

OLLSCOIL NA GAILLIMHE UNIVERSITY OF GALWAY

Coláiste na hEolaíochta & na hInnealtoireachta College of Science & Engineering

RESEARCH & INNOVATION DAY 2025

CURIOSITY & DISCOVERY

DECISIVE DATA

INNOVATION FOR HEALTH

SUSTAINABLE FUTURES

Programme



WELCOME NOTE

On behalf of the College of Science and Engineering Research and Innovation Committee, we are delighted once again to welcome you to the College of Science and Engineering Research and Innovation Day 2025. This is an opportunity for us as a community to celebrate the remarkable diversity of research and innovation in our College, as well as our distinctive research strengths that are highly complementary to University of Galway's strategic research areas. Our research activities impact beyond our laboratories and workspaces, as they seed the deep enthusiasm in the next generation of scientists and engineers as graduates who are creative, inquisitive, agile and distinctive.

The central theme of this year's Research and Innovation Day is 'Our Planetary Health', an area that we at University of Galway have a unique perspective and role to play towards its stewardship. 'Our Planetary Health' encompasses the interactions between the physical and biological, the ways and means our human ecosystem adapts both good and bad to our planetary home, and the ways and means we as the apex species for these past billion years of life on this planet we call home can look to the future with both hope and confidence. We are uniquely exposed to the effects of a changing climate is having to both weather and oceanic systems, and these effects directly impact our Atlantean society - in the production of the food we eat, the livestock we raise, the houses we live in, the towns, villages and communities we call home. Planetary Health recognises the inter-connectedness of the health and wellbeing of all life on Earth, as well as the need to regenerate natural systems. Thus, Planetary Health transverses all of four Strategic Research Pillars of the College (Curiosity and Discovery, Decisive Data, Innovation for Health, and Sustainable Futures).

Our guests today will give us a better sense of the challenges facing planetary health, and the opportunities addressing these challenges provide for our creative and innovative researchers to better understand the changes underway, and to develop the solutions for tomorrow. We are grateful to all of our panel members and to those moderating the panel sessions. We are particularly grateful to our invited guests Professor John Bell, European Commission's 'Healthy Planet' Director leading DG Research and Innovation policy transitions on climate change, bioeconomy, food systems, environment, biodiversity, water, circular economy, oceans and the European Green Dealon, and alumni Dr Peter Heffernan, Ocean Ambassador and Member of the EU Mission Board 'Restore our Ocean and Waters', and Dr Fiona Grant, Head of International Programmes, Marine Institute and Chair of the European Marine Board, as well as Dr Darragh O'Neill, Senior Manager, Research Strategy, Environmental Protection Agency, for taking the time to join us and to share their knowledge and insights with us all today.

As has been the case in previous years, our Research and Innovation Day will also showcase the very best of our College's research and innovation activities in Innovation for Health, Sustainable Futures, Curiosity & Discovery and in Decisive Data undertaken this past year through presentation and poster sessions, and, as in previous years, we hope that these sessions and discussions will be the source of new ideas and research collaborations.



Today is a day of celebration for our PhD students and researchers keen to communicate their work to the wider College, and the excellence of your research will be celebrated as it was last year with prizes being awarded to the best oral and poster presentations. We are absolutely delighted that over 300 delegates have registered to attend the conference - it speaks to the vitality and engagement in our College's research and innovation activities, and to the synergies and opportunities that may arise. We hope you enjoy the day.

Dr Aaron Golden, Vice-Dean for Research and Innovation

Dr Ann Ryan Director of Strategic Development



Message from the Executive Dean

The College of Science and Engineering has set a strong vision to support ambition in research and innovation, to provide innovative and competitive programmes of research, and to drive research excellence. We will do this by attracting and developing talented researchers, nurturing fundamental and translational research and delivering intellectual capacity.

We focus our research and innovation strength and ambition across four distinctive research pillars: (1) Curiosity and Discovery, (2) Sustainable Futures, (3) Decisive Data and (4) Innovation for Health. Our areas of research strength draw on the distinctive strengths of our region in areas such as medical technologies, marine, data/ICT and enabling technologies, we work in partnership with business and industry to drive innovation, economic growth and research, and to address global concerns and challenges. Our distinctive research strengths are highly complementary to University of Galway's strategic research areas, and critically encompass creative, theoretical and blue-skies topics, as well as the more translational and applied aspects of science and engineering. We encourage our researchers to grow in both established and emerging research areas.

We will draw from our interdisciplinary expertise to deliver impact, by sharpening the focus of our research and innovation using the UN SDGs as a blueprint to achieve a better and more sustainable future. This enables our researchers to have successful careers and to become contributors of value to society. We expect and value excellence in all of our endeavours.

Our ambition is underpinned by our people, our students and researchers, and our staff who are creative, innovative and confident researchers; our purpose, excellent and impactful research; and our place, embedded in our city and region, with an international reach and outlook. Together, these drive our vision for the College of Science and Engineering to make a meaningful and sustainable difference at a global level.

Our endeavours will continually focus on excellence, respect, openness and sustainability as the enablers of our vision.

Professor Walter Gear Executive Dean of the College of Science and Engineering



GENERAL INFORMATION

College of Science and Engineering Research and Innovation Day Organising Committee

Chair and Vice-Dean for Research and Innovation: Dr Aaron Golden.

Organising Committee (Social and Logistics): Carmel Fennell (College Research Support Officer), Dr Ann Ryan (Director of Strategic Development), Johnny Quinlivan (College Marketing Officer), Niall Flaherty (College Learning Technologist), Michelle Spratt (College Administrator).

Track Chairs: Prof. Jamie Goggins/Dr Sinéad Waters (Sustainable Futures), Prof. Ted Vaughan/Dr Stephen Griffin (Innovation for Health), Dr Jim Cruickshank/Dr Ilhsan Ullah (Curiosity & Discovery/Decisive Data)

Organising committee (Thematic): Prof. Ed Curry, Dr Jim Cruickshank, Prof. Ted Vaughan, Dr Magdalena Hajukiewicz, Dr James McDermott, Dr Kate Reddington, Prof. Alan Ryder, Dr Merve Zeden, Prof. Frances Fahy, Dr Aaron Golden

Presentation format: Research talks are allocated 10 minutes (8 minutes for the presentation and ~2 minutes for questions).

Poster format: Poster sessions will take place from 11.20 - 11.50, 13.30 - 14.00 and 15:10 - 15:30, and poster presenters should be available at their posters during these sessions. The maximum size of the poster boards is 1200 mm x 900 mm. Access to the poster presentation area will be from 8.45 - 9.30 am for assembly of posters. These poster presentations are a particularly important part of the program and will showcase our excellent research projects and researchers.

Registration: All attendees must be registered. Access to all sessions, tea/coffee breaks, lunch and social events will only be granted to registrants.

Networking Programme: A networking event is included for all registered delegates, which will be a BBQ on Thursday evening from 16:50 – 18.00 pm in the Veranda Lounge of the Galmont Hotel.



Conference Floor Plan:



Additional sessions will take place in the Burren Suite (4th floor) – directions to the Burren Suite will be in provided by the Galmont.



Keynote Speaker Profile:

Professor John Bell (European Commission)



Professor John Bell is the European Commission's 'Healthy Planet" Director leading DG Research & Innovation policy transitions on Climate Change, Bioeconomy, Food Systems, Environment, Biodiversity, Water, Circular Economy, Oceans and the European Green Deal. He leads the EU's €10 billion Horizon Europe Research & Innovation programme across these planetary transitions. He is the Chair of the €2 billion Circular Bio-based Europe Joint Undertaking's Governing Board, and he leads the deployment of the EU Bioeconomy Strategy. He is co-leading one of the EC's moonshot Green Deal "Missions": "Restore our Ocean and Waters by 2030".

Through his commitment to science diplomacy for sustainability, he has delivered a 1000 research teams' programme All-Atlantic Ocean Research and Innovation Alliance through the "Galway" and "Belém" Declarations with the US, Canada, Brazil, South Africa, Argentina, Capo Verde, Morocco, as well as Arctic cooperation, International Bioeconomy Forum, Global Earth Observation, Mediterranean Water Agriculture PRIMA and African Union Food and Nutrition Security. Dr Bell is an Adjunct Full Professor at UCD School of Politics and International Relations.



"Planetary Health - The Marine Perspective" Panelist Profiles:

Dr Peter Heffernan (Ocean Ambassador & Member of the EU Mission Board 'Restore Our Ocean and Waters')



Dr Peter Heffernan currently serves as an Ocean Ambassador and member of the European Commission's Mission Board for Healthy Oceans, Seas, Coastal and Inland Waters. Dr Heffernan, a graduate of the University of Galway, was Chief Executive of the Marine Institute between 1993 to 2019. Dr Heffernan played a key role in securing government support for INFOMAR, aiming to make Ireland the first country to digitally map its entire seabed. He was a driving force behind the Atlantic Ocean Research Alliance and the 2013 Galway Statement, fostering transatlantic scientific cooperation. He chaired

the Marine Coordination Group, which launched Harnessing Our Ocean's Wealth, Ireland's first integrated marine plan. He currently advises international marine science bodies and serves as Chair of the Council of the Dublin Institute for Advanced Studies.

Dr Fiona Grant (Head of International Programmes, Marine Institute)



Dr Fiona Grant, Head of International Programmes at Ireland's Marine Institute, was elected Chair of the European Marine Board (EMB) in 2024, becoming its first female Chair. With over 20 years of experience in marine science and policy, Dr Grant's appointment brings deep expertise and a strong commitment to sustainability, international collaboration, and gender equality to the EMB, Europe's leading think tank in marine science policy. As EMB Chair, she will guide strategic efforts to address climate change, biodiversity loss, and marine pollution, while fostering

interdisciplinary collaboration and science-based policy. In her career at the Marine Institute, she has led numerous initiatives to advance ocean research and promote inclusive workplace practices. A graduate of the University of Galway, Dr Grant is to be honored in the forthcoming Alumni Awards for her contribution to Engineering, Science and Technology.



Dr Jurgita Ovadnevaite (School of Natural Sciences)



Jurgita Ovadnevaite is Director of the Ryan Institute's Centre for Climate and Air Pollution Studies (C-CAPS) whose work involves the study of aerosol chemistry, formation, transformation, climate and health impacts. The Centre also manages and runs the Ryan Institute's Mace Head Atmospheric Research Station, one of a global network that provides baseline data on GHG emission levels, in addition to. Dr Ovadnevaite completed her PhD in Natural Sciences at Vilnius University Institute of Physics. Jurgita is leading source apportionment work

package in the National Research Forum established by the Department of the Environment, Climate and Communications. She is a contributing author of the IPCC Working Group I (The Physical Science Basis) Sixth Assessment Report.

Prof. Olivier Thomas (School of Biological & Chemical Sciences)



Olivier Thomas is the Established Professor of Marine Biodiscovery at the University of Galway, where he currently serves as Head of the School of Biological and Chemical Sciences. His research focuses on the discovery and characterization of bioactive compounds from marine organisms, with applications in drug discovery, biotechnology, and sustainable resource use. He leads the Marine Biodiscovery Group at the University's Ryan Institute and is a key figure in European marine biodiscoverv networks. Professor Thomas has

coordinated and participated in numerous national and international research projects, including EU-funded initiatives exploring marine biodiversity for novel therapeutics. He is recognized for his interdisciplinary approach, bridging marine biology, chemistry, and pharmacology. Through his work, he contributes significantly to advancing sustainable marine bioprospecting and unlocking the ocean's potential for human health and innovation.



Dr Audrey Morley (School of Geography, Archaeology & Irish Studies)



Dr Audrey Morley is a marine scientist and paleoclimatologist at the University of Galway, where she is a lecturer in Physical Geography. Her research focuses on understanding past climate variability through the analysis of marine sediments, with a particular emphasis on ocean circulation, abrupt climate change, and the role of the North Atlantic in global climate systems, in particular the Atlantic Meridional Overturning Circulation (AMOC). She leads the Paleoenvironmental Research Group and utilizes geochemical and micropaleontological methods to reconstruct climate records spanning

thousands of years. Dr Morley has participated in international oceanographic expeditions and collaborates widely on multidisciplinary climate research projects. Her work contributes to improving our understanding of natural climate variability and informing future climate projections. A committed science communicator and educator, she actively engages in public outreach and mentoring the next generation of climate and marine scientists.

"Planetary Health - What it means for Us & Society" Panelist Profiles:

Prof. John P. Dalton (School of Natural Sciences)



Professor John Pius Dalton is a molecular parasitologist at the University of Galway, renowned for his research on parasitic diseases affecting humans and animals. His work focuses on the molecular biology of parasites such as Fasciola hepatica (liver fluke), with the aim of developing vaccines and new treatments. Professor Dalton has led numerous national and international research projects and collaborates widely with academic and industry partners. His innovative research advances global efforts to control neglected tropical diseases and improve food security. He is also a dedicated educator and mentor,

contributing to the training of future scientists in parasitology and molecular biology.



Dr Darragh O'Neill (Environmental Protection Agency)



Dr Darragh O'Neill is a Senior Scientist with the Irish Environmental Protection Agency (EPA), with particular responsibility for marine and coastal environmental assessment. His work focuses on implementing national and EU marine directives, including the Marine Strategy Framework Directive and Water Framework Directive, to protect and enhance Ireland's marine ecosystems. Dr O'Neill has extensive experience in monitoring programmes, data analysis, and science-based policy development. He collaborates with national and international partners to support sustainable marine

management and contributes to Ireland's environmental reporting obligations. Through his work, he plays a key role in safeguarding marine biodiversity and promoting evidence-based approaches to environmental governance.

Prof. Dearbhaile Morris (School of Medicine)



Professor Dearbhaile Morris is a One Health scientist at the University of Galway, and is an expert in antimicrobial resistance (AMR) and its links across human, animal, and environmental health. She leads the Centre for One Health, where her interdisciplinary research focuses on understanding and reducing the spread of AMR in healthcare, community, and agricultural settings. Professor Morris has led major national and EU-funded projects and contributes to national policy on AMR and

public health. She is an advocate for science communication, public engagement, and responsible antibiotic use, and works to promote collaborative, cross-sectoral solutions for global health challenges.



Dr David Styles (School of Biological & Chemical Sciences)



Dr David Styles is an agri-environmental scientist at the University of Galway who studies sustainable agriculture, environmental footprinting, and climate mitigation. His research focuses on quantifying the environmental impacts of agri-food systems, particularly greenhouse gas emissions, nutrient management, and circular bioeconomy strategies. He is a leading contributor to national and EU-funded projects addressing climate action in agriculture and has advised governmental and industry stakeholders on pathways to reduce emissions and enhance sustainability, working at the interface of science, policy, and farming to support the

transition to climate-resilient and environmentally responsible agri-food systems.

Dr Magdalena Hajdukiewicz (School of Engineering)



Dr Magdalena Hajdukiewicz is Director of Construct Innovate. Ireland's National Research Centre for Construction Technology and Innovation. Her research focuses on developing innovative engineering solutions to improve energy efficiency, occupant comfort, and the health and resilience of buildings, particularly in response to climate change. Dr Hajdukiewicz leads interdisciplinary projects that integrate building performance simulation, monitoring technologies. and human-centric design approaches, and collaborates with industry, policymakers, advance sustainable building and communities to practices and contributes to shaping the future of energyefficient and climate-adaptive infrastructure.

Dr Caitriona Carlin (School of Natural Sciences)



Dr Caitriona Carlin is an ecologist at the University of Galway, specialising in biodiversity, nature-based solutions, and the links between nature and human well-being. Her research focuses on how access to green and blue spaces supports health, ecological resilience, and climate action. Dr Carlin leads and contributes to interdisciplinary projects that engage communities in enhancing biodiversity and sustainability in everyday spaces. A passionate educator and communicator, she works closely with local groups,

policymakers, and students to promote nature-connected living. Her work bridges science, society, and policy to foster more inclusive, sustainable environments for people and nature.



"Innovation for Health" Speaker Profiles:

Dr Eimear Dolan (School of Engineering)



Dr Dolan is a Royal Society - Research Ireland University Research Fellow and Associate Prof in Biomedical Engineering. Her research group designs medical implants to improve the therapeutic efficacy and/or experience for people with living with long- term therapeutic needs. Their work comprises fundamental discovery and applied research and they use *in vitro*, *in vivo* and computational models to investigate their research questions. They work at the interface of engineering and medicine.

Dr James Gahan (School of Biological & Chemical Sciences)



Dr Gahan has been an Associate Professor in the School of Biological and Chemical Sciences since 2024. His research focuses on the early evolution of animals with a particular emphasis on gene regulation and chromatin biology and is funded by the ERC, the Wellcome Trust, and Research Ireland.

"Sustainable Futures" Speaker Profiles:

Dr Alma Siggins (School of Biological & Chemical Sciences)



Dr Alma Siggins is a Royal Society - Research Ireland University Research Fellow, and Lecturer in the School of Biological and Chemical Sciences. Her research is interdisciplinary, incorporating her own background in Microbiology with Environment Engineering and Chemistry to address issues around remediation and novel biotechnology development. She was awarded a URF in 2022, investigating the relationship between adsorption and bioavailability to overcome current bioprocess limitations.



Dr Liam Morrison (School of Natural Sciences)



Dr Liam Morrison is a lecturer in Earth and Ocean Sciences and Course Director of the MSc in Marine and Freshwater Resources: Management. His research focuses on trace elements, organic contaminants, nanomaterials, microplastics and radionuclides in ecosystems; macroalgal bloom dynamics and control; remote sensing of coastal environments; nutrient cycling; marine ecological restoration; & sustainable marine resource development in the context of global change, obtaining data to support policy on environmental & human protection.

"Creativity & Discovery/Decisive Data" Speaker Profiles:

Dr Mamoona Asghar (School of Computer Science)



Dr Mamoona Asghar is an Assistant Professor in the School of Computer Science and an Applied Cybersecurity expert with extensive R&D experience in the interdisciplinary domains of Cryptography, AI, and Data-driven innovation. She is an engaged educator, researcher, and mentor committed to transforming complex data into actionable insights that drive decisive, real-world change. Her contributions to cybersecurity research, innovation, workforce development, and mentoring have earned her multiple awards and recognition on both national and global levels.

Dr Rachel Quinlan (School of Mathematical & Statistical Sciences)



Dr Rachel Quinlan has been a lecturer in Mathematics in Galway since 2005. She previously worked at UCD, having graduated with a PhD in Mathematics from the University of Alberta (and an MSc from University College Galway). Her research interests are in algebra and in mathematical art, especially origami which is the topic of today's talk. In August 2026 she will coordinate the hosting of the International Bridges Conference on Mathematics and the Arts at the University of Galway. Everyone is welcome to participate



Programme Overview: 8th May 2025

Time	Inis Mór Ballroom	Inis M	ór Ballroom	Burren Suite
	Section 1		Section 2	Section 3
09.00 - 09.30	00 - 09.30 Registration - Pre-conference area			
09.30 - 09:40	Welcome from Professo	r Walter (Gear, Executive Dea	n of the College of Science
		ar	nd Engineering	
09:40 - 10:10	Keynote Talk	Keynote Talk – Professor John Bell, European Commission		an Commission
10:10 - 10:35	Pre-Panel Talk – Dr. Pete	er Hefferna	an, EU Mission Board Waters'	'Restore Our Ocean and
40.05 44.00	"Planetary H	lealth – T	he Marine Perspect	tive"
10:35 - 11:20	Chair: Professor	Panel D Frances F	iscussion aby Director Ryan	Institute
	11 20-11 50: Top/Coffo	o Postor 9	Sossion Pro-conford	
	11.20-11.30. Tea/Cone	e, roster .		
11:50 - 13:00	Innovation for Health 1 Chair: Dr. Steven Griffin	Susta Cha	iinable Futures 2 ir: Prof. Jamie Goggins	Curiosity & Discovery/Decisive Data 1 Chair: Dr. Jim Cruickshank
13.00 - 14.00	Lunch and Poster session, Pre- conference area Facilitator Workshop with Prof. John Bell (Invitation only)			
14:00 - 14:25	Pre-Panel Talk – Professor John P. Dalton, University of Galway			
14:25 - 15:10	"Planetary Health – What it means for Us & Society" Panel Discussion Chair: Dr. Ann Ryan, College of Science & Engineering			
15.10-15.30: Tea/Coffee, Poster Session, Pre-conference area				
15.30 - 16.40	Innovation for Health 2 Chair: Prof. Ted Vaughan	Susta Cha	inable Futures 2 iir: Dr. Sinéad Waters	Curiosity & Discovery/Decisive Data 2 Chair: Dr. Ihsan Ullah
16:40 - 16:50	Closing Remarks, Dr. Aaron Golden, Vice-Dean for Research and Innovation, Executive Dean of the College of Science and Engineering, Prof. Walter Gear			
16.50: Prize giving, Networking, BBQ Veranda Lounge				



Thursday 8th May 2025 – Parallel Sessions

11.50 – 13.00	<u>Sustainable Futures 1</u> Venue: Inis Mór Ballroom – Section 1
11.50 – 12.10	'The Development of a Research Concept, from an Idea to a Funded Award' Siggins, A. (Invited Talk)
12.10 - 12.20	'Methane mitigation in ruminants using peroxide- based additives: Effect of grass composition and doses increase' Villa-Montoya, A. C., Thorn, C., Abberton, P., O`Connor, S., Bartle, A., Friel, R., O'Flaherty, V.
12.20 - 12.30	'Towards Lifetime Prediction of Composite Tidal Turbine Blades Under Marine Exposure' Thanthirige, T.R.M, Flanagan, M., Kennedy, C., Goggins, J., Finnegan, W.
12.30 - 12.40	'Microstructure-driven fatigue life prediction of additive manufactured NiTi aerospace actuators' Yadav, S., Brabazon, D., Leen, S.
12.40 – 12.50	'Wave-Based Numerical Simulation of Rain Droplet Impact and Surface Fatigue in Wind Turbine Blade Coating' Azarkaman, F., Goggins, J., Finnegan, W.
12.50 - 13.00	'The impact of climate change on the design and operation of Irish dwellings' Reis, D.V.A, Loomans, M.G.L.C., Hajdukiewicz M.



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11.50 – 13.00	<u>Innovation for Health 1</u> Venue: Inis Mór Ballroom – Section 2
11.50 - 12.10	'Designing long-term therapeutic implants' Dolan, E. (Invited Talk)
12.10 - 12.20	'Computational Framework for Geometrical and Physical Skull Growth Model and Craniosynostosis-Related Dysmorphologies via Finite Element Analysis' Vafaeefar, M., Quinn, C, Vaughan, T.
12.20 - 12.30	'Fatigue Detection in Running using Functional Data Analysis' Andrew J., Simpkin, A.J.
12.30 - 12.40	'A Low-Power ECG Amplifier with Bioimpedance Monitoring and Lead-off Detection' Rakshith, B.S.M., Soumyajyoti, M.
12.40 - 12.50	'Designing Optimised Vascular Sensors for Next- Generation Health Monitoring' Soares, I. V., Farooq, M., Kraśny, M. J., Tejaswini, M., O'Keeffe, D.T., O'Halloran, M., Elahi, A.
12.50 - 13.00	'Effects of Estrogen Deficiency on 3D Vascularized and Humanized Bone Models under Mechanical Stimulation' Bukhari, M.M.M., Naqvi, S.M., McNamara, L.



11.50 - 13.00	<u>Curiosity & Discovery/Decisive Data 1</u> Venue: Burren Suite (4 th Floor)
11.50 - 12.10	'Decisions that Matter: Using Data and Innovation to Shape a Safe and Trusted Society' Asghar, M. (Invited Talk)
12.10 - 12.20	'Harnessing Reinforcement Learning for Sustainable Peer- to-Peer Energy Trading in Dairy Farms' Ali Shah, M.I., Barrett, E., Mason, K.
12.20 - 12.30	'Evaluating Clinical BERT for Multiclass Pathology Report Classification with Interpretability' Kulsoom, U., Bendechache, M., Glavin, F.G.
12.30 - 12.40	'Predicting social participation using brain MRI, environmental and genetic measures in the UKB using Extreme Gradient Boosting (XGBoost)' Laighneach, A., Ostojic, D., Casburn, M., Quilligan, F., Doherty, E., Broin, P., Donohoe, G., Cannon, D.M., Morris, D.W.
12.40 - 12.50	'A Semantic Approach for Linked Model, Data, and Dataspace Cards' Donald, A., Galanopoulos, A., Curry, E., Munoz, E., Ullah, I., Waskow, M.A., Kalra, M., Saxena, S., Iqbal, T.
12.50 - 13.00	'Video-DPRP: A Differentially Private Approach for Visual Privacy-Preserving Video Human Activity Recognition' Nken, A.T.A., McKeever, S., Corcoran, P., Ullah, I.



15.30 - 16.40	<u>Sustainable Futures 2</u> Venue: Inis Mor Ballroom – Section 1
15.30 – 15.50	'Water is Life: Contaminants to Conservation' Morrison, L. (Invited Talk)
15.50 – 16:00	'Adsorption Of Methane at Atmospheric Pressure Under Dry and Aqueous Conditions' McGinley, J., Sambrano G. E., Siggins, A.
16.00 - 16.10	'Modelling Nutrient Emissions into Waterbodies Caused by Various Land-use' Alighanbari, S., Clifford, E., Styles, D.
16.10 – 16.20	'Design of a scalable microbial electrosynthesis process for efficient industrial CO2 recycling' Sosa, S.M., Paolo Dessì, P., Farràs, P.
16.20 - 16.30	'In-vitro and in-vivo assessment of novel oxygen- releasing feed additives to reduce enteric ruminant methane emissions' Graham, A., Thorn, C., Bartle, A., McDonagh, M., Montoya, A.C.V., Nolan, S., Hall, A., Friel, R., Waters, S.M., Kirwan, S.F., O'Flaherty, V.
16.30 – 16.40	'Direct Laser Writing of Highly Conductive Graphene Patterns via Ultrashort Laser Irradiation of PEEK' Sharif, A., Farid, N., Yuhan Liu, Y., Wang, M., Palgrave, R.G., O'Connor, G.M.



15:30 - 16:40	<u>Innovation for Health 2</u> Venue: Inis Mór Ballroom – Section 2
15:30 - 15:50	'Insights into Animal Development from Our Closest Relative: Choanoflagellates' Gahan, J. (Invited Talk)
15:50 - 16:00	'The Design and Validation of an Actuatable Cell Encapsulation (ACE) Implant' Trask, L., Ward, N., Shokrani, P. , Wallace, E., Prendeville, H., Sheedy, A., Roche, E.T., Duffy, G.P., Dolan, E.B.
16:00 – 16:10	'Oligopeptide-modified chimeric oligonucleotides as targeted therapeutics for the ESKAPE pathogens' Kelly, J.B., Dhara, A., Connolly, J., Myers, E., Reddington, K., O'Gara, J.P., Devocelle, M., Murphy, P.V., Zeden, M.S.
16:10 - 16:20	'Interactions of IPS cardiomyocytes on large area photopolymerized scaffolds produced by ultrashort laser direct writing' Farid, N., Kianersi, S., Sharif, A., Pandit, A., Daly, A., Karakan, C., White, A., Chen, C., O'Connor, G.M.
16:20 – 16:30	'Compounds used for treatment of cancer can improve treatment of bacterial infections' Nolan, A.C., Zeden, M.S., O'Gara, J.P.
16.30 - 16.40	'RoboHeal: Development of a soft robotic drug delivery system to improve treatment of diabetic foot ulcers' Wallace, E.J., O'Dwyer, J., Duffy, G.P., Cameron, A., Dolan, E.B.



15:30 - 16:40	<u>Curiosity & Discovery/Decisive Data 2</u> Venue: Burren Suite (4 th Floor)
15.30 – 15.40	'A periodic paper caper', Quinlan, R. (Invited Talk)
15.42 – 15.52	'Evaluation of Large Language Models for the reassembly of proteins from peptides' Kharkar, S., Howley, E., Abram, F.
15.54 – 16.04	'Haematological deterioration of Hematodinium-infected decapod crustaceans' Conneely, E-A., Coates, C.
16.06 – 16.16	'Dynamic Time-Frequency Decompositions as Unique Fingerprints for Time-Series Feature Extraction' Shore, N.
16.18 - 16.28	'An Agentic Ai Architecture To Enhance microRNA Research Data Interaction' Guerrero Vazquez K., Verga J.U., Ó Broin P., Szegezdi E., Goljanek Whysall K.
16.30 - 16.40	'Species distribution modelling of deep-sea antipatharians reveals environmental heterogeneity across the Irish margin' Parimbelli, A., Johnson, M. P., Howell, K. L., Allcock, A. L.

Poster Presentations: Pre-conference area

Curiosity & Discovery		
Presenter	Poster Title	
Sergey Alexandrov	Novel approach to image formation in OCT. Label free	
	superresolution and nanosensitive imaging	
Federica Brescia	DESIGN AND DEVELOPMENT OF GOLD(III)-GLYCOCONJUGATES	
	AS ANTIVIRAL AGENTS AGAINST SARS-CoV-2	
Rachel Cahalane	Multiscale Proteomic Assessment of Bioprosthetic Structural	
	Valve Degeneration and Native Calcific Aortic Valve Disease	
Michael Flanagan	Induction Welding of Carbon Fibre Using an Additively	
	Manufactured Susceptor	
Deirdre Ní	Space Weather and Exoplanet Habitability: Proxima Centauri	
Chonchubhair		
Ping Song	Trustworthy Foundation Models: A Comprehensive Survey and Roadmap	

Decisive Data	
Presenter	Poster Title
MAJJED ABDULLAH	RAG4DS: Retrieval-Augmented Generation for Data Spaces—A
YAHIA AL-QATF	Unified Lifecycle, Challenges, and Opportunities
Tunde Ajayi	Cross-lingual Transfer and Multilingual Learning for Detecting Harmful Behaviour in African Under-Resourced Language Dialogue
Hai An Nguyen	Design and Implementation of an intelligent walking aid for visually impaired individuals
Muhammad Asad	Towards Robust Autonomous Driving: Out-of-Distribution Object Detection in Bird's Eye View Space

APOORVA BAMAL	Analysis of ML/AI model optimization for assessing the hydro- climatic impacts on water quality
Ryan Coleman	Modelling The T Cell And Antibody Immune Response To SARS- Cov-2 Infection And Development Of A Statistical Mechanics Framework To Investigate Viral Spread In An Immunologically Heterogeneous Population
MD GALAL UDDIN	A methodological framework for the development of scalable data-driven model for retrieving chlorophyll-a in transitional and coastal waters using remote sensing technology
Daniel Gyamfi Opoku	A semi-quantitative risk model for dairy farms to pinpoint and break source-pathway connections between nutrient sources and open drainage channel sections
Rafiqul Haque	Towards the Irish Mobility Data Space: Challenges, Opportunities, and Requirements for Data Sharing
Ali Hatami	Leveraging Visual Scene Graph to Enhance Translation Quality in Multimodal Machine Translation
Marcin Jan Kraśny	Development of a CT Image Database for Machine Learning-Based Automated Feature Extraction in Abdominal Aortic Aneurysms (AAAs)
Ozren Jovic	Implications of Plant-Based Diet Trends for Anaemia Risk in Women: A Data-Driven Study
Abdul majed Sajib	Validation of Copernicus Marine Service Water Products in Irish Shelf and Celtic Sea
Liam Morrison	DOSIMETRIC IMPLICATIONS OF HUMAN INGESTION OF THE NATURAL RADIONUCLIDE POLONIUM-210 FROM COMMERCIALLY IMPORTANT AND EDIBLE SEAWEEDS
Liam Morrison	Radioactivity in salmon (Salmo salar) and oysters (Crassostrea gigas) farmed in the Irish Sea and North Atlantic waters.
Alamgir Munir Qazi	WHEN RETRIEVAL OUTPERFORMS GENERATION: DENSE EVIDENCE RETRIEVAL FOR SCALABLE FAKE NEWS DETECTION

Malaika Mushtaq	Explainable Lightweight Neural Architectures
Quratulain Rajput	Empowering Dairy Farming with Semantic Interoperability
Manohar Rao	The Missing Link: Enabling Data Space Interoperability through Agent Communication Systems
Eoin Reddin	Regional-Scale Changes in Greenhouse Gas Emissions during Peatland Rewetting
Mingze Shi	Revealing Determinants of National Biogas Industry Development
MIR TALAS	A polynomial framework for estimating/detecting the
MAHAMMAD DIGANTA	Chlorophyll-a accurately utilizing the remote sensing data
Huajie Wang	Using polarized intrinsic emission (PIE) to measure the kinetics of protein-liposome interactions on a second timescale: Exploring the Role of Ionic Strength
Fitria Wulandari	Can Synthetic Data Improve Symbolic Regression Extrapolation Performance?
Yang Yang	CMVC+: A Multi-View Clustering Framework for Open Knowledge Base Canonicalization via Contrastive Learning
Muhammad Yasar Khan	Smarter Environmental Governance: A Hybrid RAG Framework for Multilingual Peatland Policy Discovery
Rana Zeeshan Ali	Relative applicability of diverse automatic speech recognition
Shahid	platforms for transcription of psychiatric treatment sessions.
Durre Zehra Syeda	Semantic Modelling of DDoS Attacks: An Ontology-Driven Cybersecurity Framework

Innovation for health: Accelerate understanding of disease and provide		
disruptive solutions for health		
Presenter	Poster Title	
Ayman Abaid	Exploratory analysis of Type B Aortic Dissection (TBAD) segmentation in 2D CTA images using various kernels	
Seyed Aghil Hooshmand	An All-Ireland Cancer Liquid Biopsy Portal	
Deema Ali	FOXP1 DYSREGULATION AND ITS ASSOCIATION WITH SCHIZOPHRENIA AND COGNITIVE FUNCTION	
Solomon Beer	Simulation study comparison of approximate linear mixed models for application in high dimensional Genome Wide Association Studies with longitudinal outcomes	
Dr Bilal Amin	DEVELOPMENT OF A MICROWAVE BONE IMAGING DEVICE: TOWARD NON-INVASIVE BONE HEALTH ASSESSMENT	
Shakir Bilal	Analysis of a Patient Backlog-Resources Model for Pandemic Surge and Response	
Carolina De Marco Verissimo	Uncovering the adult Fasciola hepatica glycoproteome: Distinct N- and O-glycan features of the mature stage	
Rachael Dillon	In vitro models to explore neutrophil mechanobiology	
Nupur Dubey	Single-cell transcriptomic profiling of human bone marrow- derived mesenchymal stem cells in type 2 diabetes	
Jared D. Zang	VIRAL INACTIVATION (VIN) PROCESS MONITORING BY POLARIZED FLUORESCENCE SPECTROSCOPY.	
Muhammad Farooq	A wireless pressure sensing technology for wound monitoring	

Brian Harkin	$\gamma \delta T$ -cells and gap junction expression influences tumour cell growth and immunotherapeutic outcomes
Devesh Haseja	Development of a liquid biopsy test for Ovarian Cancer using Fragmentomic Characterization of blood samples.
Elizabeth Hunter	A Multi-method Study Evaluating the Inference of Compartmental Model Parameters from a Generative Agent- Based Model
Amin Ibrahim	Electrical and Spectroscopic Characterisation of Laser Induced Graphene in Polymers for Sensing
Marcin Jan Kraśny	Design and Electrical Characterisation of a Microfabricated, Shielded Impedance Spectroscopy Probe for Cancer Detection
Marcin Jan Kraśny	Pulsatile Flow Test Rig for Implantable Vascular Sensors Bench-Top Testing
Majid Kavousi	A Micromechanical Methodology for Effect of Pitting Pre- Corrosion on Fatigue and Fretting of Bioresorbable Magnesium Alloys
Mostafa Khabooshani	ALTERED BONE MINERAL CRYSTALLINITY AFFECTS OSTEOGENESIS UNDER ESTROGEN DEFICIENCY
Reshma Kidayaveettil	Advancements in sensing performance of enzymatic glucose and lactate biosensors for improved healthcare monitoring
Tadhg Kilbane	Serpins of the human trematode parasites Schistisoma mansoni and Fasciola hepatica
Hannah Kimingi	Immunomodulatory Effect of Mesenchymal Stem Cell-Derived Extracellular Vesicles on Dendritic Cells
Syeda Masooma Naqvi	Early Intermittent Low-Dose Therapeutic Intervention Prevents Osteocyte Dysregulation Associated with Estrogen Deficiency in Ovariectomized Rats
Peter McDonagh	Thermodynamic Modelling to Predict Intracranial Aneurysm in Patient-Specific Geometries

Orlaith McSweeney	Microfluidic Aspiration Devices for High-Throughput Analysis of Tumour Cell Biomechanics
Tyler Medina	Predicting acute myeloid leukaemia survival time using deep learning on cross-platform gene expression
Amra Mehboob	Optimised Cole-Cole Model for Dielectric Properties of Diseased Human Trabecular Bones at Microwave Frequencies
Diana Meriakri	Investigating the role of mechanobiological stimulation and matrix stiffness in breast cancer stemness and its effect on proliferation, migration, and differentiation of cancer cells.
Ben Mohan	Design, Synthesis and Evaluation of Novel Glycomimetics as Galectin Inhibitors
Seán O Connell	Computational and Experimental Optimisation of the Corrosion and Mechanical Performance of Bioabsorbable Mg/Zn Ureteral Stents
Dijana Ostojic	MACHINE LEARNING PREDICTS TRAUMATIC EXPERIENCES TO BE A RISK FACTOR FOR AUDITORY VERBAL HALLUCINATIONS IN BOTH THE GENERAL POPULATION AND INDIVIDUALS DIAGNOSED WITH PSYCHOSIS
Amin Oun Ibrahim	Electrical and Spectroscopic Characterisation of Laser Induced Graphene in Polymers for Sensing
Forough Pazhuheian	Covariate-Adjusted Adaptive Reference Ranges in Longitudinal Data Monitoring
Hannah Prendeville	TIGIT blockade may enhance Natural Killer cell cytotoxicity against Ovarian Cancer cell lines.
Kevin Ryan	nf-hlamajority: a Nextflow pipeline for consensus MHC class I genotyping and its application to neoantigen identification in breast and lung cancer stromal cells
Hager Saleh	Beyond Classical Approaches: Fine-Tuning Clinical BERT Models on Structured Data for Alzheimer's Disease Diagnosis

Shrutika Sawant	Developing a Barnacle Cement Protein as an Adhesive Coating for Biomedical Applications
Irish Senthilkumar	An agent-based artificial intelligence-driven 3D deformable cell framework to investigate mechanisms underlying mechanosensitive tumour growth
Darshan Senthil	NOVEL PATIENT-SPECIFIC BIVENTRICULAR HEART MODEL INTEGRATING PSEUDO-FLUID DOMAINS
Aoibhín Sheedy	A peritoneal implant for monitoring of ovarian cancer
Conal Sheridan	Experimental and Computational Modelling of Brain Tissue Damage Mechanics
Parand Shokrani	Modulating macrophage behaviour in the Foreign Body Response
Matteo Simeone	A biophysical model of stress-dependent yeast cell growth
Florine Thomassin	Manipulation of nucleotide pools to resensitize
	Staphylococcus aureus and Pseudomonas aeruginosa to existing antibiotics
Charlotte Turner	Overcoming Stiffness-Induced Chemoresistance In Breast Cancer Spheroids By Promoting Gap Junction Assembly
Icaro Veloso Soares	Fields through the body: optimal wireless powering and sensing in vascular implants
SYED WAHAAJ ALI	Alterations in morphometry, mineral distribution and
RIZVI	biomechanical properties of vertebral bones of Type 2 Diabetic rats
Jingyan Wang	Transcriptomic Dysregulation of Bone Marrow Mesenchymal Stromal Cells in Type 2 Diabetes Mellitus
Deirdre Winrow	Sm16 (also known as SPO-1 and SmSLP), an
	(liver and intestinal) of Schistosoma, has vaccine and

biotherapeutic potential.

Sustainable Futures: Lead the transition to a sustainable future through in- novation solution development		
Muhammad Asif Razzaq	Interoperable Data Spaces: Harnessing Building Blocks with Actionable Design Principles	
Carlos Bachour	Product Development of a Thermoplastic Composite Pipeline (TCP) used in Offshore Carbon Capture and Storage (CCS) Applications	
Aibhe Boran	Noble metal-free-based MCOF designed for CO ₂ conversion: electrocatalytic and photocatalytic approaches	
Brianna Casey	Enrichment of aerobic methane oxidising microbial communities capable of colonising biochar.	
Huanhuan Chang	Decoding ethanol metabolism pathways in anaerobic systems: toward sustainable waste-to-energy innovations	
Quan Chen	Investigation of the Thermal Degradation Pathways of Novel Brominated Flame Retardants	
Adam Collins	Laser Cleaving of Battery Separators	
Nora Damaris Pasquali Medici de Biron	Nuclear Dynamics During Seed Priming	
Noel Doyle	Stakeholder Perceptions and Dynamics in Ireland's Dairy Sector: Mapping the Path to Sustainable Food Systems	
Youssef Elkhayat	Evaluating Embodied Carbon of Deep Retrofit Homes in Ireland	
Sheharyaar Farid	Method Development for Extracting Microplastics from High Organic Matter Matrices	
Nazar Farid	Structural and Electrical Tuning of Site-selective on Chip Components by Ultrashort Lasers	
Dr Farnoosh Ebrahimi	Development and 3D Printing of Three-Dimensional Reinforcement from Waste Composites for Concrete Structures (3DREDO)	
Soheil Fathi	Resilient classrooms for the future – Exploring lean and agile techniques for sustainable and healthy learning	

	environments
Song Ge	A web-based life cycle assessment platform for imported timber products
Alison Hall	Screening coating materials to prolong the methane
	inhibition effects of calcium peroxide in cow rumen fluid
Muhammad Hassam Baig	Towards Assessing Cycleway Pavement Surface Roughness Using an Action Camera with IMU and GPS
Huanhuan Hu	Nitrate chemodenitrification by iron sulfides to ammonium
	under anoxic conditions and transformation mechanism
Mian Ibad Ali Shah	Harnessing Reinforcement Learning for Sustainable Peer-to- Peer Energy Trading in Dairy Farms
Danuka Jeewan Piyumal	A Communication Toolkit for Enabling Commercial Building
Dalpadadu Anagipura	Retrofitting Among SMEs in Ireland
Rimjhim Kashyap	Racking tests of CLT panels manufactured from C16-grade Irish timber
Hariprasad Kuduvan	Non-equilibrium dynamics and interaction characteristics
	via femtosecond Pulsed Laser annealing of ultra-thin metal films
Juntong Leng	Dynamics of N₂O Emissions in a Partial Nitrification SBR under Intermittent Aeration
Tingxia Liu	Optimizing Anaerobic Propionate Degradation Reactor Design by Modifying Operational Modes and Sludge Retention Time
Juan Lugilde Yáñez	SEAGRASS RESTORATION FOR CLIMATE RESILIENCE: EVIDENCE FROM IRELAND AND THE CLIMAREST PROJECT
Medeina Macenaite	ATTITUDES AND BEHAVIOURS TOWARDS INDOOR AIR
	QUALITY AND VENTILATION IN IRISH ENERGY-EFFICIENT
	HOMES (BE-VENT)
Joseph Mee	Developing a MegaWatt Scale Array of Vertical-Axis Wind Turbines (VAWTs) on a Single Floating Platform
Mohammad Mehdi	A development of a guidance document to mitigate
Rastgoftar	overheating risks in Irish dwellings
Rory Murnaghan	Enabling Commercial Building Retrofit
Niloufar Najafi	From Regulation to Consumption: Exploring the Energy Implications of Effluent Discharge Limit Stringency in Wastewater Treatment Plants

Kiruba Nedounsejian	UBP5 MODULATES CHROMATIN STATE, NUCLEAR
	MORPHOLOGY, AND HORMONAL BALANCE TO CONTROL
	SEED GERMINATION IN ARABIDOPSIS
Harrison Odion Ikhumher	Exploring the Role of ESG Practices in Accelerating
	Decarbonization in the Construction Industry
Damini	Use of waste-derived biochar to improve growth of
	Methylomicrobium alcaliphilum 20Z
Nicole Olweean	A focus group study of sustainable food perceptions and
	practices among adult residents of County Galway, Ireland
EMMANUEL OPOKU-	Development of water quality model for evaluating the
AGYEMANG	peatland rehabilitation measures in Ireland
Hui Pan	AUTO-FLOATING FILAMENTOUS MICROALGAE FOR
	AQUACULTURE TAILWATER TREATMENT AND RESOURCE RECOVERY
Olivia Philo	Investigating seagrass restoration in Irish coastal habitats
Hamza Qayyum	Non-Ablative Surface Modification of SiO ₂ /Si Substrates
	Using Ultrashort Laser Pulses: Formation of Conical
	Nanostructures Below the Ablation Threshold
Alireza Rahimi	AQU3D: Advanced Automated Data Collection for Quality
	Control in 3D Concrete Printing
Ana Rita Marques	FLUSH WITH CONSEQUENCES: HYGIENE PRODUCTS,
Mendes	MICROPLASTICS, AND THE URBAN WATER CYCLE
Lala Rukh	Residential Building Performance Analysis to Enhance
	Comfort and Energy Saving: analysis of thermal and air quality parameters
Omid Sam-Daliri	Nanocomposite sensors for health monitoring of composite structures
Ceylin Sirin	Evaluating Energy Absorption Capacity in Airtight
	Membranes for Sustainable Construction
Runhua Song	Phase-Field Method as a Predictive Tool for Microstructure
-	Simulation in TMCP and Welding
Chun Ting Poon	Towards a digital twin for fretting in submarine power
	cables
Maziar Toursangsaraki	Multi-scale Modeling of Through-Thickness Microstructure
	Gradients in TMCP Rolled X100 Steel for Offshore Wind
	Turbine Support Structures



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