



OLLSCOIL NA
GAILLIMHE
UNIVERSITY
of GALWAY

Coláiste na hEolaíochta
& na hInnealtóireachta
College of Science
& Engineering

RESEARCH AND INNOVATION DAY

2 0 2 4

- PROGRAMME -

CURIOSITY & DISCOVERY

DECISIVE DATA

INNOVATION FOR HEALTH

SUSTAINABLE FUTURES

Programme



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WELCOME NOTE

On behalf of the College of Science and Engineering Research and Innovation Committee, we are delighted to welcome you to the Second College of Science and Engineering Research and Innovation Day 2024, following on from our inaugural and very successful event last year. Today we celebrate the breadth and quality of the incredibly diverse and impactful research and innovation that is taking place across our College. Not only does this research and innovation generate new knowledge and ideas, it is relevant, impactful and ambitious and it informs our teaching programmes. A hallmark of our College is our inter-disciplinarity, and we are uniquely placed to draw on our interdisciplinary strengths to discover and innovate.

This is all hard-wired into the College's Research & Innovation Strategy, with our research pillars of Innovation for Health and Sustainable Futures being cross-linked and underpinned by the pillars of Curiosity and Discovery, and Decisive Data. These foundational areas span the full range of our rich research and innovation ecosystem, where discovery and creativity collide, to catalyse innovation and to drive transformational change for our society as a whole. Central to the delivery of this vision is you, our College research community - our support staff, students, academics and research staff - in short our people, and as a College, we recognise that our success depends on creating a shared environment, where we each feel valued and enabled to fulfil our potential, each and every one of us.

This central theme of this year's Research and Innovation Day is 'the lived experience' in which we celebrate those human characteristics and life experiences that all of us share as participants on this common research and innovation journey - whether you are a first year PhD student, a post-doctoral researcher on track for a career in academia or industry, a European Research Council awardee, an entrepreneur, or someone who supports the delivery of research, we each have our own story, own learnings, and our own perspectives. Today we will hear stories from colleagues of their own lived experiences, gain insights into how they have navigated challenges and career decisions, and we will learn from their shared experiences. We are grateful to all of our panel members and to those moderating the panel sessions. We are particularly grateful to our invited guests Dr Ciarán Seoighe from Science Foundation Ireland, and our distinguished alumni Dr Cairtriona Walsh of Novartis Ireland and Dr Jack O'Meara of Ochre Bio, for taking the time to joins us and to share their stories with us all today.

The event will 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 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 distinctive research strengths are highly complementary to the University of Galway's strategic research areas of improving health and wellbeing, realising potential through data and enabling technologies, and sustaining our planet and people. We promote creative, theoretical and blue-skies research, translational and applied research and innovation across our schools and research institutes and beyond our College, both internally and externally, to develop new research, educational programmes, collaborations, solutions and technologies. 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), Olive Mills (College Administrator).

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

Organising committee (Thematic): Prof. Ed Curry, Prof. M. Destrade, Dr. Steven Griffin, Dr, Magdalena Hajukiewicz, Dr. James McDermott, Dr. Kate Reddington, Prof. Alan Ryder, Prof. Charles Spillane, Dr. Aaron Golden

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

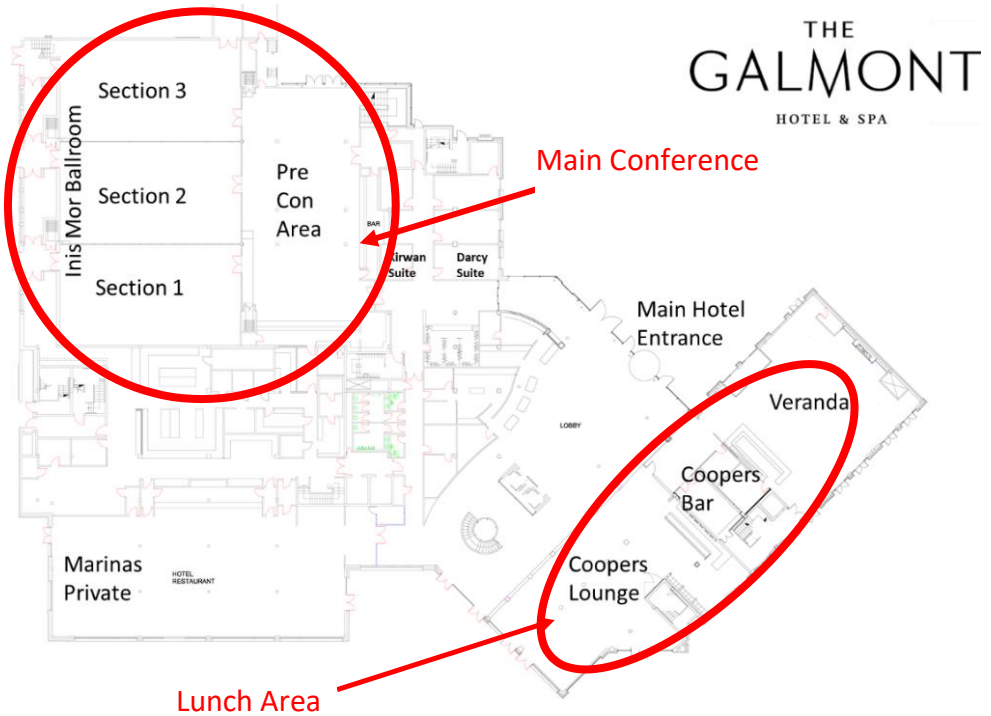
Poster format: Poster sessions will take place from 11.20 – 11.50, 13.30 – 14.00 and 15:10 – 15:30, and poster presenters should be available at their posters during these sessions. The maximum size of the poster boards is 1200 mm x 900 mm. Access to the poster presentation area will be from 8.45 – 9.30 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 provided by the Galmont.



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Keynote Speaker Profile:

Dr. Ciarán Seoighe (Science Foundation Ireland)



Dr Ciarán Seoighe joined Science Foundation Ireland as Deputy Director General in January 2018. He leads SFI's Strategy and Transformation Directorate which is responsible for Organisational Strategy, Corporate Communications and SFI's International team. Ciarán holds a BA (Mod) in Natural Science and PhD in Quantum Physics from Trinity College Dublin. He joined Science Foundation Ireland after nearly two decades in management consulting with Accenture. In his time with Accenture, in both Ireland and South Africa, Ciarán has worked with some of the world's largest and most successful organisations. He has a wealth of experience across a variety of sectors executing large-scale transformation, business re-engineering, strategic and change initiatives.



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“Pathways to Success as a Researcher” Panelist Profiles:

Mr Tyler Medina (Marie Curie Research Fellow & PhD Candidate)



Originally from California, Tyler received a BSc. in Biochemistry – Molecular Biology from UC Santa Barbara, and then completed an MSc. in Biomedical Genomics from the University of Galway, with a thesis that explored the presence of large repetitive elements in otherwise satellite-free neocentromeres under the supervision of Profs. Kevin Sullivan and Aaron Golden. Currently enrolled in the SFI Centre for Genomics Data Science at the University of Galway, Tyler is supported as a Marie Curie Research Fellow and his PhD studies focus on implementing cloud-based tools to support genomics for childhood cancer in Ireland. His supervisor

is Dr. Cathal Seoighe, the Stokes Professor of Bioinformatics.

Dr. Carolina Virissimo (IRC Starting Laureate)



Dr. Carolina De Marco Verissimo graduated in Biomedical Pathology and obtained her Master’s degree in Agricultural and Environmental Microbiology in Brazil. Carolina received a joint-PhD in Cellular and Molecular Biology from PUCRS, Brazil and Griffith University, Australia. Carolina worked as a Postdoc at the Molecular Parasitology Laboratory mainly studying parasite (helminth) proteins and glycans involved in processes of infection, host immune regulation and pathology. Recently, she was awarded a 4-year IRC Starting Laureate grant to independently develop her research on how worm parasites deal with the host complement system.

Dr. Merve Zeden (SFI-IRC Pathway Research Fellow)



Dr. Merve Zeden is a Cypriot scientist whose passion for microbiology brought her to Imperial College London for her BSc Microbiology degree. She completed her Master of Research in Bacterial Pathogenesis and Infection and pursued her PhD in the Gründling lab investigating the requirement of the signalling nucleotide c-di-AMP for the growth of *Staphylococcus aureus* at Imperial College London. Merve moved to Ireland in January 2020, for her postdoc in the O’Gara lab at University of Galway to integrate molecular microbiology with antimicrobial resistance (AMR) research. She is now a Science Foundation Ireland Pathway Fellow, and her research group is investigating the molecular mechanisms of AMR and developing targeted therapeutics for ESKAPE pathogens.

Dr. Eoin McEvoy (ERC Starter Awardee)



Dr McEvoy’s research group focuses on the development of novel theoretical, experimental, and computational models to explore the feedback between cell mechanics and tissue remodelling for the prediction of disease progression, with a specific interest in cancer mechanobiology and immune-mediated disease. Eoin completed his PhD in cellular biomechanics at the University of Galway, and subsequently worked as a postdoctoral researcher at the University of Pennsylvania, investigating how the tumour microenvironment guides cancer metastasis. In 2020, he returned to the University of Galway as an Assistant Professor in Biomedical Engineering. He was recently been awarded an ERC Starting Grant (2023) to investigate the mechanobiology of tumour growth and therapy resistance.

Dr. Karl Mason (Early Career SFI FFP/NCP Awardee)



Dr. Karl Mason is a Lecturer Above the Bar (Assistant Professor) in the School of Computer Science at the University of Galway. He is an SFI funded Principal Investigator. To date, he has secured over 1.6 million Euro in research funding from sources including: Science Foundation Ireland, Irish Research Council, Enterprise Ireland, and the Royal Irish Academy. He leads a team of 11 funded researchers within his research group working on machine learning and AI. His research also explores applications of machine learning methods to problems such as renewable energy, smart homes, infrastructure planning, smart grid, robotics and agriculture.

Professor Laoise McNamara (ERC Consolidator Awardee)



Professor Laoise McNamara is the Established Professor of Biomedical Engineering at the University of Galway. She established the Mechanobiology and Medical Device Research group at University of Galway in 2009, which is currently comprised of 14 researchers. The MMDRG research group (www.mechanobiology.ie) use multidisciplinary approaches to understand mechanobiology and how this process contributes to bone development and osteoporosis. Professor McNamara was awarded an Irish Research Council (IRC) Laureate Award (2018), the SFI Investigators Grant (2015, a European Research Council Starting Independent Researcher Award (2011), and a European Research Council Consolidator Researcher Award (2019).

Dr. Caitriona Walsh (President & MD, Novartis Ireland)

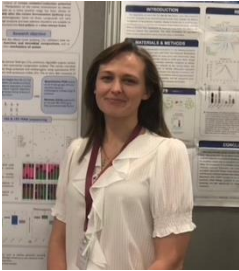


Caitriona Walsh studied Biotechnology at University before completing her PhD in Immunology in Trinity College Dublin. Caitriona joined Novartis in 2006, holding several medical, marketing and sales roles in Novartis Ireland, before moving to Novartis Headquarters in Switzerland and working in a number of roles as Region Europe Brand Director and Head of Business Operations and Strategic Projects. Prior to joining Novartis Ireland as Country President in September 2022, she was part of the Novartis UK Leadership Team, leading the global development of new drugs and indication in Immunology, Neuroscience and Ophthalmology. She has given invited keynote

addresses at various events promoting women in leadership and is an excellent role model for young women and girls interested in STEM careers.

“Pathways to Success as an Innovator” Panelist Profiles:

Ms. Caroline O’Donnell, PhD Candidate (GlasPort Bio)



Caroline is a final year PhD student in the Microbial Ecology Laboratory, supervised by Professor Vincent O’Flaherty. She holds a Bachelor of Science degree in Biology from Maynooth University and a Master of Science degree in Renewable Energy Systems from Dundalk Institute of Technology. The focus of Caroline’s PhD project is developing novel feed additives to reduce methane emissions from ruminant livestock, working alongside industry partners GlasPort Bio. She has collaborated with Teagasc on bioreactor experiments and animal trials, contributing to the DAFM-funded “Meth-Abate” project led by Professor Sinead Waters.

Dr. Tania Palmero Sanchez (SFI Industry Fellow)



Tania received her PhD in Chemical and Environmental Engineering from the University of Santiago de Compostela (Spain) in 2017. Her thesis tackled the treatment of saline wastewaters and their feasibility to produce value-added products, like energy and biopolymers. Ireland became her home in 2018, when she was awarded a Marie Skłodowska-Curie Career-FIT fellowship focused on the valorisation of waste from the dairy industry to produce bioplastics. She currently holds a SFI Industry fellowship to use these bioplastics as coatings for feed additives in ruminants.

Dr. Myra Lydon (Early Career SFI NCP Awardee)



Dr Myra Lydon is a Royal Academy of Engineering research fellow and Assistant Professor in Civil Engineering at University of Galway. Her area of expertise is in the development of structural health monitoring systems and infrastructure decision support tools. She is has secured over £1m in funding to develop bridge advanced bridge maintenance systems to inform on climate adaptation measure and quantify the impact of bridge loss on rural accessibility. Most recently, Myra’s project 'EMBRACE-Mobility: Equitable Management of Bridges for Resilient Accessible Communities to

Ensure Mobility' is in competition as part of SFI's National Challenge Fund - Sustainable Communities Challenge.

Dr. Alison Liddy (CEO, Revelium Medical)



Alison Liddy completed the prestigious Bioinnovate Fellowship in 2016. Following her fellowship, Alison orchestrated a multidisciplinary team at the University of Galway, leading them to clinch the esteemed SFI Innovator Prize in 2019, which awarded a substantial €1.2 million in funding. This accolade accelerated the advanced technical development of a groundbreaking treatment for knee osteoarthritis pain, subsequently attracting significant private investments from renowned entities such as Y Combinator and the European Innovation Council (EIC). In 2022, leveraging her extensive

experience and the momentum of her research, Alison spun out Revelium Medical from the University of Galway and closing a seed investment of €3.4 million. Before her fellowship, Alison had an impressive tenure in several roles at leading multinational corporations, including Roche, Cook Medical, and Boston Scientific, where she contributed to significant technological advancements. Alison is credited as the named inventor on 19 life science patents. To date, Alison has secured over €15 million combined grant or private funding. Her passion for innovation and entrepreneurship continues to drive her.

Dr. Mihael Arcan (Co-Founder, Lua Health)



Mihael completed his PhD in Natural Language Processing from the University of Galway in 2017 and subsequently worked as a Research Fellow at the Data Science Institute, where working with Professor Paul Buitelaar, he focused on integrating terminology and knowledge graphs into neural machine translation architectures, alongside working on dialogue systems and natural language generation within the context of multi-modal data. Mihael co-founded Lua Health in 2023, a University spin-out dedicated to enhancing mental well-being in the corporate realm - Lua Health's technology can detect in

real-time linguistic biomarkers and so identify and provide timely interventions for workplace-related wellness issues.

Professor Mark Bruzzi (Co-Director, Bioinnovate Ireland)



Mark Bruzzi is a Professor in Biomedical Engineering at the University of Galway and is also a Director and co-founder of the Bioinnovate Ireland medical device innovation programme, which has helped train over 140 innovators and the creation of over 20 start-ups since 2012. Mark was also the founder and CEO of Vetex Medical Ltd., a venous clot management company that was acquired in 2021. He is also the founder and a Director of Atrian Medical, a company focused on the treatment of Atrial Fibrillation and serves as Chairperson on the Board of Directors to Amara Therapeutics and Endowave Ltd. He has over 50 journal and conference publications, 15 patents, and serves as an advisor to several other medical device start-ups.

Dr. Jack O'Meara (CEO, Ochre Bio)



Jack O'Meara was named in the 2023 Forbes 30 Under 30 Europe list for his work with Ochre Bio, which he co-founded in 2019 and is currently CEO of. He earned his undergraduate degrees in Biomedical Engineering at the University and Purdue University prior to becoming an alumnus of the University of Notre Dame's ESTEEM Graduate Program. Based in Oxford, England, Ochre Bio is developing RNA therapies for chronic liver diseases using a combination of deep phenotyping, precision RNA medicine and testing in live human donor livers. Chronic liver disease is the only top 10 global health threat on

the rise and Jack O'Meara's goal is to discover how to treat diseased livers while still inside the patient and avoid the need for liver transplants. Ochre Bio has established three partner sites in Connecticut, New York and Oklahoma which accept donor livers not suitable for transplant. It keeps them alive in special machines and then uses them to test the therapies Ochre Bio designs in England.

Programme Overview: 9th May 2024

Time	Inis Mór Ballroom Section 1	Inis Mór Ballroom Section 2	Burren Suite Section 3
09.00 – 09.30	Registration – Pre-conference area		
09.30 – 09:40	Welcome from Professor Walter Gear, Executive Dean of the College of Science and Engineering		
09:40 – 10:10	Keynote Talk - Dr. Ciarán Seoighe, Science Foundation Ireland		
10:10 – 10:35	Alumnus Talk – Dr. Caitriona Walsh, Novartis Ireland		
10:35 – 11:20	“Pathways to Success as a Researcher” Panel Discussion Chair: Dr John Caulfield, University of Galway		
11.20-11.50: Tea/Coffee, Poster Session, Pre-conference area			
11:50 – 13:00	Innovation for Health 1 <i>Chair: Dr. Ted Vaughan,</i>	Sustainable Futures 2 <i>Chair: Prof. Jamie Goggins</i>	Curiosity & Discovery/Decisive Data 1 <i>Chair: Dr. Angela Carnavale</i>
13.00 - 14.00: Lunch and Poster session, Pre-conference area			
14:00 – 14:25	Alumnus Talk – Dr. Jack O’Meara, Ochre Bio		
14:25 – 15:10	“Pathways to Success as an Innovator” Panel Discussion Chair: Ruth Hynes, University of Galway		
15.10-15.30: Tea/Coffee, Poster Session, Pre-conference area			
15.30 – 16.40	Innovation for Health 2 <i>Chair: Dr. Steven Griffin</i>	Sustainable Futures 2 <i>Chair: Dr. Sinéad Waters</i>	Curiosity & Discovery/Decisive Data 2 <i>Chair: Dr. Ihsan Ullah</i>
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 9th May 2024 – Parallel Sessions

11.50 – 13.00	<p style="text-align: center;"><u>Sustainable Futures 1</u> Venue: Inis Mór Ballroom – Section 1</p>
11.50 – 12.00	<p style="text-align: center;">Modelling Nutrient Emissions Into Waterbodies Caused By Various Land-Use, Alighanbari, S.A., Styles, D.S. Clifford, E.C.</p>
12.02 – 12.12	<p style="text-align: center;">Development Of A Decision Support Tool For Bridge Maintenance Based On Communities’ Accessibility, Fenerich, A.T., Lydon, M., Vega, A.</p>
12.14 – 12.24	<p style="text-align: center;">Empowering Citizens Toward Sustainable Food Practices: A Systematic Scoping Review Of Tools And Interventions, Olweean, N.</p>
12.26 – 12.36	<p style="text-align: center;">A Systematic Review Of The Impact Of Climate Change On Residential Buildings Performance From An Occupant-centric Perspective, Reis, D.V.A., Loomans, M.G.L.C., Hajdukiewicz, M.</p>
12.38 – 12.48	<p style="text-align: center;">Innovative Approaches to Green Hydrogen Production: Alkaline/Saline Seawater Electrolysis, Riaz, M., Farras, P.</p>
12.50 – 13.00	<p style="text-align: center;">Exploring The Energy-saving Potential Of Wastewater Treatment Plants Under Optimized Discharge Limit Regulation, Najafi, N., Ryan, P.C., Doherty, E., Clifford, E.</p>

11.50 – 13.00	<u>Innovation for Health 1</u> Venue: Inis Mór Ballroom – Section 2
11.50 – 12.00	Using Purine Nucleosides As Adjuvants To Re-sensitize Mrsa To B-lactam Antibiotics, Nolan A.C., Zeden M.S., Kviatkovski I., Campbell C., Urwin L., Corrigan R.M., Gründling A., O'Gara J.P.
12.02 – 12.12	Towards Optimized Cell Cargo For Encapsulation Devices In Type 1 Diabetes, Trask, L., Ward, N.A., O'Dwyer, J., Duffy, G.D., Dolan, E.B.
12.14 – 12.24	Dielectric Properties Of Human Parathyroid Glands: A Potential Tool For Intraoperative Differentiation Of Thyroid And Parathyroid Tissues, Amin, B., Shahzad, A., González-Suárez, A., Dunne, E., Lowery,A., O'Halloran, M., Elahi, A.
12.26 – 12.36	Viscoplastic Behaviour Of Fibrin-rich Blood Clots, Bein Snee, K., McCarthy, R., McGarry, P.
12.38 – 12.48	Formation 3d Super-resolution Nanosensitive Images Of Biological Objects, Alexandrov, S, McAuley, R., Dey, R., Arangath, A., Zhou, Y., Leahy, M.
12.50 – 13.00	An Agent-based Deep Learning Computational Framework For The Simulation Of Mechanosensitive Tumour Growth, Senthilkumar, I., Howley E., McEvoy E.

11.50 – 13.00	<p align="center"><u>Curiosity & Discovery/Decisive Data 1</u></p> <p align="center">Venue: Burren Suite (4th Floor)</p>
11.50 – 12.00	<p align="center">Patterns UI, an Interactive Tool for Music Exploration, Sweeney, R., Jajoria, P., Diamond, D., D'Aquin, M., McDermott, D.</p>
12.02 – 12.12	<p align="center">3D Imaging of Micro-particles Launched from Custom MEMS Devices Using a GRIN-lens based In-line Digital Holographic Microscope, Khorshad, A. A., Devaney, N.</p>
12.14 – 12.24	<p align="center">Genome-wide CRISPR/Cas9 Loss-of-Function Screens Reveal Genes that Determine Cell Responses to CDC7 Kinase Inhibitors, Rainey, M.D and Santocanale, C.</p>
12.26 – 12.36	<p align="center">Strand-specific Oxidative Damage Artefacts In TCGA Whole-exome Sequencing Samples, Medina, T., Bennett, D., Seoighe, C.</p>
12.38 – 12.48	<p align="center">Efficient Key-Frame Sampling Using Frobenius Norm for Video based Activity Recognition, Tchangmena Nken A., McKeever S., Corcoran P., Ullah I.</p>
12.50 – 13.00	<p align="center">A Comprehensive Review Of Algorithms And Evaluation Metrics For The Generation Of Synthetic Transcriptomic Data, Haseja, D., Ó Broin, P.</p>



15.30 – 16.40	<u>Sustainable Futures 2</u> Venue: Inis Mor Ballroom – Section 1
15.30 – 15.40	Bio-synergistic Valorisation Of Residual Forage Biomass: Butyric Acid And Biogas Production, Pooja C., McAuliffe O., O'Flaherty, V.
15.42 – 15.52	Dietary Supplementation With Rapeseed Oil And Cake On Animal Performance, Methane Emissions, And Digestibility Of Beef Cattle, Folliard, N.
15.54 – 16.04	Climate Change Effect On Rain Erosion Rate In Wind Turbines In Ireland Using CMIP6 GCMS, Azarkaman, F., Goggins, J., Finnegan, W.
16.06 – 16.16	Supplementation With A Calcium Peroxide Additive Mitigates Enteric Methane Emissions In Beef Cattle, Emily Roskam, E., Kenny, D.A., O'Flaherty, V., Kelly, A.K, Waters, S.M.
16.18 – 16.28	Analysis Of Connections In A Multi-storey Modular Clt Building Using Irish Timber, Kashyap, R., O'Ceallaigh, C., McGetrick, P.J., Harte, A.M.
16.30 – 16.40	Withdrawn



15:30 – 16:40	<u>Innovation for Health 2</u> Venue: Inis Mór Ballroom – Section 2
15:30 – 15:40	Mechanosensitive Role Of Osteocytes In Governing Osteoclast Resorption In Postmenopausal Osteoporosis: Insights From An Advanced 3d In Vitro Model, Naqvi, S.M., O’Brien., T., Martin, R., Verbruggen, A., McNamara, L.
15:42 – 15.52	Investigating The Effects Of Intermittent Actuation On Macrophage Polarisation In Vitro, Shokrani, P., Ward, N.A., Prendeville, H., Duffy, G., Dolan, E.B.
15.54 – 16.04	A Replenishable, Therapeutic Implant For The Treatment Of Ovarian Cancer, Sheedy, A.M., Shetty, M., Weis, A., Bendzick, L., Ni. Z., Geller, M.A., Miller, J.S., Felices, M., Dolan, E.B.
16.06 – 16.16	Metabolic Reprogramming And Altered Cell Envelope Characteristics In A Pentose Phosphate Pathway Mutant Increases MRSA Resistance To B-lactam Antibiotics, Zeden, M.S., Gallagher, L.A., Bueno, E., Nolan, A.C., Ahn, J., Shinde, D., Razvi, F., Sladek, M., Burke, Ó., O’Neill, E., Fey, P.D., Cava, F., Thomas, V.C., O’Gara, J.P.
16.18 – 16.28	A Multiscale Framework For The Growth And Remodelling Of Contractile Tissue, Hayes, T., Pramanick, A., Daly, A., Zurlo, G., McEvoy, E.
16.30 – 16.40	Device Deployment And The Onset Of Structural Valve Degeneration: Simulation Of Transcatheter Aortic Valve Implantation In Vitro, Boxwell, S., Armfield, D., Hickey, W., Cook, S., Kelly, P., Cardiff, P., McNamara, L.



15:30 – 16:40	<u>Curiosity & Discovery/Decisive Data 2</u> Venue: Burren Suite (4 th Floor)
15.30 – 15.40	ARFQA-HCKAN: Multi-domain Question Answering System with Heterogeneous CKANs and Large Language Models, Al-Qatf, M., Alsamhi, S., Haque, R., Curry, E.
15.42 – 15.52	A Cross-Sectional Analysis of Design Principles Across Critical CSA Documents in Data Spaces, Razzaq, M.A., Haque, R., Curry, E.
15.54 – 16.04	FarmGrid: Empowering Dairy Farms with Multi-Agent Peer-to-Peer Energy Trading, Shah, M., Barrett, E., Mason, K.
16.06 – 16.16	Incorporation of an Unbalanced Rotating Mass System to Accelerate the Fatigue Testing of Tidal Turbine Blades, Ranjan, T., Flanagan, M., Kennedy, C., Goggins, J., Finnegan, W.
16.18 – 16.28	GDPR-Compliant Video Search and Retrieval System for Surveillance Data, Shifa, A., Asghar, M., and Kennedy., R.
16.30 – 16.40	Gold Nanoparticles Localised Within Photoactive Covalent Organic Frameworks As Photocatalysts For CO ₂ Reduction, McCarthy, K., González Gómez, R., Farràs, P.

Poster Presentations: Pre-conference area

Curiosity & Discovery	
Presenter	Poster Title
Chen Jintao	A Comprehensive Experimental and Kinetic Modeling Study of Methyl TertButyl Ether Combustion
Cian Whelan	Stimulation of Mechanosensitive Ion Channels to affect Macrophage Polarization and wound healing potency of their EVs
Deema Ali	FOXP1 Dysregulation And Its Association With Neuropsychiatric Disorders And Cognitive Function
<i>Deirdre Ní Chonchubhair</i>	Flare Star: EQ Pegasi
Ilze Skujina	First in vitro comparison of time-dependant DNA damage response in shortlived and long-lived bat fibroblasts to ionizing radiation exposure and comparison to model organisms.
Jialun Wu	Evolution of acid resistance in a clinical isolate of <i>Listeria monocytogenes</i> reveals selection for altered SigB activity.
Michael Flanagan	Manufacture of Carbon Fibre Reinforced Composites Using Additively Manufactured “Lost Core” Mold
Peter Owens	Introducing the Imaging and Microscopy Core Facility - shared resources for all
Raveena Koliyatan Manamparambil	Transmissive Spatial Light Modulators (SLMs) for Discontinuity Generation
Richard Lalor	SM16, a <i>Schistosoma</i> cathelicidin-like immuno-modulator
Xie Chen	Multiscale instability analysis of layered magnetoactive elastomers

Decisive Data

Presenter	Poster Title
Abdul Majed Sajib	Performances analysis of various atmospheric correction algorithms for monitoring Irish Transitional and Coastal (TrC) waterbodies using Sentinel-3 OLCI imagery
Ali Hatami	Enhancing Translation Quality by Leveraging Semantic Diversity in Multimodal Machine Translation
Apoorva Bamal	Performance analysis of machine learning/artificial intelligence models for trend prediction of various hydro-climatic variables
Bianca Alexandra Pasat	MultiOmicsIntegrator: An integrated solution for Omics Analyses
Dijana Ostojic	The challenges of using machine learning models in psychiatric research and clinical practice
Durre Syeda	Dynamic Malware Classification and API Categorisation of Windows PE Files using Machine Learning
John Andrew	Multivariate longitudinal functional data analysis with applications in biomechanics
Jorge Fernandes	Trends in Indoor Environmental Quality in Non-Domestic Energy-Efficient Buildings in Ireland: the BENEFIT Project
Lala Rukh Memon	Evaluating Residential Building Performance: A Categorical Analysis of Temperature, Humidity, and CO2
Malak Almutairi	Modelling Composition Response Data with Application to Clot Composition Observed for Acute Ischemic Stroke (AIS) Patients
Shubhanker Banerjee	Cross-Lingual Ontology Matching using Structural and Semantic Similarity
Szymon Borkowski	Novel Occupational Exposure Measurement via Passive Tracking
Yang Yang	Open Knowledge Base Canonicalization: Techniques and Challenges

Innovation for health: Accelerate understanding of disease and provide disruptive solutions for health

Presenter	Poster Title
Aiste Vitkauskaitė	Developmental biology of <i>Fasciola hepatica</i> : 3D co-culture using HepG2 spheroids to create mini-livers allows investigation of host-pathogen interactions
Anam Usmani	Investigation of CDC5L-POLH, a novel fusion gene in cancer
Ayman Abaid	Use of Synthetic data for Diagnosing Stanford Type B Aortic Dissection
Barry Digby	Predicting biochemical recurrence in prostate cancer using a novel ceRNA regulatory network
Brian Harkin	The Effect of Gap Junction Suppression on the Proliferation of Breast Cancer Cell Lines
Carolina Verissimo	Heterogeneous glycosylation of proteins from <i>Fasciola hepatica</i> invasive stage reveals higher complexity in parasite-host interactions
Conal Sheridan	Experimental Characterization and Computational Modelling of Brain Tissue
Daniel Shamavu	Uncovering the role of CDK8/19 in regulating DNA damage repair pathways.
Darragh Mc Hugh	Advancing Cancer Therapy: The Power of nanoMOFs for Enhanced Drug Delivery
Darshan Senthil	Novel Patient-Specific Biventricular Heart Model Integrating Pseudo-Fluid Domains
Dayle Leonard	Scorpionism; Insight from a One Health perspective
Dost Muhammad	Towards Explainable Deep Learning in Oncology: Integrating EfficientNet-B7 with XAI techniques for Acute Lymphoblastic Leukemia
Eimear Wallace	RoboHeal: Development of a soft robotic drug delivery system to improve treatment of diabetic foot ulcers
Eoghan Dunne	Predicting and Optimising Pulsed Field Ablation Sizes with Design of Experiments in In Vitro Samples
Eve O'Kelly	<i>Fasciola hepatica</i> Enolase, a glycolytic enzyme exposed on the newly excysted juvenile (NEJ) tegument: a surprising target for vaccine development.
Federica Brescia	Rational design of gold(III)-glycoconjugates as antiviral agents against SARSCoV-2

Fiona Buckley	Mesenchymal stem cell extracellular vesicle attenuate dendritic cell maturation.
Gabriel Darcy	Novel molecular assays for detection of the opportunistic pathogen <i>Kalamiella piersonii</i> .
Hannah Kimingi	Immunomodulatory Effect of Mesenchymal Stem Cell-Derived Extracellular Vesicles on Dendritic Cells
Jessica Kelly	Oligopeptide-modified oligonucleotides as targeted therapeutics for ESKAPE pathogens
Jingyan Wang	Identification and analysis of transcriptomic changes of MSC cells from people with Type 2 Diabetes Mellitus
Karen Guerrero Vazquez	Predicting Muscle Age and Identifying Aging-Related Genes from Gene Expression Data

Katie McHugh	Dual Delivery of Anti-Cancer Drugs using Metal-Organic Frameworks
Kevin Ryan	Identification of Potential Neoantigens in Cancer-Associated Fibroblasts Isolated from Breast Cancer Patients
Mehak Chopra	The genetic contribution to variation in aortic distensibility
Micheál Ó Dálaigh	Comparative Assessment of Copy Number Alteration Calling Tools for the Identification of Malignant Cells in an Acute Myeloid Leukemia Single-Cell RNA Sequencing Dataset
Mohan Timilsina	Evaluating Foundational AI Against Traditional Machine Learning Models in Early Stage Lung Cancer Relapse Prediction
Mostafa Khabooshani	Osteoporotic Mineral Crystallinity and Estrogen-Deficiency alter Mineralization in a 3D Mineralized Bone Model
Muhammad Ali Farooq	Advancements and Applications of Generative Artificial Intelligence in Medical Imaging
Muhammad Munam Mustafa Bukhari	Effects of Estrogen Deficiency on 3D Vascularized and Humanized Bone Model under Mechanical Stimulation
Nadia Muhammad Hussain	ADVANCEMENTS IN PH SENSOR DESIGN FOR CONTINUOUS AND MINIMALLY INVASIVE ASPHYXIA MONITORING
Narjes Meselmani	Machine Learning Enhanced Impedance Probe For Real-time Monitoring Of Perfusion In Free Flaps Post Micro-reconstructive Surgeries In The Head And Neck Region

Pamina Contreras Kallens	Effect of extracellular vesicles derived from licensed and unlicensed MSCs on B cell function and activation
Rakesh Roy	A S180F mutation in D-alanine aminotransferase increases resistance to β chloro-D-alanine in <i>Staphylococcus aureus</i>
Rana Zeeshan	Pursuit of Digital Innovation in Psychiatric Data Handling Practices in Irish Mental Health Services
Ryan Coleman	A STATISTICAL MECHANICS INVESTIGATION OF DYNAMIC SARCOMERE AND TITIN ORGANISATION IN CARDIAC MYOCYTES
Seyed Aghil Hooshmand	Advancing Cancer Diagnosis and Prognosis through Integrated Liquid Biopsy Data Management: The CLuB Initiative
Seyed Aghil Hooshmand	Multi-omic integration of cancer liquid biopsy data: An All-Ireland approach
Sheila Donnelly	A 40-amino acid amphipathic helix in the C-terminal of <i>Fasciola hepatica</i> helminth defense molecule (FhHDM-C2) alters macrophage lysosomal pH, regulates pro-inflammatory responses, and exhibits potent biotherapeutic activity in murine Experimental Autoimmune Encephalomyelitis
Shir Dahan	Difference between bipolar patients and healthy participants across the structure-function coupling gradient
Stefanus Bernard	Bioinformatics Refinement of CRISPR-Cas9 Knockout Screens Analysis Uncovers Erratic sgRNAs and Additional Genes Modulating Cell Responses to CDC7 Inhibitors
Syeda Masooma Naqvi	Changes in mechanical properties contribute to breast cancer stemness with matrix stiffness and mechanical stimulation resulting in reduced spheroid number and increased stemness markers.
Tadhg Kilbane	The Lectin Pathway of Complement Regulation by the infectious <i>Fasciola hepatica</i> newly excysted juvenile (NEJs)
Tanya O' Brien	Osteogenic factors alter the effects of estrogen withdrawal in post-menopausal osteoporotic models: A long-term in vitro study.
Uthesh Umopathy	Elucidating the structure-function relationship and mechanism of xylooligosaccharides as commensal probiotics

Vasileios Sergis	Quality monitoring during embedded bioprinting using integrated microscopy and computer vision

Sustainable Futures: Lead the transition to a sustainable future through innovation solution development

Presenter	Poster Title
Abdolvahed Noori	Revealing the impact of biomass mechanism on the performance of anaerobic system
Alireza Eftekhari	Leading the Transition to a Sustainable Future through Innovative Solution Development
Andreea Alexandrov	Envisioning Net-Zero: Multi-Stakeholder Strategies for Decarbonization Zones in Ireland
Anupa Shyamlal	Card Payment Protocol for Cryptocurrencies with Payment Channel Network
Ayaz Ahmad	Prediction of Strain Values on Wind Turbine Blade Incorporating Artificial Intelligence Tool
Carlos Bachour	Market Driven Materials Selection For Thermoplastic Flexible Riser Pipelines Used In Offshore And Subsea Applications
Ceylin Sirin	Investigating the impact of the Trombe wall on indoor thermal comfort using CFD
Danuka Anagipura	A Toolkit for Uplifting Green Public Procurement in Irish Public Sector for Sustainable Future.
Jesus Lopez	Comparative analysis of the immune responses elicited by native versus recombinant Fasciola hepatica vaccines
Kai Xu	CFD analysis to estimate the hydrodynamic loadings on a horizontal axis tidal turbine during operation
Kamran Ali Bhatti	Review of recent developments in novel steel connections including intermeshed steel connections
Kavya Rajagopal	Assessment of future wind power over offshore regions of Ireland using downscaled CMIP6.
Mafalda Santos	How Blockchain with Disrupt and Drive Innovation in the Blue economy
Masoud Azimi Secho-ghaei	Indirect-based approaches to assessing the heating behaviours of occupants in residential buildings
Mohammad Fereidoon-zhad	A new BEMT model for analysing helical-bladed vertical axis wind and tidal turbines



Mohammed Zajeer Ahmed	OPPS4GPP: Opportunities for Green Public Procurement to improve implementation of circular practice
Moman Khan	Generating Haploid Inducer line of perennial ryegrass using the CRISPR/Cas9 Gene editing
Muthumala Jayasooriya Dasun Lahiru	Numerical assessment of air entrainment process of plunging jets
Orlaith McGinley	Evaluating the householder's retrofit journey: Findings from in-depth interviews with householders in Ireland
Praveen Kumar Selvam	High Entropy Oxides for green hydrogen production from anion exchange membrane (AEM) seawater electrolyzer
Rafiqul Haque	Building Recommendations for Integrated Mobility As A Service (MaaS) Ecosystem for Ireland
Sheharyaar Farid	"Assuring the chemical and microbial safety of organic waste spread on land in Ireland – metal(oid)s and nutrients"
Soheil Fathi	Resilient classrooms for the future – Exploring lean and agile techniques for sustainable and healthy learning environments
Song Ge	Gaps in LCA practices for wood products between Ireland and worldwide
Vahid Fakhari	Development and Experimental Assessment of a Solar Tracker
Widath Wijeyeskara	Investigating the Impacts of Energy Renovation Strategies on Indoor Environmental Quality: the ENABLE Project
Yadong Jiang	Re-blading of Irish Wind Turbines using Novel Technologies