland. The research (funded by Genio through the HRB SPHeRE programme), involved participatory research with several groups of people with disabilities, their families, and their professional and informal caregivers, as well as a number of community-based organisations. A very well-received participatory stakeholder workshop was also organised. All of the findings have been fed directly to policy makers through the National Taskforce on Personalised Funding (of which the lead researcher is an invited member).

The 3.5 year PRIMERA (Promoting Research and Innovation in Mental Health Services for children and families) research programme is funded by the Health Service Executive (Mental Health Division) and is led by Professor Sinéad McGilloway (PI) and Dr Mairead Furlong. To date, the research has attracted considerable media attention and the researchers have successfully brought on board over 15 community adult mental health and child and adolescent mental health service sites from across the country and from several 'big player' organisations (the HSE, Tusla and St. John of God). Uniquely, this project involves community partnerships across geographical, disciplinary and organisational boundaries as well as engagement with practitioners, service providers, managers and NGOs in the community – from the very first 'generating ideas' stage of the research lifecycle, through to the current 'research planning and design' stage (ongoing). The PRIMERA team also organised and hosted a national Masterclass (community-based learning) event in September 2018, which was attended by approx. 80 people from almost a dozen different statutory and voluntary organisations in the community.

The GAP, TRESSPASS, ECHO, and CREST Horizon 2020 projects of Dr Michael Cooke all involve as core partners civil society end users, including peacebuilding personnel (civil and military), NGOs, Border and Customs authorities, Law enforcement agencies, critical infrastructure providers (including health systems), and policy makers, as well as groups representing the general public such as passengers. The Department of Psychology's role in these projects is invariably to work with end-users and key stakeholders to better understand their needs and concerns and help to translate these into technical solutions that deliver societal impact, whether that be more effective peacebuilding capabilities, safer critical infrastructure, the protection of citizens in public spaces, and the security of border crossing points.

The Collaborative Network for Training and Excellence in Psychotraumatology (CONTEXT) (funded by the European Commission, 2016–2020) is an international, interdisciplinary collaboration between nine European partners spanning the academic, non-governmental, voluntary, and public sectors. CONTEXT is co-ordinated by Dr Philip Hyland and is focused on improving the lives of three trauma-exposed populations in the European Union who are at high-risk of mental health problems (1. asylum seekers and refugees, 2. emergency service personnel and humanitarian first-responders, and 3. survivors and perpetrators of childhood - and gender-based violence). CONTEXT has already had numerous positive impacts on society including (amongst others): improving the assessment and monitoring of treatment for victims of sexual abuse in Ireland; developing effective screening procedures and family integration processes for refugees and asylum seekers in Ireland; implementing and evaluating the effectiveness of low-cost psychosocial interventions to protect and improve the mental health of humanitarian aid workers in Columbia, Sudan, and Syria; and assessing and improving interventions designed to mitigate the impact of vicarious trauma experienced by first-responders working with victims and perpetrators of childhood - and gender-based violence.



Professor Mac MacLachlan, Department of Psychology

In September 2018 UN representatives from 18 nations across Africa, Asia, Latin America and the Arab states attended at Maynooth University a training programme run by Professor Malcolm MacLachlan, Director of the ALL Institute.

The United Nations Partnership on the Rights on Persons with Disabilities (UNPRPD) Programme supports the implementation of the Convention on the Rights of Persons with Disabilities (CRPD) by coalition-building, facilitating dialogue and capacity development at the country, regional and global levels. It is a unique collaborative effort that brings together UN entities, governments, organisations of persons with disabilities and the broader civil society. The UNPRPD Knowledge Management Training programme works in partnership with Irish Aid, and has so far worked with more than 20 countries. Professor MacLachlan has been the Knowledge Management Lead for the programme since its inception five years ago.

THEORETICAL PHYSICS

Over 6 days at the start of August 2018 Dr Jonivar Skullerud chaired The 13th Quark Confinement and the Hadron Spectrum international conference, which took place at Maynooth, with Professor Brian Dolan, Dr Masud Haque and Dr Joost Slingerland on the local organising committee, with funding support from SFI. This conference is an important forum for scientists working on strong interactions, stimulating exchanges among theorists and experimentalists as well as across related fields. The aim of the conference is to bring together people working on strong interactions from different approaches, ranging from lattice Quantum Chromo Dynamics (QCD) to perturbative QCD, from models of the QCD vacuum to QCD phenomenology and experiments, from effective theories to physics beyond the Standard Model. The conference attracted 300 leading international physicists to the Maynooth campus. Reflecting his strong participation in the international community, Jonivar Skullerud was part of an international consortium that was awarded in 2017 600 million core-hours in computing time over 3 years on the UK DiRAC system, which will support computational physics at Maynooth.

Dr Joost Slingerland was awarded €500,000 through the SFI Investigator Programme for a project entitled: Topological Order, Entanglement and Quantum Information Processing. Quantum computers can in principle perform tasks which are impossible with traditional computing technology – exploitation of this in a practical quantum computer would spectacularly improve our capability to model complex physical systems including novel materials and chemicals. Quantum mechanical devices are easily disturbed, but robust quantum hardware can be constructed using physical media with “Topological Order” which store information using topological properties which are not affected by noise. The project will find and characterize the possible types of topological order and propose and study devices which can measure and manipulate topological quantum information as well as work on methods to model topological systems on classical computers.

Dr Jiri Vala is the National Quantum Network Coordinator for Ireland in the Quantum Coordination and Support Action, FETFLAG-02-2017 under the European Commission. He was also an invited participant in a high-level debate on quantum technologies in the European Parliament in November 2017.

All five academic staff in the Department published papers in peer-reviewed international journals in the academic year 2017-2018, with a total of 12 peer-reviewed publications by academic and postdoctoral staff during year. A most notable and recent example of high-impact research from the Department is Professor Brian Dolan’s research on the thermodynamics of black holes, where his top 3 publications since 2013 received more than 50 citations in total (according to the InSPIRE database) during the 2017-2018 academic year and have accrued over 200 citations in total. Two PhD students graduated from the Department in 2017/18.

FACULTY OF SOCIAL SCIENCES

APPLIED SOCIAL STUDIES

The Department of Applied Social Studies' research outputs, activities and achievements in 2017–18 spanned a wide range of areas, reflecting the multi- and interdisciplinary nature of the Department's interests.

Topics addressed in published research included; the construction of teenage parenting, the pedagogy of teaching group work (Dr Ciara Bradley); hate crime, including disablist hate crime in Ireland (Dr Seamus Taylor); youth work history, policy and practice; learning mobility and social inclusion (Professor Maurice Devlin); the housing crisis in Ireland; financialisation, housing and inequality (Dr Rory Heame), social work research (Dr Niamh Flanagan).

Emily Logan, Chief Commissioner of the Irish Human Rights and Equality Commission launched in October 2017 the book *Political Perspectives on Hate Crime-Contributions from the Island of Ireland* which explores the manner in which hate crime presents itself north and south of the border, as well as presenting challenges as experienced by practitioners and policy makers in addressing hate crime.

The edited volume of essays, produced by Seamus Taylor from the Department, in collaboration with Amanda Haynes and Jennifer Schweppe from the University of Limerick, has noted that Ireland is one of the only jurisdictions in western Europe without hate crime legislation.

Civic and public engagement and policy development continued to be a distinctive strength of the Department's scholarship, with high level contributions in the fields of local and community development evaluation research, mental health services implementation (Dr Oonagh McArdle); penal reform and human rights, the handling of hate crime by the criminal justice system in London (Seamus Taylor); the implementation of safer injection facilities for people using drugs (Dr Brian Melaugh); environmental sustainability and climate justice, pensions policy research (Dr Joe Larragy); international exchange and mobility (Professor Maurice Devlin).

Staff led or were active in European Union-funded research on the themes of old age and social exclusion and e-learning in youth work education and training. Dr Larragy was a member of the Management Committee for ROSEnet COST ACTION (CA 15122) on Reducing Old-Age Social Exclusion: Collaborations in Research and Policy. Involving researchers, policy stakeholders and older people, ROSEnet adopts a new and innovative approach to knowledge production and knowledge transfer on multi-dimensional forms of disadvantage in later life.

Professor Maurice Devlin continued in his role (nominated by the Department of Children and Youth Affairs) as Irish Correspondent for the European Knowledge Centre for Youth Policy (EKCYP), an initiative of the Youth Partnership between the European Commission and the Council of Europe. Professor Devlin was a member of the Editorial Board of the *Perspectives on Youth* series published by the Youth Partnership.



Dr Oonagh McArdle, Department of Applied Social Studies

Dr Oonagh McArdle served as Executive Committee member and Vice-Chairperson of the European Community Development Network. Professor Devlin also completed his second four-year term as Vice President for Europe of the Research Committee on Youth (RC34) of the International Sociological Association. During his term two international youth studies conferences were hosted in Maynooth University, including the first ever joint event of the International and European Sociological Associations focusing on youth research.

As a Board Member of Merchants Quay Ireland, Dr Brian Melaugh participated in a steering committee overseeing research into, and the implementation of, a safer injecting facility, part of the National Drug Strategy: Reducing Harm, Supporting Recovery 2017-2025. As Chairperson of the Board of Directors of UISCE, the Union for Improved Services, Communication and Education, Dr Melaugh oversaw a process of consultation to ensure that the voice of hard to reach people who use drugs helped to inform the development of Ireland's first such facility.

Dr Seamus Taylor took on the role of Chairperson of the Irish Penal Reform Trust, Ireland's leading NGO in the area of penal reform. In this position he initiated the first Progress in the Penal System annual report, an evidence based scorecard on the performance of the Irish penal system against best practice and human rights standards. He has also overseen research projects on older prisoners, LGBT prisoners, Traveller prisoners and most recently a project on disabled prisoners.

Dr Taylor was also appointed to serve on two government initiatives in Britain and Ireland aimed at addressing social and economic inequality. In Britain, he was appointed to the Windrush Lessons Learned Review. This review was established by the UK Home Secretary to identify lessons to be learned arising from the recent treatment of the Windrush generation migrants from the Caribbean to Britain.

In Ireland, Dr Taylor was appointed to a new Expert Group on Equality Budgeting supported by the Department of Public Expenditure and Reform. It progresses a government commitment "to develop the process of budget and policy proofing as a means of advancing equality." The aim is to anchor equality into the existing budgeting framework in terms of revenue and expenditure across government.

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Dr Taylor also continued his work as Independent Chair of the London criminal justice system Hate Crime Scrutiny and Involvement Panel. The role of the panel, comprising community representatives, police, prosecutors, judges and senior counsel, is to scrutinise the handling of samples of hate crime cases by the CJS and to make evidence based recommendations for improvement.

Dr Joe Larragy was a member of the Pensions Policy Research Group. PPRG is an independent, multidisciplinary research group, which was set up to carry out research on Ireland's public and private pension systems. The Group's primary focus is on reform of the Irish pension system, the costs and distribution of pension tax reliefs and the effectiveness of the pension system in delivering income in retirement to older people.

Dr Hilary Tierney was Principal Investigator and Project Coordinator for the Youth Work e-Learning Project, an Erasmus + funded collaborative project with partners in the University of Talinn, Estonia; HUMAK University of Applied Sciences, Helsinki, Finland; Ulster University; and Victoria University, Melbourne, Australia.

In June 2018 the Department of Applied Social Studies, in partnership with Community Work Ireland and the International Association for Community Development, hosted at Maynooth the major international conference Participation, Power and Progress: Community Development towards 2030, attended by more than 400 participants from all over the world.

BUSINESS

The School of Business had 26 academic staff members in 2017/18, and has been growing over recent years. In 2017 members of the Department published 1 book, 10 book chapters, 21 refereed journal articles and 15 conference publications.

In the field of business and management, the Association of Business Schools (ABS) academic journal guide provides an influential international benchmark for the range and quality of journals in which business and management academics publish their research. 1400 journals are ranked as 4*, 4, 3, 2 or 1, with 4* being reserved to only 33 journals of distinction, which are recognised world-wide 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.

In 2017, 18 out of 21 journal articles from the School of Business were published in ABS ranked journals, with 4 of these in ABS 4 journals, and 3 in ABS 3 journals. Publication trends in the school over the 5 years 2013-17 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.

Areas of particular research focus include Management, Management Information System, Marketing and Operations Management. The school has a distinctive staff profile, with 22 academic staff who joined MU over the period from January 2014-2018, and of whom 11 received their PhD in the period 2016-2018. All members of the school are research active, and there is a high degree of internal collaboration evident in the publication record, with over 40% of recent publications being co-authored by two or more members of the school. Three PhDs graduated from the school in 2017/18. This is a strong trajectory which augurs well for future MU business and management research.

External funding secured by members of the School exceeded €880K in 2017/18 with the largest successes being Professor Brian Donnellan securing funding through the Lero SFI Research Centre and through the SFI Spoke project ENABLE which is linked into the SFI Research Centres Lero, Connect and Insight.

Professor Donnellan is academic director of the Innovation Value Institute, a designated interdisciplinary research centre of the University, which works collaboratively with industry partners in the area of management of digital business transformation.



In September 2018 Irish SME Anam, which specialises in Messaging, Security and Analytics, announced a strategic partnership with the Innovation Value Institute (IVI) at Maynooth University focused around innovation in Advanced Data Analytics, Artificial Intelligence, and Machine Learning. This collaboration is part of Anam's Innovation 24/7 initiative – involving the participation of leading external industry experts in this field.

IVI believes that projects such as the collaboration with Anam underline how its digital capabilities research has a positive impact in fast-growing SME organisations, by identifying important issues that SMEs need to consider as they scale up. Spearheaded by Professor Martin Curley, Chair of Anam's Innovation programme, the company has built close relationships with third level academic research institutions in Ireland and in particular with IVI.

IVI's Innovation Management Assessment provided Anam with a benchmark of the current internal perception of innovation, along with recommendations and actions towards the development and implementation of a capability improvement plan.

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DESIGN INNOVATION

The Department of Design Innovation at Maynooth University had 5 academic staff members in 2017/18. Members of the Department authored 18 items, including 4 book chapters, 5 conference publications and 1 journal article.



'The Smartbot' robot vacuum cleaner, winner in Hygienic Home category in the RSA Student Design Awards

In May 2018 three international students from Design Innovation were named as joint winners of the Hygienic Home category in the highly prestigious RSA Student Design Awards.

Jon Schwarzmann and Tino Duralija, from the Academy of Fine Arts and Design at the University of Ljubljana in Slovenia, along with Franziska Schranz from FH Oberösterreich in Austria, entered the awards while taking part in an Erasmus programme at the Department of Design Innovation at Maynooth University.

The student team won the top award in the Hygienic Home category, sponsored by floor care brand Eureka. The brief for this category challenged students to design or re-design a product to make cleaning floors easier and more effective for older people, helping them to maintain their independence.

With their design 'The Smartbot' robot vacuum cleaner—a laser-directed robot vacuum cleaner, which eliminates bending and muscle load—Jon, Tino and Franziska were named joint winners of the Eureka Award of £3,000 (approximately €3,400).

The RSA Student Design Awards is a global curriculum and annual competition for higher education students and recent graduates run by the RSA. Each year the Awards challenge emerging designers to tackle a range of design briefs focused on pressing social, environmental and economic issues. The competition has helped identify solutions and talent that have had a huge impact in the world.

Dr Peter Robbins presented original research on the impact of Design Thinking on innovation in R&D in Ireland at the 2018 R&D Management Conference (www.rnd2018.polimi.it) in Milan, one of the world's preeminent conferences on innovation. Design Thinking is a growing force, globally, in the R&D and innovation fields and Maynooth University is a leading centre in Ireland for this topic. With over 600 delegates, drawn from academic and industry, the

conference included sessions from the editors of all the ranking journals in the innovation field. It also included some keynote presentations from the SVP's of commercial and R&D for Microsoft and other innovation-intensive firms.

ECONOMICS FINANCE AND ACCOUNTING

The Department of Economics Finance and Accounting is home to 23 academic staff. The Department authored 29 publications in 2017, including 1 book, 2 book chapters, 7 refereed journal articles and 3 policy reports. Three of these publications were in 3*/4* Journals known as "internationally excellent."

The papers in question are:

- > Doris, A., D. O'Neill and O. Sweetman (2018) *Does Reducing Unemployment Benefits during a Recession Reduce Youth Unemployment? Evidence from a 50% Cut in Unemployment Assistance*, *Journal of Human Resources*. The *Journal of Human Resources* is currently the 2nd ranked Economics journal in the world on the ISI Web of Science indicators, with an acceptance rate of 3%.
- > Arismendi, J.C. and S. Broda (2017) *Multivariate Elliptical Truncated Moments* *Journal of Multivariate Analysis*.
- > Byrne, J and T. O'Connor (2017) *How do Creditors Respond to Disclosure Quality? Evidence from Corporate Dividend Payouts* *Journal of International Financial Markets, Institutions and Money*.

The Department was also awarded €222,500 in research funding during this academic year.

Dr Aedín Doris won the Miriam Hederman O'Brien prize for outstanding work on Fiscal Policy (with Bruce Chapman) for a paper on higher education funding in Ireland and she became a founder member of CISLR, the Centre for International Student Loans Research, together with colleagues in Australia, the UK, the US, Brazil, Colombia, Thailand and Malaysia.

Professor Donal O'Neill received the Brendan Walsh award for a paper (with co-author N. Holton) titled *The Changing Nature of Irish Wage Inequality from Boom to Bust*, *Economic and Social Review*, Vol. 48, no. 1, pp. 1-26 as well as a certificate for outstanding contribution in *Reviewing by Economics and Human Biology* (2017).

Professor O'Neill was an invited Speaker to the 13th IZA Conference, Labor Market Policy Evaluation in 2017 and his publication with Dr Olive Sweetman *The consequences of measurement error when estimating the impact of obesity on income* is currently in the top 5 all-time accessed papers published in the *IZA Journal of Labor Economics*. As of March 2019, it had been accessed over 15,650 times.

Professor O'Neill was also the labour market expert on the government's Low Pay Commission of Ireland (2015-2018). He played a key role in informing and devising policy to tackle issues faced by most vulnerable workers in society. To date the Commission has issued four recommendations on the minimum wage rate, all of

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which have been accepted and enacted by government. The latest recommendation announced on July 18th 2018 saw the minimum wage increase to €9.80 on 1st January 2019. So far, the changes introduced by the Low Pay Commission have seen the minimum wage increase by 10.4%, resulting in significant pay increases for the lowest paid and most vulnerable workers in Ireland.

During 2017 two reports were published by the Low Pay Commission. The Commission recommended in 2017 that provision should be made for the display of basic entitlements in all places of employment where the minimum wage is in operation. This initiative is taken so as to improve employee knowledge of their rights and in doing so reduce non-compliance with the minimum wage. Later in 2017 the Commission also published the second part of its report on Sub-minima rates: Low Pay Commission Report on Sub-minima rates of the National Minimum Wage Part 2.

Professor O'Neill's research has been downloaded over 51,000 times as part of the IZA Institute of Labor Economics Discussion paper series and he is currently ranked among the top 10% of all economists in the world for research and among the top 6.5% of economists in Europe in the REPEC rankings. REPEC is a central index of economics research, including working papers, articles and software code. This clearly represents very significant international impact.

Of further note, Professor Donal O'Neill, Dr Aedín Doris and Dr Olive Sweetman carried out an evaluation of the 2009 cuts to Jobseeker's allowance for 18 and 19 year olds in Ireland for the Department of Employment Affairs and Social Protection. As part of this work they prepared a non-technical summary of the evaluation for the Minister of Employment Affairs and Social Protection and met with members of the Department of Employment Affairs and Social Protection (DEASP) to brief them on the work.

Dr Tuvana Pastine's book entitled *Introducing Game Theory: A Graphic Guide* (by Ivan Pastine, Tuvana Pastine, illustrated by Tom Humberstone, Icon Books, 2017) is a #1 Best Seller in Game Theory in Amazon.com, #1 Best Seller in Game Theory in Amazon.co.uk and #1 Best Seller in Applied Mathematics in Amazon.co.uk. The book has been translated into both French and German.



Dr Tuvana Pastine, Department of Economics, Finance and Accounting

EDUCATION

The Department of Education had 15 full-time academic staff members in 2017-2018 along with 29 PhD students. A new Doctorate in Education programme commenced in Autumn 2017 with 18 students.

The Department was active in local and international dissemination of research with 28 top-level publications in 2017. This output included 2 books, 9 book chapters, and 17 peer-reviewed journal articles. Notably, Professor Aislinn O'Donnell published 5 of these publications.

Publications were focused on areas of strategic interest for the Department, and in 2017 there was strong emphasis on Maths and Science Education, Educational Leadership, Teacher Education, and Philosophy of Education. These research areas dovetail with the areas the Department is currently developing in Diploma, Masters in Education, and Doctoral offerings. Thus, there is a strong tie between the research areas in the Department and the specialisms offered in educational programmes.

Conference presentations focused on national teaching and education related issues, such as teacher education and Irish policy; the international activity was related to Maths and Science Education, Educational Leadership, Teacher Education and Philosophy of Education.



Dr Grace O'Grady, Department of Education

Also of note was the Centre of Transformative Narrative Inquiry, co-led by Dr Grace O'Grady. Dr O'Grady has been particularly involved in organising annual conferences, which have resulted in publications.

In terms of civic engagement, the work being conducted by the Department ranges broadly across impactful engagements with professional organisations, such as the Teaching Council and the Department of Education and Skills, particularly the Professional Development Service for Teachers – PDST.

FACULTY OF SOCIAL SCIENCES

ADULT AND COMMUNITY EDUCATION

The Department of Adult and Community Education has eleven academic staff members. In 2017 members of the Department authored 2 books, published 10 book chapters, 8 refereed journal articles, along with 4 published reports. Three doctoral students graduated from the Department in 2017.



Dr Camilla Fitzsimons, Department of Adult and Community Education

Dr Camilla Fitzsimons authored the book *Community Education and Neoliberalism, Philosophies, Practices and Policies in Ireland* (Palgrave Macmillan UK). This book explores community education in Ireland and argues that neoliberalism has had a profound effect on community education and that, rather than retain its foundational characteristics of collective, equality-led principles and practices, community education has lost much of its independence and has been reshaped into spaces characterised by labour-market activation, vocationalisation and marketisation.

Dr Ted Fleming and Dr Fergal Finnegan, along with Dr Andrew Loxley (TCD) authored and edited *Access and Participation in Irish Higher Education* (Palgrave Macmillan UK). This book, which included a contribution from Dr Bernie Grummell, explores the access and participation issues present within Higher Education in Ireland. It examines policy, pedagogy and practices in relation to widening participation and documents the progress and challenges encountered in furthering the 'access agenda' over the past two decades.

The Centre for Research in Adult Learning and Education (CRALE) aims to enhance the educational experiences of disadvantaged communities. It does this by addressing significant and critical questions pertaining to adult learning and education; supporting the research activities of students and staff of the Department; supporting collaborative research activities, publications and other communications with practitioners, communities and policy-makers.

FROEBEL DEPARTMENT OF PRIMARY AND EARLY CHILDHOOD EDUCATION

The Froebel Department of Primary and Early Childhood Education provides a distinctive student-centred learning experience for undergraduate and postgraduate students. The Department had 25 publications in 2017, including 20 conference publications and contributions, 1 journal article and 1 book. Departmental academic staff members are reviewers for a number of journals and professional publications, including: Children's Literature Association Quarterly; Papers: Explorations into Children's Literature; MOSF: Journal of Science Fiction; and the Universal Journal of Educational Research.

The Department is expanding its research capacity, and topics of interest include real and perceived barriers to initial teacher education for young people from minoritised ethnic backgrounds; the development of agency in student teachers; children's attitudes to the Irish language; literary-critical studies of the gospel of St Mark; and pedagogical knowledge in mathematics amongst student teachers.

The Department was involved in 3 externally funded research projects: Full Valorization of Urban Biowaste for circular Economy (H2020), Stay Safe Online in Europe with a grant to host Multiplier Event as part of Erasmus + project; and a training programme for Pre-school Practitioners to support the implementation of the Access and Inclusion Model (AIM).



Niamh Fortune, Froebel Department of Primary and Early Childhood Education

As part of research associated with Irish language learning and teaching methods, staff produced an E-Leathanach (electronic newsletter), which is distributed to around 2,000 primary schools on a weekly basis. E-Leathanach was awarded the Language Label, the European Award for Languages. The Department also supported local schools with professional development (Music, Drama and Literacy: Scoil Mochua, Prosperous National School) and was Chair of D10 School Leaders' Network. Niamh Fortune was President of the Literacy Association of Ireland. The INTO Joint Seminar: School-College Partnerships Seminar and the Erasmus+ project Conference: A Digital Journey in Europe was hosted by the Department in 17/18.

FACULTY OF SOCIAL SCIENCES

GEOGRAPHY

The Department of Geography comprises 24 academics with international reputations in climate change, migration and regional spatial analysis two of whom are European Research Council awardees. The Department published 104 articles in 2017 and was awarded over €1.5M in research grants. Dr Conor Murphy was awarded a Science Foundation Ireland Career Development Award (€627,442, HydroCast: Seasonal Hydrological Forecasting for Ireland) and Professor Gerry Kearns was elected a Member of the Royal Irish Academy. At the inaugural Maynooth University research awards Dr Conor Murphy was honoured with the University Early Career Award and Professor Rob Kitchin with the University Research Achievement Award. Graduate student, Rachel McArdle won the Student Paper Award from the European Specialty Group of the American Association of Geographers. In addition 5 PhD students graduated in this academic year with a further 8 new students commencing their postgraduate studies.

Publication highlights for the year included publications in top ranking journals including Nature Climate, Science and Geology. Professor Peter Thorne and an international team led by Ingo Bethke from Uni Research and the Bjerknes Centre for Climate Research published in the prestigious journal Nature Climate. By using records of past volcanic eruptions obtained from ice cores to insert a range of plausible volcanic events into future climate model projections the study indicates that future volcanism will likely increase stresses on ecosystems and society by causing a more fluctuating climate with more extremes. The results show a potentially more variable climate than suggested by the latest assessments.

Dr Conor Murphy was co-author of a paper in Science and Dr Lisa Orme published an article in Geology, the top-ranked journal in the field.

Professor Rob Kitchin's collaborative and trans-disciplinary ERC-funded Programmable Cities Project continued to host symposia and to publish its research, including two edited collections in 2017. The reach and significance of this research is evident from the impact of some of its key texts including Professor Kitchin's 2014 article, *The real-time city? Big data and smart urbanism*, in GeoJournal, which has been cited 1,075 times to date.

Academic journal Dialogues in Human Geography, founded by Professor Kitchin has been awarded its first International Scientific Indexing (ISI) ranking, putting it at the top of the ISI's list of geography journals. Still a relatively young journal having been first published only seven years ago, Dialogues in Human Geography, achieved the highest ISI citation impact of the 84 ranked Geography journals.

The ISI provides indexing of major international journals based on four key criteria: quality of publication (based on citations to its articles in other ISI ranked journals and the importance and relevance for the research field), manuscript quality, presentational quality and editorial quality.



Professor Rob Kitchin, Department of Geography and MU Social Sciences Institute

The Cork Dashboard, launched in 2018, is a product of the Building City Dashboards Project based at the National Centre for Geocomputation at Maynooth University. The project is led by Professor Chris Brunsdon, Mr Martin Charlton, Professor Rob Kitchin and colleagues, created in partnership with Cork City and County Councils and Cork Smart Gateways, and funded by Science Foundation Ireland.

The Dublin and Cork dashboards were also highlighted by a series of digital artworks by three Irish artists, including an exhibition in the foyer of MU Library. The quality and international standing of the research in spatial science at Maynooth University is clear in the frequency with which it is cited, as for example, a paper co-authored by Professor Brunsdon, *Principal Components Analysis on spatial data: an overview*, published in the Annals of the Association of American Geographers (2013; ranked #7 for Geography, 2017, Web of Science) which has received 150 citations to date. In 2017 Professor Brunsdon wrote the annual review of the field of Quantitative Methods for Progress in Human Geography (ranked #2).

During 2017–18, the community of scholars at the ICARUS Climate Research Centre achieved a great deal. Professor Peter Thorne was appointed a Coordinating Lead Author for the Intergovernmental Panel on Climate Change (IPCC). This signal achievement marks the most senior position achieved by an Irish scientist within what bids fair to be currently the most impactful international scientific body. Not only is the IPCC central to international policy formation but it has a significant impact upon scholarship with its syntheses, consensually derived conclusions and standardization of methods; for example, one IPCC working paper of 2013, *Observations: atmosphere and surface*, for which Professor Thorne was a co-author, has been cited 1,432 times to date.

GEOGRAPHY CONTINUED

Dr Rowan Fealy's work was cited 105 times in 2017 (Google Scholar) and among his three articles for 2017 was one in the seventh-ranked journal for Meteorology and Atmospheric Sciences (Journal of Climate) and one in the 18th ranked journal (Journal of Geophysical Research-Atmospheres). Dr Stephen McCarron co-edited a collection that surveyed the latest research in Irish Quaternary Studies. Dr Gerard McCarthy published in Bulletin of the American Meteorological Society (ranked #3 for Meteorology and Atmospheric Sciences, 2017, Web of Science).



Professor Peter Thorne, Department of Geography and ICARUS Climate Research Centre

The ICARUS team have been central to Ireland's public policy discussion of climate change, with Professor Thorne being appointed consultant to the Oireachtas Climate Change Committee, to which he also brought Maynooth geographers Dr McCarthy and Dr Murphy. Dr Murphy and Professor Thorne were also expert witnesses before the Citizens' Assembly in its discussions of climate change. Alongside the significant grant from SFI to Dr Murphy, 2017 also saw a substantial EU grant awarded to Professor Thorne, while Dr McCarthy brought to Maynooth the final stages of funding from a Horizon 2020 award. The impact of our colleagues in Climate Change research is evident.

When Ireland developed its National Spatial Strategy in 2002, Maynooth geographers, headed by Professor Jim Walsh, were centrally involved. The development of the new National Planning Framework 2017–18 again saw Maynooth involved with Professor Walsh now joined by Dr Chris van Egeraat, who was appointed to the Ministerial Advisory Group. Professor Kitchin and the researchers at AIRO were also involved in provision of data, maps and expert witness. Following the launch of Project Ireland 2040 in 2018, Dr van Egeraat was likewise engaged by the Eastern and Midlands Regional Assembly to help that body translate the national plan into its own regional economic and spatial strategy. This new planning framework sees further application of the insights on the likely impact of climate change highlighted to policymakers by other geographers at Maynooth.

Applied research in human geography produces academic papers but also commissioned reports and 2017 saw Professor Mary Gilmartin talking to the Irish Times about a report, *Developing Integration Policy in the Public Sector: A Human Rights Approach*, for which she was a co-author and which she helped launch at the Equality Commission. This work is part of a long-term investigation into migrant experience in Ireland. In this case the focus was on the role of public bodies in formulating integration strategies to bring migrants into safe and sustaining work places. Professor Gilmartin's work was cited 109 times in 2017 (Google Scholar).

Professor Kath Browne was also active in producing reports, and was co-author for two that came from a project on supporting LGBTI people towards healthy lives. Professor Browne's influence within the fields of Queer and Feminist Geographies is extensive and her work was cited 411 times in 2017. One of her papers, *Snowball sampling: using social networks to research non-heterosexual women* in the International Journal of Social Research Methodology (2015), has been cited 828 times to date. Applied research at Maynooth is also disseminated via web-based media and Dr Adrian Kavanagh produces perhaps the most trusted blog on Irish elections, particularly noted for its forensic use of opinion polls and its comprehensive reporting of candidates declared and electoral boundaries adjusted. Dr Kavanagh presents careful research to a wider public and is ubiquitous on radio and TV during elections. This is true of other colleagues too, including Dr Ro Charlton who was featured on RTÉ during 2017 for a discussion on the risks of flooding in Ireland in the context of climate change.

Professor Karen Till was cited 264 times in 2017 and her book on *The New Berlin* (2005) has accumulated 656 citations to date. Professor Till has an international reputation for her work on public memory and for the innovative use of artistic witness in its study. This is the basis of a network of scholars and artists, Space and Place Research Collaborative that she has developed in Ireland and that sustains the exhibitions and symposia she organizes including two exhibitions in Maynooth and one in Cork during 2017.

Maynooth University has had significant research capacity in Medical and Health Geographies. In 2017–18, Professor Jan Rigby was awarded a grant of €147,171 with the Health Research Board for a study of the effects of lifetime exposure to community water fluoridation. Professor Rigby's research on the geography of health inequalities has been material to public debate on the geography of the cancer divide in Ireland. Dr Ronan Foley extended his work on blue spaces with several publications and with collaborations with artists. The study of the health benefits of access to open water is part of his ongoing work on Therapeutic Landscapes, a field in which he is an acknowledged world leader and his book on this has been cited 64 times since its publication in 2016 (Google Scholar).

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Several staff and graduate students of the Department of Geography have community stakeholders as part of their research team, including Professor Kath Browne as part of her work on sexual and gender rights, Professor Karen Till and Professor Gerry Kearns who are part of the research committee of Dublin Bay North Choice and Equality, and Professor Mary Gilmartin whose work on migrant experience is conducted with civil society partners. Working with a series of local partners including NGOs and local authority organisations, Dr Alistair Fraser developed Maynooth's first Festival of Food Sovereignty. This network will provide a basis for future research.

Professor Mark Boyle led Ireland's branch of the URBACT programme which as part of European Territorial Cooperation used European Regional Development Fund resources plus national grants to build a community of best practice among the bodies governing Ireland's cities. Dr Conor Cahalane was lead researcher on a project with Ordnance Survey Ireland looking at ways for automating map updates via high resolution aerial imagery and satellite data. He also partnered on a project with Geological Survey of Ireland during this period developing a study of suitability for drones mapping of shallow coastal waters. Dr Chris van Egeraat works regularly with local authorities advising on regional policy. Dr Rowan Fealy, Dr Martina Roche and Dr Simon Noone developed synergies between research and teaching by integrating citizen science into the classroom through GEOLOCATE (GEO Locate land Observing Climate sTation attributEs) – as part of the Copernicus Climate Change Service (C3S), operated by the European Centre for Medium Range Weather Forecasting (ECMWF) on behalf of the European Union.

ANTHROPOLOGY

The Department of Anthropology at Maynooth University has eight academic staff members. In 2017 members of the Department authored 3 books, published 5 book chapters, 4 refereed journal articles and 1 policy report.



Dr Chandana Mathur, Department of Anthropology

Of particular note, Dr Chandana Mathur was presented with a Distinguished Service Award at the closing ceremony of the 18th World Congress of the International Union of Anthropological and Ethnological Sciences (IUAES) in Florianopolis, Brazil. The award was made in recognition of her contribution to the unification in November 2017 of the IUAES and the World Council of Anthropological Associations (WCAA) as two chambers of a single global organisation: the World Anthropological Union (WAU).

INTERNATIONAL DEVELOPMENT

The University welcomed the establishment of the new discipline of International Development in 2017, initially through a formal partnership with the Kimmage Development Studies Centre, and later through its incorporation as an academic department of the University in 2019.

The highpoint of the research contribution from staff at the Department in 2017 was the publication of three discussion papers in its Research and Perspectives on Development Practice series, edited by Department of International Development staff member, Mr Paddy Reilly. The year 2017 also saw the successful completion by Dr Eilish Dillon research on discourses of development education among practitioners in Ireland, as well as the publication of a manual by Ms Niamh Rooney on sustainable tourism for Europe-Asia volunteers.



Dr Eilish Dillon, Department of International Development

FACULTY OF SOCIAL SCIENCES

LAW

The research achievements of members of the Department of Law are growing as rapidly as the Department. In 2017 the publications record of the Department totalled 103 items, and included 5 books authored or edited, 19 book chapters, 20 refereed journal articles and 1 policy report. This is an impressive output, particularly given that just under 70% of academic staff members are early career academics, 5-7 years post PhD.

Staff members published significantly in international peer-reviewed journals, including some of the top-ranked legal journals, including Theoretical Criminology, European Journal of Risk Regulation, Legal Studies, Criminology and Criminal Justice, The Industrial Law Journal, European Journal of Health Law, and International Criminal Law Review (all of which are Scopus/Web of Science journals).

In terms of books, staff members produced important works aimed primarily at law practitioners and students, with practitioner texts, like Dr Neil Maddox's *Mortgages: Law Practice*, and student texts, like Dr Ronan Kennedy (NUIG) and Dr Maria Murphy's *Information and Communications Technology Law in Ireland*. Other works produced (for example, and *The Legal Challenges of Social Media*, co-authored by Dr David Mangan) were focussed more towards the interest of scholars and policy-makers. The Department of Law produces work that is of interest to all their 'research stakeholders'; legal scholars, students, legal practitioners, policy-makers, and those involved in law reform. Similarly, staff members produced works of interest to both domestic, and international, audiences (with international publishers such as Cambridge University Press, Routledge, Edward Elgar, and domestic legal publishers such as Clarus Press, and Thomson Round Hall).

A similar pattern was evident in relation to contributions to edited books, with the focus predominantly on works of international interest (and publishers such as Cambridge University Press, Routledge, Edward Elgar, Bloomsbury, University Press Italiane, and Palgrave). Staff members have been invited to contribute to a number of highly influential texts, edited by some of most highly regarded legal scholars in the world: for example, Dr Clíodhna Murphy to *Vulnerability and the Legal Organization of Work*, co-edited by Professor Martha Fineman (Emory, USA); and Dr Oliver Bartlett to the *Research Handbook on EU Health Law and Policy*, co-edited by Professor Tamara Hervey of Sheffield University, UK. Two staff members, Dr Fergus Ryan and Dr Louise Kennefick, contributed to *Northern/Irish Feminist Judgments: Judges' Troubles and the Gender Politics of Identity*, a highly significant, and innovative book project on gender, legal judgment, judicial power and national identity in Ireland and Northern Ireland. In contributions of practice Seth Tillman co-authored five briefs filed in US federal trial and appellate courts in the United States, and a co-authored Wall Street Journal opinion editorial on US Constitutional Law.

Of particular note, Dr John Reynolds was awarded the 2017 Kevin Boyle Book Prize for Outstanding Legal Scholarship by the Irish

Association of Law Teachers (IALT). John's book, *Empire, Emergency and International Law*, was published this year by Cambridge University Press.



Empire, Emergency and International Law by Dr John Reynolds, Department of Law

Numerous contributions were made to policy reports and as expert advisors. For example, for the European Commission (on employment rights and public procurement); the Fundamental Rights Agency of the EU (on the Charter of Fundamental Rights); the German and Spanish Ministries of Labour (on employment rights for persons with disabilities, and collective bargaining in Europe); the Law Commission of Ontario (defamation law in the internet age); the Irish Human Rights and Equality Commission (integration policy in the public sector); and a contribution to US Department of State Global Trafficking in Persons Report. On Law Reform: for the Council of Europe (drafting a new Recommendation concerning restorative justice in criminal matters); for the Irish Parliament (submissions made to the Gender Recognition Act Review Group; expert legal opinion on the Occupied Territories Bill); and numerous briefs filed in US State federal trial and appellate courts.

Staff members acted in an advisory capacity, inter alia, to the United Nations Expert Mechanism on the Rights of Indigenous Peoples (Dr Noelle Higgins); Legal Advisory Committee of the Global Legal Action Network; the Irish Council for Civil Liberties; and the Irish Congress of Trade Unions. Dr Ian Marder was a member of the team of scientific experts that drafted Council Of Europe Recommendation CM/Rec(2018)8 of the Committee of Ministers to member States concerning restorative justice in criminal matters (chosen as emblematic of staff members' engagement in law/public policy reform). Dr David Doyle and Dr Clíodhna Murphy carried out a research project with Migrant Rights Centre (Ireland) on victim perspectives on forced labour and trafficking for criminal activities. Dr Etain Quigley established a partnership with Partnership with SeeChange (an Irish NGO) for research project on mental health. Dr Maria Murphy advised the Irish Council of Civil Liberties on a number of public policy issues including the Public Services Card and the Data Sharing Bill. Dr Fergus Ryan appeared before the Oireachtas Gender Recognition Act Review Group to discuss legal recognition for people who are non-binary, and contributed a submission to the Gender Recognition Act Review on workings of Gender Recognition Review (cited in the Group report).

FACULTY OF SOCIAL SCIENCES

SOCIOLOGY

The strength of the Department of Sociology and its reputation as a national leader lies in many respects in the broad base of activity within the Department – all sixteen academic members of the Department are highly active in research, combining this with particularly significant contributions in one or more other areas (teaching, student welfare, public engagement). The Department attracted significant grants totaling €1.1M in 2017/18, including success in national and international postgraduate, postdoctoral and Erasmus funding competitions.

The Department published 56 publications with peer reviewed articles in leading journals, including *Capitalism*, *Nature*, *Socialism*; *Critical Sociology*; *Gender, Work and Organisation*; *Social Policy and Administration*; *Third World Quarterly*.

It is also significant that the book chapters by departmental staff are largely published in international volumes that provide international state-of-the-art overviews in areas such as the politics of prostitution, Japan's international demographics, social movements, urban gardens, middle classes, and more.



Dr Aphra Kerr, Department of Sociology

Of particular note, Dr Aphra Kerr published her book *Global Games* which continues to receive a great deal of international attention. This extends her previous work on to the global stage even more clearly than before and cements her position as a leading international scholar in the analysis of the production and culture of games, but more broadly of technology, communications and society. (www.routledge.com/Global-Games-Production-Circulation-and-Policy-in-the-Networked-Era/Kerr/p/book/9780415858878)

Dr Delma Byrne co-edited a special issue of *American Behavioral Scientist* on “Effectively Maintained Inequality,” an important new perspective on the processes through which inequality in education is maintained. The special issue gathered together leading international scholars and firmly established Dr Byrne's place within the community of leading international scholars of educational inequalities (journals.sagepub.com/toc/ABS/61/1).

Five doctoral students graduated in this academic year with another 5 new doctoral students commencing their studies. Doctoral students, Mr Finn and Ms Whelan, along with Dr Mary Murphy, presented findings from their research on gender equality and employment services to the Joint Committee on Employment Affairs and Social Protection. In their submission to the committee, Mr Finn and Ms Whelan welcomed the reduced unemployment Ireland has seen recent years, and recognised the significant levels of institutional reform and improvements in service delivery that have taken place. However, they highlighted concerns with the fundamental logic underlying the Government's Pathways To Work – 2016–2020 strategy, stressing that issues of capacity, competence and culture need to be addressed. Their recommendations to the committee were as follows: redress issues of gender equality in activation policy and practice; address issues concerning procurement of employment services and integrated delivery of social services; advance well-being and adult guidance within Pathways To Work; and ensure transparent reporting concerning conditionality and sanctions policy and practice.

Maynooth University's participation in the Digital Repository of Ireland through IQDA continued, under the co-leadership of Professor Jane Gray. www.maynoothuniversity.ie/iqda/about-iqda/iqda-and-dri

Professor Sean Ó Riain's European Research Council project “New Deals in the New Economy” reached the end of its funding cycle in 2017–18 although research continues. Full details at: newdeals.maynoothuniversity.ie

A series of events were hosted by the Department during the academic year including an internal conference celebrating the life of Karl Marx on his 200th birthday and a Symposium ‘Citizen Woman’ to mark International Women's Day. A Conference on Digital Economy, New Forms of Work, and Challenges for Social Security Systems: Financing and Coverage was held in collaboration with the Department of Employment Affairs and Social Protection (DEASP).

RESEARCH INSTITUTES



RESEARCH INSTITUTES

ARTS AND HUMANITIES INSTITUTE

As part of a reorganization of Maynooth University research institutes in 2017–18, The Arts and Humanities Institute (AHI) was established. In Maynooth University's new research landscape, AHI is the primary research institute of the Faculty of Arts, Celtic Studies and Philosophy. The new institute incorporates the Centre for Digital Humanities (previously known as An Foras Feasa). In late 2017, Professor Thomas O'Connor was appointed inaugural director of the new Institute on a five-year secondment from the Department of History, the directorship commencing in January 2018.

Dedicated primarily to the promotion of scholarship within the Faculty, AHI aims to bring the best of Maynooth University's rich tradition in humanities research to the world. Working closely with the Research Development Office, Vice-President for Research, other Institute heads, academic departments and research colleagues across the University, AHI supports individual, collaborative and interdisciplinary research by offering scholars a vibrant forum for discussion and exchange in purpose-built facilities. Through its programme of events, it facilitates public engagement with the texts and cultural objects that form us as a civilization and society, providing access to the scholarly expertise that helps uncover their value and meaning.

The Institute currently has forty members. During 2017/18 it has hosted meetings of the Research Committee of the Faculty of Arts, Celtic Studies and Philosophy, departmental research seminars, numerous workshops and conferences; it accommodates in the Lontas building a PhD cohort of 39 from across the Faculty, managed jointly with the Graduate Studies Office. For postgraduate students, the Institute currently runs two schemes:

- (i) a competitive event-fund to support networked research;
- (ii) in conjunction with Graduate Studies, an in-house programme of workshops for peer review, grant-writing and research culture.

The Institute runs an Early Career Research Scheme with seed funding for five research project networks, running until July 2019, with awardees in English, Philosophy, Spanish, History and Early Irish.

The Institute provides accommodation for research projects currently on funding tracks. These are:

MOTHERNET

H2020 H2020-WIDESPREAD-3-2018: "TWINNING" funding scheme, together with the "Thinking Motherhood" collective from Vilnius University: (Lithuania) and the "Mother Anyway" project from Uppsala University (Sweden): PI Dr Valerie Heffernan

LGBTQ GAME ARCHIVE

American Council for LS Digital Extensions Grant Proposal-12-2018: PIU Dr Adrienne Shaw, Temple University; Drs Aphra Kerr, John Keating and Thomas O'Connor Maynooth University

TENERIFE PROJECT

Digital platform for large overseas archive

MIGRANT PROSOPOGRAPHICAL PROJECT

Digital platform for biographical data

The Institute currently funds five visiting fellowships to scholars approved by a faculty selection board. The Institute also supports general funding bids, maintaining a database of colleague research interests and activity; targeting IRC, ERC, philanthropic and other schemes to particular individuals and groups; working with RDO and external agencies.

The Institute currently hosts two major funded projects:

1. Chronologicon Hibernicum: a probabilistic chronological framework for dating early Irish language development and literature; European Research Council Consolidator Grant, €1.5M, 2016–2020: PI Professor David Stifter
2. Medieval Irish Medicine in its North-western European context; Irish Research Council Early Career Laureate Award, €400k, 2018–2020: PI Dr Deborah Hayden

Finally, the Institute facilitates external research links and partnerships, including with the Centre for Digital Humanities in TCD, the Irish Humanities Alliance and various other humanities research centres and networks.

RESEARCH INSTITUTES

HAMILTON INSTITUTE

The Hamilton Institute, founded in 2001, is an interdisciplinary STEM research institute, with a focus on mathematics, computation and communications. The Institute Director is Professor Ken Duffy. In the years since its establishment, the institute has been active in a wide variety of research areas, and has secured over €60M in competitive research funding, with the application of mathematical and computational methods to real world problems a unifying theme of its work. Through the efforts of former and current members, the institute has established a strong track record in fields such as: Communications; Systems and Control; Mathematical and Systems Biology; Machine Learning; Applied Probability; and Data Privacy and Security. These areas are strategic priorities for the University. Institute research has led to publications in leading journals including: Automatica; IEEE Transactions on Automatic Control; IEEE Transactions on Information Theory; IEEE/ACM Transactions on Networking; IEEE Transactions on Wireless Communications; Nature Communications; and Science.

Since 2017, the Hamilton Institute (HI) operates on an affiliated member model. It enables an association to the institute for colleagues whose research activities are in quantitative science and engineering. By the end of 2018, there were 36 Hamilton Institute affiliates drawn from the Department of Biology, the School of Business, the Department of Computer Science, the Department of Electronic Engineering, the Department of Economics, Finance and Accounting, the Department of Mathematics and Statistics and the National Centre for Geocomputation.

In addition, a number of highly research-active staff hold partially or wholly seconded appointments from their home department. Several new appointments were made to bolster strategic priority areas for research in 2018, and these have resulted in secondments from the Department of Computer Science, the Department of Electronic Engineering and the Department of Mathematics and Statistics.

Professor Subhrakanti Dey joined MU from the University of South Australia, where he was a Professor of Telecommunications, having held previous professorial appointments in Uppsala and the University of Melbourne, where he had been head of the Department of Electrical and Electronic Engineering. Professor Dey, whose home department at MU is Electronic Engineering, works on the boundaries of control theory, information theory and communication networks. Since joining MU, he has been engaging with several of the SFI Research Centres, notably CONNECT.

Professor Andrew Parnell joined MU from UCD's Department of Mathematics and Statistics. His research is in statistics and machine learning for large structured data sets in a variety of application areas, which sees him engage in both basic and applied research. He is currently a funded investigator in three SFI centres (INSIGHT, I-Form, VistaMilk), holds an SFI Career Development Award, and has been involved in the commercialisation of research through the start-up companies Prolego Scientific (CSO) and Atturos (Scientific Advisor). Since starting at MU, from his funded work, he is co-supervising six PhD students with colleagues.

Having obtained his PhD in MU's Department of Computer Science, Professor Damien Woods returned to MU from INRIA in France, having previously held a Research Professor position at Caltech. His research interests are in fundamental aspects of DNA computing and molecular computers, a topic on which he holds a prestigious European Research Council grant. His team uses tools from discrete mathematics, algorithms, computational complexity theory and probability theory, as well as physically implementing their ideas in the wet lab.

Professor Vicenc Torra joined MU from the University of Skovde in Sweden where he was a Professor of Informatics. He is a Fellow of the IEEE as well as of the European AI society. Professor Torra, whose home department is Computer Science, works on fuzzy logic, machine learning, artificial intelligence and data privacy. He too has been engaging with several SFI Research Centres, notably INSIGHT and LERO.

This broad collective of associates and secondees forms a cohesive critical mass that enables MU to host interdisciplinary seminars from academia and industry, as well as providing a forum through which MU staff can introduce their research to their colleagues. In 2018, the series included, for example, speakers from MIT, IBM, and five departments within MU.

One of the most significant activities undertaken by institute affiliates in 2018 was to organise MU's response to Science Foundation Ireland's Centres for Research Training (CRT) call. MU's strategic plan aims for a significant increase in doctoral students, and SFI's programme in doctoral training programmes targeting "Data and ICT Skills for the Future" provided a clear opportunity to make a significant contribution to that goal. With each multi-institutional CRT training upwards of 120 students, and a requirement to have a minimum of thirty named supervisors in any application, to obtain resources from the scheme required a large supervisory cohort. At MU, that capacity was achieved by drawing together colleagues

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through the cross-disciplinary HI. In this way three project proposals were submitted in summer 2018 – two led at MU by HI members, the director Professor Ken Duffy and Professor Andrew Parnell, with the third being led by Dr Deirdre Desmond of the ALL Institute. Two of these proposals were successful, and will provide resources for approximately 70 fully funded doctoral studentships in the University through these centres.

In addition, HI seconded faculty also had several funded project grants approved from diverse sources including SFI, the European Union, the Royal Irish Academy and Royal Society, the National Institute of Justice. They published 27 journal papers and 17 peer reviewed conference across applied mathematics, computer science, engineering, statistics, and the life sciences.

To give one significant example, in February 2018 an international team of researchers including Professor Ken Duffy from the Hamilton Institute and Dr Cristina Lo Celso of Imperial College London announced major breakthroughs in the study of acute myeloid leukaemia (AML) which could lead to the improved treatment of sufferers of this aggressive cancer of the blood that affects one in 200 men and one in 250 women in the UK. Their research was the subject of two papers, one of which was published in the prestigious Cell Stem Cell journal, while the other was published in Nature Communications.

The first study (Nature Communications, 2018) led to the new understanding that leukaemia essentially outcompetes healthy cells for resources, largely oblivious to the fact that healthy cells are being eliminated. The other study (Cell Stem Cell, 2018) subsequently established that a therapy for protecting the bone marrow region that maintains rare blood stem cells, which become heavily occupied by leukaemia, enhanced chemotherapeutic effect and allow blood regeneration. One of the reasons this research is important is that there is a pressing clinical need for more effective treatments for AML, which has a low cure rate of 5–15% in patients older than 60 and has been treated with essentially the same techniques for the past 30 years.

MU HUMAN HEALTH RESEARCH INSTITUTE

In the 21st century, the prevalence of chronic illness, the emergence of new diseases and the persistence of recalcitrant global infections will demand innovative ways to combat disease. In 2017 a new cross-disciplinary research institute was established to further the University's strategic goals in the area of Human Health. Professor Paul Moynagh of the Department of Biology was appointed as inaugural director, and the institute currently has 42 academic members drawn mainly from the Departments of Biology, Psychology, Chemistry and Computer Science. The new institute incorporates the existing successful Institute of Immunology. Research in the Human Health Research Institute is focused on understanding the fundamental aspects of health and disease, with an initial focus on five areas:

- > Health and medical technologies
- > Immunology and microbiology
- > Chemistry and biology of disease
- > Neurobehavioural and cognitive science
- > Global and community health

The Institute's research teams collaborate with international academics, healthcare providers and industry to explore unique aspects of human health at the molecular and cellular levels, discovering new ways to tackle disease, and to translate discoveries into novel medicines, procedures and policies.

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MU SOCIAL SCIENCES INSTITUTE

Maynooth University is recognized as a leading national and international centre for interdisciplinary social science research. Several social science projects at Maynooth University (MU) across a range of disciplines are coordinated and conducted in the Maynooth University Social Sciences Institute (MUSSI). www.maynoothuniversity.ie/social-sciences-institute. MUSSI was established as part of the implementation of Maynooth University's ambitious Research Strategy (2012–2017). Professor Linda Connolly is director of the Institute. MUSSI incorporates and builds on the longstanding success of a number of existing research institutes, centres and research active Departments at MU and is aligned with a new plan for MU research institutes approved in December 2016.

MUSSI's current component research groups and centres include the National Institute for Regional and Spatial Analysis (NIRSA) and the National Centre for Geocomputation (NCG). The Institute also consolidates, develops and supports a number of associated critical national data infrastructures including the All-Island Research Observatory (AIRO), the Irish Qualitative Data Archive (IQDA), ICLRD (Irish Centre for Local and Regional Development) and Digital Repository Ireland (DRI). The MUSSI website provides very detailed information on all these active units. International research projects in other areas (such as human rights, sustainability, international development, life course, housing and migration and equality issues etc.) are also located in the institute in partnership with Departments. Departments involved in current funded projects in the institute include: Law, Geography, Anthropology, Economics, Psychology, Computer Science, Sociology and the Hamilton Institute. Researchers in the institute come from these disciplines as well as a range of others – Health Sciences, Political Science/Political Philosophy, Social Policy, Business studies, Gender Studies, GIS, Migration Studies, Development Studies, Planning, Urban Studies and Technology, Geology etc. Many of these researchers and projects are directly engaged with public bodies, NGO's and Government (eg the National Planning Framework which was launched in MU has two members from MUSSI, and the Dashboard projects are working with city councils in Cork and Dublin).

Over 100 members are currently participating in institute activities across several disciplines and departments.

MUSSI is very well known across the HEI sector and by social and economic stakeholders in Ireland, both North and South. This is reflected in the large amount of contract research that it is asked to undertake for public and third sector agencies and it is regularly asked to partner international organisations and other HEIs as part of transnational research bids. There have been over 300 peer esteem projects in receipt of external funding in the institute since 2001, totaling over €61 million.

These awards have generated cutting edge research for policy and society in a wide range of areas, only some of which are listed here:

- > Smart Cities
- > Migration
- > Evidence Based Planning
- > Data Visualisations (Visualisation Partner for Census Ireland)
- > Political Economy, Work & Working Lives
- > Urban/Suburban Studies
- > Urban, Regional and International Development
- > Economic & Regional Geographies
- > Human Rights and Equality Issues
- > Gender
- > Social Justice research
- > Housing
- > Suicide
- > Community and Spatial Planning in the Irish Border Region
- > Spatial Planning and Territorial Cohesion Policies at Transnational Levels in Europe
- > Social Policy
- > Life Course and Family Studies
- > Digital archives
- > Earth Observation
- > Health Sciences
- > Earth observation
- > Geocomputation
- > Irish Language

Since 2008 MUSSI and NIRSA researchers played the leading role in the establishment and running of the Irish Social Sciences Platform (ISSP), which transformed the national landscape in social science research. Rather than social scientists doing research as individuals in a Department, through ISSP it was now possible to collaborate internally with colleagues within institute structures, and also inter-institutionally with social scientists in the other Universities. Collaboration within and across Irish universities has raised the profile of social science nationally. ISSP is an all-island platform of integrated social science research and graduate training focusing on the social, cultural and economic transformations shaping Ireland in the 21st century. ISSP initially brought together academics from 19 disciplines in 8 higher education institutions, initially, and subsequently a further 2 Universities, across the island into a common programme of research centered on knowledge, innovation, society and space. ISSP focused its efforts on investigating three broad themes of national importance – creating balanced development, sustaining communities and building the knowledge economy. The Chair of ISSP is currently held by MUSSI.

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In recent years, MUSSI researchers have been awarded numerous European Commission grants, including three prestigious European Research Council projects (Advanced and Consolidator) which is a clear indicator of an international centre of excellence in the University and internationally.

A SAMPLE OF RECENT PROJECTS INCLUDES:

> New Deals in the New Economy

European Research Council-funded study of the political economy of work, production, employment regimes, and the changing worlds of capitalism, 2012–2017, Professor Sean Ó Riain

> RE-InVEST: Rebuilding an Inclusive, Value-based Europe of Solidarity and Trust through Social Investments, 2015–2019, Dr Mary Murphy

The RE-InVEST project, an initiative that addresses social inequality and poverty by researching the experiences of vulnerable people most impacted by the crisis, has received almost €2.5 million in funding from the European Commission's Horizon 2020 research fund. The ambition of the RE-InVEST research project is to contribute to a more balanced economic and social development model for the EU, a model based on human rights and capabilities, to generate comparative knowledge on the main social investment policies, and encourage the implementation of this innovative model by bringing together a range of stakeholders, including people severely affected by the crisis, and policymakers with regard to policymaking.

> RESCuE : Patterns of resilience during Socioeconomic Crises among Households in Europe, 2014–2017, Professor Jane Gray

MUSSI researchers are participating in a nine-country European research consortium that is investigating resilience amongst families and households in urban and rural areas across Europe. The project is using innovative qualitative research methods, including in-depth interviews, observation and participatory visual methods to listen to the voices and record the experiences of families and households who have been affected by the crisis, and to make comparisons across different European contexts.

> WaterSPOUTT Water-Sustainable Point-of-Use Treatment Technologies, 2016–2020, Professor Honor Fagan

The WHO and UNICEF estimate that nearly 660 million people around the world do not have reliable access to safe drinking water. Half of these people live in sub-Saharan Africa, in rural areas which will remain unconnected to any municipal piped water supply for the foreseeable future. Entire communities obtain drinking water from unsafe sources (for example, untreated surface water) and are continuously at risk of contracting disease through exposure to waterborne pathogens and, in particular, fecal pathogens. WaterSPOUTT aims at providing safe drinking water to communities who rely on unsafe sources. The project seeks to transform access to safe drinking water through

integrated social sciences, education & solar technologies, thus improving health, survival, societal well-being & economic growth in African developing countries. It is funded for €3.0M by the European Union's Horizon 2020 programme.

> Building City Dashboards, Science Foundation Ireland, 2016–2021, Professor Chris Brunson, Mr Martin Charlton, Dr Jeneen Naji, Professor Rob Kitchin

Funded by Science Foundation Ireland (SFI), this €2M project tackles three sets of fundamental problems: managing complex data; showing information in a useable way; and analysing or modelling data to support policy. These are some of the biggest problems in data science today and are areas in which Maynooth University researchers are global leaders. This project will influence dashboard development globally. Cork will be the first city to see the benefit of this new work. City dashboards are also important because they enable start up and small companies to create new innovative products. The research will support the creation of an open data economy in Ireland by opening up of real-time and public administration data, along with open source code and analytics necessary for Ireland's economic development. The project brings together expertise from computer science, spatial statistics, geocomputation and multimedia with local authorities and other agencies.

> REINVENT Reinventory-ing Heritage: Exploring the potential of public participation GIS to capture heritage values and dissonance, 2016–18, Dr Andrew McClelland

REINVENT is a two-year EU-funded research project which addresses the challenges pertaining to the management of cultural heritage in contested cross-border contexts in Europe, with a particular focus on the cross-border cultural landscape of Derry-Londonderry. The project engages with participatory practices in cultural heritage management and the application of Geographical Information Systems (GIS) to mapping heritage on a cross-border basis on the island of Ireland. Developing strategies to address these challenges in local contexts can greatly assist spatial planning and cultural heritage management policymakers/practitioners. The project was funded by the EU Horizon 2020 Marie Skłodowska-Curie Programme.

> Mapping processes of settlement and integration in contemporary Ireland, Irish Research Council, 2017, Professor Mary Gilmartin

The aim of this project was to map processes of settlement and integration for different immigrant groups in Ireland. In particular, the project developed indicators of migrant integration at sub-national levels in conjunction with community organisations; mapped settlement services in Ireland and identified gaps in settlement service provision; provided training for community organisations; and developed evidence-based policy recommendations. The project was funded by the Irish research Council under its *Research for Policy and Society Scheme*.

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MU SOCIAL SCIENCES INSTITUTE CONTINUED

> U-Flyte, Science Foundation Ireland, 2018–2021, Dr Tim McCarthy

U-Flyte is a €3.2M strategic research partnership, coordinated by Maynooth University and funded by SFI, together with Industry collaborators including; Airbus, Irelandia Aviation and INTEL. The global €multi-billion Drone industry is expanding and these aerial robots are employed for an increasing array of automated airborne tasks including; mapping, surveying, news-gathering, specialist services, search & rescue, air-taxi and logistics. U-Flyte is tackling the current global bottleneck impeding the wider development of drone operation and roll-out of commercial services. The core R&D work-plan is based around a series of inter-connected work-packages that deal with investigating, building and testing Unmanned Aircraft Systems (UAS) – U-Traffic Management (UTM), underpinned by a 3D drone airspace model (U-Space).

The Institute is also taking a leading role in responding to challenging sectoral developments in Irish HEI's including in research agencies and in the context of the HEA's review of gender in third level institutions. Maynooth University's successful Athena SWAN Institutional Bronze application was led by Professor Linda Connolly in MUSSI/assisted by AIRO (see below). PI's in the Institute participate in a range of external bodies and boards such as the board of the Irish Research Council, the board of NORFACE and the Royal Irish Academy.

ATHENA SWAN BRONZE AWARD

In 2018 Maynooth University achieved the internationally recognised Athena SWAN Bronze Award for gender equality in higher education institutions. The University's successful application was led by Professor Linda Connolly, director of the MU Social Sciences Institute.

Athena SWAN accreditation is awarded by the Equality Charter Unit (ECU, recently reconstituted as Advance HE), which works to support equality and diversity for staff and students in higher education institutions across Ireland and the UK.

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 and support roles; in work that considers intersectionality; and efforts to support transgender and gender diverse staff and student populations.

Maynooth University is the first and only institution in Ireland to date to apply for and achieve the Athena SWAN Bronze award under the expanded version of the charter that includes Arts, Humanities and Social Sciences disciplines as well as STEMM. The University is also the first Irish institution to incorporate intersectionality as part of its Athena SWAN application, taking into account the numerous factors that can overlap in discussions of inequality, including the intersections between gender, race and ethnicity.



APPENDIX

A full list of MU publications for 2017 can be found here

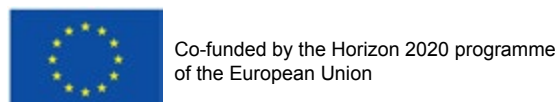
www.maynoothuniversity.ie/research/about-us/research-reports

A full list of external fund awards for 2017/18 can be found here

www.maynoothuniversity.ie/research/about-us/research-reports

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