





THE IRISH RESEARCH COUNCIL

The Irish Research Council is an associated agency of the Department of Education and Skills and operates under the aegis of the Higher Education Authority. Our mission is to enable and sustain a vibrant research community in Ireland. To address the broad skills and research needs within society, we support excellent researchers in all disciplines from arts to zoology.



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1 OVERVIEW

HOW WE FUND

		Principal Investigator-Led
	Postdoctoral	IRISH RESEARCH COUNCIL LAUREATE AWARDS (FRONTIER RESEARCH)
		NEW HORIZONS
Postgraduate		RESEARCH FOR POLICY & SOCIETY
	MCSA COFUND MOBILITY FELLOWSHIPS	APPLICATION SUPPORT FOR H2020
GOVERNMEN'	GOVERNMENT OF IRELAND ENTERPRISE PARTNERSHIP SCHEME	
ENTERPRISE PART		
EMPLOYMENT BASED PROGRAMME		CHIST-ERA
LINDAU FEI	LINDAU FELLOWSHIPS	
EUROPEAN SPACE AGENCY FELLOWSHIPS		
	ULYSSES	
	new foundations	

MINISTER'S FOREWORD



Mr John Halligan TD Minister of State for Training, Skills and Innovation

In 2016, the Irish Research Council continued to support excellent, ground-breaking research – research that plays a vital role helping us, as a country, to address and tackle Ireland's current and future challenges.

The Irish Research Council funded a total of 1,067 postgraduate scholars and 298 postdoctoral fellows in 2016. In this annual report, we will hear more about these awardees and some of the fascinating work being carried out by individual researchers. We will also get an insight into the Irish Research Council's broader mission, including cultivating success for Irish researchers in Ireland and internationally.

Of the new awards in 2016, 83 researchers received funding under the enterprise suite of programmes. These projects involve collaborations with a wide range of industry and NGO partners, including Boston Scientific, Kerry Group, Pfizer, Intel, the Gaelic Players' Association, the Science Gallery and the Disability Federation of Ireland. Building bridges between education, research, enterprise and the community is a key priority for me as Minister, and I am delighted to see the Irish Research Council supporting these goals.

Some highlights from this year include the launch, in January, of the Irish Research Council's #LovelrishResearch communications campaign, which has been highlighting the achievements of Irish researchers so as to ensure that the general public values the role research plays in driving our country's success. The campaign has brought research very much into community settings, with the Council holding special events to mark Culture Night, Science Week, the 1916 commemorations, and much more. In June, the Council announced a new partnership with the European Space Agency which will give promising young scientists and engineers the chance to make their mark in the field of space exploration. In October, the Council co-hosted a dinner with the Royal Irish Academy to mark the 57th Plenary Meeting of the Scientific Council of the European Research Council, at which the President of Ireland Michael D. Higgins gave the keynote address.

Looking to the future, the Government's Budget 2017 includes funding for a new frontier research programme, which will be operated by the Council. This initiative will help us, as a nation, to leverage further success in the international arena and lead to exciting new breakthroughs and discoveries across diverse disciplines.

As a government, we want to ensure that Ireland's ongoing economic recovery improves people's lives. The Council's programmes support its contribution to key government initiatives, including the Action Plan for Jobs, the National Strategy for Higher Education, and Innovation 2020, the government's five-year strategy of research and development, science and technology. Research being supported by the Council in these ways has the power to improve, enlighten and cultivate our society.

I congratulate the Irish Research Council on its achievements in 2016.

17 PARTNERSHIPS WITH **GOVERNMENT DEPARTMENTS AND AGENCIES**



































INTRODUCTION





Dr Eucharia Meehan Director of the Irish Research Council

Professor Jane Ohlmeyer Chair of the Irish Research Council

In 2016, the Council remained dedicated to its mission and distinctive role within the Irish research ecosystem by supporting 1,629 researches across a portfolio of awards worth in excess of €100 million. We are committed to identifying and supporting excellence, creativity and innovation across disciplines, and especially among early career researchers, and to cultivating a research community in Ireland where new ideas, ground-breaking expertise and widely applicable skills can be leveraged to produce economic, cultural and societal benefits.

In 2016, we increased collaboration with a wide range of industry, civil society and public sector partners. Our researchers worked with 223 enterprise partners, including Analog Devices, Dublin Port Company and Tullow Oil, and we funded projects involving 55 civil-society partners, such as Pavee Point Traveller and Roma Centre and the Glencree Centre for Peace and Reconciliation. We also funded 29 research projects marking the Decade of Centenaries, and embarked on partnerships with 17 government departments and agencies. To raise public awareness of the amazing work carried out by researchers throughout Ireland, we launched the #LovelrishResearch campaign in early 2016, and it has proven to be a huge success.

Building upon our Gender Strategy and Action Plan, 2013-2020, we continue to support a research system in which individual researchers, regardless of gender or career stage, are enabled to reach their full potential. In 2016, we issued a statement on Dignity in the Conduct of Research, and, in collaboration with the Health Research Board and Science Foundation Ireland, announced that higher education institutions must, by the end of 2019, have secured gender equality accreditation through Athena SWAN in order to be eligible for research funding.

To support the cultivation of a balanced research ecosystem in Ireland, we are continuing to facilitate the integration of Irish researchers within the European Research Area. During 2016, we announced the CAROLINE Marie Skłodowska-Curie Actions (MCSA) COFUND to promote mobility amongst European researchers, with a particular focus on research that will contribute to the United Nations Sustainable Development Goals, and also celebrated 20 years of MCSA in Ireland. On foot of the government's allocation of €3 million in Budget 2017, our priorities for next year will include the launch of our new frontier research programme, as well as increased emphasis on funding interdisciplinary research to address major societal challenges.

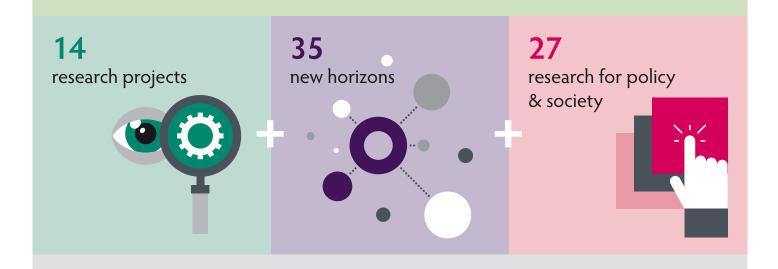
The following report provides a summary of the Council's progress in 2016. We thank you for taking time to read it and invite you to contact us or visit our website (www.research.ie) if you require any further information.

OVERVIEW OF ACTIVE AWARDS IN 2016



76 principal investigator-led projects





€31.25m

exchequer budget



€4.2m

leveraged funding from other sources

223 enterprise partners



106

knowledge exchange and networking awards



17

partnerships with government departments and agencies



29

projects marking the decade of centenaries

1916 2016 **55**

projects with civic society groups

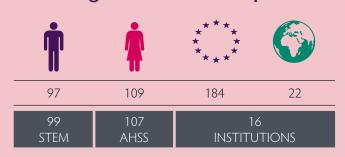




OVERVIEW OF NEW AWARDS IN 2016

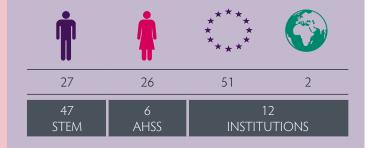
206 / €15m

GOI Postgraduate Scholarship Awards



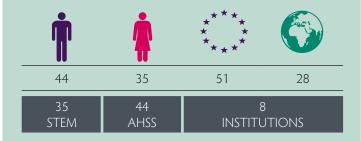
53 / €4.5m

Enterprise Partnership Scheme



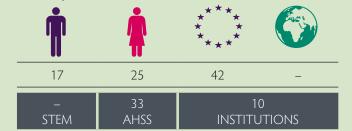
79 / €6.7m

GOI Postdoctoral Fellowship Awards



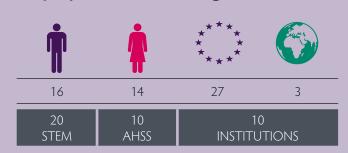
42 / €5.2m

New Horizons and Research for Policy and **Society Awards**



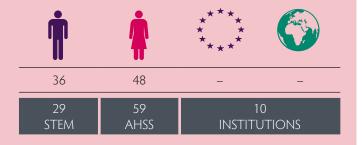
30 / €2.1m

Employment Based Programme



84 / €900K

New Foundations Awards



GOI: Government of Ireland

AHSS: Arts, Humanities and Social Sciences

STEM: Science, Technology, Engineering and Mathematics

RESEARCH HAS NO BORDERS

Ireland is an open and innovative centre of excellence in research in all disciplines

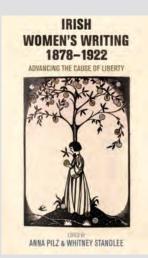
Information on a range of funding programmes for individual researchers is available on the Irish Research Council website:

www.research.ie





SELECTION OF 2016 PUBLICATIONS



Irish Women's Writing, 1878-1922: Advancing the Cause of Liberty

Edited by Anna Pilz and Whitney Standlee

Anna Pilz was awarded a Government of Ireland Postdoctoral Fellowship in 2014

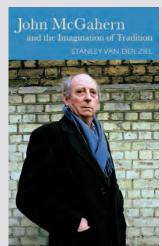


The Right in Latin America: Elite Power, Hegemony and the Struggle for the State

Barry Cannon



Barry Cannon was awarded a Government of Ireland Postdoctoral Fellowship in 2010



John McGahern and the Imagination of Tradition

Stanley van der Ziel

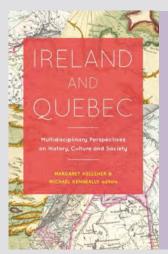
Stanley van der Ziel was awarded a Government of Ireland Postdoctoral Fellowship in 2011



More than Concrete Blocks: Dublin City's Twentieth-Century Buildings and their Stories

Edited by Ellen Rowley

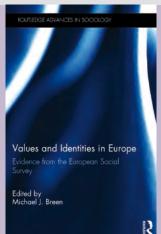
Ellen Rowley was awarded an Enterprise Partnership Scheme Postdoctoral Fellowship in 2015



Ireland and Quebec: Multidisciplinary Perspectives on History, Culture and Society

Edited by Margaret Kelleher and Michael Kenneally

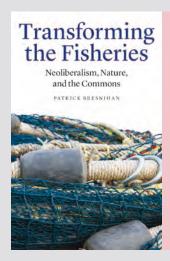
Margaret Kelleher was awarded a Senior Research Fellowship in 2011



Values and Identities in Europe: Evidence from the European Social Survey

Edited by Michael Breen

Michael Breen was awarded a Research Project Grant in 2014



Transforming the Fisheries: Neoliberalism, Nature, and the Commons

Patrick Bresnihan

Patrick Bresnihan was awarded a Government of Ireland Postdoctoral Fellowship in 2014

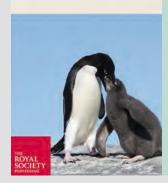


'Genomic insights into the peopling of the Southwest Pacific'

... Daniel Fernandes et al., Nature 538, 510-513

Patrick Bresnihan was awarded a Government of Ireland Postgraduate Scholarship in 2013

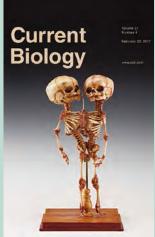
ROYAL SOCIETY OPEN SCIENCE



'Next Gen Pop Gen: implementing a high-throughput approach to population genetics in boarfish (Capros aper)'

Edward Farrell et al., Royal Society Open Science, December 2016

Edward Farrell was awarded a Government of Ireland Postdoctoral Fellowship in 2013



'The neolithic transition in the Baltic was not driven by admixture with early European farmers'

... Ron Pinhasi et al., Current Biology, Volume 27, Issue 4, p576-582

Ron Pinhasi was awarded a Research Project Grant in 2013

WEBSITES



www.classicirishplays.com

David Clare

David Clare was awarded a Government of Ireland Postdoctoral Fellowship in 2014



Recently Added Items CONNECTING MODRAL - Blood treasure, woven fates www.worldtreeproject.org

Thomas Birkett

Thomas Birkett was awarded a New Horizons Research Project Grant in 2015

YEAR IN THE LIFE OF THE IRISH **RESEARCH COUNCIL**



The Irish Research Council Special Award at the BT Young Scientist Exhibition was presented to Gabriel Barat and Adrian Wolniak of Synge Street CBS, Dublin, for their project 'A Mathematical Model of Coffee Rust'



Minister English launched the #LoveIrishResearch initiative and Discovery

Ireland publication to help increase public awareness of Ireland's research achievements President Michael D. Higgins and his wife Sabina hosted a reception for women in science at Áras an Uachtaráin where some of our researchers attended as honoured guests





JANUARY

JULY

AUGUST

Professor Jane Ohlmeyer, Dr Eucharia Meehan and Mr Peter Brown presented the Council's 2015 annual report detailing the results of a €34 million investment in 1,396 researchers to Minister for Education and Skills, Richard Bruton, and Minister of State for Training, Skills and Innovation, John Halligan





The opening of the 2016 Olympics was marked by releasing details of innovative Irish Research Council-funded sports projects which are paving the way for future Olympic success



Funding of €212, 246 announced by the Irish Research Council for Professor Daniel Bradley under the Humanities in the European Research Area's prestigious international research programme, 'Uses of the Past'





Over 25 Irish Research Council awardees and alumni participated in talks, debates, music and theatre as part of RTÉ's Reflecting The Rising, described as the largest artistic and cultural outdoor event ever staged in Ireland



A highlight of the Irish Research Council's 'Marking the Decade of Centenaries' programme was the Irish premiere of *Sir Arnold Bax's In Memoriam – In Memory of Patrick Pearse* which took place at the National Concert Hall



Funding of €144,000 was announced by the Irish Research Council for flagship 1916-themed projects ranging from the Battle of Mount Street Bridge to how Moore Street's historical significance has impacted on regeneration plans



Funding of €900,000 was announced by the Irish Research Council to support NGOs, including Trócaire, Concern Worldwide, GOAL, ActionAid Ireland and Doras Luimní, in policymaking for global development



The Irish Research Council's 'Marking the Decade of Centenaries: Ireland 1916–2016' programme was launched at National University of Ireland, Galway



The Irish Research Council and Science Foundation Ireland organised a workshop with representatives from the European Research Council (ERC) Executive Agency to advise Irish-based ERC awardees on how to manage their awards

FEBRUARY

MARCH

APRIL

SEPTEMBER

OCTOBER



The Irish Research Council recognised excellence in physics at a special event, attended by honoured guest Professor Dame Jocelyn Bell Burnell, to celebrate four exceptional early-stage career researchers who travelled to participate in the prestigious 66th Lindau Nobel Laureate meeting

Irish Research Council Director Dr Eucharia Meehan was a keynote speaker at an EU Doctoral Pedagogies Colloquium at the University of South Australia and shared developments on gender equality in higher education and research at the University of Sydney Professor Jean-Pierre Bourguignon, President Michael D. Higgins and Professor Jane Ohlmeyer at a dinner co-hosted by the Irish Research Council and the Royal Irish Academy to mark the occasion of the 57th plenary meeting of the Scientific Council of the European Research Council being held in Ireland







The Irish Research Council welcomed increased funding to commence a frontier research programme, in addition to funding for a new initiative aimed at attracting world-leading researchers





New partnership with the European Space Agency announced to give promising young scientists and engineers the opportunity to make their mark in space





MAY

JUNE

NOVEMBER

DECEMBER

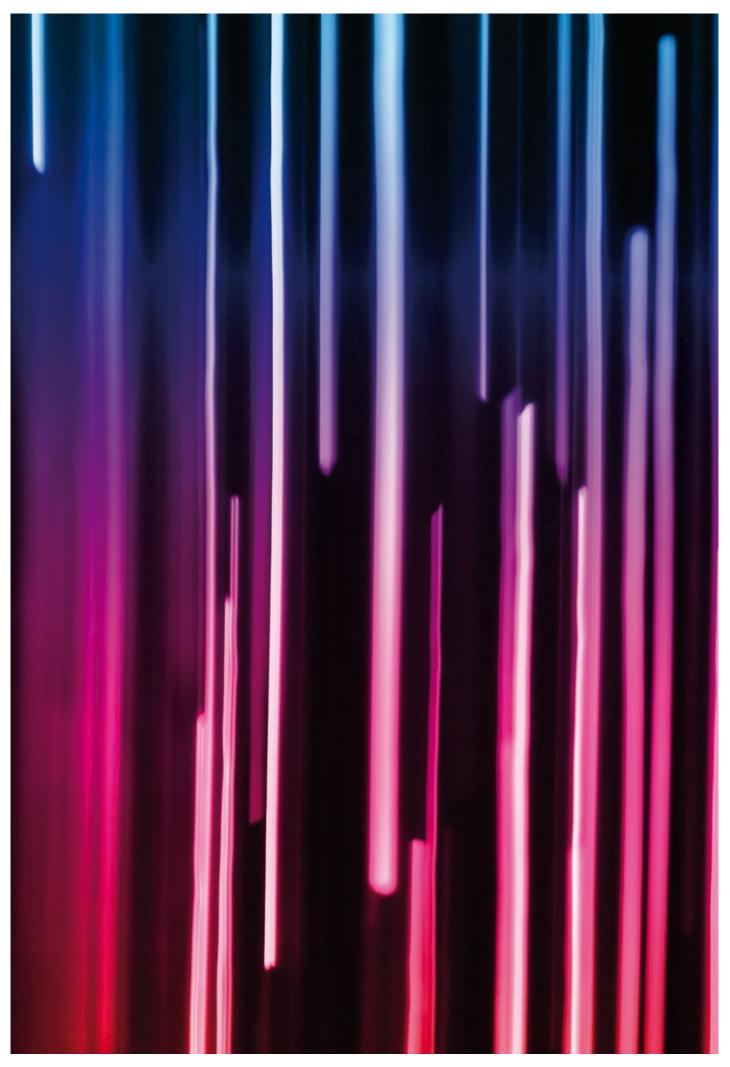
Minister Halligan joined the Irish Research Council in celebrating 20 years of Marie Skłodowska-Curie Actions. The Irish Marie Skłodowska-Curie Office is jointly operated by the Irish Universities Association and the Irish Research Council





The Irish Research Council, the Health Research Board and Science Foundation Ireland jointly announced that, by the end of 2019, they will require higher education institutions to have Athena SWAN gender equality accreditation in order to be eligible for research funding





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#LOVEIRISHRESEARCH



Ireland has a treasure trove of creative and innovative individuals whose research is powering progress, illuminating secrets of the past and transforming the way we think about the world. In early 2016, the Council launched its #LovelrishResearch campaign to better share their work and develop greater public interest in what is happening in research in Ireland. This initiative engaged researchers at all career stages and across all disciplines, with a wide-ranging programme including regional and institutional showcase events, monthly research themes and competitions.

JUNE **IANUARY MARCH APRIL** Marking the Decade 'Spring' into Research Research Heroes of Centenaries in association with.. **INSPIRE**fest #LovelrishResearch launched by Minister Damien English on 28 #LoveIrishResearch January 2016 Éanna Ní Lamhna breaks new ground outlined the on issues of relevance to St 'importance of research Patrick's Day to the well-being of Irish wildlife' Shúilleabháin revealed her 'research heroes' **FEBRUARY** MAY of women in Irish science marked with a Making Research Work specially commissioned in association with... #LovelrishResearch infographic for International visited the Seán Women's Day MacDiarmada Summer





us why knowledge economies require 'strategic long-term thinking'

JULY

The Art of Research in association with...





Orlaith McBride told us 'why research in the arts matters'



Myles Dungan reflected on 'why the farmer and the cowman should be friends'



#LovelrishResearch visited the MacGill Summer School in Glenties

Danny McCoy told

2.3 million Tweet impressions

School in Kiltyclogher



times Trended on Twitter



#LoveIrishResearch

114 entries to our 'Research Through a Lens' Twitter image competition

#LovelrishResearch featured in the Sunday Independent for Valentine's Day

A series of

in Ireland were doing

in 1916'

blogs on what 'researchers

#LovelrishResearch

Events



Blogs



4500+

subscribers to our monthly newsletters



More than twitter followers

blogs by guest contributors

AUGUST

Research and Sport: a Great Match in association with...





Paraic Duffy outlined the 'innovative research taking place at the GAA'



Jessie Barr revealed 'the humanity of the Olympic games'



Keith Wood reflected 'on sport, health and research'



#LovelrishResearch visited the Parnell Summer School in Wicklow

SEPTEMBER

Research for a Better World



Lorna Gold of Trócaire outlined the importance of 'linking science and advocacy on climate change'



A family-friendly showcase of 17 projects funded by the Irish Research Council as part of Culture Night



'The Experts Bite Back' hosted by Fergal Keane at Electric Picnic

OCTOBER

Research for a Healthy Life in association with...





Brent Pope told us about the importance of 'positive mental health research'



Dr Muiris Houston reflected on 'research and the medical humanities for a healthy life'



A series of short talks addressing the grand societal challenges as part of European Researchers' Night



Science of Halloween supplement published with the Irish Independent. Why do we tell ghost stories? What have witches got to do with chemistry? How long do skeletons last?

NOVEMBER

Science, Technology and You



Dame Street lit up with a celebration of Irish researchers past and present for Science Week



Series 2 of the Irish Research Councilsponsored show '10 Things to Know About' premiered on RTÉ1 - this awardwinning series showcases and celebrates the Irish science behind aspects of modern life



'The Experts Bite Back' hosted by Fintan O'Toole at the National 1916 Conference

DECEMBER

Our Universe in association with...



esa



Jan Woerner told us why 'space research is important'



#LovelrishResearchĬ tackled some of the tricky issues in science communication at SCI:COM



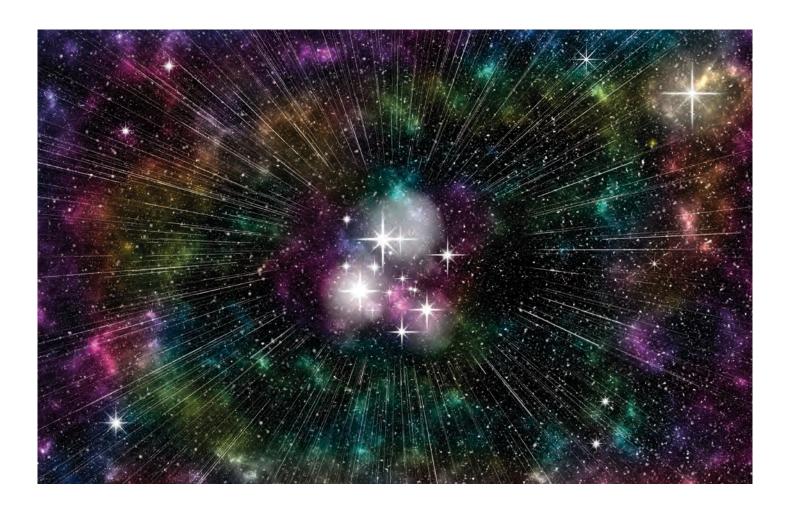
#LovelrishResearch highlighted the scientific and historical roots of popular Christmas traditions



2017 #LovelrishResearch year planner distributed with the Irish Times



FUNDING EXCELLENT EARLY CAREER RESEARCHERS



66 €15 million committed to the next generation of Irish researchers "J"

GOVERNMENT OF IRELAND POSTGRADUATE SCHOLARSHIP PROGRAMME

The aim of the Council's flagship Government of Ireland Postgraduate Scholarship Programme is to support suitably qualified research master's and doctoral candidates pursuing, or intending to pursue, full-time research in any discipline.

In 2016, the Council awarded 206 new scholarships, to researchers from 25 countries, on the basis of the excellence, novelty and innovation of their projects, with an associated commitment of €15 million.

Nanosensors for the detection of food contaminants, the benefits of mindfulness in post-primary schools, cloud-based mobile healthcare systems and the archaeology of industrial brewing in Ireland are just an example of the new research topics selected for funding in 2016.

This brings the total number of active Government of Ireland Postgraduate Scholarship awards in 2016 to 791.

A number of other agencies support this programme by partnering with the Council as a mechanism to deliver on our shared national objectives. The Council's strategic funding partners in 2016 were the Department of Foreign Affairs and Trade and the Environmental Protection Agency.

CASE STUDIES

AWARDEE - José Gutiérrez

PROJECT TITLE - Insurgent Institutions: Communities and the constitution of social fabric in the Colombian conflict

José is a postgraduate scholar at UCD who has worked for years in the development and human rights sector in Ireland, mostly on projects related to Latin America. His research looks at processes involved in the popular constitution of social fabric in contexts of endemic violence, focusing on Colombia, the country with the longest internal armed conflict in the western hemisphere. Today, his structured research is funded in partnership with the Department of Foreign Affairs and Trade through the Andrew Grene Postgraduate Scholarship in Conflict Resolution. This scholarship was named in memory of Irish United Nations worker Andrew Grene, who died tragically in the Haitian earthquake of 2010. To date, the Andrew Grene Postgraduate Scholarship has enabled 11 postgraduate students to conduct research on issues of governance, education and gender with relevance to peacemaking and peacebuilding.

AWARDEE - Niamh Kavanagh

PROJECT TITLE - Dense wavelength division multiplexing at 2 microns

Niamh is a postgraduate scholar at the Irish Photonics Integration Centre based in the Tyndall National Institute. In 2016, Niamh was named the national winner of FameLab Ireland, one of the biggest science communication competitions in the world. Niamh also won the Early Career Physics Communicator Award after competing against three other finalists at the Institute of Physics in London. During her presentation, 'Illuminating the Invisible', Niamh explained how lasers are leading the way in aviation safety. More specifically, she discussed her research on LiDAR technology, which uses laser beams to monitor air pollution levels worldwide and is now being fitted to aeroplanes so that pilots can see ash clouds and avoid hazards.





66 €6.7 million committed to encourage rigorous and independent researchers "J"

GOVERNMENT OF IRELAND POSTDOCTORAL FELLOWSHIP PROGRAMME

The Government of Ireland Postdoctoral Fellowship Programme supports early-stage researchers during the crucial first steps on their career paths. These fellowships are aimed at researchers who want to undertake a period of guided research before going on to lead their own independent careers.

By supporting the development of rigorous and independent researchers, the Council is priming the pipeline for future success.

In 2016, 79 new researchers from 23 countries were awarded these prestigious and highly competitive fellowships, with an associated commitment of 6.7 million.

An investigation of cyberbullying in Irish youths, 3D printing of constructs for bone repair, and a genealogy of women in Irish theatre are some examples of the new projects selected for funding in 2016.

This brings the total number of active Government of Ireland Postdoctoral Fellowship awards in 2016 to 214.

CASE STUDIES

AWARDEE - Michel Dugon

PROJECT TITLE - Phenotypic plasticity: investigating the rapid evolution of spider venoms

Michel is a postdoctoral fellow at NUI Galway and founder of the science outreach initiative Eco-Explorers, which aims to instil a passion for science in primary and secondary school pupils. There are more than 400 species of spider in Ireland and Michel is working to discover whether the venom from some of these spider species could have medicinal uses. This work is part of an effort to investigate arthropods as a novel source of compounds, with potential applications in pharmacology, medicine and engineering, such as the development of painkillers, anti-cancer treatments and nanoscaffolding. Michel set up the Venom Systems and Proteomics Lab in the university's Ryan Institute and has carried out a range of early experiments using venom from the false black widow spider, Steatoda nobilis.

AWARDEE - Mairéad Foody

PROJECT TITLE - An empirical investigation of cyberbullying in Irish youths

Mairéad is a postdoctoral fellow based in the Anti-Bullying Research and Resource Centre at DCU. Her research interests revolve around child mental health and all that it encompasses, including bullying, special educational needs and psychological interventions. In recent years, cyberbullying has emerged as a high profile concern for health practitioners, policymakers, schools, teachers, parents and communities across the world. In a recent meta-analysis, Mairéad's research found that approximately one in ten schoolchildren in Ireland have experience of online bullying. Her project aims to have a direct impact on public understanding of this important topic, with findings used in a way that will increase the effectiveness of public policy as well as enhancing the social and emotional health of young people in Ireland.





66 Complex global problems and conflicts can only be resolved by adopting a global approach, of which science offers us a living example **JJ**

Countess Bettina Bernadotte, President of the Council for the Lindau Nobel Laureate Meetings

LINDAU NOBEL LAUREATE MEETING AWARDS

Once every year, 30–40 Nobel Laureates convene at Lindau, Germany to meet the next generation of postgraduate and postdoctoral researchers from all over the world to foster scientific exchange between different generations, cultures and disciplines.

In 2016, four Ireland-based researchers were chosen to travel to Lindau to take part in the 66th Lindau Nobel Laureate Meeting, dedicated to the field of physics. Following their nomination by the Council, the researchers went through a highly competitive multi-stage international application process, managed by the Foundation Lindau Nobel Laureate Meetings. These researchers then spent the week attending prestigious masterclasses with some of the best-known scientists in the world.

The four nominees who represented Ireland at the 66th Lindau Nobel Laureate Meeting were:

- Maria O'Brien, who graduated from Trinity College Dublin with a gold medal in the Physics and Chemistry of Advanced Materials. She currently holds an Irish Research Council Enterprise Partnership Scheme Postgraduate Scholarship and, in collaboration with Intel, is working to develop nanomaterials for use in electronic devices.
- Kangpeng Wang, who was awarded his PhD by the Shanghai Institute of Optics and Fine Mechanics at the Chinese Academy of Sciences. He is currently based in Trinity College Dublin's Department of Physics and is working in the field of nanooptics, 2D nanomaterials and ultrafast phenomena.
- Mark Kennedy, a postgraduate student in the field of astrophysics, who spends his time between University College Cork and the University of Notre Dame in Indiana. His main work focuses on unusual binary star systems.
- Antonio Benedetto, a Marie Skłodowska-Curie Postdoctoral Fellow at the School of Physics in University College Dublin. His main work focuses on the structural properties of systems of biological interest including DNA and proteins.

In October, the Council honoured the 2016 awardees at a special reception held at the Royal College of Physicians of Ireland. Trail-blazing astrophysicist Professor Dame Jocelyn Bell Burnell attended as guest of honour to mark the awardees' achievements. The Council also announced a three-year renewal of its partnership with the Council for the Lindau Nobel Laureate Meetings. The patron of the Irish 'Lindau Nobel Laureate Meeting Awards' is the President of Ireland, Michael D. Higgins.







Liberté • Égalité • Fraternité RÉPUBLIQUE FRANÇAISE

ULYSSES

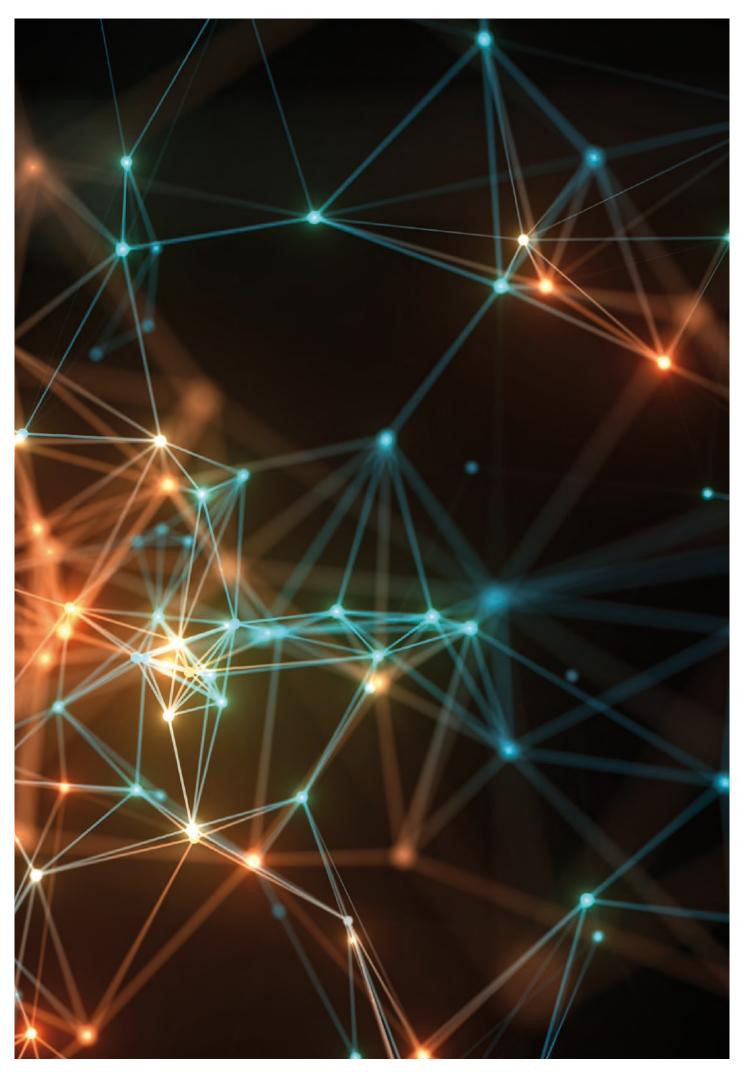
The Ulysses programme, named to celebrate the links between Ireland and France, is designed to support new collaborations between Irish and French researchers. In Ireland the Ulysses programme is funded and administered by the Council, with support from Teagasc. In France, it is funded by the French Ministry of Foreign Affairs and administered by the Embassy of France in Ireland and Campus France, the leading French agency for international mobility.

The immediate aim of the Ulysses programme is to foster new collaborations between researchers in Ireland and France, by funding reciprocal travel visits between the two research groups over the course of one year. The longer term goal is to establish lasting professional networks of researchers and institutes.

In 2016, funding was awarded to 14 new collaborations involving 28 researchers, each of which received a 'seed-funding' bursary to cover travel and living expenses.

Radiotherapeutic responses in prostate cancer patients, the solar wind in time, and how to reshape cities are examples of the new research topics selected for funding in 2016.

Now in its sixteenth year, the total number of projects funded under Ulysses stands at 299.



POWERING ENTERPRISE



66 €6.6 million committed to support enterpriseacademia-social engagement 11 The Council's suite of Enterprise Programmes is designed to support enterprise-academiasocial engagement through exceptional individual researchers, while in parallel presenting options for diverse career paths.

The programmes are aligned with the Council's mission to fund excellent researchers across all disciplines and to promote engagement with all enterprises. Employers benefit from working with exceptional researchers on innovative projects and from engaging in research that is aligned with their needs. Benefits identified by enterprise partners on the programme include excellent value for money, maximising shared benefits and outcomes and the minimising of risk.

In 2016, the Council awarded 71 new scholarships and 12 new fellowships across its suite of Enterprise Programmes, with an associated commitment of €6.6 million.

Biomarkers for depression, sustainable sludge management, non-invasive tools for diagnosing coeliac disease, and risk factors for injury in adolescent Gaelic footballers are examples of the new research topics selected for funding in 2016.

In collaboration with 223 partners, this brings the total number of active awardees in 2016 to 274.

EMPLOYMENT BASED PROGRAMME

The Employment Based Postgraduate Programme is a unique initiative that provides students from any discipline the opportunity to be employed in a partnering company or organisation while gaining a postgraduate research qualification. The programme supports the creation of employment opportunities for early-stage researchers and the nurturing of transferable skills through supervision by leading experts in enterprise and academic domains.

The Employment Based Postgraduate Programme will contribute to the achievement of targets set out in Innovation 2020, Ireland's five-year strategy on research and development, science and technology. Innovation 2020 targets expansion in master's and PhD output over the period 2015–2020 to address enterprise and other national needs. The programme also contributes to the government's targets under the Action Plan for Jobs.

In 2016, the Council awarded 30 new scholarships to researchers from eight countries, bringing the total number of awardees since its pilot year in 2012 to in excess of 200.

The programme has placed students with employers such as Boston Scientific Ireland, the GAA, AYLIEN, IBM, Orbsen Therapeutics, Alltech, FotoNation and Monaghan Mushrooms.

An enterprise partner is defined as a business, company, registered charity, social, cultural or not-for-profit civic organisation, a semi-state commercial organisation or eligible public body.

CASE STUDIES

AWARDEE - Philip Doran

PROJECT TITLE - The creative re-use of waste materials in the building sector to promote innovative sustainable development

Philip is a landscape architect and horticulturist with previous wideranging experience in design and delivery of projects. His research, in collaboration with Dermot Foley Landscape Architects, investigated the appropriate reuse of construction waste materials for the public realm and open space. Given that the European Commission's 'Waste Framework Directive' has placed a requirement on the construction industry to achieve a 70 per cent reuse, recycling or recovery of debris from demolition works, Philip's research is vital to offer alternatives to the construction sector and help the relevant bodies to match or surpass regulatory requirements in terms of sustainable development. His research engaged with engineers, planning consultants, architects and ecologists on a wide range of environmental design projects including habitat protection, sustainable drainage and urban planning proposals. The outcome of the research will showcase a pioneering method of reusing a much wider range of waste than is currently considered.

LL The Employment Based Programme is of invaluable assistance in keeping up to date with the latest research, enabling us to complement day-to-day practice by bringing a long-term vision for the sector to our work "" Dermot Foley of Dermot Foley Landscape Architects

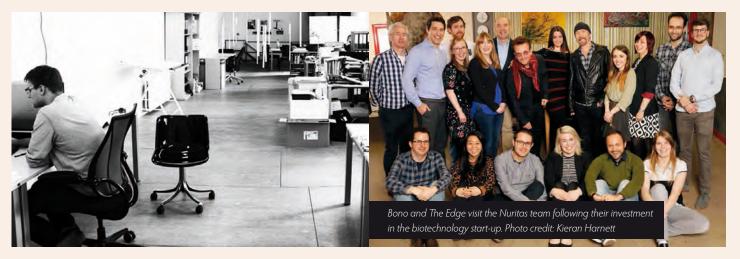
AWARDEE - Niamh Marie Mohan

PROJECT TITLE - Unravelling food derived bioactive peptides with dual functionality of anti-microbial and immunomodulating capabilities

Nuritas, founded by former Irish Research Council-Marie Curie COFUND Fellow Nora Khaldi, is aiming to revolutionise the discovery of novel and natural active ingredients with scientifically proven health benefits. The company employs big data techniques to discover peptides that can be used by the life sciences sector in supplements and new drugs. Niamh's project aims to unravel whether any of these peptides possess anti-microbial and immunomodulatory capabilities. In particular, her work is examining the mechanism of action of a particular peptide recently discovered by Nuritas that has the ability to kill MRSA, which affects 4.5 million people in Europe each year. This research could potentially result in providing novel, low-cost, antibacterial and immune-enhancing ingredients which could substantially improve the health of humans and animals.

LL The Employment Based Programme has been great for us as we are able to collaborate with a cutting-edge university and its researchers **"17**" Dr Nora Khaldi of Nuritas

LE The Employment Based Programme has been an invaluable experience that allowed me to collaborate within an industrial setting [and] has facilitated the translation and application of the knowledge and research outcomes of many years into a real life scenario **""** Professor Marta Martins of TCD





66 A knowledge economy is built around people and skills ""

Danny McCoy, CEO of Ibec

ENTERPRISE PARTNERSHIP SCHEME

The Enterprise Partnership Scheme is an innovative initiative whereby the Council, in partnership with enterprise, awards co-funded postgraduate scholarships and postdoctoral fellowships.

The programme also supports the development of an expertise-driven higher education and research system so as to enhance Ireland's creative and innovation capacity and skills base.

In 2016, the Council awarded 41 new postgraduate scholarships, including one award supported by the Department of Agriculture, Food and the Marine, and 12 new postdoctoral fellowships, to researchers from ten countries.

New enterprise partners in 2016 include Eli Lilly, the National Association of Regional Game Councils, Cook Medical and Tullow Oil.

AWARDEE - Martin O'Reilly

PROJECT TITLE - The application of motion sensors and biofeedback in resistance training for optimisation of participants' progress and reduction in injury rates

AWARDEE - Jennifer Kavanagh

PROJECT TITLE - The effectiveness of a balance bike and a novel sensored balance bike and associated app

Many people undertake resistance training programmes to gain improvements in health, mood, strength, athletic performance, weight loss and quality of life. However, due to cost and availability issues, the majority of gym-users train without the expert supervision of personal trainers. This means novice exercisers receive minimal feedback on their training. Without expert feedback, adherence to exercise programmes diminishes and the risk of exercising with poor technique increases greatly. This results in slower progress towards training goals and a heightened risk of injury. Martin is working with Shimmer on the development of a wearable sensor which can help maximise the efficiency of personal exercise programmes. Shimmer is an awardwinning company involved in the development of advanced wearable sensing systems which overcome the challenges of size, wearability, reliable communications and low power consumption. The company's technology is in use in areas such as connected health, rehabilitation, clinical assessment, elite sport, and neuromarketing.

LE Participation in the Enterprise Partnership Scheme has allowed Shimmer to solidify our already close relationship with the research community, which is vital for a company like ours to ensure that we remain at the cutting edge of sensing technology ""

Dr Niamh O'Mahony of Shimmer

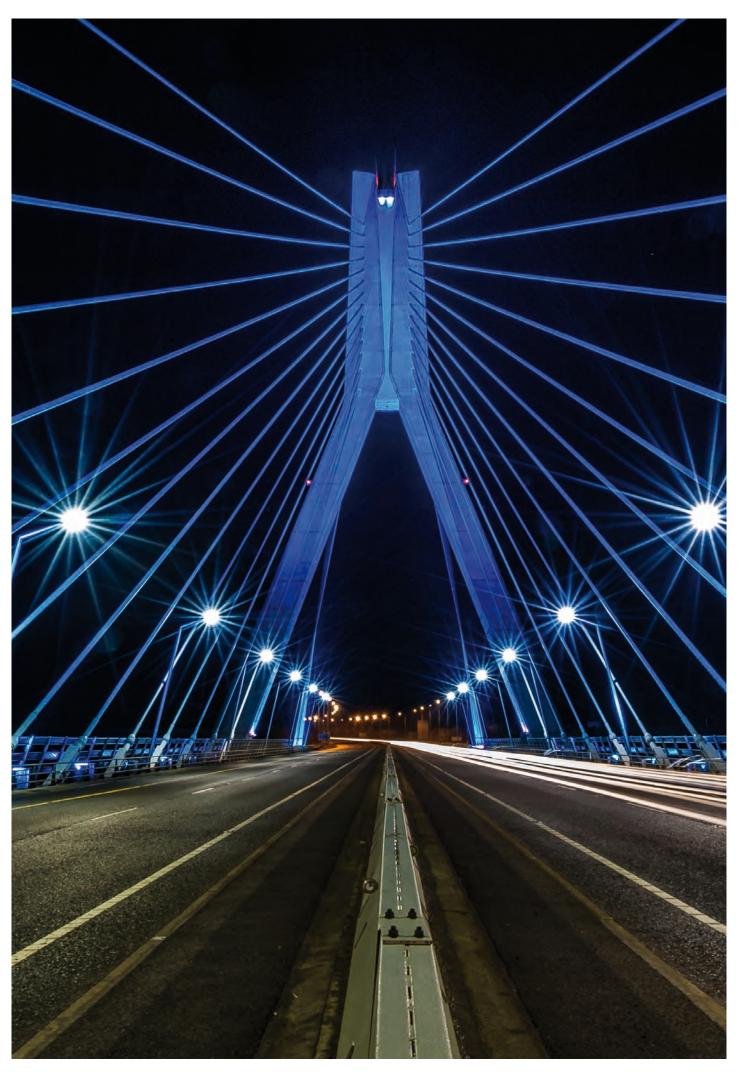
66 [The Enterprise Partnership Scheme] has helped to bring our research outputs closer to translation into the real world as we can interact with the stakeholders who are bringing forward the next wave of technology solutions "" Professor Brian Caulfield of UCD

We know that it is essential to encourage children to be as active as possible, so as to improve and support their physical and mental health. The likelihood that children will engage with a particular physical activity is increased by their ability to do it, their enjoyment level, and their confidence that they can undertake the activity on their own. Riding a bike independently is a key milestone in a child's development, but it is also very challenging. Jennifer is working with Yvolve Sports Ltd, which has developed a 'sensored' balance bike, and an associated app using imbedded sensors to directly monitor time on the bike, dynamic balance, and daily speed and distance. Jennifer is assessing whether the Yvolve balance bikes offer a valuable means of promoting childhood development, helping children cultivate fundamental motor skills including balance, running and jumping. While researchers have been using wearable technology to analyse movement and influence behaviour among adults, Jennifer has found that there has been relatively little research involving young children. The Yvolve balance bike has offered Jennifer a unique opportunity to evaluate the relationship between sensor/app design and children/ parent interaction.

LE Working with Yvolve has provided Jennifer and my research group an opportunity to work with a young, dynamic and very successful company. We have gained significant insight into how an agile company works and how it aims to integrate research directly into this process **""** Dr Kieran Moran of DCU







5

ADDRESSING IRELAND'S CURRENT AND FUTURE **NEEDS**



66 €1.9 million committed to excellent researchers enriching the pool of knowledge and expertise available to address Ireland's current and future needs ""

RESEARCH FOR POLICY AND SOCIETY

Launched in 2015, the Research for Policy and Society Programme aims to build partnerships with government departments and agencies in order to enable peerreviewed research to underpin policy decisions and contribute to societal development.

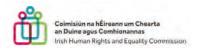
In 2016, 21 researchers received new awards under this programme to support projects ranging from sexually transmitted infections to pension provision, and homelessness to hate crimes, with a total commitment of €1.9 million. This research is supported by partnerships with seven government departments and agencies, including the Crisis Pregnancy Programme, the Department of Social Protection and the Irish Human Rights & Equality Commission.

Since the launch of the Research for Policy and Society Programme in 2015, a total commitment of €2.4 million has been made to 27 projects, working in partnership with 12 government departments and agencies.

The Research for Policy and Society Programme supports the Council's responsibilities under 'Innovation 2020', Ireland's five-year strategy on research and development, science and technology. This strategy has stressed the necessity of research to address societal challenges facing Ireland and the imperative to foster a broad-based research capacity to support national and international policy goals. The Council has been assigned a number of actions under 'Innovation 2020' to increase the engagement of public entities and civic society with public policy and societal challenge-based research.









New partners for 2016 on the Research for Policy and Society Programme

AWARDEE - Jane Gray

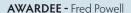
PROJECT TITLE - Supporting low income working families: **Enabling Resilience**

Jane, a professor of sociology at Maynooth University, is leading the Enabling Resilience project, which is examining the experiences and resilience practices of low-income families receiving family income supplement (FIS). Using a mixed-method biographical approach, the project is examining how far engagement with FIS helps promote sustained labour market participation, enhance standards of living and enable families to exceed their expectations as regards overcoming difficulties, and adapting or coping in ways that lead to improved well-being. Enabling Resilience is building on Jane's ongoing international FP7-funded project RESCuE, which focuses on patterns of resilience in vulnerable households. Her team will compare findings across both studies and develop strategies for future national and international collaborations.

AWARDEE - Pádraig MacNeela

PROJECT TITLE - Smart Consent: Evaluating an intervention to promote active consent on the part of young adults

Based in the School of Psychology, NUI Galway, Pádraig's project is evaluating the effectiveness of the 'Smart Consent' gender-specific group workshop, a theory-driven, evidenced-based intervention to change attitudes and practices concerning sexual consent among young adults. This is building upon Pádraig's development of workshops to empower young adults to negotiate consent to sexual activity, which had been supported by a New Foundations grant in 2014. By taking advantage of its location in a third-level institution, the project is conducting an in-depth study engaging with students and stakeholder groups such as students' unions and institutional student services. The proposed intervention relies on sex-positive and gender-specific approaches to consent to redress a tendency towards non-verbal or passive consent, and overreliance on alcohol to overcome lack of confidence in negotiating sexual preferences. Smart Consent also has a distinct applied significance, as it maps onto key objectives of its funder, the Crisis Pregnancy Programme, and the National Sexual Health Strategy, which was launched in 2015.



PROJECT TITLE - Increasing participation: An exploration of the factors which impact on progression to higher education from underrepresented socio-economic groups

Fred is leading the Increasing Participation project at UCC, which is investigating inequalities to higher education among young people from communities of socio-economic disadvantage. Through a community-based approach, focusing on home, school and community, the project is exploring orientations towards higher education and personal identity which impact on young people's decision-making in relation to participation in higher education. With his research team, Fred is collecting data from 5th and 6th year students in six case study schools in Cork, Dublin and Kerry, and with two 'communities of identity' (young people from the Travelling community and young people in care). The focus of this project is mapping onto the key objective of successive governments, in Ireland and internationally, to increase access to higher education.





NEW FOUNDATIONS PROGRAMME

OVERVIEW

The Council's New Foundations Programme provides support for researchers to develop networks, organise, participate or attend conferences, and create workshops or activities designed to communicate the outcomes and values of academic research in Ireland and beyond.

In 2016, the Council made 84 New Foundations awards at a total commitment of €900,000 under four distinct strands:

- 1. Enhancing civic society within a national or international context
- 2. Marking the National Decade of Centenaries 1917–1922
- 3. Encouraging knowledge exchange and collaboration between research institutions north and south or supporting participation of Irish researchers in Council-supported socio-economic sciences and humanities European Research Area Networks
- 4. Knowledge exchange for impact

ENHANCING CIVIC SOCIETY

Run in partnership with The Wheel and Dóchas, strand one of New Foundations supports research aimed at enhancing civic society within a national or international context. The Wheel is a support and representative body connecting community and voluntary organisations and charities nationally. Dóchas, the Irish Association of Non-Governmental Development Organisations, is a meeting place and leading voice for organisations that want Ireland to be a world leader in efforts to bring about global justice. These partnerships are helping to ensure that research funded by the Council develops the knowledge and evidence base for civil society by facilitating the exchange of knowledge between researchers and civic society organisations. It critically enables researchers to spread their work beyond academia, and thus have a strong and tangible impact by informing national and international policymaking in areas such as global development.

In 2016, 28 new projects were funded under the 'Enhancing civic society' strand of New Foundations. This brings the total number of projects funded this strand to 96, in collaboration with 88 partner organisations including Doras Luimní, Concern Worldwide, Cluid Housing Association, the Gay & Lesbian Equality Network and Migrant Rights Centre Ireland.

The Irish private rental sector, the national political participation gap, the stigma of leprosy in rural Nepal, and how to prevent extremist narratives are examples of the new research topics selected for funding under this strand of New Foundations in 2016.

66 €545,203 committed to small projects addressing issues identified by civic society **J**





AWARDEE - John Morrissey

PROJECT TITLE - Haven: Intervening for human security in the Mediterranean humanitarian crisis

AWARDEE - Michelle Norris

PROJECT TITLE - The future of social housing: Financing social housing after the crisis

A senior lecturer in geography and Associate Director of the Moore Institute, NUI Galway, John is leading the Haven Project, focusing on the biggest humanitarian crisis in Europe since the Second World War: the Mediterranean refugee crisis. By partnering with Galway One World Centre, this project is aiming to develop a collaborative body of research that addresses the root causes of the crisis and offers an alternative envisioning of Western interventionism via the UN concept of 'human security'. A series of public events where these critical perspectives were constructively disseminated to relevant stakeholders, and more broadly in the public sphere, was also an important aspect of the project in order to develop a holistic, humanitarian approach to Western interventionism that can deliver a sustainable future of human security for all.

Michelle, head of the School of Social Policy, Social Work and Social Justice at UCD's Geary Institute, is working with Simon Brooke, head of policy at Clúid Housing Association, to help policymakers meet the challenge of providing accommodation for low-income households in a way that is affordable for both households and the exchequer. Using a collaborative approach, the Future of Social Housing project is employing research and knowledge exchange to identify the challenges Irish housing associations currently encounter in accessing affordable finance, and seeking solutions by examining models in other European countries and facilitating dialogue between Irish housing associations and policy makers and their counterparts in Denmark, Austria and England.

AWARDEE - Debbie Ging

PROJECT TITLE - Developing and piloting an LGBT-positive school climate evaluation tool for post-primary schools in Ireland

AWARDEE - Elizabeth Kiely

PROJECT TITLE - Father-Friendly – promoting father-inclusive social care practice in the Irish context

Working in collaboration with Sandra Irwin-Gowran from the Gay and Lesbian Equality Network, Debbie, based at the National Anti-Bullying Research and Resource Centre in DCU, is leading the development and piloting of a LGBT-positive school climate evaluation tool for postprimary schools in Ireland. The project is aiming to produce a standard, practical and expert-designed evaluation tool that Irish schools can use to gain a deeper understanding of their LGBT climate. If widely adopted, this tool has the potential to place Ireland among the most progressive countries worldwide in actively embedding an ethos of LGBT safety and inclusivity in its post-primary education system.

Elizabeth, a senior lecturer in social policy at UCC, is partnering with the Bessborough Centre to lead a research project designed to cultivate the positive interaction between children and fathers participating in the centre's supervised child access programme. The project is tackling the challenge of making strategic, systemic and cultural changes to service provision so that it is father-inclusive, paying attention to the strong evidential correlations between paternal involvement and child development. The project is conducting a research study into how a group of very marginal fathers are being engaged and supported, and aims to share lessons learned with other relevant child welfare and family support services through publication, a father-friendly service guide, and a researcher practitioner networking event to showcase good practice.





RESEARCH LEADER FOR THE CITIZENS' ASSEMBLY

In October, the Council ran a call for a Research Leader for the Citizens' Assembly, following a request to do so by the Citizens' Assembly Secretariat, an independent entity funded by the Department of the Taoiseach. An exercise in deliberative democracy, the Citizens' Assembly places the citizen at the heart of important legal and policy issues facing Irish society today. It is made up of 100 citizens, selected to be broadly representative of the Irish electorate, who are meeting a minimum of eight times, following the first meeting in November 2016. The Assembly has a mandate to look at the following issues: the Eighth Amendment of the Constitution; how we best respond to the challenges and opportunities of an ageing population; fixed-term parliaments; the manner in which referenda are held; and how the state can make Ireland a leader in tackling climate change.

David Farrell, a professor of politics at UCD, was selected by an international assessment board to take on the role of Research Leader for the Citizens' Assembly. David is leading a team to engage with the membership of the Assembly to gain a better understanding of how the members perceive the Assembly's deliberative quality and modus operandi. This research aims to help the Assembly Secretariat obtain feedback on the ways in which it engages the membership to allow for ongoing development and improvement.



6

MARKING THE NATIONAL **DECADE OF** CENTENARIES



66 29 flagship projects supporting national reflection and remembrance during the Decade of Centenaries 11 The Decade of Centenaries offers a unique opportunity for national reflection and remembrance. Since 2015, the Council has been marking this period by supporting research projects related to the 1912-1922 period, including 1916.

The 17 projects that received support in 2015 are nearing completion. In 2016, 12 new flagship projects were awarded funding. The breadth, diversity and range of these projects are a reminder that Ireland, and being Irish, is complex and is expressed in myriad ways. Themes addressed include music and identity, commemoration and how we commemorate, Irish soldiers in the Great War, and women and revolution.

In addition to books and conferences, these projects have also produced non-traditional outputs ranging from a mobile walking app of key locations of the Rising in Dublin to the premiere of an orchestral work in memory of Patrick Pearse.

1916 Clár Comórtha Céad Bliain Centenary Programme ÉIRE

AWARDEE - Amber Cushing

PROJECT TITLE - Women of the EastAR Rising: Curating, designing and developing an augmented reality mobile walking tour application commemorating the role women played in the 1916 Easter Rising

AWARDEE - Susan Schreibman

PROJECT TITLE - Easter 1916: The battle of Mount Street bridge, new technologies, collaborations and forms of knowledge creation

Amber, a lecturer in the School of Information and Communication Studies at UCD, researched and developed a cutting edge augmented reality smartphone experience designed to act as a walking companion for history fans and tourists complete with audio, pictures and information about the key sites of the Rising. The project explored how cultural heritage institutions can utilise mobile based technology to engage the public in the history of the Easter Rising. Rather than asking experts or curators to determine the order and prominence of sites in the app, the team asked the public to vote on their favourite or most important sites. The Walk1916 app is available for Android devices in the Google Play store and Apple devices in the iOS store.

Susan, a professor of digital humanities and director of An Foras Feasa at Maynooth University, led a project for the public dissemination of the findings of the Mellon Foundation-funded 3D reconstruction of the Battle of Mount Street Bridge. This funding provided the project team with the opportunity to leverage digital humanities research within a participatory engagement setting to reach out to second-level students and teachers to provide them with opportunities of engaging with cutting-edge technologies integrated into a student-led learning environment. An interdisciplinary team of historians, armaments experts and virtual world specialists carried out extensive research that allowed them to map, spatially and temporally, the contours of the engagement. The app was developed to educate students about the facts of the battle, while providing a deeper and more holistic understanding of war and its effects.

AWARDEE - Niamh Moore-Cherry

PROJECT TITLE - Living with the legacy of 1916: Urban governance, livelihoods and regeneration in Moore Street market

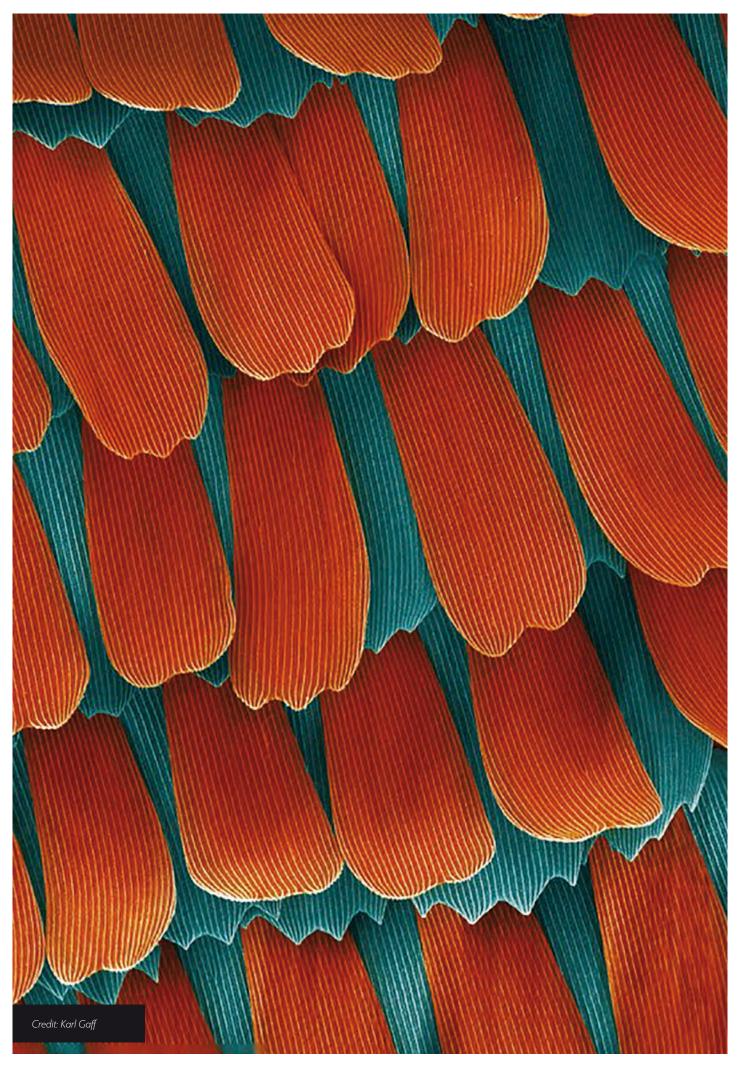
AWARDEE - Niamh Reilly

PROJECT TITLE - Intercultural Ireland, New Voices, Inclusive Centenaries

Niamh, associate professor of urban geography based at UCD, focused on Dublin's Moore Street, the city's oldest food market and an area deeply embedded in historical narratives of the 1916 Rising, and subject to major redevelopment plans. This research was undertaken against the backdrop of the Dublin City Council's recent decision to redesign the area. The project investigated the interplay between national narratives of memory and identity around 1916, urban entrepreneurial agendas and trader livelihoods. Publications and other outputs from this project represent some of the few contemporary contributions by geographers to understanding the spatial impact and implications of the 1916 Rising. An exhibition and visual display are planned to disseminate the results of the project to the general public.

Niamh, a professor of political science and sociology at NUI Galway, led a project that celebrated the Decade of Centenaries by looking forward, rather than back, and engaged new Irish communities in a debate about the kind of Ireland desired by all who call it home in 2016. The project entailed a set of preparatory workshops with youth and women living in direct provision, and culminated in a one-day conference, entitled 'Inclusive Centenaries' at NUI Galway. The conference featured some of the outputs of the preparatory workshops, including the launch of musical performances and short videos produced by the young people and women involved. As a direct outcome of the project, NUI Galway launched a new Inclusive Centenaries Scholarship scheme targeting high-achieving school leavers from Ireland's newest communities.





KNOWLEDGE **EXCHANGE** FOR IMPACT



66 €223,543 committed to enabling communication of the outcomes and impact of academic research in Ireland and beyond ""

The Council's New Foundations Programme provides support for researchers to develop networks, organise, participate or attend conferences, and create workshops or activities designed to communicate the outcomes and values of academic research in Ireland and beyond.

ALL-ISLAND RESEARCH COLLABORATION

Eight new projects were awarded under the specific strand to 'encourage knowledge exchange and collaboration between research institutions north and south. This strand was established to develop projects or networks in support of future cross-border applications to Horizon 2020.

These projects include developing an all-island applied plasma science and technology network, cooperation in research on new bone regeneration in osteoporosis, and creation of a network of Irish humanities researchers investigating migration to expand our capacity to understand and influence the contemporary predicament.

KNOWLEDGE EXCHANGE FOR IMPACT

In addition, 36 new projects were awarded funding under the 'knowledge exchange for impact' strand with the aim of enhancing the international impact of Irish research. This strand is particularly aimed at early-stage researchers seeking to establish their careers. The emergence of China as a political and economic power, the sustainability of peatlands in the twenty-first century, and propaganda about invasion and conflict are examples of the new research topics selected for funding in 2016.

AWARDEE - Marita Hennessy

PROJECT TITLE - Prevention of childhood obesity – knowledge exchange and translation (POCKETS)

Despite policy support for childhood obesity prevention, Marita, a postgraduate scholar in the School of Psychology, NUI Galway, has found that there are knowledge gaps in how to tackle this global public health issue effectively. Based on her experience in academia, policy and practice, including research and advisory roles on a number of obesity and health promotion councils and advisory groups, Marita has identified the need for information-sharing, knowledge translation and research collaboration. Awarded a New Foundations grant in 2016, POCKETS will bring together researchers, policymakers and practitioners in a two-day meeting in June 2017 to exchange knowledge and facilitate mechanisms for the translation of evidence into practice.

AWARDEE - Nicoletta Mandolini

PROJECT TITLE - Representing gender-based violence: Establishing an interdisciplinary international network

Nicoletta is a postgraduate student in the Department of Italian at UCC. Supported by a New Foundations grant, she will organise an international, interdisciplinary workshop in May 2017 to discuss how the experiences of gender-based violence can be represented ethically. Her research recognises that survivors of gender-based violence have begun to contest the dominant idea that trauma is unrepresentable by explaining the experience through genres such as the arts, the media and in law and philosophy. The workshop will initiate a discussion about ethical representations of GBV in ways that avoid biased and simplistic descriptions across these genres. It will also establish a network of scholars, activists and organisations that Nicoletta will remain in touch with as she develops her postdoctoral research, simultaneously enhancing the activities of UCC's research cluster on violence, conflict and gender.

AWARDEE - Micheál Scanlon

PROJECT TITLE - Analysis of photoactive porphyrin functionalised soft interfaces for sensor development and energy research

Micheál, a lecturer in the Department of Chemical Sciences at UL, led a project to develop a scientific network, with the capacity and expertise to prepare a European Cooperation in Science and Technology (COST) Action in 2016. This network targeted research-exchange visits and dissemination at premier international and specialised topical conferences, and conducted interdisciplinary analysis combining electrochemistry with advanced microscopic and spectroscopic characterisation techniques. This included collaboration with British and French research groups to make use of specialised analysis techniques not available in Ireland. The project built upon Micheál's New Foundations award received in 2014, and will further facilitate his research group to develop a unique suite of expertise involving interdisciplinary analysis of photoactive films at liquid-liquid interfaces by in situ electrochemistry, spectroscopy and microscopy techniques for energy conversion and sensor development.

AWARDEE - Theresa Reidy

PROJECT TITLE - Economic crisis, democratic malaise: The post crisis Irish voter

A lecturer in the Department of Government at UCC, with an interest in the area of electoral politics and public finance, Theresa led a collaboration of four political scientists to analyse the Irish general election of February 2016. The emergence of new parties, a growing left-right divide and the persistence of crisis issues since 2008 meant that the volatile 2016 election delivered an even more fragmented outcome than its 2011 predecessor. Along with professors David Farrell (UCD), John Garry (QUB) and Michael March (TCD), Theresa was part of a team that designed an exit poll, in partnership with RTÉ, for the 2016 general election. The Post Crisis Irish Voter project facilitated data analysis of the poll's results and dissemination of analysis. It did so through workshops and seminars for election specialists and the general public in Dublin and Belfast, and presentations at international political science conferences.





"

Interdisciplinarity provides opportunities to deal with multifaceted research questions and societal issues ""

Dr Eucharia Meehan, Director of the Irish Research Council

CREATIVE CONNECTIONS: WORKSHOPS TO CULTIVATE INTERDISCIPLINARY RESEARCH IN IRELAND

In October 2015, the Council launched a new call entitled 'Creative Connections: Workshops to Cultivate Interdisciplinary Research in Ireland'. This call invited researchers to develop innovative proposals for the design, organisation and delivery of interdisciplinary workshops to encourage researchers from different institutions to co-develop ways of engaging across disciplinary boundaries. By cultivating a series of research networks across Ireland, the call was designed to foster research oriented towards solving complex societal challenges, rather than primarily adding to the knowledge base within the discipline. The programme funded six Interdisciplinary Research Workshops in 2016, with support valued at just over €80,000.

AWARDEE - Annmarie Ryan

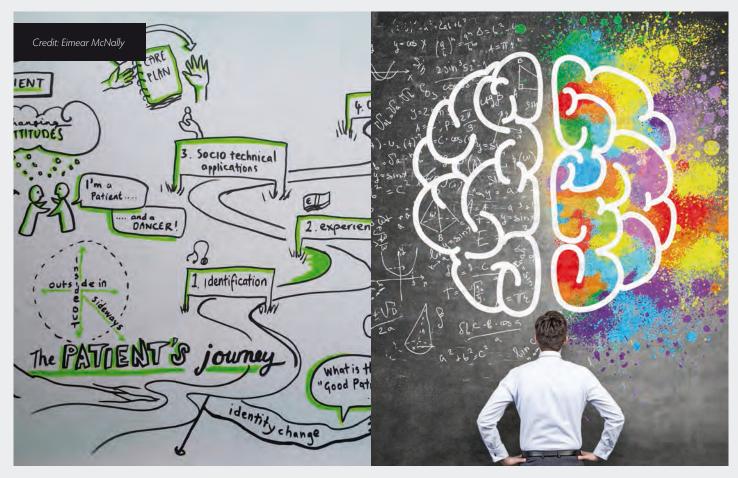
PROJECT TITLE - Health Research Futures Lab: Creating interdisciplinary capacity

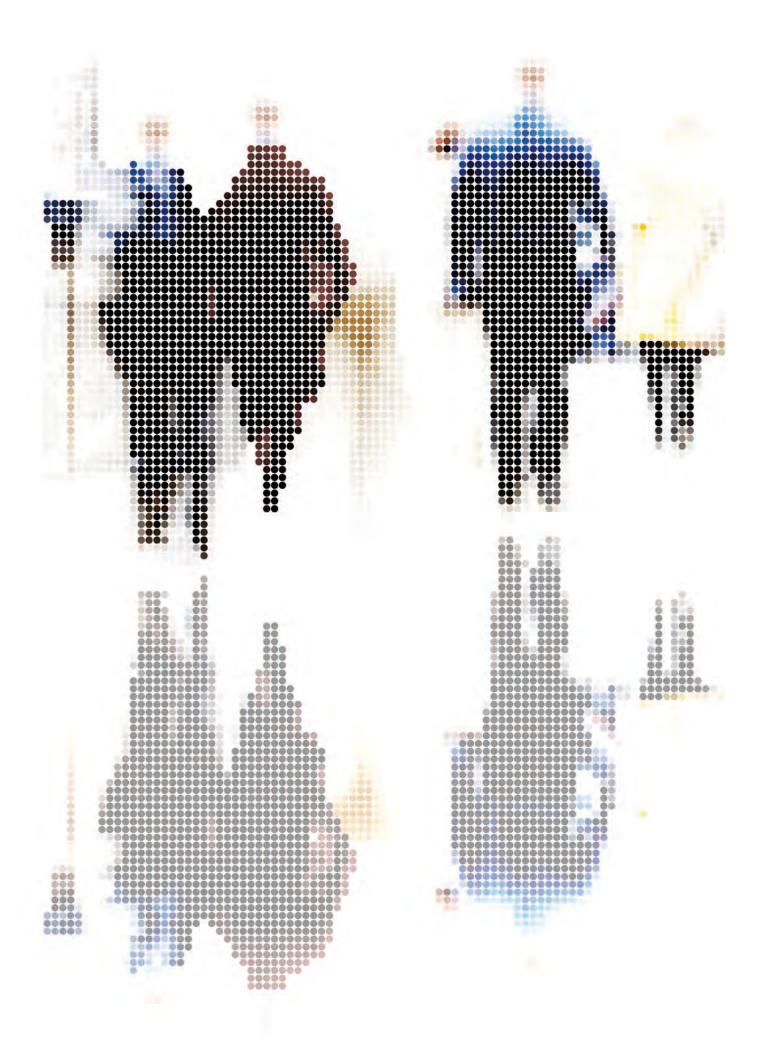
The Health Research Futures Lab was held over four days at UL in April. Annmarie, a lecturer in UL's Kemmy Business School, led a consortium of members from the Irish World Academy of Music and Dance, Design Factors, Limerick Institute of Art and Design, and the Tipperary Dance Platform to bring together 22 researchers from 17 disciplinary backgrounds including food science, art therapy, dance and psychology. The Lab was designed to foster an environment that supported interdisciplinary research, develop a structured approach to ideation, co-creation and co-researching and develop a number of research projects to a pitch-ready stage. The Lab also used the interdisciplinary research process to help participants explore their lived experiences as researchers, focusing on emotions, practices and perceptions. By the Lab's concluding day, six final projects had been developed to pitch stage, three of which were awarded seed funding to support the projects going forward.

AWARDEE - Armida de la Garza

PROJECT TITLE - STEAM-Workshop to cultivate interdisciplinary research in Ireland

Armida, a senior lecturer in screen media and digital humanities at UCC, led the STEAM-Workshop, held over two days in September, which was co-organised by researchers from TCD, UCD and NCAD. Recognising that bridging the gap between science and the arts is a paramount challenge of interdisciplinarity, the workshop focused on promoting research initiatives that seek to integrate science, technology, engineering, arts, humanities, and mathematics into community-based or problem-based projects. The workshop drew 33 participants and involved three keynote presentations by STEAM experts, discussion of 18 case studies of STEAM at work or in development, a networking and matchmaking session, and a forum led by Professor John O'Halloran, UCC Vice-President for Teaching and Learning, to discuss the potential and challenges of interdisciplinary research.





LEADING IN EUROPE

The Council is committed to working with a network of agencies to facilitate the integration of Irish researchers within the European Research Area. Through collaboration within a network of research councils across Europe, the Council has developed an international reputation and expertise on lobbying for development of research priorities sought by the Irish research community in European Union (EU) funding.

In December 2013, the EU launched a new research and innovation funding programme, Horizon 2020 (H2020), which is contributing to the enhancement of Irish research and innovation capacity. A national strategy for engagement with H2020 has set an overarching target for Ireland's drawdown of €1.25 billion.

This section summarises the actions being taken by the Council so as to enable delivery of both national objectives and overarching European goals for Horizon 2020. By engaging with H2020, the Council seeks to enhance opportunities for Irish researchers and the quality of Ireland's performance in and ecosystem for research and innovation.

The Council's specific actions to support Irish engagement with H2020 include:

- Being joint national contact point for the European Research Council (ERC) to raise awareness, inform and advise on ERC funding opportunities in addition to supporting in the preparation, submission and follow-up of an ERC grant application
- Funding of the Irish Marie Skłodowska-Curie Office, which is operated in partnership with the Irish Universities Association, to support researchers at all stages of their careers, across all research disciplines and in all employment sectors
- Leading as national delegate and national contact point to support applications under Societal Challenge 6 'Innovative, Inclusive and Reflective Societies'
- Developing and maintaining links, on behalf of the Irish research community, within European research networks and alliances, such as Humanities in the European Research Area (HERA), GENDER-NET and New Opportunities for Research Funding Agency Cooperation in Europe (NORFACE)
- Preparing the Irish research community for interdisciplinary engagement with the European societal challenges by fostering creative connections across all disciplines
- Instigation of a frontier research programme across all disciplines and all career stages to continue to support the next generation of researchers to compete effectively on the global stage

NEW HORIZONS PROGRAMME

Launched in 2015, the New Horizons Programme is a tailored initiative to help the Irish research community prepare excellent ideas for competition at European level. The programme primes top-class Irish researchers to build towards seeking further investment in those ideas from H2020. New Horizons represents one of a number of Council measures that contribute towards enabling Ireland to be successful within the European research sphere, and ultimately to reach our national target of winning €1.25 billion in H2020 funding.

The Council also launched a new interdisciplinary strand within New Horizons, aiming to encourage researchers from the arts, humanities and social sciences to collaborate with those from science, technology, engineering and mathematics. These awards supported collaboration on interdisciplinary projects that addressed societal challenges, helping arts, humanities and social sciences researchers form new connections and build on existing national and international networks for collaborative work on upcoming topics across H2020.

In 2016, the Council funded 21 new projects under the New Horizons Programme at a total cost of €3.3 million. Research topics include counterterrorism, adoption choices, and privacy in the cyber age.

66 €3.3 million committed to preparing excellent ideas for competition at European level ""

AWARDEE - Cian O'Callaghan

PROJECT TITLE - The new urban ruins: Vacancy and the post-crisis city

AWARDEE - Eleanor Denny and Declan O'Sullivan

PROJECT TITLE - Nudging energy efficient purchasing decisions (NEEPD)

Cian's project is addressing the challenges facing post-crisis cities by approaching urbanisation through the innovative lens of sites of urban vacancy, ruin and dereliction. An assistant professor in the Department of Geography, TCD, Cian approached this project with the hypothesis that vacant space will play a key role in determining how cities of the future respond to both urban problems and wider global challenges. The New Urban Ruins project is focusing on Dublin with a smaller-scale comparative analysis in Barcelona and Berlin, and researching two types of responses to vacant urban spaces: policies to remediate 'new ruins' (vast tracts of vacant and unfinished developments left by property bubbles) and urban experiments in temporary uses. Outputs from Cian's research project so far have included participation in public forums, such as the Connecting the Dots event on reusing vacant space and three People's Housing Forums.

Eleanor and Declan, associate professors in TCD's Departments of Economics and Computer Science respectively, are collaborating on the NEEPD project, which is aiming to help consumers better understand and interpret the information provided on new EU-mandated energy consumption labels. They propose that if consumers are provided with information on the operating costs of electrical appliances that this information would nudge them towards more energy efficient purchases. Eleanor and Declan are conducting an experimental retail trail to investigate if displaying monetary cost information on a range of electrical appliances would encourage consumers to purchase more efficient appliances, and are testing this using a novel field experiment resulting from this collaboration between behavioural economics and information systems. Eleanor was awarded a H2020 project under the EE-08-2016 Societal Challenges call as a direct result of the research agenda for this NEEPD project.





THE IRISH RESEARCH **COUNCIL AND MARIE** SKŁODOWSKA-CURIE

The H2020 Marie Skłodowska-Curie Actions (MSCA) supports researchers at all stages of their careers, across all research disciplines and in all employment sectors. The actions focus on excellent and innovative research training, career development and knowledge exchange. They also encourage cooperation between academia and non-academic sectors. The actions include funding networks for doctoral training, staff exchange programmes and individual fellowships as well as European Researchers' Night, held every year on the last Friday in September.

The Marie Skłodowska-Curie Actions were set up in 1996 and have just reached their 20th anniversary. The programme expects to fund its 100,000th fellow during 2017. Over the past 10 years alone, researchers in Ireland have accessed €100 million in funding through the programme.

The Council's engagement with MSCA has two main focuses: funding the Irish Marie Skłodowska-Curie Office (IMSCO) which is operated in partnership with Irish Universities Association and participation in COFUND programmes.

The IMSCO provides advice and support on preparing applications for Marie Skłodowska-Curie funding to individuals as well as to institutions. It also provides support in relation to management of Marie Skłodowska-Curie awards.

Furthermore, the Council has itself secured competitive funding for four COFUND fellowship programmes to date under which 120 researchers have been funded.

The most recent programme CAROLINE – 'Collaborative Research Fellowships for a Responsive and Innovative Europe' - was launched in October 2016. This unique and innovative programme is designed for experienced researchers from any discipline to conduct research relevant to the themes of the Global Sustainable Development Goals. The successful applicants will have the exceptional opportunity to carry out research either in Ireland or abroad and will gain intersectoral and interdisciplinary exposure. A key feature of CAROLINE is the potential for collaboration between the academic sector, non-governmental or international organisations and the commercial sector.

On European Researchers' Night 2016, the Council supported 'Probe: Research Uncovered', an evening of music, talks, performance, films, food, experiments and workshops that explored the fascinating research that is shaping our world. As part of the event, the Council curated a showcase of seven five-minute long talks by early career researchers, each addressing a different grand societal challenge.

57TH PLENARY MEETING OF THE SCIENTIFIC COUNCIL OF THE EUROPEAN RESEARCH COUNCIL

The Council directly supports applicants to the European Research Council (ERC) by enabling and nurturing research excellence.

The ERC Scientific Council chaired by the ERC president, Professor Jean-Pierre Bourguignon and composed of 21 distinguished scholars from across Europe, is the main governing body of the ERC. The Scientific Council meets in plenary session five times per year, typically in Brussels, with two meetings a year taking place abroad. In 2016, the ERC held a meeting in Ireland for the first time and to mark this historic visit, the Council co-hosted an official dinner with the Royal Irish Academy in Iveagh House on 11 October. The guest of honour at this dinner was the President of Ireland, Michael D. Higgins, who delivered the keynote address.

LL If we truly want Europe to be a cradle of innovation, it is vital, therefore, that we continue to support exploratory research at, and beyond, the frontiers of understanding. This means sustaining firmly, in all of our respective countries, that bedrock of basic research from which all scientific breakthroughs spring ""

President of Ireland, Michael D. Higgins





HUMANITIES IN THE EUROPEAN RESEARCH AREA

The Council is the Handling Agency for Humanities in the European Research Area (HERA), a partnership between 24 humanities research councils across Europe and the European Commission. HERA's objective is the continued growth and development of collaborative and transnational humanities research across Europe.

The humanities are crucial to the understanding and conceptualising of fundamental changes in contemporary European society. Linking national programmes and launching joint research programmes dealing with all-encompassing social, cultural, political and ethical developments will generate new knowledge and enable policymakers, scientists and the general public to interpret the challenges of a changing world.

The HERA network, along with the European Commission, is investing €21 million in 18 European research teams as part of its third joint research programme, 'Uses of the Past'.

These projects involve 18 project leaders, 62 principal investigators, 106 postdoctoral fellows, 30 postgraduate students and 76 associated partners. The projects will be funded for a maximum of three years from 2016 to 2019. The 18 projects examine which historically informed ideas and actions in society are promoted, mobilised and legitimised, and identify the mechanisms and motivations that lie behind the work of historical understanding. As part of this research programme, Professor Dan Bradley of TCD has secured over €200,000 and will join a team of academics from Iceland, Denmark and the UK to investigate the uses of genomic data in the study of human population histories.

HERA closed its second joint research programme, 'Cultural Encounters', and launched its third joint research programme at the Brevnov Monastery in Prague in September 2016. This event consisted of networking opportunities and knowledge exchange activities with previously funded HERA project leaders and included panel sessions, musical performances, exhibitions and installations from all 18 projects awarded funding under the HERA JRP Cultural Encounters Programme.

Professor Jane Ohlmeyer opened the conference by outlining the fundamental importance of humanities research and the pivotal role of the HERA Handling Agency, a position held by the Council since 2013.



DARIAH

The Digital Research Infrastructure for the Arts and Humanities (DARIAH) is a pan-European infrastructure for arts and humanities scholars working with computational methods. It supports digital research as well as the teaching of digital research methods. DARIAH-ERIC is an international infrastructure formed in August 2014, with the mission of enhancing and supporting digitally enabled research across the humanities and arts. DARIAH-ERIC develops, maintains and operates an infrastructure in support of ICT-based research practices.

The Council funds the Irish DARIAH National Coordination Office. In 2016, the Council published a national call for proposals and appointed Dr Orla Murphy of University College Cork as National Coordinator.

NORFACE

New Opportunities for Research Funding Agency Cooperation in Europe (NORFACE), a partnership between 14 social sciences research councils across Europe, was established in 2004, when the network successfully bid for an FP6 award to coordinate activities. The 12 partners involved are the research councils for the social sciences from Estonia, Denmark, Finland, Germany, Iceland, Ireland, the Netherlands, Norway, Portugal, Slovenia, Sweden and the United Kingdom. Canada and Austria participate in NORFACE as associate partners. NORFACE is an ambitious programme of communication, enquiry, sharing of experience and action and the Council is the Irish representative in the consortium.

The fourth major transnational research programme was launched by NORFACE in December 2015 and invited applications on the topic of Dynamics of Inequality Across the Life-course: structures and processes (DIAL). Outline proposals were submitted in March 2016, with those invited to the full proposal phase submitting applications in October 2016. It is expected that the outcome of the assessment will be known in Spring 2017.

The programme is structured around four main themes, which reflect transitions and trajectories as they unfold over the life course:

- Early life influences and outcomes;
- Early adult transitions into tertiary education, vocational training and economic activity;
- Labour market and family trajectories and the growth of inequality; and
- Labour market participation in later life and retirement.

CHIST-ERA

CHIST-ERA funds transformative and highly multidisciplinary research projects in information and communication sciences and technologies (ICST) exploring new ideas with the potential for significant scientific and technical impacts in the long term. Each year CHIST-ERA launches a call for research proposals. The 2016 call addressed the topics of lifelong learning for intelligent systems and visual analytics for decisionmaking under uncertainty. The Council supports Irish participation in the consortium.

EUROPEAN SOCIAL SURVEY

The European Social Survey (ESS) is an academically driven social survey designed to chart and explain the interaction between Europe's changing institutions and the attitudes, beliefs and behaviour patterns of its diverse populations. To support the work of ESS in Ireland, the Council appoints and funds a national coordinator to oversee and implement the survey.

In 2016, the Council published a national call for proposals and recommended that Mary Immaculate College be appointed to the role of national coordinator of ESS Round 8, led by Dr Brendan O'Keefe.













PROGRESS ON GENDER EQUALITY



The Council has a social responsibility to ensure that it actively works to maximise collective research intelligence, creativity and innovation, and to only fund excellent research. In 2013, the Council launched a Gender Strategy and Action Plan which aims to provide equal outcomes to both men and women so that Ireland can attract and retain the most talented, creative and innovative researchers, thereby maximising its collective research intelligence.

f The Council is committed to playing its part in the implementation of the [HEA National Review of Gender Equality in Irish Higher Education Institutions'] recommendations, in doing so building on our work to date and contributing further to a research ecosystem that cultivates excellence and equal opportunities regardless of gender ""

Professor Jane Ohlmeyer, Chair of Irish Research Council

In the wake of the 'Gender Review' report launched by the Higher Education Authority in June 2016, the Council published an update on its progress on gender equality, including indicators of the positive impact of its Gender Strategy and Action Plan.

The introduction of gender-blind assessment for the Council's 2014 and 2015 calls resulted in a significant improvement in the representation of female researchers across disciplines. The most striking changes could be seen in the results of STEM postdoctoral programmes, where the percentage of awards given to women increased significantly. When the assessment was not anonymised in 2013, women represented only thirty-five per cent of awardees in comparison to forty-three per cent of applicants. After the applications were anonymised, the number of women receiving awards rose to forty-four per cent in 2014 and forty-five per cent in 2015.





- The Council was also the first research funding agency in Ireland to integrate the sex/gender dimension into applications to its funding programmes: since 2014, applicants for awards under our core programmes have been required to indicate if there is a sex or gender dimension to the research being proposed and how such dimensions will be appropriately addressed in the conduct of the research.
- In addition to gender-blinding of applications for evaluation so as to mitigate any gender bias in assessment, the Council has introduced a gender balance requirement in assessment panels for Council awards. Since 2013, just under sixty per cent of Council panels have comprised a minimum of forty per cent female representation.
- In December, the Council, Science Foundation Ireland and the Health Research Board adopted a key recommendation of the National Review of Gender Equality in Higher Education Institutions, by requiring higher education institutions to have Athena SWAN gender equality accreditation in order to be eligible for research funding. Higher education institutions will be required to have secured the minimum Athena SWAN gender equality accreditation by the end of 2019 in order to compete for funding allocated by any of the three agencies, and to hold the intermediate (silver) level accreditation by the end of 2023 to be eligible for competitive research funding.

STATEMENT ON DIGNITY IN THE CONDUCT OF RESEARCH

In May, the Council launched its 'Statement on Dignity in the Conduct of Research, the first such statement to be issued by an Irish funding agency. The statement is designed to support the creation of a research system in which all researchers, regardless of gender, are able to reach their full potential at all stages of their career. In the statement, the Council emphasises that people are at the heart of research; that respect for the dignity of the individual is something that the entire research community has a responsibility to protect and promote; and that all researchers are entitled to carry out their work free from any form of harassment, victimisation, or bullying. The Statement on Dignity in the Conduct of Research is one of the Council's core policies, and applies to all programmes.

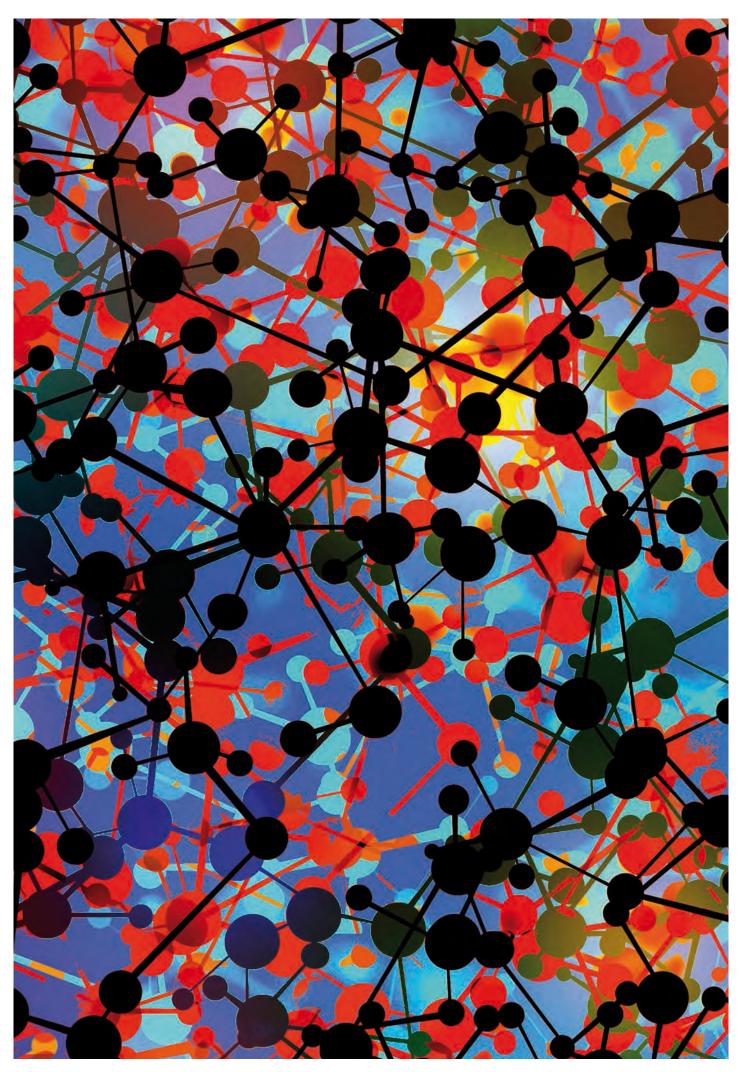
GENDER-NET

From 2013–2016, the Council was a partner in the EU FP7 GENDER-NET project, the first European Research Area Network (ERA-NET) to be dedicated to the promotion of gender equality through structural change in research institutions, as well as to the integration of sex and gender analysis in research.

GENDER-NET brought together a partnership of 13 ministries, national research funding agencies and national organisations from across Europe and North America which shared a commitment to gender equality and synergistic expertise in gender and science issues.

In April, the Council hosted GENDER-NET's 6th Consortium Meeting in Dublin, and participated in the GENDER-NET Strategic Seminar in Norway House, Brussels, at which Professor Jane Ohlmeyer presented an overview and update of the Council's gender strategy.





APPENDICES

APPENDIX 1 IRISH RESEARCH COUNCIL BOARD MEMBERS	
Professor Jane Ohlmeyer	Chair, Erasmus Smith's Professor of Modern History at Trinity College Dublin and the Director of the Trinity Long Room Hub
Dr Felicity Kelliher	Senior Lecturer in Management and Co-Chair of the RIKON research group, Waterford Institute of Technology
Professor Rob Kitchin	National Institute of Regional and Spatial Analysis, Maynooth University
Professor Eithne McCabe	School of Physics, Faculty of Engineering and Mathematics, Trinity College Dublin
Professor Emma Teeling	School of Biology and Environmental Science, University College Dublin
Professor James Gleeson	Professor of Industrial and Applied Mathematics, and Co-Director of the applied mathematics research group MACSI, University of Limerick
Professor Alan Smeaton	Professor of Computing and Director of the Insight Centre for Data Analytics, Dublin City University
Professor Kieran Conboy	Dean of College of Business, Public Policy and Law, National University of Ireland, Galway [appointed on 31 August 2016]
Professor Debra Laefer	School of Civil, Structural and Environmental Engineering, University College Dublin [appointed on 31 August 2016]
Professor Ursula Kilkelly	School of Law, University College Cork [appointed on 31 August 2016]
Professor Daniel Carey	Moore Institute for Research in the Humanities and Social Studies, National University of Ireland, Galway [appointed on 31 August 2016]
Professor Caroline Fennell	Vice-President Academic Affairs and Registrar, University College Cork [retired on 18 March 2016]
Professor Anita Maguire	Professor of Pharmaceutical Chemistry and Vice-President of Research and Innovation, University College Cork [retired on 18 March 2016]
Professor Sean Ryder	Chair of English, National University of Ireland, Galway [retired on 18 March 2016]
Dr Eucharia Meehan	Director, Irish Research Council [ex-officio member]

APPENDIX 2 STAFF MEMBERS	
Dr Eucharia Meehan	Director
Mr Peter Brown	Deputy Director H2020 Societal Challenge Six National Delegate
Ms Nuala Byrne	Research Support Officer Research Project Grants and Finance
Ms Emily Carroll	Research Support Officer Government of Ireland Postgraduate Scholarship Programme and Lindau Nobel Laureate Meetings
Ms Fiona Davis	Programme Manager European Partnerships [including HERA and NORFACE]
Ms Leonora Harty	Programme Manager Government of Ireland Postdoctoral Fellowship Programme and Gender Initiatives
Dr Raasay Jones	Programme Manager Government of Ireland Postgraduate Scholarship Programme and Communications
Dr Aileen Marron	Research Support Officer European Partnerships [including HERA and NORFACE]
Dr Gráinne McEvoy	Postdoctoral Intern
Dr Dorota Migocka-Sendlak	Research Support Officer Marie Skłodowska-Curie Actions [COFUND Programmes]
Dr Maria O'Brien	Programme Manager Research Project Grants and H2020 [ERC Joint NCP and H2020 Societal Challenge Six NCP]
Dr Deirdre Quinn	Research Support Officer Enterprise and Employment Programmes
Mr Liam Ryan	Finance Manager
Dr Justin Sinnott	Programme Manager Enterprise and Employment Programmes and CHIST-ERA
Dr Fariha Shaikh	Postdoctoral Intern
Mr Neil Tynan	Research Support Officer Government of Ireland Postdoctoral Fellowship Programme and Ulysses
Dr Andrea Valova	Programme Manager Marie Skłodowska-Curie Actions [COFUND Programmes] and Career Development Policy

APPENDIX 3 2016 CALL STATISTICS

Postgraduate Scholarships – Government of Ireland Postgraduate Scholarships, Employment Based Programme and Enterprise Partnership Scheme



While the majority of scholarships are awarded to applicants who are a national of a member state of the European Economic Area (EEA) or Switzerland AND have been ordinarily resident in an EEA member state or Switzerland for a continuous period of three of the five years preceding 1 October 2016, approximately ten per cent of awards are made to those who do not fall under these categories.

Postdoctoral Fellowships – Government of Ireland Postdoctoral Fellowships and Enterprise Partnership Scheme



Research Projects Grants – New Horizons and Research for Policy and Society







