
IRISH RESEARCH COUNCIL

ANNUAL
REPORT
2020



IRISH RESEARCH COUNCIL
An Chomhairle um Thaighde in Éirinn

Our mission is to support excellence in research talent, knowledge and engagement by:

- Funding excellent discovery and enterprise research across all disciplines and showing the benefits for Ireland of this investment
- Supporting exceptional individual researchers and their development
- Responding to emerging research and societal challenges and proactively assisting stakeholders to address complex issues
- Positively contributing to innovation, reform and best practice in the Irish higher education and research ecosystem
- Demonstrating a consistent, impartial and transparent approach to the award of funding, delivered to a high standard of service
- Actively seeking to collaborate with others, in Ireland and internationally, to enhance the research ecosystem
- Building support for discovery research among the public, the research community and other stakeholders.

The Irish Research Council is an associated agency of the Department of Further and Higher Education, Research, Innovation and Science and operates under the aegis of the Higher Education Authority.

Cover photo credits:

Below: idea: Andrew Power from GMIT, USI-IRC Why Research Matters Video winner of the research communication award

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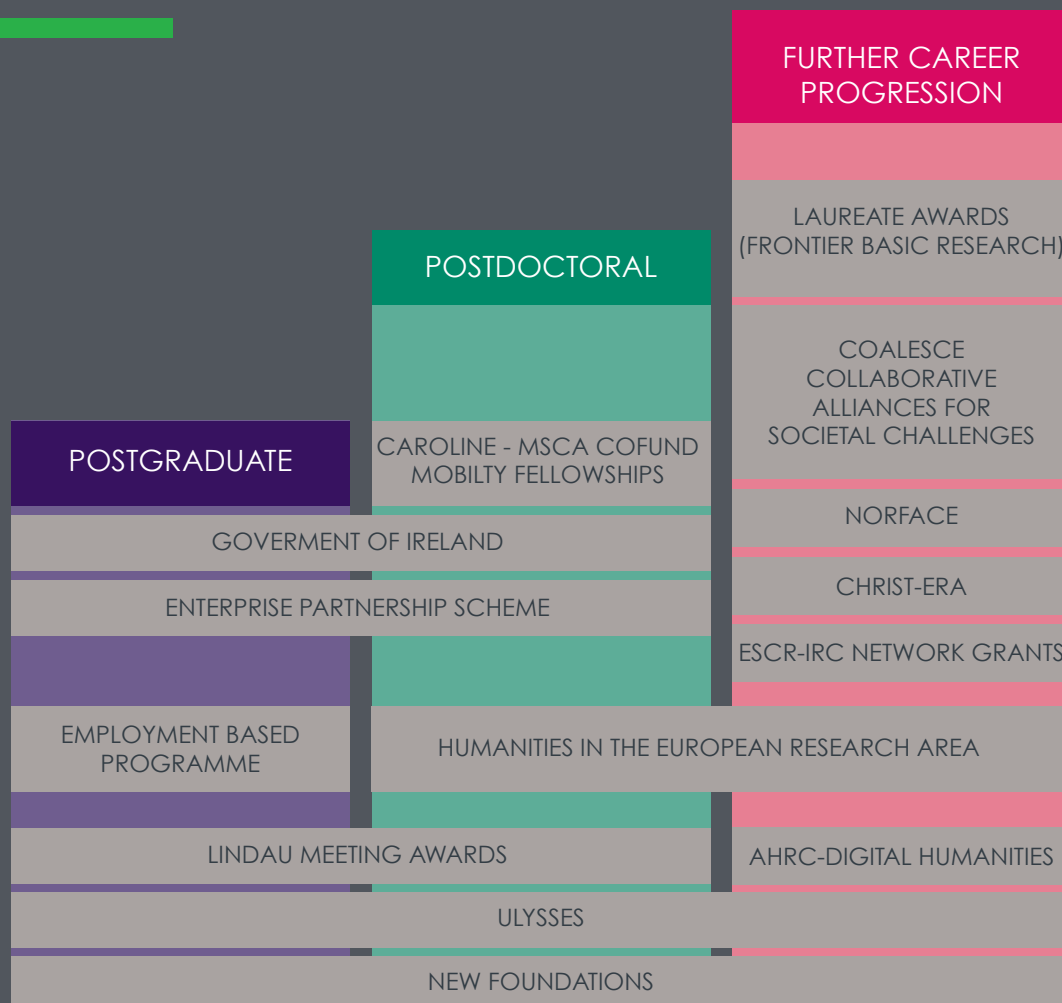
The accounts for the Irish Research Council are published as part of the HEA Annual Report 2020.



1

OVERVIEW

HOW WE FUND



MINISTER'S FOREWORD



Mr Simon Harris TD

Minister for Further and Higher Education, Research, Innovation and Science

In 2020 the Irish Research Council continued to fulfil its important role within Ireland's research and innovation community, supporting excellent ideas and talent across all disciplines. However, this was no ordinary year in the Council's history.

The year began with a significant milestone: the launch of the Council's five-year strategic plan in January 2020. This showcases the exciting headline themes of Ideas, People and Engagement. Fostering fruitful engagement between the people whom the Council funds, their research ideas and wider society is at the heart of the Council's mandate. The strategic plan will underpin the Council's unique role in the Irish research system over the next five years, and I look forward to working with the Council in achieving its ambitious aims.

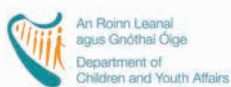
As of March 2020, the Council faced a significantly altered social and research landscape. COVID-19 had a major impact on researchers, both in Ireland and internationally. From the pandemic's outset, the Council has taken a flexible and pragmatic approach. Its priority was, and continues to be, the safety and wellbeing of people – researchers, research participants, and those who support them. To counteract the negative effects of the pandemic's outbreak on researchers, the Council provided regular updates to awardees, and changes to award timelines and award budgets were permitted to enable research projects to be completed successfully. These updates were managed in a coordinated fashion between funders through the Council forming/chairing the research funders-HEI forum. I want to thank the IRC for taking this initiative and helping to ensure strong coordination and the exchange of knowledge between key research stakeholders at the height of the crisis.

As a mechanism to support researchers' desire to respond to the COVID-19 crisis, the Council worked with its fellow research-funding agencies to develop a coordinated Rapid Response Research and Innovation programme. With an unprecedented collaborative spirit, no fewer than five agencies worked together to ensure that excellent ideas to tackle COVID-19 from across the Irish research community could be supported. Despite a myriad of practical challenges, Ireland's researchers are to be commended for playing a key role in responding to this global crisis: this point cannot be overstated. Further, the Council and its fellow agencies are to be commended for enabling this response through the Rapid Response programme, which lived up to its name.

Despite the challenges faced by the Council's Executive and the increased workload that arose due to COVID-19, I am delighted that the Council's core programmes continued to operate in 2020, with international assessment boards pivoting to meet online. Case studies throughout this report illustrate the breadth and depth of research that the Council has funded this year, with topics ranging from internet-safety policymaking, to the monitoring of environmental pollution, to therapies for breast cancer, to twentieth-century Irish cultural history, to name but a few.

I congratulate the Council and all its funded researchers on their achievements and their resilience in 2020. I greatly look forward to celebrating more such successes in the years to come.

PARTNERSHIPS WITH GOVERNMENT DEPARTMENTS AND AGENCIES



An Roinn Leanaí
agus Gnóthaí Óige
Department of
Children and Youth Affairs



An Roinn Gnóthaí
Eachtracha agus Trádála
Department of
Foreign Affairs and Trade



Coimisiún na hÉireann
um Chearta an Duine
agus Comhionannas
Irish Human Rights and
Equality Commission



OPW Oifig na
nOibreacha Poiblí
Office of Public Works



Irish Aid
An Roinn Gnóthaí Eachtracha agus Trádála
Department of Foreign Affairs and Trade



An Roinn Airgeadais
Department of Finance

INTRODUCTION

Peter Brown

Director of the Irish Research Council

Professor Jane Ohlmeyer

Chair of the Irish Research Council



The COVID-19 pandemic left, without any doubt, its mark on the Higher Education sector as it has on every part of our lives globally, preventing research-related travel, archival research, conferences and on-campus teaching. However, it also opened new paths of using digital technology more efficiently for teaching, research and outreach events, making many of them more accessible for audiences old and new. It remains to be seen how much the impact of this extraordinary year will be.

Together with the Health Research Board (HRB) and Science Foundation Ireland (SFI), the Council published a joint statement in March 2020 updating applicants and awardees on the ongoing situation regarding the Coronavirus disease (COVID-19) and its significant impact on the research and innovation community, both in Ireland and internationally. Thankfully, due to the tireless commitment of students and staff across the country and the team at the Council, all funding schemes were able to run normally and without major delays.

Through all these measures, the Council continued to support excellent research across all disciplines and career levels in 2020. We are proud to have funded 1576 researchers across a portfolio of awards worth in excess of €161 million. In this annual report, we provide selected case studies of their ground-breaking work; these are just a few examples of the brilliant array of researchers who could have featured.

In 2020, the Council welcomed 285 new postgraduate scholars and 90 new postdoctoral fellows to its awardee community. Our approach recognises that investing in exceptional early career researchers is vital to ensuring a strong pipeline of research talent for Ireland's future benefit and development.

The Council has a long-standing tradition of funding excellent early career researchers, which continues to form the cornerstone of our approach. As well as providing many researchers with their first award – the initial step on the ladder of their research careers – we are also proud to support researchers as they advance their research ideas.

Despite and in direct response to the COVID-19 pandemic, the Council strengthened its flagship funding programmes and expanded on various partnerships in 2020. For example,

- > The Government announced the coordinated COVID-19 Rapid Response Research, Development and Innovation programme, with the Irish Research Council and the Health Research Board joining together to fund the first strand of the call, investing €5 million in 26 COVID-19 research and innovation projects. This was followed by a second investment of €10.5 million in 39 research projects, with 14 projects funded under the IRC-HRB partnership focusing on social and policy countermeasures to COVID-19.
- > The Council is proud to support partnerships between civil society organisations and researchers in higher education. We have funded 104 research partnerships with civil society organisations, sponsored Campus Engage, and funded Public and Patient Involvement (PPI) awards with the Health Research Board.

In the Council, we consider it our priority to showcase to the wider public the excellent research conducted by our awardees. Through our ongoing #LoveIrishResearch campaign, we endeavour to raise public awareness of the important research that is being carried out in Irish higher education institutions and research-performing institutions.

This report provides a snapshot of our activities in 2020. We appreciate your interest in our work and invite you to email us or visit our website if you require further information.

OVERVIEW OF ACTIVE AWARDS IN 2020

1576 directly funded researchers

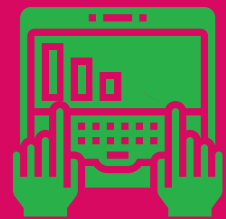


358

Postdoctoral fellows
(GOI, EPS, CAROLINE
and Projects)

1176

Postgraduate scholars
(GOI, EPS, EBP and Projects)



42

Research assistants
(PI-led projects)

109 principal investigator-led projects



33

COALESCE

Laureate

48

19

ERA-NET projects

1

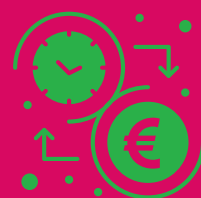
Research Infrastructures

Other research projects

8

€161.4m

value of award
portfolio in 2020

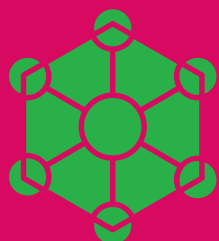


€5.1m*

leveraged funding from other sources

197

Enterprise partners

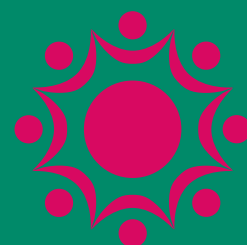


162

Knowledge exchange and
networking awards

14

Partnerships with government
departments and agencies



104

Awards with civic society
partners

* The funding from other sources includes €1.4 million received from EU funding in relation to CAROLINE and GENDERNET.

OVERVIEW OF NEW EARLY CAREER AWARDS IN 2020

209 / €15m

GOI Postgraduate Scholarship Programme



126
Male

83
Female

181
European

28
Rest of world

106 STEM

103 AHSS

16 Institutions

41 / €3.4m

Enterprise Partnership Scheme (Postgraduate)



15
Male

26
Female

29
European

12
Rest of world

32 STEM

9 AHSS

10 Institutions

35 / €3m

Employment-Based Postgraduate Programme



15
Male

20
Female

29
European

6
Rest of world

24 STEM

11 AHSS

12 Institutions

79 / €6.5m GOI Postdoctoral Fellowship Programme



45
Male

39 STEM



34
Female

40 AHSS



67
European



12
Rest of world

9 Institutions

11 / 1m Enterprise Partnership Scheme (Postdoctoral)



3
Male

7 STEM



8
Female

4 AHSS



7
European

4
Rest of world

4 Institutions

GOI: Government of Ireland | AHSS: Arts, humanities and social sciences

STEM: Science, technology, engineering and mathematics | MSCA: Marie Skłodowska-Curie Actions

STRATEGIC PLAN 2020-2024



The new Plan will underpin the Council's unique role in the Irish research system over the next five years

In January, the Council's five-year strategic plan was launched by Minister of State for Training, Skills, Innovation, Research and Development, John Halligan TD.

The headline themes for the strategic plan are Ideas, People, and Engagement, and the Council will support each of these critical components of a healthy research and innovation ecosystem over the coming years. Working with the research community, institutions, national and international partners the plan sets out a blueprint to ensure that the Council will maximise delivery for Ireland on its national mandate.

Supporting excellent ideas and talent across all disciplines and fostering vibrant engagement between the people and research that the Council funds and wider society are at the heart of the Council's mandate, and the plan sets out a comprehensive series of actions which address excellence, partnership, impact, and support for policy. In addition, the plan addresses enhancement of the Council's capacity as an organisation, under the aegis of the Higher Education Authority.

Strategic goals include:

1. Enable excellence in people, skills and ideas across all disciplines for discovery and enterprise research.
2. Be a partner of choice nationally and internationally to support excellent research that addresses the challenges of our time.
3. Demonstrate the value of the research we support, ensuring that the knowledge and innovations generated are shared and exchanged to the maximum extent.
4. Make a tangible contribution to innovation, evaluation and reform in the higher education and research ecosystem.
5. Achieve and maintain excellence and optimise the IRC's capacity as an organisation.

OUR VALUES
INDEPENDENCE **LEADERSHIP**
RESEARCHER-CENTREDNESS
PROFESSIONALISM

RESEARCH ACHIEVEMENTS



The Minister of State for Training, Skills, Innovation, Research and Development, John Halligan TD, launched the Irish Research Council's five-year strategic plan.

Working with the research community, institutions, national and international partners, the plan sets out a blueprint to ensure that the Council will maximise delivery for Ireland on its national mandate.



The Economic and Social Research Council (ESRC) and the Irish Research Council (IRC) launched a networking grants opportunity aimed at fostering the development of long-term relationships between social science researchers in the UK and Republic of Ireland.



In February, the Council was proud to announce the nominees to represent Ireland at the 70th Lindau Nobel Laureate Meeting in Germany.

The nominees representing the fields of Chemistry, Physics, and Physiology or Medicine were Dr Adele Gabba (NUI Galway), Dr Joseph Byrne (NUI Galway), and Dr Ibrahim S. Aminu (Limerick). The nominees of the Sveriges Riksbank Prize in Economic Sciences were Dr Jon Gruda (Maynooth), Dr Mrinal Chadha (NUI Galway), and Dr Sheng Zhu (UC Cork).

January

February

March

April

Coronavirus COVID-19

The Irish Research Council (IRC), Health Research Board (HRB) and Science Foundation Ireland (SFI) published a joint statement updating applicants and awardees on the ongoing situation regarding the Coronavirus disease (COVID-19) and its significant impact on the research and innovation community, both in Ireland and internationally.

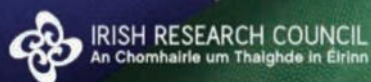


HORIZON 2020

Four Irish Winners of ERC Advanced Grant Awards, amounting to a nearly €10 million investment into Irish research, from one of the most prestigious funding schemes in Europe. Three of the ERC grants were awarded to outstanding IRC-funded researchers in the Social Sciences and Humanities (SSH). The SSH researchers are based in Trinity College Dublin (TCD), University College Dublin (UCD) and the University of Limerick (UL). The fourth was awarded to an IRC Advanced Laureate in the Sciences, also from the University of Limerick, working in crystal engineering.

The Government announced details of the first 26 projects that will receive €5 million funding under the newly established national coordinated research and innovation response to the COVID-19 pandemic. The Irish Research Council and the Health Research Board joined together to fund the first strand of the call, focusing on the development of medical countermeasures, health service readiness, and social and political countermeasures to COVID-19.

Ulysses Programme 2020



On Bloomsday, details were announced of nineteen new partnerships under the aptly named Ulysses funding scheme, which is designed to foster collaborations between Ireland- and France-based researchers. Run by the Irish Research Council and the Embassy of France in Ireland, the programme funds reciprocal travel between the two countries, facilitating the exchange of innovative ideas and technologies across all disciplines, including seeds to the fight against the COVID-19 pandemic.

June

July

August



In July, Ireland's First Teaching and Learning Research Fellowships got underway. The initiative was led by the National Forum for Teaching and Learning, supported by the Council. The Fellowships will inform the implementation of key national education and skills policies and large-scale funding initiatives, such as the Higher Education Authority's €300m Human Capital Initiative, which seeks to future proof graduates with industry-relevant skills for emerging technologies and promote and embed the transversal skills so important to their future success.



The Irish Research Council was pleased to announce forthcoming strategic funding partnerships, including Creative Ireland, Met Éireann, the Environmental Protection Agency, and the Departments of Children and Youth Affairs, Agriculture, Food and the Marine, Business, Enterprise, and Innovation, Rural and Community Development, Foreign Affairs as well as Justice and Equality.

The Irish Research Council (IRC) is proud to support partnerships between civil society organisations and researchers in higher education. We have funded 128 research partnerships with civil society organisations, sponsored Campus Engage, and funded Public and Patient Involvement (PPI) awards with the Health Research Board.

The Minister of State at the Department of Agriculture, Food and the Marine (DAFM), Martin Heydon T.D., and the Director of the Irish Research Council (IRC), Peter Brown, announced the launch of the Department strand under the Irish Research Council's COALESCE Programme.

In addition, the Minister for Further and Higher Education, Research, Innovation and Science, Simon Harris TD, announced funding for 209 Postgraduate Scholarships and 87 Postdoctoral Fellowships under the Irish Research Council's Government of Ireland programmes. The awards represent an investment of over €21 million in early career researchers across all academic disciplines.

September

October

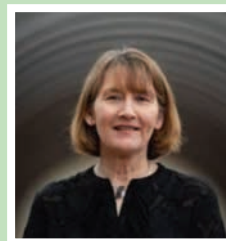
November

December



For Science Week 2020, to mark its 25th anniversary, Science Foundation Ireland and the Irish Research Council partnered with the artist collective SUBSET to create a public art interpretation of Choosing Our Future in a number of locations across Ireland.

Art and creativity have a key role in helping us understand science and the world around us, whether it is understanding an element of science or turning to nature, music, reading and poetry during the pandemic.

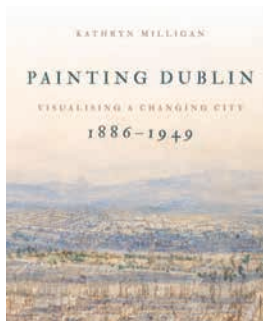


In December, Minister for Further and Higher Education, Research, Innovation and Science Simon Harris appointed two leading academics to the Irish Research Council. Professor Turlough Downes is a Professor of Mathematics and Astrophysics at Dublin City University, where his research focuses primarily on plasma astrophysics.

Professor Orla Muldoon, the founding Professor of Psychology at University of Limerick, has led the development of the Centre for Social Issues Research, supporting the psychological study of social issues. Her research on the social psychology of stress, health and trauma recently earned her the Nevitt Sanford Award, granted by the International Society of Political Psychology and an Advanced Grant from the European Research Council.

SELECTION OF 2018 PUBLICATIONS AND ACHIEVEMENTS

Our funded awardees are continuously publishing the outputs of their research, contributing to the development of Ireland's international standing in research and the knowledge base of their disciplines as well as enhancing their track record. Below is a small snapshot of some of the articles and outputs that our current and former awardees have delivered in 2020.



Painting Dublin, 1886-1949: Visualising a Changing City

Kathryn Milligan

Manchester University Press, 2020

Kathryn Milligan was awarded a Government of Ireland Postdoctoral Fellowship in 2017.

Famelab Ireland winner

Simon Spichak was awarded a Government of Ireland Postgraduate Scholarship in 2018.



Samburu Stories: Communicating Architecture in the Climate Emergency

Exhibition in the Irish Architectural Archive on Merrion Square

Samantha Martin-McAuliffe was awarded a New Foundations Award in 2018 and 2019.



Earth Writings: Bogs, Forests, Fields, Gardens

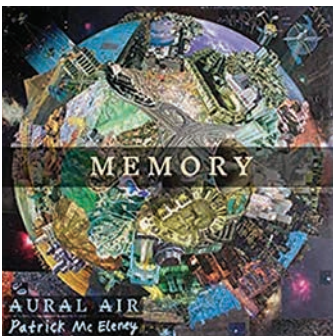
Publication – launched as part of an exhibition curated by Prof Karen Till during Geo Week

Karen Till was awarded a New Foundations Award in 2015 and 2018.

Website: Earthwritings.ie.

Franco-German Prize for Human Rights Awardee

Mathilda Twomey was awarded a Government of Ireland Postgraduate Scholarship in 2013.



Memory

Aural Air aka **Laura Rai and Patrick Mc Eleney** single released to raise funds for The Alzheimer Society of Ireland

Recorded at Attica Audio in Co. Donegal -
www.facebook.com/auralairmusic/videos/memory-aural-air-patrick-mc-eleney/692494841473055/

Laura Rai was awarded a Enterprise Partnership Scheme (Postgraduate) in 2017



Achieving Equality for Transgender and Gender Diverse Youth in Schools

Report published by **Ruari-Santiago McBride, Aoife Neary, Breda Gray** and **Vanessa Lacey**

Ruari-Santiago McBride was awarded CAROLINE funding in 2018.

Guidelines for users of imported bumblebee colonies

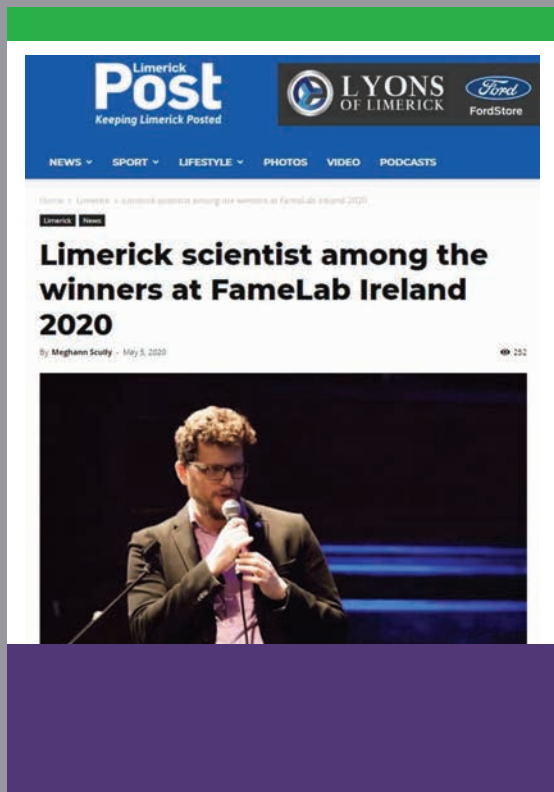
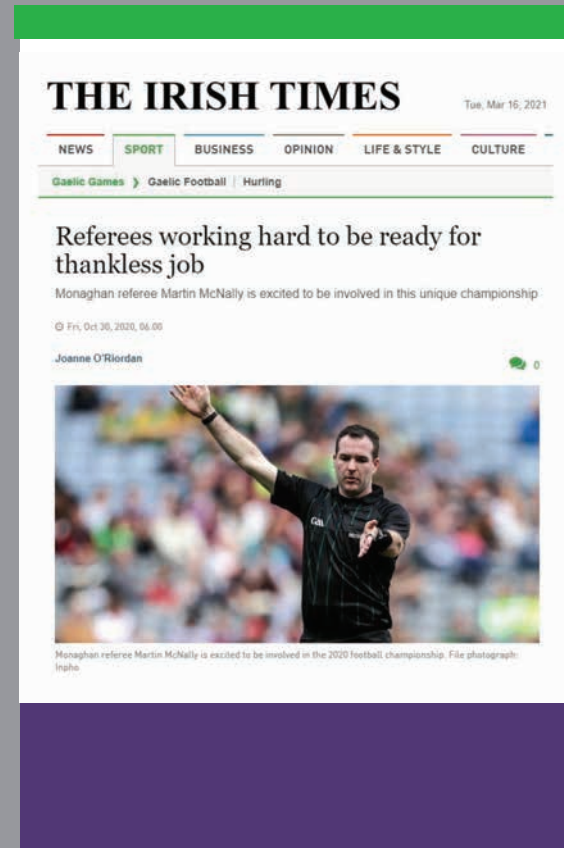
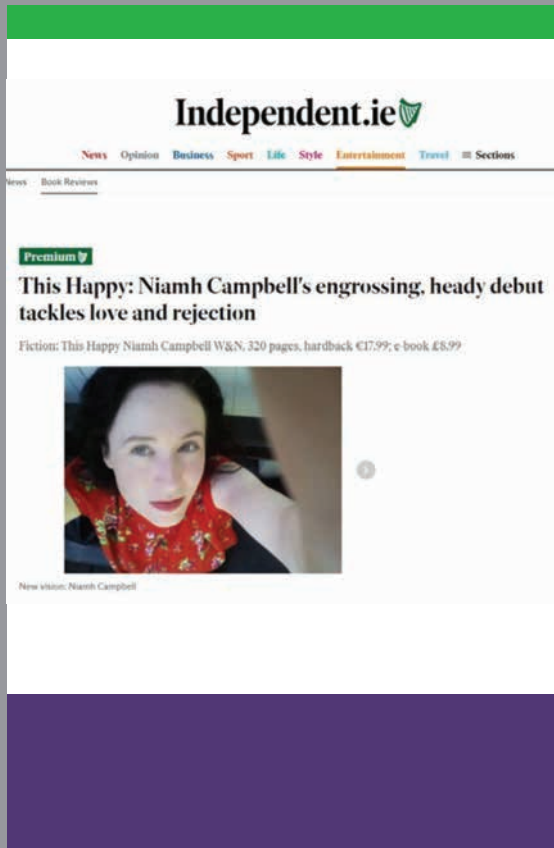
Authored by **Sarah Larragy** and published by the National Biodiversity Data Centre

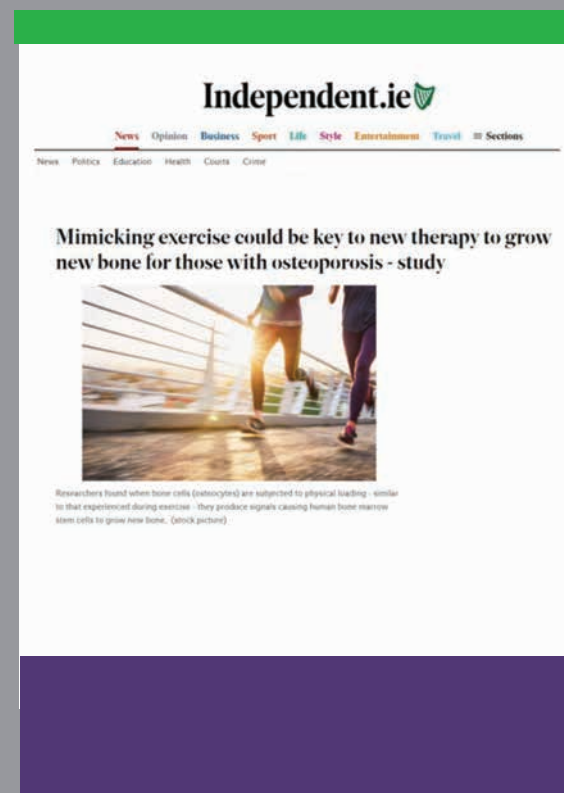
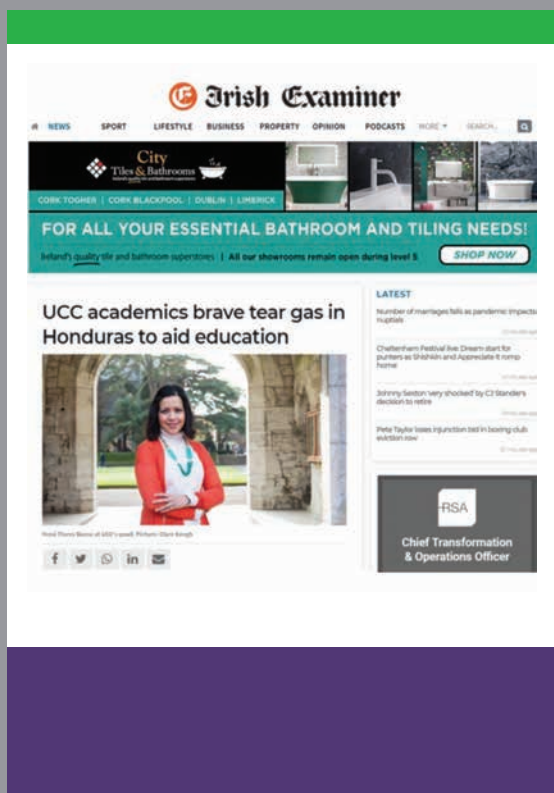
Sarah Larragy was awarded a Government of Ireland Postgraduate Scholarship in 2018.

Sarah also featured in the Biodiversity episode of 10 things to Know About on RTÉ - 10thingstoknowabout.ie/episode-2-biodiversity/



OUR AWARDEES IN THE NEWS: A SNAPSHOT







2

FUNDING EXCELLENT EARLY CAREER RESEARCHERS



GOVERNMENT OF IRELAND POSTGRADUATE SCHOLARSHIP PROGRAMME

€14.9 million committed
to the next generation of
Irish researchers



The aim of our flagship Government of Ireland Postgraduate Scholarship programme is to support exceptional research master's and doctoral candidates pursuing, or intending to pursue, full-time research in any discipline.

In 2020, we awarded 209 new scholarships to researchers from 30 countries based on the excellence of their projects, with an associated commitment of €14.9 million.

Internet policy making, poetry studies and neurohumanities, effect-based monitoring for environmental pollution, and exploring a queer national consciousness in Irish theatre and performance from 1960 - 2020 are just a sample of the new research topics selected for funding in 2020.

This brings the total number of active Government of Ireland Postgraduate Scholarship awards in 2020 to 863.

Several other agencies support this programme by partnering with us as a mechanism to deliver on our shared national objectives. Our strategic funding partners in 2020 were the Department of Foreign Affairs and Trade and the Environmental Protection Agency.



Case Studies

Awardee: Edmond Gubbins

Project title: Musical Futures as Critical Pedagogy: Investigating Generalist Primary Teachers' Musical Backgrounds and Experiences and the Influence of a Whole School Participatory Action Research on Music Learning and Teaching



Edmond and the Eda Sagarra Medal of Excellence

Every child deserves a quality music education so that they may experience sensory, emotional, intellectual and creative enrichment. However, the student experience of music education at the primary level is inconsistent, relying largely on the background and existing experience of teachers. Edmond, who joined Mary Immaculate College in Limerick in 2019 is researching the impact of informal and non-formal pedagogical approaches on the teaching and learning of music within the primary school as an avenue to redressing this issue. Considerable variation in generalist teachers' musical backgrounds,

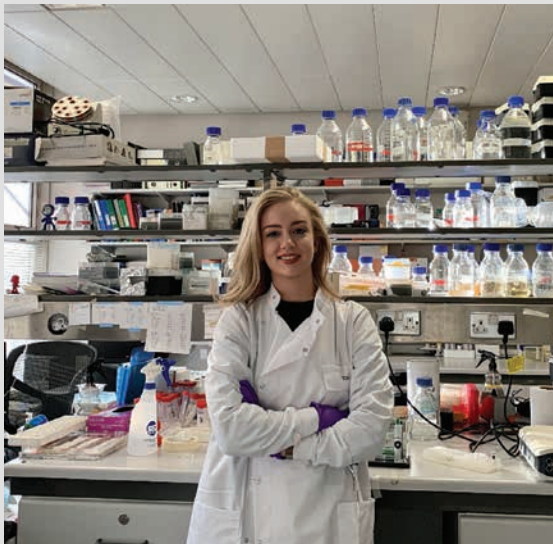
skillsets, and experiences creates concern over music education provision. Consequently, Edmond aims to investigate the backgrounds, values, beliefs, and ideological positions of primary school teachers and how these unique experiences not only influence their approach to music education but how they implement the music curriculum. This evaluation of teacher beliefs and values will provide an insight into the current experiences and challenges of generalist teachers.

Using this knowledge, the project will seek to engage teachers with *Musical Futures* – an international approach which seeks to support teachers in delivering high calibre music education to students through informal and non-formal learning experiences. Using the Musical Futures approach as a lens to facilitate the reappraisal of teacher practice, the project will also provide teachers with an opportunity to enhance their pedagogy regardless of their existing musical proficiency.

As the winner of the 2020 Eda Sagarra Medal of Excellence, Edmond's project has acquired a certain gravitas within primary music education in Ireland. To date, his project is yielding promising initial findings regarding children's musical and extra-musical skill development and also regarding teacher practice. He hopes to continue working with teachers and schools as they utilise Musical Futures in their contexts, sharing his knowledge and expertise in the area over the coming months before he turns to sharing his research with the wider academic community.

Awardee: **Claire O'Connor**

Project title: Development of a gene therapy for epilepsy



Claire O'Connor in her lab

Claire, a postgraduate researcher at Trinity College Dublin, is developing a gene therapy for epilepsy, a chronic central nervous system (CNS) disorder affecting approximately 1% of the population. It is characterised by recurrent, spontaneous seizures caused by abnormal electrophysiological activity in the brain. The intricate network of capillaries in the brain forms the so-called blood-brain barrier (BBB). This protective structure acts as a biological “shield” to somewhat compartmentalise the brain from the rest of the body and helps maintain a more regulated microenvironment for the brain’s vast neural networks. The BBB is important in regulating the exchange of signalling molecules and nutrients between the peripheral blood in the body and the blood supply that circulates in the brain, thus protecting neural tissue from potentially damaging blood-borne components.

The critical importance of the BBB is highlighted by the severe pathology observed in diseases in which it is broken down.

The central theme of Claire’s research is to develop a gene therapy-based approach to treating refractive epilepsy. To achieve this, the overarching aims are firstly, to design an adeno-associated virus (AAV) vector that is capable of specifically expressing high levels of claudin-5, a key component of the BBB, in the cerebrovascular endothelium and secondly, to determine if this restoration is enough to attenuate epilepsy pathogenesis in animal models of epilepsy.

GOVERNMENT OF IRELAND POSTDOCTORAL FELLOWSHIP PROGRAMME

€6.5 million committed to encourage rigorous and independent researchers



The Government of Ireland Postdoctoral Fellowship programme supports researchers during this crucial stage of their career paths. These fellowships are aimed at excellent early career researchers who want to undertake a period of guided research before going on to lead their own independent research.

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

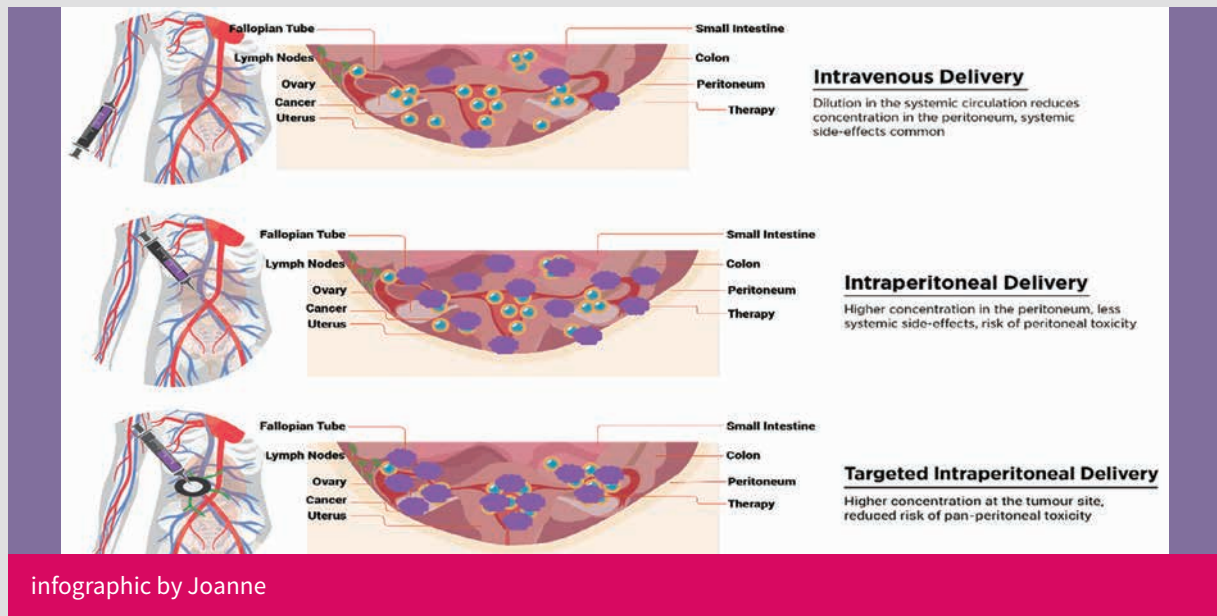
In 2020, 79 new researchers from 24 countries were awarded these prestigious and highly competitive fellowships, with an associated commitment of €6.5 million.

Radical Separatism in Ireland from Tone to Pearse, rational therapy for invasive lobular breast cancer, the fabrication of bioinspired artificial extracellular matrix scaffold for diabetic wound care, and waste, water, energy, and the built environment in twenty-first century experimental prose are some examples of the new projects selected for funding in 2020.

This brings the total number of active Government of Ireland Postdoctoral Fellowship awards in 2020 to 215.



Case Studies



Awardee: Joanne O'Dwyer

Project title: Creation of effective targeted immunotherapy in a local refillable delivery system for ovarian cancer

Ovarian cancer has a five-year survival rate of just 30%. Despite advances in the treatment of other cancers, the survival rate for ovarian cancer has not changed over the last 25 years. The poor survival rate with ovarian cancer occurs because of late detection, resistance to the current treatments or the treatment not getting to the tumour site in the abdomen. NUI Galway researcher Dr Joanne O'Dwyer's research seeks to address two of these factors: treatment resistance and treatment delivery to the tumour site.

Aiming to overcome resistance to current treatments a new type of treatment for ovarian cancer is being investigated in this work. This new treatment uses Natural Killer (NK) cells which are immune system cells normally present in the body. Dr O'Dwyer has modified these cells to better detect and kill cancer cells. These modified NK cells should be more specific for cancer cells and better at killing cancer cells than traditional chemotherapeutics.

Dr O'Dwyer has also developed a new way to deliver treatments to the tumour site in ovarian cancer. Cancer treatments are normally given by intravenous injection, but this results in a relatively small amount of the treatment at the tumour site, and side-effects in other parts of the body. The new device developed by Dr O'Dwyer allows the treatment to be delivered straight to the tumour site, avoiding site effects throughout the body. The new device can be adapted for individual patients to target the exact area where the tumours are. The device can be inserted during surgery to remove some of the tumour and can stay in place for as long as necessary. Therapy can be delivered via injection through a port on the skin. This will be quick and pain-free for the patient. So far, Dr O'Dwyer has created the modified cells and has confirmed cells can travel through the device. Dr O'Dwyer has also produced the required device. The next steps will involve testing the ability of the modified cells to kill ovarian cancer cells and making the device at a scale suitable for delivery of cells in a human. Overall this research will develop NK cells with enhanced specificity for ovarian cancer cells that will be delivered using a customised refillable device for targeted delivery to the tumour site.



Guido's desk

Awardee: Guido Bartolini

Project title: Adapting to a Difficult Heritage: The Memory and Responsibility for Fascism in Italian Literature and Cinema

Guido, a postdoctoral fellow at University College Cork, reconsiders how Italian culture negotiated the legacy of its totalitarian past. Guido will explore a corpus of literary texts — authored by some of the most famous Italian writers of the twentieth century — and their filmic adaptations, in order to show how cultural products represented Fascism and transmitted a memory of this difficult past to the new generations. Thanks to the study of films and novels, this research will validate, further explain, and also problematise current historical paradigms about Italian Fascism. Guido will show that the Italians developed numerous and diverse strategies to narrate their totalitarian past, but downplayed the notions of individual and collective responsibility. By analysing the cultural memory of Italian Fascism in an intermedial perspective and through cutting-edge theories of Memory Studies, this research will contribute to pluralising the memories of totalitarianism in Europe.

LINDAU NOBEL LAUREATE MEETING AWARDS



The prestigious Lindau Nobel Laureate Meetings date their origin to 1951 when two Lindau physicians Franz Karl Hein and Gustav Wilhelm Parade developed the idea to gather Nobel Laureates across a range of disciplines to meet and exchange knowledge, ideas and research advancements. Today the Lindau meeting has become an annual event where 30-40 Nobel Laureates convene at Lindau to meet the next generation of postgraduate and postdoctoral researchers from all over the world.

Two sets of meetings were planned for 2020. Due to the COVID-19 crisis, these will be held in 2021: the 70th Lindau Nobel Laureate Meeting (Interdisciplinary), dedicated to Chemistry, Physics, and Physiology or Medicine, and the 7th Lindau Meeting of the Laureates of the Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel.

Following their nomination by the Council, researchers go through a highly competitive multistage international application process, managed by the Lindau Nobel Meeting Foundation. Selected researchers then spend the week attending prestigious masterclasses with some of the best minds in the world.

The successful nominees to represent Ireland at the 70th Lindau Meeting dedicated to the fields of Chemistry, Physics, and Physiology or Medicine were:

- > Dr Adele Gabba, who recently completed her PhD at the National University of Ireland, Galway. Her doctoral project on chemical tools for immunological research was supported by a Government of Ireland Postgraduate Scholarship from the Irish Research Council.
- > Dr Joseph Byrne, an Honorary Research Lecturer and SFI Starting Investigator Research Grant Fellow in the School of Chemistry at NUI Galway. His doctoral research at Trinity College Dublin was funded by an EMBARK award from IRCSET. Currently Dr Byrne is working on developing carbohydrate-based sensing materials for use in 3D printed diagnostic medical devices.
- > Dr Ibrahim S. Aminu, a Marie Skłodowska-Curie Fellow in the Department of Chemical Sciences and Bernal Institute, University of Limerick. Dr Aminu's research into advanced rechargeable aluminium-ion batteries explores the potential of graphite cathodes with chemically tuneable architecture.

The successful nominees to represent Ireland at the 70th Lindau Meeting of the Laureates of the Sveriges Riksbank Prize in Economic Sciences were:

- > Dr Jon Gruda, an Assistant Professor in Maynooth University's School of Business. His research on organisational psychology uses online experiments and social media data to analyse the role of individual differences in leader-follower interactions, perception and transference.
- > Dr Mrinal Chadha works as a Postdoctoral Researcher in the School of Political Science and Sociology at NUI Galway. He is funded through the 'What Works' programme supported by the UK Department of International Development. Currently his research focuses on development economics and quantitative methods in relation to 'What Works to Prevent Violence: Economic and Social Costs of Violence against Women and Girls'.
- > Dr Sheng Zhu is a Research Associate at the Department of Economics and Centre for Investment Research in University College Cork. His research focuses on asset pricing, asset allocation, fund performance, economic modelling and monetary policy.

The patron of the Irish Lindau Nobel Laureate Meeting Awards is the President of Ireland, Michael D. Higgins.



Case Study



Dr Mrinal Chadha

Dr. Mrinal Chadha works as a postdoctoral researcher at the Centre for Global Women's Studies, National University of Ireland, Galway. He was awarded a Ph.D. from the University College Cork in 2017 for his research on out of pocket health expenditure in India. His principal research interests are in the area of Feminist Economics, Development Economics and Quantitative Methods. Dr. Chadha holds strong technical, quantitative and analytical skills, and has worked on micro and macro-economic estimation of costs of violence against women and girls in multiple countries: Bolivia, Ghana, India, Mongolia, Pakistan, Paraguay, Palestine and South Sudan.

Dr Chadha also notes that the COVID-19 pandemic has only exacerbated violence against women and girls, especially domestic violence. Despite thousands of years of evolution, society as a whole still remains unbalanced when it comes to equality for women and men. Dr Chadha hopes to use the opportunity at Lindau to share his ideas and research for much needed change. Dr Chadha is a passionate advocate of reducing inequality in the world which has worsened due to the pandemic. The Lindau Meeting presents a vital opportunity to meet with fellow young economists and discuss the resource disparity between high and low income countries and the responsibility to provide much larger supports to those in need than is currently on offer.



3

POWERING
ENTERPRISE

€7.4 million committed to support enterprise–academia collaborations

Our suite of enterprise programmes is designed to support enterprise-academia engagement through exceptional individual researchers, while in parallel presenting options for diverse career paths. Both for-profit and social enterprises are catered for under the programme.

The programmes are aligned with our mission to fund researchers across all disciplines and promote engagement with enterprise. Employers benefit from working with researchers on innovative projects and engaging in research that is aligned with their needs. In 2020, we passed the landmark of a total of 1000 researchers who have benefitted from the programme over the last years.

In 2020, we awarded 76 new scholarships and 11 new fellowships across our suite of enterprise programmes, with an associated commitment of €7.4 million.

In collaboration with 197 partners, this brings the total number of active awardees in 2020 to 280.

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. In 2020, we awarded 35 new scholarships amounting to €3 million.

The programme has placed students with a wide range of employers, including Mastercard Ireland, Boston Scientific and Nevin Economic Research Institute.

The development of bioinspired prosthetic heart valve leaflets for Transcatheter Aortic Valve Replacements (TAVR), Privacy-Preserving Personalized Recommendation Frameworks and a comparative political economic examination of institutional carbon lock-ins for reduced emissions are examples of the new research topics selected for funding in 2020.



Case Studies

Awardee: **Liam Dinkelmann**

Project title: Robust Ultra-Low Power Piezoelectric Sensing and Transduction for Novel Human Implantable Medical Devices

Partner: **Boston Scientific**



Liam Dinkelmann

Liam is a postgraduate researcher, based at the Institute of Technology Carlow, whose applied engineering research is concerned with the use of low power piezoelectric actuation (the bending of a material when an electric field is applied) in human implantable medical devices. Boston Scientific have identified developing piezo and associated embedded electronics technology for use in implantable medical devices as it would enable a

step change for the medical device industry, to create various novel products to address unmet patient needs in the marketplace. The main application areas are urinary incontinence, fecal incontinence, and erectile dysfunction. This research project will focus directly on the area of urinary incontinence, which is of immediate interest.

Urinary incontinence (UI) affects 10% to 20% of people across Europe. In 2016, about 60 million people in Europe and 13 million people in the U.S. experienced urinary incontinence (UI), which is two times more common in women than in men. Developing novel piezo-based technologies and medical devices to address Urinary Incontinence (UI) will have a profound impact toward the health and well-being and quality of life for individuals who suffer the widespread disabling and debilitating condition. The two major challenges of implantable devices are to be ultra-low power and to be extremely robust. Liam hopes to identify the failure points of these devices through in vitro intensive cyclical use with artificially accelerated aging conditions. His research will also explore the optimum conditions and actuator designs for maintaining minimal power consumption and higher actuation efficiency.

Awardee: Deirdre Kelleher

Project title: The lives, experiences and outcomes of young people who are detained at Oberstown Children Detention Campus - A Participatory Study

Partner: Oberstown Children Detention Centre



Deirdre Kelleher

Deirdre, a postgraduate researcher in the School of Law at University College Cork, is undertaking an analysis of the extent to which the Children's Rights Policy Framework meets the needs of young people in Oberstown Children Detention Campus. Her work will involve the first participatory research with young people in detention in Ireland, designed to incorporate young people's experiences and views into the process of evaluating the extent to which the children's rights approach fulfils their needs. Through supporting Deirdre's research, Oberstown Children Detention Campus is underscoring its commitment to deliver the highest standards of care to young people by utilising evidence-based policies and programmes in line with the children's rights approach.



Oberstown Children Detention Campus

ENTERPRISE PARTNERSHIP SCHEME



The Enterprise Partnership Scheme is an innovative initiative whereby, in partnership with enterprises, we award co-funded postgraduate scholarships and postdoctoral fellowships. The programme supports the development of an expertise-driven higher education and research system to enhance Ireland's creative and innovation capacity and skills base.

In 2020, we awarded a total of €4.4 million to 52 researchers collaborating with 41 partner organisations.

A cultural history of collecting in Twentieth Century Ireland, a short-term harmful jellyfish forecast model for the salmon aquaculture industry, and the development and implementation of novel strategies to promote bone health are examples of the new research topics selected for funding in 2020.

Enterprise partners in 2020 include Marsh's Library Dublin, MOWI Ireland, Ericsson and Irish Injured Jockeys, amongst others.



Case Studies

Awardee: Arthur Dunne

Project title: Development and implementation of novel strategies to promote bone health and body composition for the safety and well-being of jockeys.

Partner: Irish Injured Jockeys



High-Performance Centre, Racing Academy and Centre of Education (RACE), Kildare

Based at the Waterford Institute of Technology, Arthur is exploring the elevated fracture risk and long-term health of jockeys that are of growing concern for the horse racing industry, given the prevalence of poor bone health in these athletes. Jockeys are an atypical athletic population as the demands of horseracing require strict weight management, limited food intake, long working hours and a challenging race schedule that includes travelling long distances for racing and rigorous weigh in, weigh out stipulations. The weight-sensitive sport is renowned for its tough and demanding nature, with risks of bone fracture and compromised bone health in later life a cause for concern. Many studies have reported low bone mineral density (BMD) in professional jockeys. However, since the introduction of jockey support services such as dietary workshops and exercise classes, there has been no update completed on the bone health status of professional jockeys in Ireland. Moreover, there is limited understanding of the physical and lifestyle factors, including body composition, diet, exercise history, weight-making practices and riding experience that influence bone density in jockeys.



Whole Body DXA scan of a study participant

Arthur's cross-sectional study supported by the Irish Injured Jockeys Fund was conducted and has been recently published in the International Journal of Exercise Science. The study presents the findings from the largest representative sample of professional jockeys in Ireland ever collected and the first comprehensive update on the bone density status of Irish jockeys in over 10 years. The results provide evidence for the design and implementation of an industry-led

jockey specific nutrition intervention focused on optimising body composition and bone parameters, including BMD. Therefore, it offers an alternative strategy for weight management and potentially reduces the risk of fractures upon impact from falls.

Awardee: Nora Moroney

Project title: The Benjamin Iveagh Library: A Cultural History of Collecting in Twentieth Century Ireland

Partner: Marsh's Library Dublin



Interior of the Benjamin Iveagh Library in Farmleigh House

Nora is a postdoctoral fellow at Trinity College Dublin, partnered with Marsh's Library and the Benjamin Iveagh Library. The Iveagh Library, based at Dublin's Farmleigh House, represents one of the most significant private book collections of twentieth-century Ireland. It was compiled by Benjamin Guinness, Earl of Iveagh (1937-92) over his lifetime. This project represents a unique partnership between Marsh's and Trinity College Dublin, aiming to

develop the national and international profile of a collection held in one of Ireland's most prestigious houses. The project brings together print networks, library collections and big house history to provide the most comprehensive analysis of any modern Irish private library to date. It situates Benjamin Guinness and his collecting efforts at the heart of a study that illuminates the rare book trade and the social and cultural life of Ireland's aristocratic families. Nora is currently authoring a book about the library, has given online talks about the collection, and has contributed articles to the RTÉ Culture website.



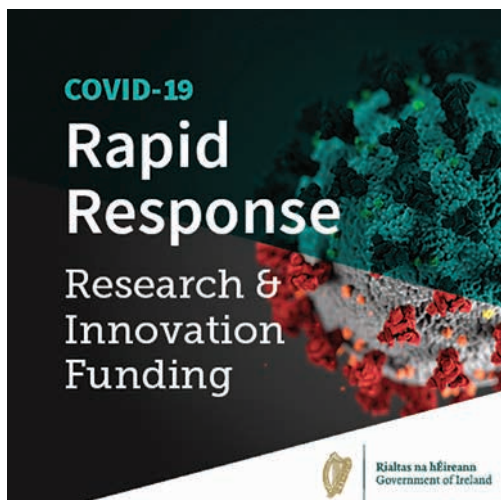
First editions of Lady Gregory's plays at the Benjamin Iveagh Library



4

COVID-19

COVID-19



On 29 February 2020, the Health Protection Surveillance Centre confirmed the first case of coronavirus in Ireland. A week later the number of cases had risen to 18 and three days later, on the 11th of March the first Sars-Cov-2 death occurred in Ireland, the same day the World Health Organisation declared the COVID-19 outbreak a pandemic. Schools, colleges, and childcare closed the next day with all pubs and hotel bars closing soon after. By the end of March, the country was in lockdown.

The impact of COVID-19 was swift and felt keenly throughout the research community. Reports abound of researchers offering expertise to testing centres, donating protective equipment and supplies, and

pivoting their research in the hope of finding solutions to this global crisis. In support of these efforts the IRC worked with the HRB and SFI to put out a joint statement on the 13 March highlighting the funders' priority was the safety and wellbeing of people – researchers, research participants, and funders' own teams. The statement offered reassurance to the research community, noting that a pragmatic approach would be taken regarding researchers who have been affected by the COVID-19 crisis.

The funders also worked with fellow agencies, Enterprise Ireland, and the IDA to develop a coordinated Rapid Response Research and Innovation programme to help mitigate and manage the COVID-19 pandemic. All five agencies worked together to ensure that excellent ideas to tackle COVID-19 from across the Irish research community could be supported. The HRB, in cooperation with the IRC, focused on research that covers three designated strands: medical countermeasures, health service readiness, and social and policy countermeasures to COVID-19.

The research community's response was immense, with over 160 applications received. 21 projects were granted funding on 29 April and a further 14 were funded on 14 December. An additional 30 projects were funded under the SFI, EI, IDA strand with a total investment of over €15.5 million.

A micro-site was established on the IRC website to offer updates to awardees and provide documentation to support any changes to award timelines and budget. In June, the IRC offered assistance to awardees due to complete their research project by the end of 2020. In deference to the increased impedance to completing their award, these individuals were offered costed extensions.



Case Studies

Awardee: Dr Gerard Molloy

Project title: Why don't we keep our distance? Evidence for more effective communication in the pandemic

Institution: NUI Galway

Keeping physically distant from others is a proven way to slow the spread of the virus that causes COVID-19, but people are less likely to stick to the recommendations than they are to follow other important steps, such as washing their hands. A project at NUI Galway used expertise in behaviour change interventions to gather information about how different groups in society feel about physical distancing, and how future communications could be tailored to encourage greater adherence in order to manage the COVID-19 pandemic. Looking across different age groups, the team analysed how communications could be tailored to be more effective in encouraging this practice in the general public.

Dr Gerard Molloy, from NUI Galway's School of Psychology, says: "Collectively we have done very well with keeping apart in the early stages of the pandemic and we can see how this has reduced COVID-19 transmission and the related demands on our health services. The initial evidence indicates that maintaining this distancing has been very challenging for many people, particularly for those facing difficult personal, social and working conditions. Therefore, we need to better understand what will help people achieve the required level of distancing and how we communicate about the need for further measures, particularly if we go through a cycle of relaxing and reinstating physical distancing over the next year."

Awardees: Dr John Lambert, Professor Walter Cullen

Project title: Improving healthcare delivery for COVID-19 patients in Dublin's north inner city

Institution: University College Dublin

Dublin's north inner city is an area of high social deprivation and a high incidence of COVID-19. Led by University College Dublin School of Medicine, the North Dublin COVID19 Cohort Study was established in April 2020, and researches the health of people living in this region of the city who have been affected by COVID-19. By analysing healthcare information about patients attending the Mater Hospital and general practices with COVID-19, and by involving consenting patients in follow-up studies, it captured important insights into the health experience of people living in Dublin's north inner city during the pandemic and continues to provide reports to the HSE and other health agencies. In this way, it helps to plan health services according to the needs of this at-risk population and reduce the negative effect of the pandemic on local communities.

Professor Walter Cullen, co-Principal Investigator of the North Dublin COVID-19 Cohort Study says: "While COVID-19 has impacted on all areas of Irish society its impact on the communities living in this area are especially severe. In this project, people who require hospital treatment for COVID-19 infection will be monitored after discharge to see what problems they experience and to see how these can be best prevented and treated. Strong links between primary and secondary care are a key part of the response to COVID-19 and this project will inform how this can best address the healthcare needs of the many people in Ireland and worldwide affected by COVID-19."

Dr John Lambert, University College Dublin and co-principal on the project emphasises, "We do not know if survivors of COVID-19 will have long-term complications both in terms of quality of life and possible long-standing damage to the heart, lungs, and brain, which is targeted by this virus. Our longitudinal follow up study with these patients will ensure that they are carefully monitored and provided with appropriate treatment if necessary."



5

LAUREATE
AWARDS FOR
FRONTIER
BASIC
RESEARCH

LAUREATE AWARDS

In 2018/19, the Council awarded 48 Starting, Consolidator and Advanced Laureate Awards worth €30m, providing funding for ground-breaking, ‘blue-skies’ research across all disciplines and at three key career stages.

The Starting, Consolidator and Advanced Laureate Awards (mirroring the funding categories of the European Research Council) were established to address a significant gap in the Irish research landscape, namely the lack of a funding programme to enable exceptional researchers to conduct frontier research beyond postdoctoral level across all disciplines. With a cumulative investment of €30 million, the Laureate Awards have created a solid foundation for the undertaking of frontier research at Principal Investigator level, providing an environment which breeds world-class education, training, and development, for new discoveries, and for the future application of those discoveries with economic or societal impact. Funding for all three calls was awarded based on excellence, assessed through a rigorous and independent international peer-review process.

In 2020, following the completion of the first two cycles of the Laureate Awards, the Council commissioned an independent review of the award process to ensure best practice and gather feedback ahead of the current call. This report details the findings of Technopolis Group following their independent analysis of the application and review process. This analysis comprised a detailed survey of applicants, awardees, research support officers and international peer reviewers, and comparative studies with international awards of similar scope and size.

Some of the headline findings are outlined below:

- > The Laureate Awards highlight a wealth of high-quality basic research capacity across all disciplines in Ireland, but the review noted high demand for funding support for such research.
- > The Laureate Award processes were found to be in good health, in particular applicants praised the overall ease and user-friendliness of the process.
- > The review identified opportunities to enhance information on the funding decisions process and the associated feedback given to successful and unsuccessful applicants.
- > Survey respondents acknowledged a greater ability to apply for ERC funding as an important outcome not only of winning a Laureate Award, but even of applying through a process that is closely aligned with ERC grant criteria.

Snapshot of 2020 Laureate Successes

Consolidator Laureate Prof. Emma Teeling (UCD) received broad media attention this year (including BBC News, 22 July) when she and her team deciphered the genetic blueprints of six of the world's bats species, published in an article for *Nature* entitled 'Six reference-quality genomes reveal evolution of bat adaptations'. Their codes of life contain genetic clues to their "exceptional immunity", which protects them against deadly viruses. Prof Teeling is the co-founder of the Bat1K project, which aims to decode the genomes of all 1,421 living bat species. The team hope to use the information to crack the secrets of how bats carry coronaviruses without getting sick. COVID-19 is thought to have arisen in bats, passing to humans through another, yet unidentified animal. Several other diseases, including Sars, Mers and Ebola, are thought to have transmitted to humans this way. Once completed, Prof Teeling's research may ultimately provide solutions to help combat, or even prevent future pandemics.



Greater Horseshoe Bat

Starting Laureate Prof. Francis Ludlow is one of two researchers from Trinity College Dublin who are among a four-strong team of principal investigators spearheading a new €10.4 million project funded by the European Research Council (ERC) to assess the importance of marine life to human societies during the last two millennia, with a focus on understanding the consequences of marine resource exploitation for societal development. This is the first time Ireland has received a prestigious Synergy Grant from the European Research Council, designed to support transformative work that addresses major research challenges that would fall beyond the scope of any single ERC award and can only be tackled by collaborative approaches spanning multiple disciplines.



Irish Research Council Awardees
Professor Poul Holm and
Professor Francis Ludlow

The 4-OCEANS team is comprised of principal investigators, Poul Holm, Professor of Environmental History, and Francis Ludlow, Assistant Professor of Medieval Environmental History, from Trinity College; James H Barrett, Reader in Medieval Archaeology and Deputy Director of the McDonald Institute for Archaeological Research at the University of Cambridge; and Cristina Brito, Assistant Professor, Faculty of Social and Human Sciences and the Deputy Director of CHAM – Centre for the Humanities, at NOVA University Lisbon.



6

ENGAGED
RESEARCH

ENGAGED RESEARCH

Collaborative Alliances for Societal Challenges Research Fund Programme (COALESCE)

In 2018, we launched the COALESCE – Collaborative Alliances for Societal Challenges Research Fund Programme. The scheme was developed in response to challenges set out in the Sustainable Development Goals (SDGs) identified by the United Nations and to challenges established in the Government of Ireland’s National Development Plan (NDP) and National Planning Framework (*Project Ireland 2040*).

Excellent research across all disciplines has a leading role to play in developing new knowledge and evidence that policy and decision-makers and, indeed, practitioners can utilise to guide action and interventions on the path to successfully achieving national or international societal challenges. Maximising the contribution of the research system in this regard requires a strong emphasis on building robust mechanisms to ensure the transmission and integration of knowledge and evidence into the policy and practice environment, including building the necessary relationships with the public sector, civil society, or elsewhere, to support this process.

COALESCE builds on and brings together two former IRC research funding programmes, namely *Research for Policy and Society* and the *New Horizons Interdisciplinary Research Call*. The call is run in partnership with several government departments and agencies, who fund or co-fund specific strands. For 2020 the partners included the Irish Human Rights and Equality Commission, Met Éireann, and the Department of Foreign Affairs.

The programme provides opportunities for researchers across all disciplines to propose excellent research projects that enhance our collective ability to meet national challenges and contribute to a global sustainable future. 7 awards, totalling €1.6 million were made in 2020.



Case Studies

IRC-DFA 'A Better World' Learning Event 2020 COALESCE award holders and the Department of Foreign Affairs Strand 2B – Funded by Irish Aid (DFA)

The main aim of the partnership between the IRC and DFA, through COALESCE, is to support research collaboration and capacity-building between Ireland and global-south countries. On 30 September 2020, the *A Better World* learning event brought together 31 participants from six different countries at different stages of their research and representatives from participating partner institutions to provide an open and informative platform. The composition of the group lent to rich conversations, chaired by Professor Caroline Fennell (Irish Human Rights and Equality Commission and Chair ENNHRI (European Network of National Human Rights Institutions)). The event also included a breakout discussion session composed of four groups chaired by co-principal investigators based in Uganda (Makerere University), Palestine (Birzeit University), South Africa (University of South Africa), and Malawi (University of Malawi), which was then followed by a group session to gather all participants and prioritise actions. The event successfully achieved its objectives of building a network of COALESCE *A Better World* award holders to enhance meaningful collaboration, beyond the lifetime of the award. The strand 2B include projects as the ones shown below:

Awardee: Prof. Anne Matthews

Project title: Enhancing evidence-based infant feeding policy implementation in Malawi (Dublin City University & University of Malawi)

The World Health Organisation recommends that all babies are exclusively breastfed for the first six months of life. Research overwhelmingly indicates that breast milk is the best source of nutrition and immunity for babies. In places where clean water and baby milk formula are not always available, breastfeeding saves babies' lives, especially those born too early. Governments in countries like Malawi have therefore made policies and plans to support women to breastfeed their babies exclusively for the first six months of their lives and continue breastfeeding, with other foods, for two years. The research examines two of Malawi's key policy instruments for the promotion of exclusive and continued breastfeeding: Care Groups for community-based peer support and education care and the Baby-Friendly Hospital Initiative for facility-based support and outreach. Using realist research, the team has conducted a realist synthesis of Care Groups and is currently presenting the findings to stakeholders including the Embassy of Ireland in Malawi and the Malawi Department of Nutrition, HIV and AIDS. They are in the process of preparing to conduct fieldwork focusing on Care Group implementation, with NGO collaboration, led by the Malawi-based colleagues. They are also in the process of conducting a scoping study on Baby-Friendly Hospital and Baby-Friendly Community Initiatives. They have so far published two study protocols and presented our research at five conferences.



Pieterella Pieterse, Anne Matthews, Janet Guta and Anne Matthews, Ellen Chirwa Ministry of Health Lilongwe, Malawi 2019



Siobhán Mullally at a training event in Uganda

Awardee: Prof. Siobhán Mullally

Project title: Human Trafficking, Forced Migration and Gender Equality in Uganda (National University of Ireland, Galway & Makerere University, Uganda)

Despite significant legislative and policy initiatives on human trafficking in Uganda, the implementation of core human rights obligations of prevention and victim protection remains weak. Prof Mullally's research on human trafficking law and policy, has fostered collaboration between the Irish Centre for Human Rights, NUI Galway, and the Refugee Law Project, Makerere University, Uganda.

Her work focuses in particular on gender equality and child rights approaches that move beyond the limits of a criminal justice law response to trafficking among refugees and internally displaced persons (IDPs) in Uganda, forcibly displaced because of conflict.

The project contributes to national and international policy and standards on human trafficking among refugees and IDPs, through engagement with the UN Special Rapporteur on Trafficking and other specialised UN human rights procedures and treaty bodies. Through training and capacity building, the project is developing policy briefs on good practices in implementing human rights standards in trafficking law, policy and practice measures.



Above: HealthyAIR consortium meeting using Zoom

Below: Dr. Bang Quoc with one of the air monitoring stations in HCMC

Awardee: Dr Ricardo Simon Carbajo

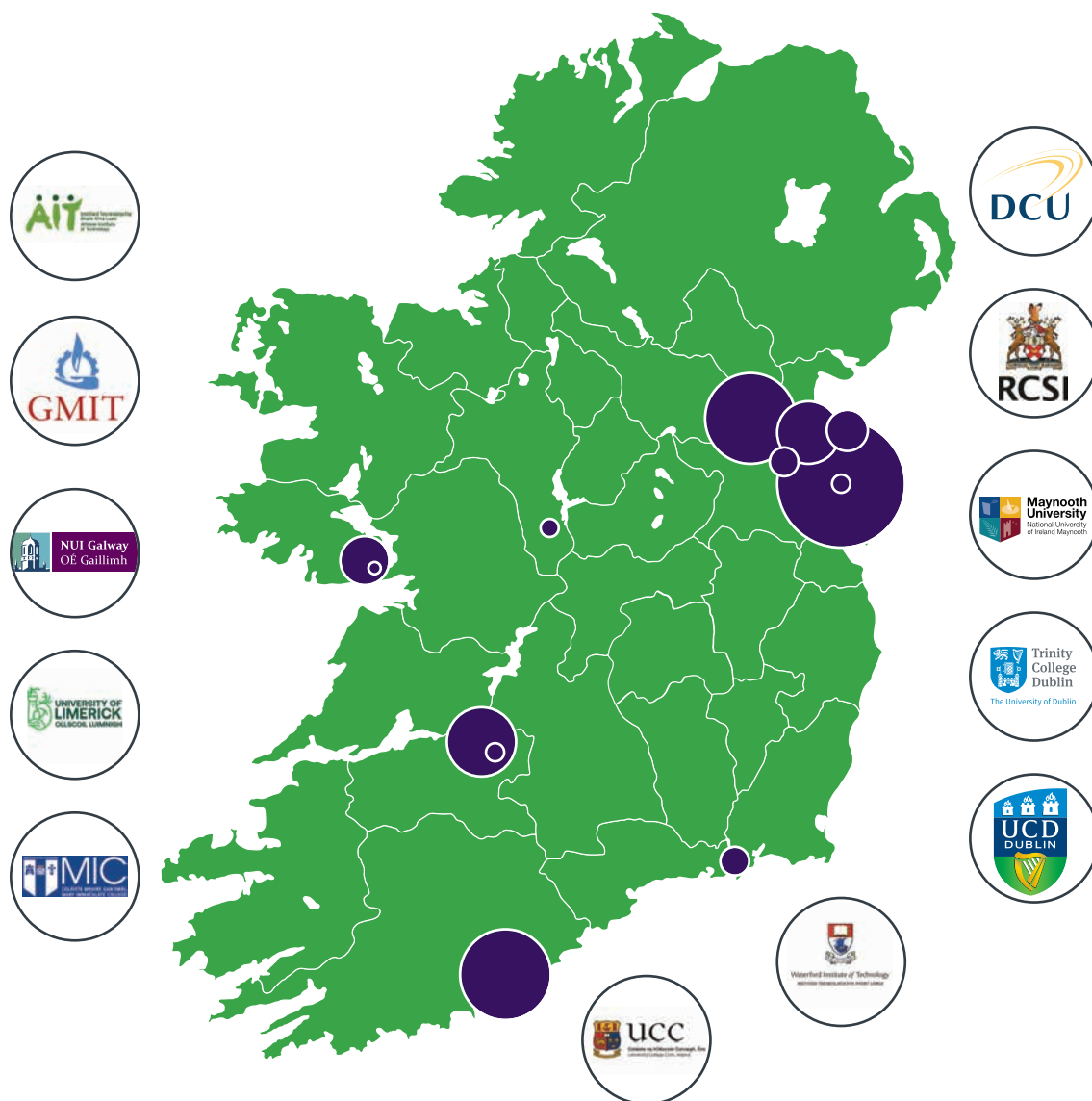
Project title: “HealthyAIR: Modelling the Impact of Air Pollution and Climate Change on Public Health in Ho Chi Minh City for Policy Making and Awareness Creation using Machine Learning” (CeADAR - Ireland’s Centre for Applied AI at University College Dublin & Vietnam National University (VNU) - Ho Chi Minh City)



Vietnam as a country is facing increases in air pollution, particularly in the megacities of Hanoi and Ho Chi Minh City (HCMC). The HealthyAIR project is seeking to understand the impact of Air Pollution on Public Health to raise awareness in society and policy makers for a real change to occur. The project is led by Dr. Ricardo Simon Carbajo from CeADAR, Ireland’s Centre for Applied Artificial Intelligence based in University College Dublin (UCD), and Dr. Bang Quoc Ho from Vietnam National University in Ho Chi Minh City (HCMC). While several studies of air pollution in HCMC have been conducted, there is a lack of real time, high resolution and high-quality data. Currently there is only

one real time air monitoring device in HCMC. This project has already installed six such devices which will significantly enhance the understanding and visibility of air pollution patterns and sources. The project uses machine learning to model the impact of air pollution using different sources of information, identifying and predicting how traffic, industrial, residential and biogenic emission sources contribute to overall pollution levels. These predictions, in conjunction with the public health analysis, make a strong case for the development of new air pollution and greenhouse gas emissions policy development. The team will liaise with key policy makers in Vietnam to develop and implement these changes, while also developing a mobile app to give the public insights into pollution levels, both current and forecasted.

NEW FOUNDATIONS



The New Foundations scheme supports eligible researchers who intend to pursue research, networking and/or dissemination activities within the academy and across sectors. This scheme provides support for research actions, the development of networks and consortia, conference and workshop development, and capacity building for interdisciplinary collaboration.

In 2020 The Irish Research Council has made New Foundations awards to 100 researchers of all career stages across 13 higher education institutions. These New Foundations awards are valued at nearly €800,000.

The 2020 projects are under four strands:

Strand 1: Engaging civic society

Run in partnership with the Wheel and Dóchas, this strand supports small, discrete collaborative projects between postdoctoral or more experienced researchers (acting as the applicant to the Council) and a community/voluntary organisation or NGO. In 2020, we made 41 awards in this strand, working with 36 charity partners.

Strand 2: Knowledge exchange for impact

This strand is designed to enhance the international impact of Irish research through knowledge exchange. Projects propose actions or activities providing exposure for the researcher to world-class networks or facilities that will enhance their research and support the further development of their career and international competitiveness.

Strand 3: STEAM – innovations in the communication of science and knowledge (awards up to a maximum of €5,000)

The purpose of this strand is to bring science (including social science) and Art/Design/Humanities together to work on new ways of communicating scientific concepts and/or complex societal challenges for a lay audience. “STEAM” is a form of interdisciplinarity in research and teaching that seeks to combine knowledge from art and science.

This strand welcomes STEAM-based approaches to the public communication and dissemination of research.

Strand 4: Networking & Collaboration Grants, in partnership with the Department of Foreign Affairs (DFA) Networking & Collaboration Grants for prospective North-South Research Partnerships (awards up to a maximum of €10,000)

Funded by DFA

This strand provides researchers with an opportunity to carry out networking activities or to form consortia. Successful proposals are funded by DFAT and are in areas of strategic interest to this organisation.

This strand is designed to build a pipeline of research collaborations for the COALESCE call, focusing on innovative responses to global challenges within the framework of the Sustainable Development Goals (Agenda 2030). Proposals are bilateral or multilateral in nature.

Eligible partner countries: Vietnam; Palestine; any country on the African continent.

The DFA Strand of the COALESCE Programme seeks to cultivate and to grow high-quality development research capacity both in Ireland and eligible partner countries in response to key societal challenges linked to one of the four policy priorities outlined in *A Better World*, Ireland’s new Policy for International Development. It is designed to encourage interdisciplinary approaches for knowledge generation that will produce rigorous and influential evidence and learning, with a view to impacting at a societal level in partner countries, as part of the implementation of *A Better World*.



Case Studies

Awardee: Frances Finn; Strand 4 – funded by the Department of Foreign Affairs (DFA) (Networking & Collaboration Grants for prospective North-South Research Partnerships)

Project Title: Work Integrated Learning (WIL), Industry Partnerships and Apprenticeships: Exploring WIL Management Models, Practices and Policy within Ireland and South Africa.

At the commencement of this project, South Africa was faced with numerous social and economic challenges and high unemployment rates. In the first quarter of 2019, unemployment was reported at 27.6%, with young people aged between 15 and 34 remaining the highest group of unemployed South Africans. Work Integrated Learning (WIL) is an essential teaching and learning activity that enables students to be 'work ready' on completing their programme. WIL combines academic study and simulation training with work placements and has been associated with empowering young people to develop skills, knowledge and attitudes that equip them for the realities and challenges of work. Graduates leaving higher education to enter the workforce require preparedness and support for this transition. WIL is vital in addressing this societal challenge. Dr Finn, a lecturer in nursing and health care at Waterford Institute of Technology, has developed partnerships between Irish and South African Universities of Technology following a visit to South Africa in 2019.

Since this visit, academics from Waterford Institute of Technology and Munster Technological University (in Ireland) and Cape Peninsula University of Technology and Central University of Technology in South Africa have been meeting regularly on-line throughout the pandemic to share experiences, practices and policy relating to WIL programmes. The group have so far developed twelve programme case studies (6 from each country) from which colleagues have been able to learn about different WIL strategies, teaching activities, ways of engaging with industry, assessment tools and student achievements. The researchers are currently undertaking a broader survey, with the aim of learning how WIL has been facilitated during the pandemic, and lessons learned that will further inform future WIL practice and policy across of South Africa and Ireland. This shared learning arising from networking and research activities between these Higher Education Institutions will feed into the development of effective WIL models and practices, with the ultimate aim of improving the employability of graduates.



The photo above shows Dr Frances Finn (WIT) (left) and Dr Penelope Engle-Hills (CPUT) (right) at Cape Peninsula University of Technology South Africa, observing students engaging in simulation activities (an important aspect of WIL) for paramedic training, on the grounds of Cape Peninsula University of Technology.



Dr Fathi at one of her workshops

Awardee: **Mastoureh Fathi**; Strand 1b – IRC funded – partner: Centre for the Research of Ethnicity and Culture (Centrum pre výskum etnicity a kultúry - CVEK)

Project Title: Elderly (non)migrants' narratives of home: A comparative study of place-making in Ireland and Slovakia

Migrant home-making is vital for integration and sense of belonging to host countries. The notion of home and urban belonging has been theorised extensively in human geography, sociology, and urban studies. However, how older (non)migrants in European countries understand home-making and experience urban belonging is rather underdeveloped both in the literature and in policy.

To enhance migration policies, inform future studies and develop appropriate analytical methods, it is vital to know how older sedentary citizens experiences mobility in European cities. Dr Fathi's project at University College Dublin takes a novel approach to include a group of participants, 65+ year-old (non)migrant female/male whose experiences have been greatly neglected within the literature on home and place-making and current integration policies.

The project provides an understanding into how demographic and geographic changes in neighbourhoods and cities are experienced and narrated by older people. Employing a mapping exercise, photo-elicited interviews in two care homes Ireland (Cork), and Slovakia (Bratislava) the project is developing new theories and methodologies about place attachment in later life.

Awardee: Brynne Gilmore; Strand 1b – IRC funded – partner: The Irish Consortium on Gender Based Violence (ICGBV)

Project Title: International partnership building and research prioritisation for Gender Based Violence



Gender-based-violence (GBV) is any act of violence that arises from or is driven by inequalities, roles, disparities, or expectations based on gender. It is estimated that GBV is experienced by over 35% of women worldwide. The Irish Consortium on Gender Based Violence (ICGBV) is a unique collaborative model made up of 13 government and NGO member organisations working together on issues related to gender-based-violence (GBV) across over 50 low-and middle-income countries (LMICs). Within this project to date, a survey and key informant interviews with ICGBV partners globally was conducted to capture research priorities and support the development of a

shared research strategy on issues of relevance to the ICGBV and its members. These activities have resulted in a detailed report and survey database available to all ICGBV members. Upcoming work on this project includes supporting the development of specific research projects and seeking collaborative funding opportunities to explore priority issues on GBV.



7

ENGAGING INTERNATIONALLY

COLLABORATIVE RESEARCH FELLOWSHIPS FOR A RESPONSIVE AND INNOVATIVE EUROPE (CAROLINE)



The Irish Research Council funded 19 projects in 2017, 20 projects in 2018 and 10 in 2019 under the CAROLINE scheme.

Fellows conducted research at Irish higher education institutes while partnering with a range of public and private organisations.

The Irish Research Council Marie Skłodowska-Curie Actions COFUND Postdoctoral Fellowship programme entitled CAROLINE – Collaborative Research Fellowships for a Responsive and Innovative Europe - provided experienced researchers from any discipline the opportunity to conduct research relevant to the themes of the United Nations 2030 Agenda for shared economic prosperity, social development, and environmental protection. The 17 goals within Agenda 2030 are relevant for researchers across all academic disciplines and are of interest to researchers with diverse career objectives in mind, including those within academia, civic society, and industry.

A key feature of the programme is collaboration between the academic sector, non-governmental organisations and international organisations. The scope of potential organisations for inter-sectoral collaboration, in terms of their mission, is intended to be broad and will speak to one or more of the goals under Agenda 2030. Potential partner organisations are not limited to 'development-orientated' NGOs or those working in support of developing countries.

A Training and Networking Session for CAROLINE Fellows was held on 5 February 2020, encompassing the major themes of Grant Proposal Writing and Networking, along with guest speakers, Dr Geraldine Canny, Dr Dawn Walsh, Dr Ray Griffin, Dr Garrick Allen and Professor Maria Baghramian. This training day gave the Fellows the opportunity to learn more about each other's projects (all in relation to the UN's Sustainable Development Goals) and to reinforce their network.

This project received funding from the European Union's Horizon 2020 Research and Innovation programme under the Marie Skłodowska-Curie grant agreement No 713279.



Case Studies



Elaine Gallagher

Awardee: Elaine Gallagher

Project title: Relationships on the river: Can social cohesion encourage flood adaptation strategies in the agricultural sector?

Project Partner: Sustainable Water Network

Flooding impacts Irish life in many ways, including destruction of buildings, infrastructure damage, pollution, and interruption to electricity supply. While government and local authorities are typically responsible for flood management, research suggests that collective action on a community level is necessary to address this increasingly pressing climate-change issue. However, sometimes divisions exist among those living in flood-prone areas, such as urban and rural dwellers, or farmers and builders, who may blame each other for flooding. Dr Elaine Gallagher, from the University of Limerick is exploring the potential impact of building a sense of shared identity between groups living within the same river catchment, so that the group begins to see their interdependence and role in finding a collective solution. Through interviews and surveys, the diverse range of flood experiences are explored, as well as the extent to which social cohesion and a sense of community can influence willingness to engage in flood prevention activities for the benefit of the wider community.

Agriculture plays a key role in both climate change and Irish culture. Farmers are in a particular position to take actions that could significantly reduce flood devastation in their river catchment. River relationships, climate-change perceptions, and concerns of farmers must therefore be established prior to attempting to improve social cohesion or build a shared identity and purpose. If farmers are concerned about climate change or, question the sustainability of their agricultural model, this may drive engagement in flood mitigation strategies. Alternatively, if they feel more threatened by climate policy than by weather events, they are less likely to engage with flood mitigation. Positive relationships with other river dwellers may increase willingness to take substantial action that benefits the catchment, such as creating flood plains on their land to reduce flood risk to residences downstream. However, there is a unique identity and place in Irish society reserved for farmers. The strength of this identity may prohibit farmers' receptivity to decoupling of land from productive farm use, and the strength of the representation by others may damage relationships between farmers and town-dwellers. These issues are being explored to promote flood mitigation and climate action.



Nicholas Scroton

Awardee: Nicholas Scroton**Project title:** Constraining past moisture variability in sub-Saharan Africa to improve future projections and enhance resiliency under a changing climate**Project Partner:** Self Help Africa

Nicholas' research focuses on improving our understanding of rainfall variability in sub-Saharan Africa. Smallholder farms in countries such as Malawi and Madagascar are particularly vulnerable to changes in rainfall. As the global climate changes, shifts in the amount of rain falling, the timing of seasonal rainfall, and the frequency of droughts and floods will have a large influence on the ability of farmers in the developing world to feed themselves and their communities. Development NGOs such as Self Help Africa work towards improving agricultural practices to improve crop yields and reduce the dependency on humanitarian assistance in times of climate stress. This research asks whether the current agricultural strategies used by NGOs will be suitable for the conditions in ten- or twenty-years' time, when local rainfall may be vastly different to today.

Nicholas is investigating how rainfall is already changing in sub-Saharan Africa and the likely changes that will happen in the future.

Working with climate datasets from the recent past, such as rain gauge data, satellite estimates of rainfall, and climate model outputs. At University College Dublin, he combines this work with geochemical analysis of stalagmites, whose chemical composition acts as a gauge of past rainfall. In partnership with Self Help Africa this research will model how rainfall is changing and produce useful, agriculturally relevant metrics to help improve the climate preparedness of their strategies.

2020: UKRI-ESRC

Twenty new UK-Ireland Research Collaborations in the Social Sciences were announced in an innovative joint call between the Irish Research Council and the Economic and Social Research Council (part of UK Research and Innovation). Lead researchers from 8 Irish and 15 UK research organisations were selected for funding in this highly competitive call.

An innovative joint call between the Irish Research Council (IRC) and the Economic and Social Research Council (ESRC) is supporting 20 new collaborations between Ireland-based and UK-based researchers who work across the breadth of the social sciences. The networking activities supported by these grants will foster the development of long-term relationships between British and Irish social science researchers, through forming new and strengthening existing relationships and enhancing the overall level of connection between the UK and Irish social science communities. The budgetary contribution was equally shared by ESRC and IRC and was increased during the call to accommodate the exceptional interest in this initiative.

Case Study

Awardees: Jennifer Ryan and Kimberly Smith

Project title: The UK-Irish Consortium for ageing well with a lifelong disability: Priorities, perspectives and opportunities

Dr Jennifer Ryan and Dr Kimberley Smith will bring together people with disability, researchers, clinicians and key stakeholders to explore what ageing well means to people living with lifelong disabilities, and what research is needed to support this. The team will ask people with lifelong disabilities, people who support them and those who work with them to develop the ideas for future research projects. The team will also explore what is already known about ageing well with a lifelong disability, and identify gaps in the research. The findings of these activities will be shared, collated, and interpreted by stakeholders at research retreats. These activities will facilitate the team in driving research in this area forward via the development of the UK-Irish consortium for ageing well with a lifelong disability. The information gained from this consortium will be shared on a website along with images from people with lifelong disabilities that show what ageing well with a lifelong disability means to them.



2020: UK-IRELAND COLLABORATION IN THE DIGITAL HUMANITIES

A ground-breaking joint call between the Irish Research Council (IRC) and UK Research and Innovation (UKRI)/Arts and Humanities Research Council (AHRC) supported 12 new collaborations between Ireland-based and UK-based researchers working within the inherently interdisciplinary field of Digital Humanities.

Lead researchers from seven Irish and nine British universities were selected for funding in this highly competitive call. At a time of upheaval and uncertainty, these grants are providing an opportunity for international co-principal investigators and research teams to work together to enhance experiences and understandings of culture, heritage, and the arts, while pushing the boundaries of emerging technologies. In addition to producing excellent research, these networks will reinforce UK-Irish cooperation and innovation ties, preserving the long-standing synergies between these two countries.

This collaborative funding programme aims to deliver a transformational impact on Digital Humanities research in the UK and Ireland. The Irish teams are supported by €140,000, pledged by the IRC for innovative projects that range in aim from joint infrastructure and capacity-building to providing the public with online access to hidden monuments, heritage landscapes, and digital reconstructions of historic buildings.

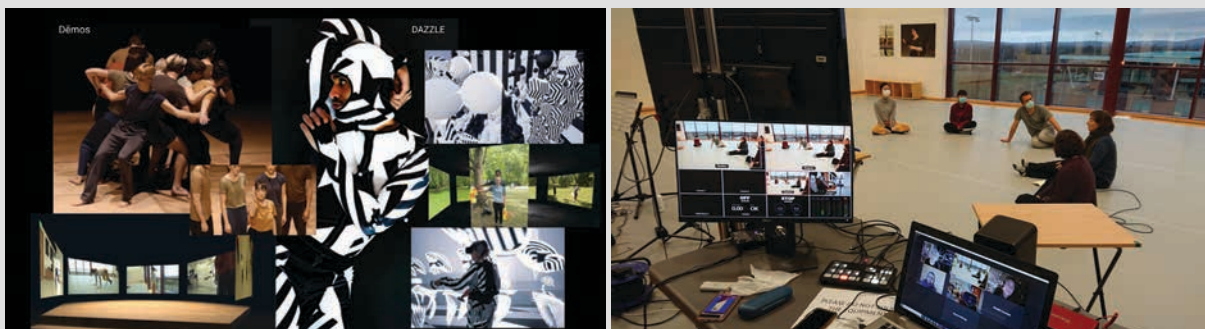
Awardees: Christine Casey and Sophie Chessum

Project title: 3D CRAFT: Digitally recrafting lost interiors in Britain and Ireland

3D CRAFT is a network of art historians, heritage professionals and computer scientists created to develop new and dynamic digital means of interpreting damaged or lost historic buildings (<https://craftvalue.org/3d-craft/>). Focusing on the fire damaged Clandon Park in Surrey, which reveals much about the ways in which historic buildings are made, the network has considered a range of digital methods of evoking, enhancing and interpreting lost interiors. How can the work of the 18th century craftsman in stone, wood and plaster be captured and conveyed to onsite and offsite audiences? Due to pandemic travel restrictions the UK and Irish participants engaged through virtual meetings and site visits, as seen here in the Marble Hall at Clandon Park in November 2020.



Virtual meeting at Clandon Park, Surrey, UK



Left: Collage of the dance projects *Demos* by Liz Roche Company and *Dazzle* by Gibson/Martelli and Peut-Porter] **Right:** Part digital / part on location workshop for the network members with Liz Roche Company at the University of Limerick]

Awardees: Jenny Roche and Ruth Gibson

Project title: Experience together: a live visceral sense of dance performance across the internet

Jenny Roche and Ruth Gibson have established a network of experts who have been exploring how live performance captures the senses and builds a connection between the audience and performer, experimenting with how these interrelationships could be embedded in remote performance environments and virtual reality spaces. This has led to a series of live and digitally mediated dance events in Ireland and the UK, including live streamed rehearsals, virtual reality performances and immersive meeting spaces for network members to exchange ideas.

Awardees: Ciara Chambers and Shane O'Sullivan

Project title: Make Film History - Opening up the Archives to Young Filmmakers



The Make Film History network is developing a new, sustainable model for the creative, non-commercial reuse of archival material by young filmmakers. In collaboration with project partners the British Film Institute, the Irish Film Institute, BBC Archive Editorial and Northern Ireland Screen the project seeks to resolve licensing difficulties, increase community engagement with hidden cultural heritage, and enable emerging filmmakers to make new works

that reflect on the past and develop talent for the future. In the first six months of the award, a vibrant research network has been established with academic institutions, film festivals and community arts organisations across Ireland and the UK and the body of work produced by young filmmakers has demonstrated creative flair and innovative approaches to interrogating the past.

Still from *Letter from Northern Ireland* (1955). Courtesy of NI Screen & National Museums NI, one of the films from the archive]

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, we fund and administer the Ulysses programme, with support from strategic partners. 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 2020, selected research projects will also be supported by the following strategic partners:

- > Electricity transmission system operator **EirGrid** will partner with France-based **Réseau de Transport d'Électricité** to support suitably aligned research projects in the area of renewable energies and smart grids.
- > The **Health Research Board** will support research projects focusing on patient-oriented and clinical research, population health or health services research.
- > The **Sustainable Energy Authority of Ireland** and **ADEME**, the French Environment and Energy Management Agency, will provide support to research projects exploring topics relating to energies.

Awards made under the 2020 Ulysses Scheme are due to commence in 2021, for this reason these awards are not included in this annual report.

HUMANITIES IN THE EUROPEAN RESEARCH AREA



Launch of HERA JRP Public Spaces in Smock Alley Theatre, Dublin 14th April 2019. Photographed at the launch from left to right: Prof David McGillivray, Dr Sara Brandellero, Dr Eavan O'Brien, Prof Wojciech Sowa, Mr Peter Brown, Dr Ailbhe Kenny and Dr Bernadette Walsh

The IRC is the handling agency for Humanities in the European Research Area (HERA), a network of 26 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 IRC oversee the communications, financial and project management and event organisation for the HERA network. The current Joint Research Programme for HERA is called 'Public Spaces' and this was launched in May 2019. The programme funding 20 transnational projects was extended until November 2022 due to the delays incurred by the COVID-19 pandemic in 2020.

Due to the global pandemic in 2020, HERA projects will continue a further 6 months than originally planned. Projects have been very adaptive in responding to the crisis. Research teams have used video and audio as mediums to disseminate research and many of these can be accessed and viewed on the HERA website: www.heranet.info

NORFACE



Dr Karen M Anderson



Dr Constantine Boussalis

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 we are the Irish representative in the consortium.

Democratic governance in a turbulent age [Governance] programme is the most recent funding programme for NORFACE. The research teams will focus on subjects such as disruptive changes in the political landscape, polarisation and populism, identities, and the legitimacy of the administrative state. The total budget of the call was €17.3 million. Two Irish Principal Investigators received funding through the IRC for this programme. They are:

Karen M. Anderson, Associate Professor of Social Policy at University College Dublin, is leading the project Democratic Governance of Funded Pension Schemes (DEEPEN). Dr Anderson's research focuses on comparative social policy development, financialization and non-state social policy, and the impact of Europeanization on national welfare states.

Dr Constantine Boussalis, Assistant Professor of Political Science at Trinity College Dublin, is a principal investigator on the project Extreme Identities: A Linguistic and Visual Analysis of European Far-Right Online Communities' Politics of Identity (ExI). Dr Boussalis' research lies at the intersection of computational social science, political communication, and political behaviour, using machine learning and computational methods to discover and analyse latent patterns in politically relevant text and speech.

CHANSE is the new programme which will be launched in early 2021 for NORFACE and HERA. This call is Transformations: Social and Cultural Dynamics in the Digital Age and aims to finance high-quality international research projects and inspire collaboration between researchers and various stakeholder groups, such as: NGOs, cultural institutions, legislators, policy makers, schools, etc.

CHRISTERA



CHIST-ERA funds transformative and highly multidisciplinary research projects in information and communication sciences and technologies, exploring new ideas with the potential for significant scientific and technical impacts in the long term. Annually CHIST-ERA launches a call for research proposals.

CHIST-ERA is a coordination and co-operation activity of national and regional research funding organisations mainly in Europe and is supported by the Horizon 2020 Future and Emerging Technologies (FET) programme of the European Union through the ERA-NET Cofund funding scheme. On a yearly basis, the partner organisations identify emergent scientific fields allowing researchers to engage in high risk, high impact projects by launching a transnational call for research proposals.

This dynamic research area is attracting an increased number of Irish researchers applying to Chist-era for funding. IRC are funding between one and two projects annually. Researchers work collaboratively with partners across the European Network.

In 2020, the topics were: Explainable Machine Learning-based Artificial Intelligence (XAI) and Novel Computational Approaches for Environmental Sustainability (CES) respectively.

IRC funded two projects through this call.





Dr Derek Bridge

Dr Derek Bridge, a Senior Lecturer in Computer Science and AI research and education in the School of Computer Science and Information Technology in University College Cork, is a Principal Investigator of the Intelligent Sharing of Explanation Experience by users for users (iSee) project.

The iSee project will show how users of Artificial Intelligence (AI) can capture, share and re-use their experiences of AI explanations with other users who have similar explanation needs. The project team will provide a platform using Case-Based Reasoning to capture experiences by enabling users to experiment with and evaluate explanations. Once captured, experiences can be reused, on the premise that similar user needs can be met with similar explanation strategies.



Dr Paula Carroll

The additional project funded through this call is led by an Irish project based in UCD.

Dr Paula Carroll, Assistant Professor at the School of Business at University College Dublin, is leading the project Supporting Energy Communities – Operational Research and Energy Analytics (SEC-OREA). Dr Carroll's background is in electrical engineering with considerable experience in both academia and industry. She is founder and chair of the EURO WISDOM Forum to promote, support, empower, and encourage the participation of all genders in Operations Research (OR) and Management Science (MS).

The SEC-OREA project aims to enable local energy communities to participate in the decarbonisation of the energy sector by developing advanced efficient algorithms and analytics technologies. Local energy communities are an efficient way to manage energy by increasing the use of renewable energy sources at a local level. SEC-OREA aims to co-create an overarching local energy community enabling framework with stakeholders. The goal is to create technical tools to empower citizens and place them at the core of the Energy Union. The consortium brings together expertise from Business, Climatology, Computational Methods, Secure ICT, and Power Systems. They reach across the EU with researchers, innovators and stakeholders in Belgium, France, Ireland, and Latvia. Stakeholders include Codema, Smart Dublin, Met Éireann, Watt-IS, and municipalities and energy agencies in Latvia who support the development of local energy communities and a distribution system operator.

GENDER-NET PLUS



Since 2018, the GENDER-NET Plus consortium funding call has welcomed proposals for research that specifically integrates gender in addressing urgent societal challenges. In particular, the awardees address and explore interactions and interdependencies between the UN Sustainable Development Goals (SDGs) relating to health and well-being; infrastructure, industrialisation and innovation; and Climate Action. GENDER-NET Plus is an ERA-NET COFUND under the *Science with and for Society* strand of Horizon 2020, the European Union's research and innovation framework programme.

The Irish Research Council was one of the 16 international partners across 13 countries that formed GENDER-NET Plus, in cooperation with the European Union. Partners worked together to create a transnational funding call that was specifically designed to welcome proposals for research that integrates gender in addressing urgent societal challenges. This resulted in 13 projects being awarded funding, 7 of which have Irish university partners.

The total pool of funding available from the GENDER-NET Plus call, including the EC contribution, is €10.6m. The allocation of €1.7m awarded to Irish gender researchers began with an initial €600,000 contribution from the Irish Research Council. The Council subsequently collaborated with the Health Research Board to raise additional funds of €506,000. Once the agencies combined their funding, Ireland's contribution almost doubled, maximising the number of high-calibre research projects that could be supported.

The success of Irish researchers in this highly competitive funding call shows Ireland's expertise in this critical area of research. They will study a wide range of important topics, which include:

- > Causes and effective policy responses to prevent violence against women migrants and refugees.
- > Sex-related differences in immune responses contribute to cancer treatment.
- > The effect of gender on social exclusion and its consequences for health and wellbeing.
- > Entrepreneurship, innovation and women's success.
- > The role of literature and cinema in shaping attitudes to masculinity and aging.

The Council is committed to supporting gender equality and mainstreaming in research. Gender equality is a significant societal challenge, as highlighted by the UN SDGs. The integration of sex and gender analysis into research gives us new knowledge and insights, which is critical to research excellence.

Case Study

Awardee: Professor Denis O'Mahony

Project Title: iKASCADE. Identifying Key Prescribing Cascades in the Elderly: A Transnational Initiative on Drug Safety



iKASCADE is an international cooperation between Ireland, Belgium, Canada, Israel, Italy, and the USA, lead by Prof. Paula Rochon (Department of Medicine, University of Toronto, Ontario, Canada) who studies sex and gender differences in the way old adults are being prescribed cascades and react to adverse health events. Prof. Denis O'Mahony, University College Cork and Cork University Hospital, represents the Irish awardee on the team.

Prescribing cascades occur when a health care provider misinterprets the side effect of a drug as a new medical condition and prescribes a second, potentially unnecessary, harmful drug to address the side effect. To improve the health of older adults, prescribing cascades must be identified and prevented. Since women live longer than men, they are more likely to be prescribed inappropriate drug therapies and experience more drug-related adverse events. To interrupt prescribing cascades, there is a need to understand sex and gender differences. In this international study, a team of experts in sex, gender and ageing respond to this critical gap by applying a sex and gender lens to complementary health data from four countries. Specifically, they evaluate whether men and women develop prescribing cascades in the same way and if there are differences in the ways they react from an adverse event. Findings lead to a greater understanding of how adverse drug events differ between older women and men and help develop and spread tailored knowledge translation products to minimize the frequency and impact of prescribing cascades.

In a YouTube video (link below), Prof. Rochon introduces the objectives and main features of this study.

See the full video here: <https://youtu.be/cbqVvWCpv9c>

EUROPEAN SOCIAL SURVEY

Support for European Research Infrastructures

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. ESS is a European Research Infrastructure Consortium (ERIC) of which Ireland is a member, supported by the IRC. To support the work of ESS in Ireland, we appoint and fund a national coordinator to oversee and implement the survey.

Every two years, face-to-face interviews are conducted with newly selected, cross-sectional samples. The survey measures the attitudes, beliefs, and behaviour patterns of diverse populations in more than thirty nations. The objective of the study is to offer researchers, policy makers and the public the highest quality survey data that is comparable across countries and time.

The Geary Institute in UCD have been awarded the role of National Coordinator for both Round 9 and Round 10. The Geary Institute published the first National Irish Report, 'Irish Social Attitudes in 2018-19: Topline Results from Round 9 of the European Social Survey'. It was launched by Principal Investigators, Micheál Collins, Mathew Creighton, and Philip O'Connell on 22nd September 2020.

CESSDA

Support for European Research Infrastructures

With the support of the IRC, Ireland officially joined the Consortium of European Social Science Data Archives (CESSDA) in 2020. Also, an ERIC, CESSDA provides large-scale, integrated and sustainable data services to the social sciences. It brings together social science data archives across Europe, with the aim of promoting the results of social science research and supporting national and international research and cooperation.

IRC-ESO Studentship Programme

ESO, the European Southern Observatory (or formally the European Organisation for Astronomical Research in the Southern Hemisphere) awards Studentship positions each year, based in both Germany and Chile. The programme offers an invaluable training opportunity for the next generation of Astronomers and users of ESO facilities. Studentships are open to students enrolled in a PhD programme, preferentially but not necessarily in an ESO member state.

Acknowledging the importance of Ireland's membership of the ESO and the value of investing in Ireland's next generation of astronomers, the IRC signed a five-year Partnership agreement with the ESO in 2019. The IRC considers the ESO's Studentship Programme to provide a valuable opportunity for astronomers of the future to gain experience at the most productive ground-based astronomical observatory in the world. The IRC has agreed to fund an ESO studentship for an Ireland-based researcher in 2019.



8

RESEARCHER OF THE YEAR



Dr Jane Suiter, of Dublin City University,
IRC Researcher of the Year 2020

2020 RESEARCHER OF THE YEAR AWARDS

Expert on disinformation and democracy Dr Jane Suiter, Dublin City University (DCU), received the prestigious Irish Research Council Researcher of the Year award for 2020.

The winners of the annual Researcher of the Year awards, which recognise the very best of the Council's awardees and alumni working in academia, industry, civic society and the public sector, were announced in early December.

Dr Jane Suiter, Dublin City University was awarded the 2020 Researcher of the Year award for her research on the public sphere and the information environment in referendums and elections.

Dr Suiter's research includes analysing populist messaging and the political communication characteristics and systems that support or hinder it, as well as the impacts of citizen's participation and deliberation and the role of citizens in renewing democracy.

Dr Suiter is an Associate Professor at the School of Communications and Director of the Institute for Future Media and Journalism at DCU. She is a senior research fellow on the Irish Citizens' Assembly and is recognised as a national and international leader in citizen engagement and deliberation.

Highly commended by the independent panel in this category were Professor John Goold, Trinity College Dublin and Professor Orla Muldoon, University of Limerick.

Dr. Kathryn Schoenrock, NUI Galway won the Early Career Researcher of the Year award. Dr Schoenrock's research focus is kelp forest ecology. Kelp forests are known to be a habitat for hundreds to thousands of marine species and they have recently been highlighted as an important blue carbon repository that may buffer climate change impacts to marine habitats by sequestering the increasing concentrations of carbon dioxide in the atmosphere.

Dr Schoenrock's ground-breaking work in this field has made her the authoritative voice on Irish kelp forest ecology, and the productivity and biodiversity of these systems in nearshore waters.

Highly commended in this category were Dr. Brynne Gilmore, University College Dublin and Dr. Joe Davies, Maynooth University.

Dr. Colin Keogh, University College Dublin, was awarded this year's Impact Award. This award is given to a current or former IRC awardee who is making a highly significant impact outside of academia. Dr. Keogh is an engineer, working in the innovation space. His research and work focuses on applying technology and innovation to solve problems in sectors such as healthcare, climate and business.

This year alone, Dr. Keogh built out a team to design and develop open-source ventilators to assist with the fight against Covid-19.

He is also the cofounder of Sapien Innovation, an innovation consultancy specialising in applied innovation, creativity and design thinking services, and of The Rapid Foundation, a social enterprise which aims to disperse 3D printing technology. His work has included the design of 3D printed prosthetics for children with missing or 'non-standard' limbs.

Dr. Keogh has also previously been named as one of Forbes 30 Under 30 in Science, as Junior Chamber International's Ten Outstanding Young People, and as the 2017 IT and Tech Professional of the Year at the Irish Early Career Awards.

Medals of Excellence

In addition to the Researcher of the Year awards, the Council announced the four early-career researchers who had won 'Medals of Excellence'.

Each of the 'Medals of Excellence' have been named after previous Chairs of the Irish Research Council and recognise excellence in the 2020 postgraduate and postdoctoral funding calls run by the Council in science, technology, engineering and mathematics (STEM) and the arts, humanities and social sciences (AHSS).

Edmond Gubbins, Mary Immaculate College, was awarded the 'Eda Sagarra Medal of Excellence' for being the top-ranked postgraduate researcher in the AHSS category. Mr Gubbins's research focuses on music education at primary level in Ireland.

Shane Somers, University College Cork, was awarded the 'Jane Grimson Medal of Excellence' for being the top-ranked postgraduate researcher in the STEM category. Mr Somer's research seeks to determine the drivers of variation in the gut microbiome of a wild bird, the great tit.

Dr. Edward Molloy, University College Cork, was awarded the 'Maurice J Bric Medal of Excellence' for being the top-ranked postdoctoral researcher in the AHSS category. Dr. Molloy's research explores the nature and form of Irish separatism and the ideas that informed radical Irish nationalism in the nineteenth century.

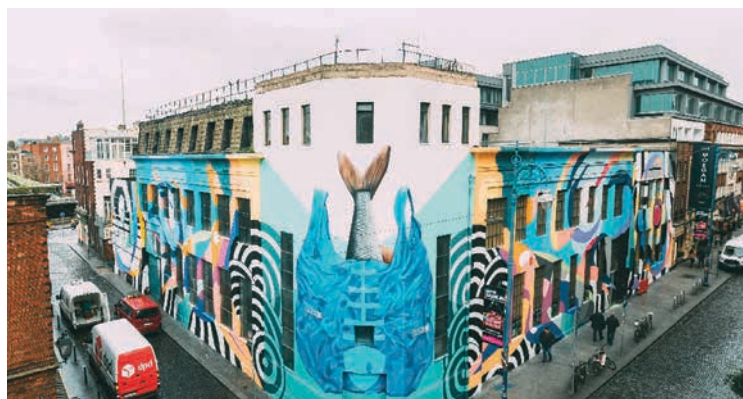
Dr. Tara Dirilgen, University College Dublin was awarded the 'Thomas Mitchell Medal of Excellence' for being the top-ranked postdoctoral researcher in the STEM category. Dr. Dirilgen's research investigates soil, plant and pollinator interactions.



9

Research Communication and Public Engagement





One of Subset's murals in Temple bar, Dublin

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. We launched our #LoveIrishResearch campaign in 2016 to foster greater public interest in and knowledge of what is happening in research in Ireland. Our initiative engages researchers at all career stages and across all disciplines, with a wide-ranging programme that includes:

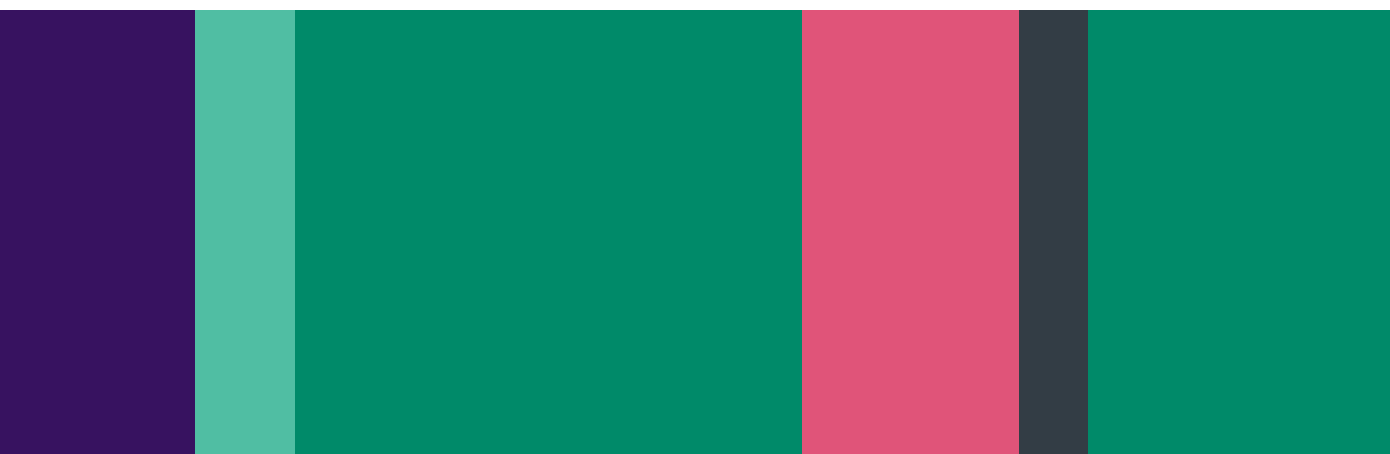
The #LoveIrishResearchBlog, our first port of call for giving our awardees a platform to showcase their research. 2020 posts covered a range of good news stories from our community including the publication of scholarly articles, books and manuscripts; Spotlight on Research interviews with awardees; satellites in space; mental health research and the genomic secrets of passage tomb dwellers in ancient Ireland.

We also encourage our awardees to engage with the **RTÉ Brainstorm** platform, which is sponsored by the IRC. This initiative helps enable the academic and research community to contribute to public debate, reflect on what's happening in the world and put forward new perspectives on a broad range of issues. Launched in September 2017, the research featured on Brainstorm includes everything from contemporary world politics, to medieval literature, to climate change and presents a great opportunity for awardees to broaden their public dissemination to a national scale.

In another collaboration with RTÉ, the IRC has once again sponsored the now 6th season of the popular science show **Ten Things to Know About....** This years episodes, which aired in November and are available of the RTÉ Player, covered

1. Light
2. Biodiversity (featuring GOI Postgrad Sarah Larragy's work on bumblebees, Maynooth Univeristy)
3. Taste
4. Flooding & drought (featuring COALESCE awardee Arlene Crampsie and Conor Murphy on the irish drought memories project, University College Dublin)
5. Hydrogen
6. Viruses (featuring Rose Anne Kenny, Nollaig Nurke and Mark Ward on the TILDA Covid-19 Rapid Response project, Trinity College Dublin)

January 2020 saw the renewal of the BT Young Scientist Exhibition partnership, where the Council Director, Peter Brown presented the Irish Research Council Award to Michael Doyle & Fionn McGregor. Both representing St. Fintan's High School Dublin, their project was titled "Applying the Turing Test to self-made algorithms for musical composition".



In June the Council teamed up with the Union of Students in Ireland to pivot a long-standing research excellence award - that formed part of the USI annual conference – online. This new approach invited postgraduate students from across the country to put together a 3 minute video showcasing Why Research Matters. With over 80 submissions, the bar was set high for judges who in the end decided to give out two additional prizes for 'Best Communication of Research' and 'Best Creative Entry'. The winners of the inaugural competition were:

- > Overall winner - Emma Dunne (UCD), chosen by RTÉ Brainstorm's Jim Carroll
- > Winner of the research communication award - Andrew Power (GMIT) chosen by the IRC's Director Peter Brown
- > Winner for creativity - Maedhbh Nic Lochlainn (TCD), chosen by Creative Ireland's Sheila Deegan

September saw the Dublin Festival of History go virtual, but that didn't put a stop to the wonderful contributors to the "Lost Property" panel, who discussed how architecture and archives and archives, digital reconstructions, and public commemorations help us connect with Ireland's intangible past and sharing some of the digital archive recreations from their research. Contributors included:

- > Prof. Daniel Carey (Chair), NUI Galway and Irish Research Council member
- > Prof. Christine Casey, Dr Melanie Hayes and Dr Andrew Tierney, Trinity College Dublin, IRC Laureate Craftvalue project
- > Dr Ciarán Wallace, Trinity College Dublin, Beyond 2022 project
- > Dr Bernadette Quinn and Dr Theresa Ryan, Technological University Dublin, HERA Festspace project
- > Maeve Casserly, IRC Employment-Based Postgraduate Scholar and Fulbright Scholar, University College Dublin and National Library of Ireland

We closed out the year by partnering with Science Foundation Ireland on a very special 25th Anniversary of Science Week. Five wall art installation featuring themes highlighted across the week were commissioned and will be installed across the country by the artistic collective Subset. They will work with researchers from the academia and with local community groups to design engaging artwork for all.



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APPENDICES



Professor Jane Ohlmeyer, Chair of the Irish Research Council

APPENDIX 1

IRISH RESEARCH COUNCIL BOARD MEMBERS

Board Member	Position	Attendance at board meetings		
		In person	Virtually	Total
Professor Jane Ohlmeyer	Erasmus Smith's Professor of Modern History at Trinity College Dublin and Director of the Trinity Long Room Hub	1	5	6(6)
Professor Daniel Carey	Professor and Director of the Moore Institute for Research in the Humanities and Social Studies at the National University of Ireland, Galway	1	5	6(6)
Professor Kieran Conboy	Dean of the College of Business, Public Policy and Law at the National University of Ireland, Galway	1	4	5(6)
Professor Orla Muldoon(from December 2020)	Founding Professor of Psychology and leading member of the Centre for Social Issues Research at the University of Limerick			0(0)
Dr Felicity Kelliher	Senior Lecturer and Co-Chair of the RIKON Research Group at the Waterford Institute of Technology	1	5	6(6)
Professor Turlough Downes(from December 2020)	Professor of Mathematics and Astrophysics and founding Director of the Centre for Astrophysics and Relativity at Dublin City University			0(0)
Professor Liam Barry	Professor in the School of Electronic Engineering and Director of the Radio and Optical Communications Laboratory at Dublin City University	1	4	5(6)
Professor Catherine Godson	Professor of Molecular Medicine and Director of the Diabetes Complications Research Centre at University College Dublin		5	5(6)
Professor Patricia Kearney	Professor of Epidemiology in the School of Public Health at University College Cork		4	4(6)
Professor Rob Kitchen	Professor in the National Institute of Regional and Spatial Analysis at Maynooth University	1	5	6(6)
Professor Emma Teeling	Professor in the School of Biology and Environmental Science at University College Dublin	1	4	5(6)
Peter Brown	Director (ex-officio member)	1	4	5(6)

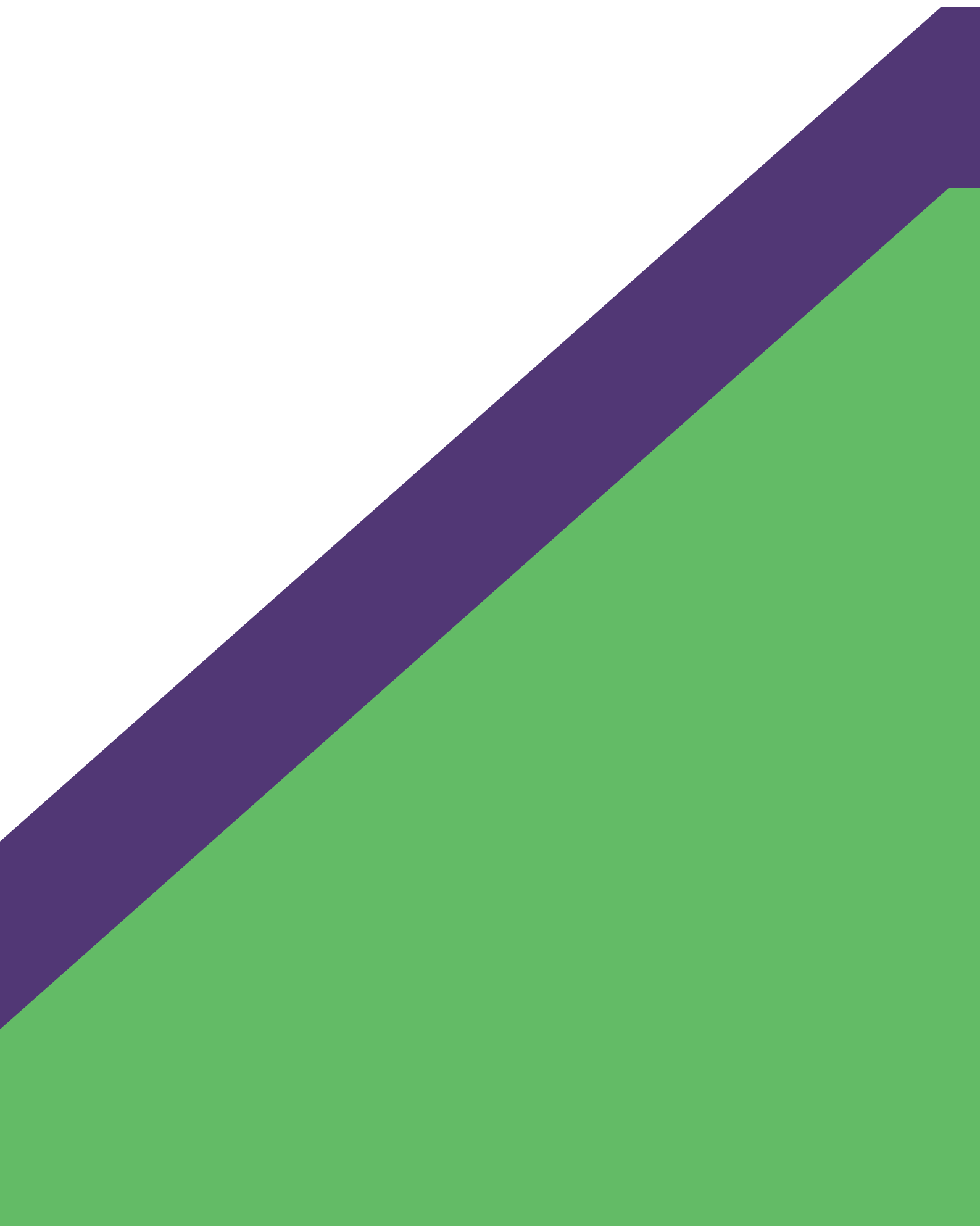
APPENDIX 2

STAFF MEMBERS

Peter Brown	Director
Dr Eavan O'Brien	Assistant Director, Impact and Partnerships (on secondment)
Liz-Anne Worrall	Assistant Director, Programmes and Resources
Dr Deirdre Quinn	Acting Assistant Director, Programmes and Resources
Dr Raasay Jones	Acting Assistant Director, Impact and Partnerships
Dr Anne-Julie Lafaye	Research Support Officer, Government of Ireland Postgraduate Scholarships
Dr Emer Cahill	Programme Manager, Laureate Awards Programme and GENDER-NET Plus, <i>Researcher of the Year, and Communications</i>
Dr Shauna O'Brien	Postdoctoral Intern
Linda Rose	Finance Manager
Rosemary Sweeney	Programme Manager, European Partnerships (including HERA and NORFACE)
Dr Stephan Ehrig	Postdoctoral Intern
Dr Chiara Loda	Programme Manager, Government of Ireland Postgraduate Scholarships and Communications, Marie Skłodowska-Curie Actions(COFUND Programmes) and UKRI partnerships
Niall Kelly	Research Support Officer, European Partnerships (including HERA, NORFACE and CHIST-ERA)
Dr Marina Milić	Postdoctoral Intern
Robert Lindsay	Programme Manager, Government of Ireland Postdoctoral Fellowships, Ulysses and Lindau Nobel Laureate Meeting Awards
Dr Maria Morrissey	Programme Manager Enterprise Programmes
Kerry O'Leary	Research Support Officer, Government of Ireland Postdoctoral Fellowship Programme, Ulysses, and Lindau Nobel Laureate Meeting Awards
Dr Felicity Maxwell	Postdoctoral Intern
Dr Jennifer Cassidy	Acting Programme Manager COALESCE and New Foundations
Dr Thaina M. da Costa	Postdoctoral Intern
Brenda Blake	Research Support Officer, CAROLINE and UKRI Partnerships
Gemma Duke	Programme Manager, Laureate Awards Programme, GENDER-NET Plus, and Researcher of the Year (On leave)

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