UNIVERSITY OF LIMERICK
OLLSCOIL LUIMNIGH

FACULTY OF

Science & Engineering

Newsletter

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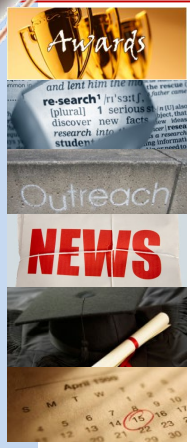
December 2020

In this issue:



CONFIRM launches World-Class Digital Manufacturing Facility

Confirm, the world-leading Science Foundation Ireland research centre in Smart Manufacturing, which is hosted by UL in the Digital District, has launched their bespoke new dedicated Digital Manufacturing facility, supported to the tune of €3.1 million by UL. The Confirm Centre hosts 130 researchers, 12 operational and management staff with more to follow and its new facilities including – a large test-bed to house Ireland's future factory demonstrators, an 8 metre diameter Virtual Reality Cave, 10Gbyte internet access, the first 5G Digital Manufacturing Network in Ireland, and a Digital Manufacturing lab to include metal, plastic and electronic printing and non-contact 3D part scanning.

Smart manufacturing optimises production systems by adding intelligence through enhanced information technology. This new technology will be at the heart of the factories of the future, increasing product line adaptability, enabling real-time decision-making, shortening supply-chains, and speeding up the development of new innovations to produce higher-quality goods at reduced costs across all industry sectors. Confirm's vision is to fundamentally transform industry to a smart manufacturing ecosystem by integrating intelligence within products, machines, production systems and supply chains. To achieve this vision, it has set out on a mission to carry out world leading digital manufacturing research to develop future Smart Manufacturing technologies; to develop a community of practice to embrace the 4th Industrial Revolution together as a nation; to develop talent and an engaged public to drive a positive perception of manufacturing in Ireland, and to help create the next wave of future manufacturing talent to underpin industry and also to look at internationalisation as part of its growth strategy. Since launching in 2017, Confirm has an extensive researcher network that spans nine Irish Higher Education Institutes led by UL and has secured €47 million in research from Industry, government and from non-exchequer sources.

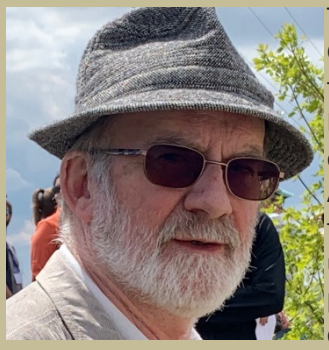
Prestigious All-Island Award in Mechanical Engineering

Joseph Mooney, a PhD student in the School of Engineering, took the overall prize in the annual Sir Bernard Crossland Symposium, an all-island competition for PhD students in the discipline of mechanical engineering. This year's event was run online, and featured entrants from DCU, UCD, TUD, IT Sligo (representing the IT sector), Queens, Ulster University, UL, and NUI Galway. Joseph received the award for a presentation and paper on his research, entitled *"A Novel, Non-Destructive Methodology for the Optimisation of Deformed Heat Pipe Structures".* His scholarship is funded by the SFI CONNECT Centre for Future Networks, and he is supervised by Dr. Vanessa Egan and Dr. Jeff Punch, members of Stokes Labs in the Bernal Institute.

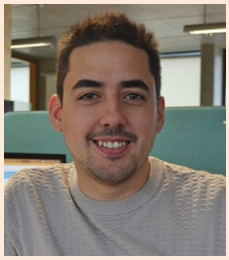
UL Physics Professor Elected to IEEE/DEIS AdCom

Prof. Tofail Syed, Associate Professor, Department of Physics and Member of the Bernal Institute has recently been elected to the Administrative Committee (AdCom) of the Dielectrics and Electrical Insulation Society (DEIS) of the Institute of Electrical and Electronics Engineers (IEEE). IEEE is the leading professional association in the world. The DEIS members are engaged in the study and application of dielectric phenomena and behaviour as well as the development, characterization and application of all gaseous, liquid and solid electrical insulating materials and systems utilized in electrical and electronic equipment. It is also involved in the creation of voluntary engineering standards and the recommending relevant best practices. The activities of the DEIS are governed by a Constitution and Bylaws administered by the Administrative Committee (AdCom). The objectives of the Society are technical, scientific, literary, and educational. Professor Syed will serve the AdCom as an elected member-at-large for the tenure between January 2021 and December 2023.

Seligman Crystal Award



The Council of the International Glaciological Society has awarded the Seligman Crystal to Prof Andrew Fowler, Department of Mathematics and Statistics. Andrew has made substantial theoretical advances to understanding a diverse set of processes governing the behaviour of glaciers and ice sheets. He has made significant contributions to the understanding of glacier sliding, subglacial hydrology, subglacial bedform evolution, glacier surging, ice sheet modelling, ice-stream dynamics, frost heave and periglacial processes leading to pattern formation, cryospheric waves, ice-age climate cycles, Dansgaard-Oeschger events, and subglacial outburst floods. In 1978 he produced the first formal derivation of what is known as shallow ice models for glacier flow.



Department of Chemical Sciences and Bernal Institute researcher, Dr Mario Culebras, received the **Young Researcher Sustainable Chemistry** (SusChem) **Award** from the Spanish Federation of the Chemical Industry for his work on sustainable carbon materials

Vanier Scholarship Laura Keane, a past student of the MSc in Mathematical Modelling, has been awarded the Vanier scholarship. She is currently enrolled in a PhD programme at York University in Canada, under the supervision of Iain Moyles (a former MACSI postdoctoral fellow).

British Association for Crystal Growth

Congratulations to Dr Shiqiang Wang, Bernal Institute, on winning second place in the British Association for Crystal Growth 2020 Art Competition. His winning entry pictured here is a coordination polymer or metal-organic framework crystallized for 1.5 years.

2020 BOC Gases Post Graduate Bursary

Congratulations to Barry Long, SSPC, on winning the Chemical Sciences (CS), University of Limerick , 2020 BOC Gases Post Graduate Bursary. This Bursary is awarded to a CS postgraduate student deemed to have made significant and outstanding contributions to CS during their postgraduate studies. Barry's contributions as a laboratory demonstrator and FYP mentor were particularly noted where he enthusiastically and willingly provided guidance and assistance to many undergraduate students

Royal Society University Research Fellowship

The Royal Society recently announced 38 successful University Research Fellowship candidates for 2020, with Dr Michele Conroy, an SFI Analog Devices Research Fellow at UL, successful in being appointed. The scheme was established to identify outstanding early career scientists who have the potential to become leaders in their chosen fields and provide them with the opportunity to build an independent research career. Dr Conroy will receive a maximum of €512,243 direct costs (€649,915.9 including overheads) over 60 months for her project, the proposal title for which is 'Improper Ferroelectric Domain Wall Engineering for Dynamic Electronics'.

James Dyson Award for 2020.

Niamh Damery a graduate of the BSc in Product Design and Technology won the national James Dyson award for her Econoc design – a digital hive made for conserving wild native endangered Irish Black Bees. Niamh has attempted to solve the problem of the declining population of the native Irish Black Bee by harnessing natural materials to create a conservation hive.

Winning the national leg of the James Dyson Award will inject €2,000 into Niamh's project, which she aims to invest into advanced prototyping and further research. With experts estimating that a third of all bees could be extinct by 2030, which would cause a major crisis for wildlife and horticulture as they are the most effective pollinators and will take many of our flowering plants, fruits and birds with them, Niamh's design aims to combat the issue by creating a mycelium hive which biomimics the shape of a tree hollow, the perfect shape for bees to move around in a cluster during the winter months.

The base is made from mycelium, which is grown from mushrooms and acts as a binding agent when grown on a substrate. This can be any agricultural bi product that would normally end up as waste. Mycelium is similar to polystyrene and also has natural substances that can give the bees an extra defence against the varroa mite which can carry viruses into a hive. The Econooc is a segmented self-assembly hive, which makes it smaller to transport, and easier to grow and repair. The bottom remoulded waste plastic landing pad and ventilation hole allows people to watch the bees inside the hive. The Econooc also comes with a calendar that teaches the user about biodiversity and how to create a more diverse garden. The lower section of the calendar is made from wildflower seeded paper

Funding Awarded

Dr. Anthony Comer, School of Engineeing, has been awarded €667 K under the NMBP programme (horizon 2020). His project is "Development, engineering, production and life-cycle management of improved FIBRE-based material solutions for structure and functional components of large offshore wind enerGY and tidal power Platform".

Prof. Noel O'Dowd, School of Engineering, will receive €730k under the SFI Frontiers for the Future Programme, Awards stream. His project is "Physically-based modelling of bainitic and martensitic steels for flexible and sustainable power generation and distribution (PrOCCESS)". The goal of the project is to develop new experimental techniques and new predictive models for the next generation of steels used for flexible and sustainable power generation and distribution.

Dr. Sarah Hudson, SSPC and Chemical Sciences Dept., has been awarded €479,500 under the SFI Frontiers for the Future Programme, Projects stream. "MORE-AMP" to design innovative systems that will convert novel antibiotic power into stable therapies for treatment of bacterial infections.

Dr. Luis Padrela, SSPC and Chemical Science Dept., has been awarded €216,416 for his project "Controlled Nucleation for the Continuous Crystallization of Nanopharmaceuticals" . This project will address poor solubility and polymorphism of Active Pharmaceutical Ingredients (APIs) which represent major challenges in pharmaceutical science and engineering for the manufacture of drug products.

Dr. Tadhg Kennedy, Chemical Science Dept., has been granted an Enterprise Ireland Innovation partnership award of €238,000 with Analog devices. His project is "Innovative Polymer Nanocomposite Formulations for High Performance Digital Isolation". Digital isolators are a key enabling technology in applications such as electric vehicles where they are used to couple the high voltage battery to the low voltage electronics. The aim of this project is to develop a new class of polyimide-based insulation layers in order to increase the overall breakdown voltage of digital isolators. This will be achieved through optimisation of the curing process and the development of polyimide/nanocomposites with enhanced electrical properties.

Dr. Andreas Grabrucker, Dept of Biological Science, received a Ulysses award and recently partnered with Nantes University Hospital Centre in France. This collaboration will study the role of genetic mutations in key proteins involved in synaptic plasticity in processes such as learning and memory function.

Dr. Colin Butler, Stokes Research Centre, Bernal Institute, received €245 k from the European Space Agency to undertake research in the manufacture and life-testing of two-phase thermal management devices to ensure materials compatibility with different working fluids. Material compatibility is vital for the performance and lifetime of space-related equipment, where the generation of any non-condensable gases inside the devices can severely affect their capability to transfer heat away from onboard mission-critical systems and electronics.

Researchers from the Bernal Institute and PMTC, were successful in securing funding (€255K) under the SFI led COVID-19 Rapid Response Research and Innovation Programme, to develop novel inhalable antiviral drugs to tackle COVID-19. Led by Dr Ahmad Albadarin (PI) and Dr Rabah Mouras (Co-PI), the UL team will collaborate to develop inhalable versions of existing antiviral drugs to target SARS-Cov-2.

Dr Peter Davern and Dr Emmet O'Reilly (Lead Researchers), Department of Chemical Sciences, and Dr John O'Reilly, Dr Michael Kennedy, Dr Sarah Hudson and Dr Edel Durack were successful in securing funding (€78K) under the SFI led COVID-19 Rapid Response Research and Innovation Programme to validate and scale up processes to make guanidine thiocyanate from readily available raw materials.

Dr James Sweeney, Dr David O'Sullivan, Dr Kevin Burke, Prof James Gleeson Dept of Mathematics and Statistics, UL Prof Stephen Kinsella, Kemmy Business School, UL, Dr Jason Wyse (TCD), Prof Brendan Murphy (UCD), received funding under SFI Covid 19 for their project 'The Health and Economic Impacts of Covid-19 Control Measures'. The project aims to construct a framework for optimised data driven decision-making in the context of the implementation/relaxation of public health policies to mitigate virus transmission versus the associated economic cost of maintaining these policies

RIAI and Architecture Ireland Future Award 2020

SAUL lecturer, Noreile Breen was "Highly Commended" and was one of five architects short-listed for the RIAI and Architecture Ireland Future Award 2020. The award seeks to recognise new talent in Irish architecture. This year, the jury sought work from individuals who showed exceptional skill and talent in any of the following areas related to architecture: design, practice, research, writing, public engagement, and education.

Maurice Antony Biot Lecture

Prof Jacques Huyghe Bernal Chair of Biomedical Engineering, presented the yearly endowed Maurice Antony Biot Lecture at Columbia University, on Thursday December 10th. Title of the lecture was: **Poromechanics in extremely large deformation: swelling and fracture**, and was delivered online.

Public Service Fellowship Programme

Dr. Kevin Burke, Dept of Mathematics and Statistics was awarded the Public Service Fellowship Programme on 'Data analytics for signals of emerging food safety risks' hosted by the Food Safety Authority of Ireland (FSAI)

Culture File Debate on RTE Lyric FM

Noreile Breen, SAUL featured on The Culture File Debate – 'What Cities Want' on RTE Lyric FM in November. Along with Noreile were guests artist Sven Anderson, curator Lar Joye; and scholar Leslie Kern, author of Feminist City: Claiming Space in a Man-Made World with host Luke Clancy. They explored cities: how they are - and how we dream they'll be; who they serve and who they hinder.

COVID-19 Modelling

Prof. James Gleeson and Prof. Cathal Walsh, Department of Mathematics and Statistics, have been working on the national team for the modelling of COVID-19 . One of Department's PhD students, Joey O'Brien, created Apple mobility graphs that were used in the COVID-19 national press briefings.

'Current'

Current is a project originating in UCD and involving architecture schools across Ireland (UCD, UCC, WIT, TUD and SAUL) to provide 'a shared stream of thought' through which the culture of architectural education can be sustained. This regular 'zoomcast' presents features on what faculty, staff and students are up to – in projects, in practice and in research – and on what is current. Invited guests are asked to share their enthusiasms and to explore themes and issues relevant to contemporary architecture.

SFI for the Future Project

Dr Norma Bargary, Dept of Mathematics and Statistics and Dr Andrew Simpkin, School of Mathematics, Statistics and Applied Mathematics, NUIG were successful with their application to SFI for the Future Project, Functional Data Analysis for Sensor Technologies.

Junior Cycle Short Course in Coding

In 2020, the first cohort of students in Ireland ever to have the opportunity to take a Junior Certificate Computer Studies subject, completed the Short Course in Coding. To celebrate this with schools, students and teachers, CSIS and Lero hosted an event at which 2020 UL graduates, Carolyn O'Donoghue and Rian Stephens presented their final year projects, graduate Vicky Twomey Lee discussed the importance of computing, and keynote speaker Martina Skelly, CEO YellowSchedule discussed how their product is being used in hospitals to support patients during the COVID-19 pandemic. A recording of the event is available at https://www.ul.ie/scieng/schools-and-departments/department-computer-science-and-information-systems/junior-cycle-short. Our thanks go to all the schools, students and teachers who took part in the course and the organisers of the event:

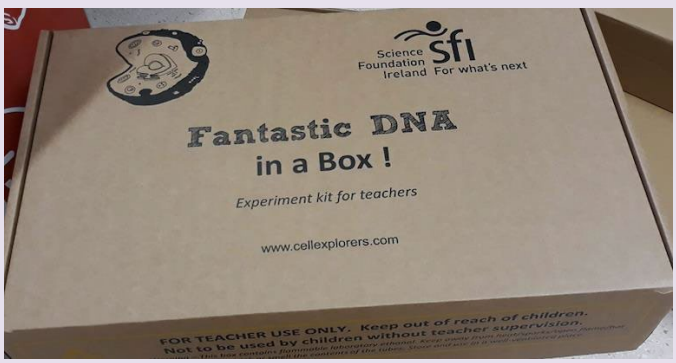
Organising committee:	Prof Ita Richardson, Denise Wallace, Edel Collins, Prof Tiziana Margaria
Hosts:	Clare McInerney, J.J. Collins
Speakers:	Prof Seán Arkins, Dean Faculty of Science & Engineering, Prof Tiziana Margaria, Head of Department CSIS, Mr. Gerard Duff, Junior Cycle for Teachers.
UL Graduate Speakers:	Carolyn O'Donoghue, Rian Stehens, Vicky Twomey
Keynote Speaker:	Martina Skelly, CEO YelloSchedule
Producer:	Tony Irwin.

UL Cell EXPLORERS

Like almost everything, Cell EXPLORERS UL has had to adapt to accommodate restrictions. As a result 'Fantastic DNA in a Box' was developed in order to ensure science outreach continues. The Fantastic DNA in a Box workshop is a remote DNA extraction session that can be run by teachers in the classroom without the physical presence of demonstrators.

Through the use of pre-packaged materials (provided by UL), video instructions and online support, teachers can set up this session with ease and run the session either alone guided by videos or through an online video call with Cell Explorers Explainers. UL piloted this to over 100 students during science week and it proved to be extremely successful.

This outreach programme is funded by SFI in conjunction with NUIG. UL Cell EXPLORERS is lead by **Dr. Audrey O'Grady. Biological Sciences**.



Example of Experimental kit for teachers

SAUL IU Summer Research Project – Ennis

In July 2020 a research team from SAUL were engaged by Clare County Council to develop a series of strategies for mobility in Ennis Town Centre. Working with the town councillors and some of the town and County Executive, the work was iteratively expanded to propose a framework of Connecting and Co-Creating Strategies to reinforce the identity of the town. The research team brought architectural thinking to bear on a wide range of social and infrastructural aspects of the town

Open House Limerick

Peter Carroll, SAUL Senior Lecturer, was selected by Open house Limerick to produce a thirty-five minute long video entitled 'Off the Grid', a walking tour of Limerick's Georgian core, for the Open House Limerick Online Architecture festival that was launched online on the 23rd November 2020.

Science Week 2020

In November 2020 the Faculty of Science and Engineering, UL coordinated the Limerick Festival of Science with LIT and MIC. The University of Limerick, Mary Immaculate College and the Limerick Institute of Technology joined to present a range of activities and experiences to celebrate the role of science in the lives of people in the Mid-West region. This year, students and staff from the three institutions shared their enthusiasm for science, technology, engineering, arts/design and mathematics (STEAM) not only with everyone in the region but nationally. Science Week brought everybody together virtually. Scientists, engineers, mathematicians, technologists, designers came together to spark curiosity, inspire imaginations and unleash the potential that can shape the future. The Festival challenged stereotypes so that young people can see the diversity of people that work in STEAM.

This year's festival featured interactive virtual talks, workshops, quizzes, competitions, café science, webinars and much more. UL ran 22 events in the Limerick Science Festival programme. A number of UL evening scheduled events were tailored to attract an adult audience, while weekend events were designed for family audiences. Pupils from primary and secondary schools attended the UL school events from as far away as Donegal, Belfast, Dublin, Galway, Roscommon, etc in addition to the Munster schools. A number of the highly interactive sessions had over 2,500 young people attending each session, examples of talks and workshops such as 'the Amazing Cosmos Journey', 'the Science and Mathematics of a Pandemic', 'A Brief History of Time Travel', 'SOPHia Project: Science Outreach for Physics' were particularly popular. Over 20,000 attended UL events alone. Feedback comments from a number of teachers included:

> "Thank you so much for coming into our class room in such an effective manner this morning and look forward to our next venture";
>
> "I think it would be a great idea to keep up this virtual aspect of Science Week as we were all able to be involved. Every year the events book up so quickly and we're lucky if one class in the school is able to attend an event. This year every class in the school was able to be involved which was amazing!"
>
> "We're celebrating Science Month in our school as it allows us more time to focus on it. My class were super inspired by the Kitchen Science workshop. They created a chart voting for their favourite experiments and they'll be bringing in their own kitchen science experiments to show to their class next week".

Examples of activities which ran across the Faculty included researchers from the Biocomputing and Developmental Systems (BDS) group in the Department of Computer Science and Information Systems running online workshops in machine learning. This involved giving secondary school students a brief introduction to machine learning and actually getting involved in a live exercise. Eight postgrads and postdocs from BDS presented to 15 schools over three days to a total of nearly 600 students.

The three UL hosted SFI Centres, CONFIRM, Lero and SSPC hosted a panel discussion on "Life with Intelligent Machines".

SSPC and the Department of Nursing & Midwifery delivered a Limerick Lab Box – handwashing edition to every school in Limerick city and county during Science Week. Each box contained equipment to conduct experiments around hand washing.

Go Fly Your Kite interactive STEM workshops were organised virtually for the South Hill and Moyross study groups and for the travelling community involving over 200 young people.

Integrated Design Project in Civil Engineering

This semester was challenging for all UL staff and students but in civil engineering the flagship project of the programme, the Integrated Design Project, went ahead. In teams, third year civil engineering students completed this project, in which they learnt many practical skills ahead of their 8-month co-operative educational programme.

Each year, a significant project is chosen for the IDP; this year's project was the Horizon Mall Development which comprises, among other things, a hotel and office blocks, on the recently demolished Park Valley site in Castletroy. This single project, spans across the five modules that the students complete during the semester. The learning outcomes of each module are met primarily through project work associated with the IDP. Students had to analyse and design a multi-storey reinforced concrete framed hotel as well as complete a range of other engineering services, such as traffic/transport engineering, geotechnical engineering for the foundation design and land surveying.

Students learnt mostly remotely; however, during one of their on-campus weeks, the site was surveyed. This was considered an educational essential laboratory session for which *Science & Engineering* students had face-to-face sessions. The students surveyed the full 22-acre site and immediate surrounds including the Dublin Road and parts of the adjacent development which includes TK-Maxx. Key features relevant to engineers were surveyed from which the students completed AutoCAD survey drawings. Lecturer Ross Higgins led this activity with the support of Eamon McAuliffe, a professional land surveyor who provides support to the civil engineering students each year.

For this activity a detailed risk assessment was completed with the help of Nigel Coleman, Chief Technical Officer and UL Health & Safety. Jeremy Robinson, Head of School of Engineering, wholehearted supported this activity. Surveying on building sites is activity that the majority of engineers do on site, especially junior engineers. Learning about surveying through a real project will give students, that are placed on site, confidence to hit the ground running for their co-op placements starting in the new year.

UL School of Engineering Establishes Metal 3D Printing Capability with the Support of GE Additive and Local Industry Partners

During 2-6 November 2020 Dr Kyriakos I. Kourousis, Senior Lecturer in the School of Engineering, has led the installation of the new GE Concept Laser Mlab cusing R metal 3D printer (laser powder-bed fusion system) in the facilities of Croom Precision Medical (CPM) in Croom Co. Limerick. The Mlab metal 3D Printing, owned and operated by the School of Engineering, is hosted by CPM under a collaborative agreement with the University. The addition of the $280,000 Mlab and its ancillary equipment, awarded by GE under their global Additive Education competitive program, brings to the School, the Faculty and the University new research and education capabilities in the high-growth area of metal additive manufacturing.

City Engage Week

Owners and occupiers of the city's Georgian Neighbourhood and anyone with an interest in a sustainable future for Limerick City were invited to take part in a week-long range of events focusing on sustainability and renewable energy for Limerick.

City Engage Week took place from 14-18 September 2020 and focused on the theme of local renewable energy, culminating with an event on Culture Night. Limerick City and County Council looked for opinions and ideas about co-creating a sustainable low carbon future for Limerick City Centre. The outcome of the City Engage week of activities enabled communities to share their vision of Limerick with the Council and project partners so that people could play an active role in determining how their community will develop into the future. City Engage – Local Renewable Energy follows on from the hugely successful City Engage – Georgian Limerick Laneways which is working with local businesses and community groups to revitalise some of Limerick Georgian Neighbourhood Laneways.

The City Engage series is part of the +CityxChange (Positive City Exchange) project funded by the European Commission through Horizon 2020. The overall aim of the project seeks to create positive energy districts and influence citizen behaviour to meet the challenge of moving to a low carbon sustainable future.

There was a full calendar of events for City Engage – Local Renewable Energy, where participants could

- map solar energy potential in the Georgian core
- build their own energy monitor
- learn about local energy communities
- explore the potential of river turbine for a sustainable energy future

Also included in the programme were events with a broader focus, which asked citizens what kind of city they wanted to live in over the next 30 years and how to meet the challenges posed by climate change.

Virtual Graduation Ceremony

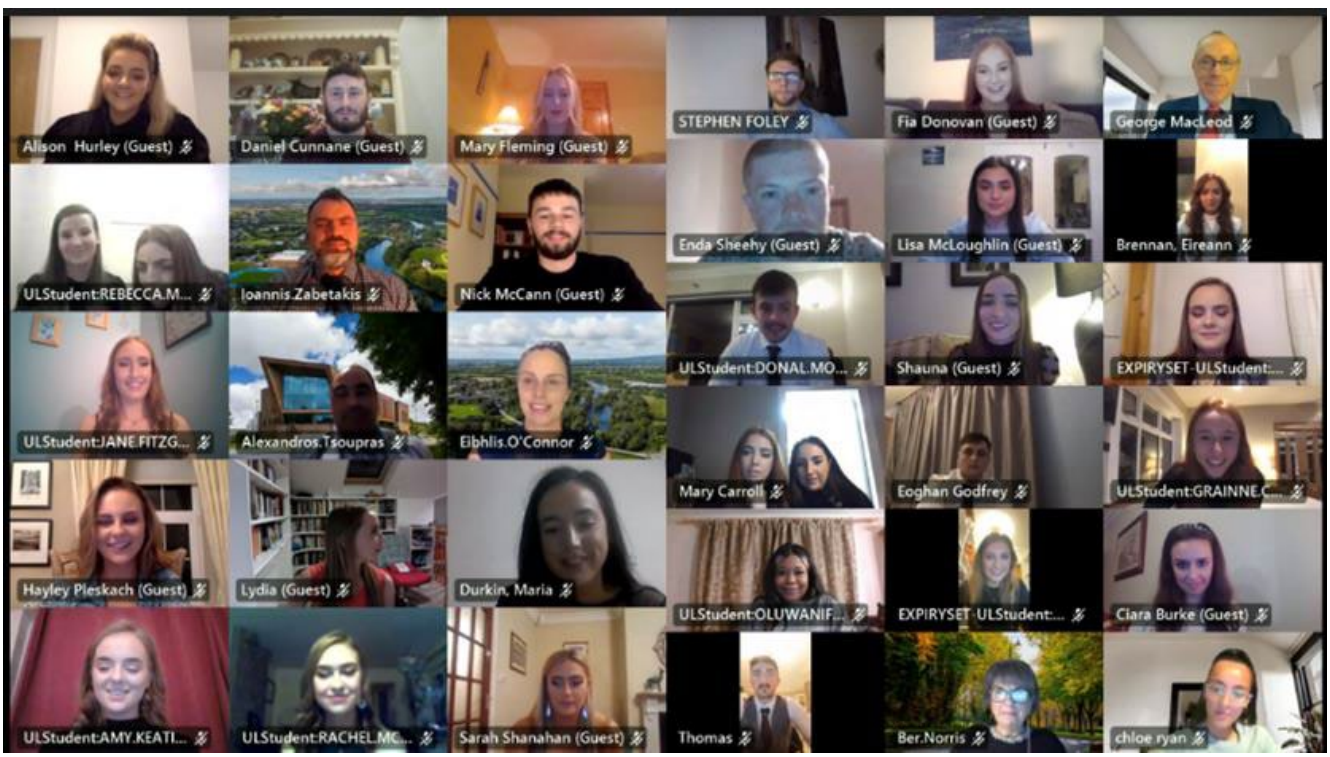
On 5th November 2020 the Department of Biological Sciences held its first virtual graduation ceremony for the BSc. Food Science and Health Class of 2020. The event was well attended and supported, as always, by our dedicated industry partners.

Forty graduates logged on to see their classmates, grateful to have marked the occasion in some way albeit far from traditional but through a computer screen. Following a welcome and congratulatory opening by the Course Director (and MC for the evening) Dr Ebhlís O'Connor, the Head of Department Dr Ioannis Zabetakis extended his well wishes to the group. Prof Dick FitzGerald followed with words of wisdom and congratulations and called the fifty-one student names on the graduation list for the Class of 2020.

Next Prof Martin Wilkinson lauded the graduates for adapting to the challenges of 2020 in the face of the global pandemic. He outlined the important role of the food sector in Ireland and highlighted the fact that despite the challenges of 2020, opportunities would still present for graduates. Words of encouragement and advice from Research & Development Representative from Kerry Group Mr Cal Flynn followed where he outlined the very different environment graduates will now find themselves in when entering the workforce but how the food industry is adapting and responding to the changing face of the food industry during the current pandemic.

Dr Alexandros Tsoupras congratulated the class and spoke of the journey of the graduate, reflecting on where they have come from since beginning their degree and now sailing on to pastures new. He introduced the new Dairygold Academic Achievement Award for 2020 and announced the winner as Ms Rachel McCarthy. He then introduced the Dairygold representative, Mr George MacLeod (Head of Innovation & New Product Development) who offered words of support to the graduates and wished them well in their future careers.

Finally, the 2020 Class Representative, Ms Alison Hurley said a few words on behalf of her class where she recounted fond memories from their time in UL and thanked the course team, lecturers, support staff for their help and guidance during the last four years. With all the formalities complete, Eibhlís thanked those who attended with their families, industry representatives, dept. staff especially Ms Ber Norris for her help with organising the event. A recording of the event was sent to all those who could not attend on the evening. Lastly, with a 'cheese' and a grin, a virtual class photo was taken (and again….and again! see below). And with the words of Green Day echoing in the background we waved our Class of 2020 farewell and hoped they had *the time of their lives!*



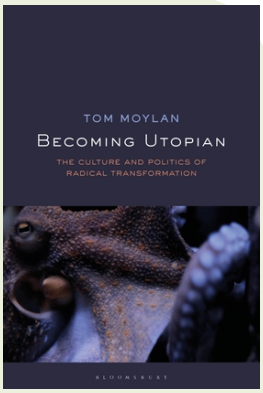
Principal Engineer Doctoral Apprenticeship Programme

CONFIRM, the Smart Manufacturing Research Centre and Lero, the Irish Software Research Centre have partnered with UL to deliver Ireland's first qualification at level 10 (PhD) funded through the national apprenticeships programme: The Professional Doctorate in Engineering (DEng). Employers must go through an approval process and commit to support the apprentice throughout the programme. Candidates would typically hold a 2.1 honours degree in a relevant area and five years' experience. For further information on how to apply, email apprenticeships@ul.ie

Masters in Engineering Practice

The Masters in Engineering Practice is a new and innovative fully online Masters Programme offered by the School of Engineering at the University of Limerick. This programme is attractive to our industry learners as it provides a flexible way to combine previous studies i.e. Two Specialist Diplomas with a thesis to receive a Masters in Engineering Practice award. In September 2020, nine students enrolled on the programme and these students all work in the Aviation industry. For further details of the programme check out https://www.ul.ie/gps/engineering-practice-msc or contact Dr. Ingrid Hunt – Ingrid.Hunt@ul.ie

Becoming Utopian

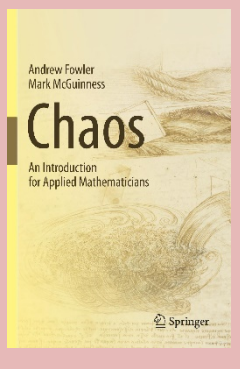


On November 26, Tom Moylan, Adjunct Professor at SAUL, published *Becoming Utopian: The Culture and Politics of Radical Transformation*, with Bloomsbury Academic. In this book, Tom brings together over thirty years of writing on the theory and practice of utopianism. Having worked in areas from literary analysis of science and utopian fiction, to the political theory of radical organizing and activism, to radical pedagogy, and to the post-secular wisdom of progressive theology, Tom has spent a lifetime exploring how it is that humans are capable of not only imagining a better way of being in the darkness of the present moment but of taking realistically radical steps toward changing dire conditions and creating a more healthy, just, equal world, not only for humans but for all of nature. The driving theme running through this collection is Moylan's exploration of the process, both individually and within society, of *becoming utopian*, of becoming a change agent for a better world.

New Book Published

Stokes Professor Andrew Fowler and Professor Mark McGuinness (Victoria University of Wellington) published a book on chaos and nonlinear dynamics titled:

Chaos: An Introduction for Applied Mathematicians



Dates for your Diary

Spring Semester	25 January – 17 May 2021
S&E Faculty Board	17 February 2021, 24 March 2021
Summer Exam Board	10 June 2021

Bereavements

The Faculty extends its deepest sympathies to the following:

Family of Dr. Tim Smyth, (retired), Dept. of Chemical Sciences on his recent passing.

Dr. Thomas Conway and Dr. Richard Conway, Dept. of Electronic and Computer Engineering on the death of their father Mr. Patrick Conway

Dr John Mulcahy, Dept. of Chemical Sciences on the death of his father Mr. Bertie Mulcahy

Dr. Ioannis Zabetakis, Department of Biological Sciences on the death of his father Mr Aristotelis Zabetakis.

Professor Noel O'Dowd, School of Engineering on the death of his wife Ms. Thérèse McHale.