



FACULTY OF

Science + Engineering

Newsletter

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New SFI Centre 'CONFIRM' Launched



An Taoiseach, Leo Varadkar, TD, together with the Minister for Training, Skills, Innovation, Research and Development, John Halligan, TD, launched four new world-class Science Foundation Ireland Research Centres in September. CONFIRM, a €47 million centre for smart manufacturing, will be led by University of Limerick and UL Professor Conor McCarthy, with Tyndall National Institute, University College Cork, Cork Institute of Technology, NUI Galway, Athlone Institute of Technology, Maynooth University and Limerick Institute of Technology as academic partner institutions and 42 industry partners. Professor McCarthy said: "CONFIRM truly is a game-changer for Irish manufacturing competitiveness. The establishment of this SFI research centre, will position Ireland to play a leading role in the global smart manufacturing revolution, whereby products, machines, production systems and supply chains are digitally connected and making smart decisions. This innovation will enable consumer-driven mass customisation, where future Irish products will be tailored to individual needs, and delivered directly to them just hours after placing orders".



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GradIreland Best New Postgraduate Course Award



Dr Alan Ryan, School of Engineering, Dr. Seamus Gordon, Course Director, Dr. Ann Ledwith, Dean Graduate and Professional Studies, UL and Shane Loughlin, CEO SL Controls Ltd.

The Master of Engineering in Mechatronics programme in the School of Engineering won the **Postgraduate Course of the year in Best New Course** at the GradIreland Higher Education Awards. The award was accepted by the Course Director Dr. Seamus Gordon. The judges' commented that *"The level of collaboration with industry and other universities is impressive. This programme is clearly helping to develop the manufacturing economy!"* The MSc in Game Design and Development was also shortlisted for this award.

SFI's Researcher of the Year Award

The SFI Researcher of the Year Award recognises the accomplishments of a Science Foundation Ireland funded researcher who has contributed significantly to the Irish research community in their career. Mike commented that “The investments that have been made in science and technology funding in recent years mean that there is a rising tide of globally impactful science and engineering research in Ireland. The Bernal Institute exemplifies this situation and it is gratifying that this prestigious award reflects work published since I established my group here in 2014. It also reflects the quality of post-graduate students and post-doctoral fellows that have been attracted to work in the Bernal Institute.”



Order of the French Republic Award

Dr Gordon Armstrong, Chief Technical Officer of the Bernal Institute at University of Limerick (UL) was recently awarded the rank of Chevalier de l'Ordre des Palmes Académiques. Presented by Ambassador to France in Ireland, H.E. Stéphane Croizat, the award is an order of the French Republic, recognising exceptional services to education, culture and the promotion of French language in Ireland. A Chartered Scientist and Chartered Chemist, Dr Armstrong obtained his PhD in materials science in UL in 2002 before starting his career as a researcher in UL and Trinity College Dublin. Dr Armstrong then returned to UL in 2006. In his current position as Chief Technical Officer at the Bernal Institute, Dr Armstrong oversees research laboratories used by 350 researchers, including developing and implementing a uniform health and safety management policy across the Institute.



H. E. Stéphane Croizat, French Ambassador to Ireland, Dr. Gordon Armstrong and Prof. John Ringwood of NUI Maynooth

Develop Legend Award



Brenda Romero, Dept of Computer Science and Information Systems was awarded the Develop Legend award at Develop Brighton in July for her career in the game industry.

UL Excellence in Teaching Award



Dr. Hussain Mahdi, Department of Electronic & Computer Engineering, was the overall winner of the prestigious University of Limerick Excellence in Teaching Award 2017.

Dr. Mahdi is pictured here receiving his award medal from Dr Des Fitzgerald, President of the University of Limerick during the Science and Engineering Autumn Conferring Ceremony in August 2017.

OFSRC Excellent Paper Award

Dr Charusluk Vipavakit, Optical Fibre Sensors Research Centre (OFSRC), Department of Electronic & Computer Engineering received the excellent paper award entitled 'Development of Fabry-Perot Based Optical Fibre Sensor for Hypoxic State Sensing Application in Prostate Cancer' from the 5th Workshop on Specialty Optical Fibre and Their Applications (WSOF'2017).

Enterprise Ireland Commercialisation Fund

Dr. Brendan Mullane, Senior Research Fellow & Principal Investigator, Circuits & Systems Research Centre (CSRC), Department of Electronic & Computer Engineering was the successful recipient of an Enterprise Ireland Commercialisation Fund (CF). The project is titled “A Built-in-Self-Test Signal Processor Engine for Analog to Digital Converters”.

2017 IET Innovation Award for Cybersecurity



L to R: Bashar Nuseibeh, Arosha Bandara, Vikram Mehta, Blaine Price

Prof. Bashar Nuseibeh (Lero, University of Limerick) together with colleagues from The Open University have won the 2017 IET Innovation Award for Cybersecurity, for their novel wearable privacy management device, "Privacy Band". The device allows users to have

discreet, real-time awareness of potential privacy threats and to control access to their data using intuitive and adaptive on-body interaction techniques. Further information about the Privacy Band, and the underlying interaction innovation can be found in the paper published by the research team at the 2016 ACM International Conference on Computer-Human Interaction (CHI): Mehta, Vikram; Bandara, Arosha; Price, Blaine and Nuseibeh, Bashar (2016), "Privacy Itch and Scratch: On Body Privacy Warnings and Controls", In: ACM Conference on Human Factors in Computing Systems, ACM, San Jose, USA. The technology behind the privacy band is the subject of patent applications, and builds on the collaboration between the SPARE research group in Lero (<http://spare.lero.ie>) and the SEAD research group at The Open University (<http://sead1.open.ac.uk>).

SFI Industry Partnership Award

SSPC won the SFI Industry Partnership Award which celebrates SFI collaboration between an academic research group and industry. The SSPC & Advanced Biopharmaceutical Technologies - Spokes Project is led by the SSPC in partnership with seven leading Biopharmaceutical companies in Ireland and NIBRT. The partnership aims to develop innovative single-use disposable systems for bioprocessing

Stryker Scholarship

Emily McCarthy, Bachelor of Science in Physics, has been awarded this year's Stryker Scholarship. The Stryker Scholarship, sponsored by Stryker Medical, is awarded on the basis of performance in the Leaving Certificate.



MI Funding Grant

The ECE Mobile & Marine Robotics Research Centre (M&MRRC) has been awarded one of 19 Marine Institute funding grants totalling €3.3 million on 21st November 2017. The announcement took place in Dublin city centre on 22nd November, with more than 20 researchers present, including the Centre Director Prof. Daniel Toal and Research Fellow, Dr. Gerard Dooly.

The grant awarded to M&MRRC supports the development of "Hybrid Fixed Wing Vertical Take-Off & Landing UAV technology for the Marine Sector".

Minister Creed announced the Marine Institute funding grants in two research areas: Specialist Marine Equipment and Ocean Law and Marine Governance. The Marine Institute contributed to this with an investment of more than €2.5 million. The HEI (Higher Education Institutes) sector received 14 of these grants, while the other five were granted to industry-led proposals (SMEs).

Peter Heffernan, CEO of the Marine Institute, said that the funding grants would enable pioneering marine research projects to develop in decades to come. Minister Creed expressed his delight with announcing the funding grants as a next step forward for many new projects in marine sector.



Scholarship Awards

Peter Roe, Gabriel Denys, and Dominik Przychodni, BE Electronic & Computer Engineering students received Intel scholarships and Jessica Dino received the Intel Women in Technology scholarship. Luke Vickery received the UL40 Mature scholarship and Alice O'Keeffe received the S&E Women in Engineering scholarship.

Conor Nolan, Bachelor of Science in Physics, has been awarded a UL 40 Student Scholarship, introduced in 2012 to mark UL's 40th anniversary and valued at €2,000 each

UL Green IT Pop-up Shop Wins Going for Gold Award



UL Green IT project being run by the ECE Department in conjunction with ITD and Buildings & Estates has won the Limerick Going for Gold Reuse award for its pop-up shop. The shop operated from the Students Union courtyard for the September and October and offered high quality refurbished IT equipment including laptops, desktops, monitors, tablets and smartphones to students and staff. The items for sale had previously been used in the corporate sector before being data wiped and prepared for reuse. Lifetime extension for such products is a very important sustainability strategy due to the extremely high energy and material requirements in electronics manufacturing and the loss of critical raw materials during recycling.

The larger UL Green IT project is tackling a wide range of environmental issues associated with IT including energy management of computers, data centre energy efficiency, waste recycling, repair cafés, cloud utilisation and procurement.

WiSTEM2D Award Programme

Ten female students were presented with bursaries by global healthcare company Johnson & Johnson (J&J) as part of its WiSTEM2D Award Programme at a ceremony at UL on Wednesday, November 22.

WiSTEM2D refers to Women in Science, Technology, Engineering, Mathematics, Manufacturing and Design. This is the second year of this initiative which is an integral part of J&J's commitment to developing and implementing high-impact strategies to support female students undertaking STEM2D degree courses at UL and in universities around the world. At a national level, just 25% of people currently working in STEM-related careers in Ireland are women. Research undertaken during Year 1 of the WiSTEM2D programme by EPI*STEM, the National Centre for STEM at UL, highlighted the challenges facing women in STEM. In particular, some female students described feeling isolated in classes where there were very low numbers of females. More than half of those surveyed noted that the introduction of a mentoring scheme would assist them in pursuing a career in STEM.

The WiSTEM2D programme provides opportunities for students to meet and be mentored by female role models from J&J, to visit J&J sites around the country and develop their STEM networks. The ten successful WiSTEM2D students are accomplished, ambitious women currently studying STEM subjects at UL and came through a rigorous selection process.

The ten award winning students are: Anastasija Klemanska, BSc Industrial Biochemistry, Aoife Clarke, BE Mechanical Engineering, Ciara Olsthoorn, BE Chemical and Biochemical Engineering, Ciara Springall, BSc Product Design and Technology, Elora McFall, BSc Applied Physics, Lisa Daly, BE Design and Manufacture Engineering, Maram Youssef, BE Aeronautical Engineering, Meryn McNea, Bachelor of Technology (Education) Materials and Engineering Technology, Nell Hartney, BSc Mathematics and Physics, and Roisin Hurley, BE Mechanical Engineering.



ISAX Smart Ageing Innovation awards

The 'Acorn' tablet won the award 'The one to watch' at the ISAX Smart Ageing Innovation awards on the 7th of November. Louise Kiernan Lecturer and Course Director on the BSc. Product Design & Technology course worked on this project with the company involved Cliffmun Media and PDT students from the School of Design. The project started as a six week project with the 2nd year Product Design and Technology students. This was then developed over the summer with three of the students, of whom two received summer bursaries to continue with the project.



IDI Awards

Four Product Design and Technology students were successful at this year's IDI Awards held in Dublin on the 30th November (Institute of Designers Ireland). This year 484 students entered the awards, which demonstrates the high level of competition. It is a great achievement for the students and the Product Design and Technology course.

Congratulations to the winning students:

Steve Murphy for his FYP project 'Navu' – Winner Best Product Design: Industrial or Consumer Products Category.

Sarah Keane for her FYP project 'Algo' – Winner Best Product Design: Medical Devices.

Eoin McGrath & David Fitzsimons for their 3rd year project 'CairPod' - Winner Interior Design / Interior Architecture Category.

David Fitzsimons for his FYP project 'Collr' - Commended in the Product Design: Industrial or Consumer Products category.

Eoin McGrath for his FYP project 'VIA' - Commended in the Product Design: Industrial or Consumer Products category.

Science & Engineering Summer Research Scholarships

The award ceremony took place on Tuesday 19th September for the 5th UL40 S&E Summer Research Scholarship Programme. The aim of the programme is to expose undergraduate students to research and the research environment, to ultimately encourage them to apply for postgraduate research funding, so that they can continue their studies to Masters or PhD Levels.

The programme also has a second goal of supporting Academics to investigate new areas of research, or to work on research funding grant proposals. The programme ran over the 10 weeks summer semester and was co-funded by the S&E Faculty and individual S&E Departments and Research Projects. 30 Students participated in this year's programme.



Interreg North-West Europe Funding

Interreg North-West Europe has approved the new 3.7 million euro project "Nutrient Recycling – from pilot production to farms and fields (ReNu2Farm)" with Dr. Achim Schmalenberger, Dept of Biological Sciences as project partner. The project aims at increasing recycling rates of the plant nutrients Nitrogen (N), Phosphorus (P) and Potassium (K). The barriers for the limited use of recycling-derived fertilizer products by farmers will be overcome with this initiative. The UL partner is leading research in the microbiological cycling of phosphorus from recycled fertilizers as part of ReNu2Farm. Ireland's field trial will be conducted with the help of Teggasc in Johnstown Castle. Further Irish partners are located at IT Carlow and Cork IT.

System Driven Circuit Design Seminar

A 2-day seminar titled "Short-Course on Selected Topics in Mixed-Signal IC Design" was hosted by the Circuits & Systems Research Centre (www.csrc.ie), on 7-8th September 2017. The seminar attracted 65 delegates from Europe and worldwide, from countries such as Czech Rep, Spain, India, England and Ireland.

This was the 3rd consecutive year the internationally distinguished lecturer, Prof. Boris Murmann, Stanford University, has travelled to Ireland and presented a short-course at the University of Limerick and each year the course content has consisted of new material. While the 2015 & 2016 courses covered data conversion, this year's course shifted the attention toward modern sensor interfaces. It covered the design of the constituent CMOS mixed-signal circuits, spanning a broad range of topics from "electrons to transistors, bits and algorithms." The overall objective was to deepen the attendees' understanding of sensor interfaces and their efficient translation into transistor-level circuits.

The feedback from the attendees were extremely positive: "Excellent course, would definitely recommend to colleagues"; "Exceptional. World class"; "Very relevant to my day to day work"; "I enjoyed the course and would come back again next year".

This year the course incorporated two guest lectures – the first was given by Prof. J. Calvin Coffey, Professor of Surgery at the Graduate Entry Medical School, University of Limerick, and the second was given by Mr. Tim Cummins, CTO and Co-Founder, AltraTech Ltd, Limerick. Prof. Coffey's lecture was titled "Robotic Surgery: Past, Present & Future" and Mr. Cummin's lecture focused on "Semiconductors in BioTech". Both guest lectures proved very insightful and thought provoking and the Circuits & Systems Research Centre wish to express their thanks and gratitude to both speakers for their time, effort and contribution.



SFI Funding

An investment of €43m in 26 research projects through the SFI Investigators Programme was announced by Minister for Training, Skills, Innovation, Research and Development, John Halligan. The Science Foundation Ireland investment will support 26 research projects in key areas including mathematical modelling, nanoscience, inflammatory diseases, cancer, materials, cattle breeding, seismology, communications and climate change. Professor Michael Zaworotko of the Bernal Institute received an award to investigate Green Adsorbents for Clean Energy.

Professor James Gleeson, MACSI was awarded funding for his project entitled "Mathematical Modelling of Social Spreading Phenomena" Professor James Gleeson and his team in the University of Limerick will develop new mathematical models to help revolutionise the understanding of how information spreads online. They will develop an algorithm to identify the users of social networks who are the "superspreaders", i.e., users whose retweets can make information travel faster than everyone else. A better understanding of how information spreads through social influence will help us find ways to spread important information more quickly (e.g., for health or terrorism alerts), and to control undesirable aspects of social media such as the spreading of misinformation and false rumours.



SFI US Ireland Tripartite Award

Ursel Bangert's group in the Bernal Institute is partner in an SFI US Ireland tripartite award. This award of €836,000, is for a collaborative project between groups at the University of Nebraska-Lincoln (USA), Queen's University Belfast and the University of Limerick. The overall aim of the project is to develop routes for engineering and control of ferroelectric domain walls and exploring their structure and electronic properties with the intention to exploit them in advanced nanoelectronic devices.

Research into domain wall electronics is drawing a lot of attention as a new paradigm for ferroic devices. The physics of domain walls is stunningly rich and challenging: pseudo-2D domain boundaries in multiphase ferroic materials, with various order parameters at play, are fundamentally different entities with a wide range of unusual physical properties. As such, they offer a possibility of conceptually novel devices utilizing state variables different from those of the bulk materials. The growing role of domain walls in progressively shrinking devices necessitates the development of new approaches for active control of domain wall behaviour and a thorough investigation of the interplay between their functional properties, microstructure and the overall device performance.

The proposal seeks to develop a synergetic approach for ferroelectric domain wall engineering through the right combination of fabrication, high-resolution structural characterization and electrical testing methods with the intention of understanding the functional properties of the domain walls at a fundamental level and their subsequent use in novel electronic devices. UL's role is to carry out high-resolution electron microscopy and spectroscopy studies, including in-situ experiments, in the newly installed FEI Titan Themis TEM (double corrected, monochromated, with analytical, i.e., Super-EDX and Quantum EELS capacities, equipped with in-situ holders and a Gatan K2 detector) in the Bernal Institute to assess and reveal nano- and electronic-structure of ferroelectric materials grown in this project.

Visiting Lecturers/Speakers/Researchers

ECE welcomed a number of visitors to the department this semester. Dr. Robert Adjetei Sowah, Head of Computer Engineering, University of Ghana (UG) and Dr. Ferdinand Apietu Katsriku, Head of Computer Science, UG, made presentations to the department where they detailed their expertise and research to date and discussion with potential research and teaching collaborations.

ECE hosted a number of guest lecturers including Professor John Canning from the School of Electrical & Data Engineering, University of Technology Sydney, Australia who gave a talk on Photonics and Smart Sensing as well as Dr Robert Gyorodi, and Dr Cornelia Gyorodi, University of Oradea, Romania who continue to give guest lectures in the area of Cloud Computing; this is the third annual visit of Faculty from Oradea to ECE as part of this programme. Dr Siti Azlida-binti Ibrahim from Multimedia University Malaysia is also a visiting Postdoctoral Research Fellow under the Erasmus Mundus Leaders programme. In addition, ECE continues to host Dr. Lucy Zhao, Dr. Su Baishun and Dr. Cheng Dong from Henan Polytechnic University in China. In a further most welcome development Professor Zhaoshan Zheng, Dean of the Department of Computer Science at HPU will visit us for an extended period during Spring 2018.

Steve Walker and Laura Gadola from Cobaltix gave talks in the areas of Entrepreneurship and Cyber-Security to our Masters and first year classes. Two students, Ricky Kearney and James Poole were selected to intern in Cobaltix in San Francisco in Summer 2018.

Article Published

Acouscenic Listening and Creative Soundwalks: Evoking Memory and Narratives through Soundscape Exploration by Sean Taylor and Mikael Fernström, in **Leonardo Music Journal**, Volume - | Issue 27 | December 2017, p.3-6
https://doi.org/10.1162/LMJ_a_00999.

Abstract: Sound art is at the vanguard of contemporary creative practices seeking to establish a platform for meaningful debate on a range of accelerating global environmental crises. This paper explores how the Softday art/science collaboration moved from exploring histories of the natural world in the epoch of the Anthropocene, while engaging in a continuum of public and politicized contestations addressing climate change issues, to a participatory sound art practice that that we call Acouscenic Listening and Creative Soundwalks, which may help to develop a novel frame of understanding of the world

Scientific Paper Published

Research carried out by David O'Sullivan and Professor James Gleeson at the Mathematics Applications Consortium for Science and Industry ([MACSI](#)) in the University of Limerick along with partners [Dr Guillermo Garduño-Hernández](#) Sinnia, Mexico and [Dr Mariano Beguerisse-Díaz](#) University of Oxford, UK investigated the sentiment contained in every tweet containing the hashtags [#marref](#) and [#marriageref](#) in a two week period prior to the Irish Marriage Referendum in 2015. In a recent scientific paper published in the scientific journal "[Royal Society Open Science](#)", the team analysed nearly half a million tweets posted by over 100,000 unique users from the popular social media service, Twitter. Their research showed that Twitter users were more likely to be connected with other users that shared their views in the marriage referendum. This resulted in an effective echo chamber for the spread of information, in the form of retweets. Information was more likely to be trapped inside their group than shared outside. However, the analysis also showed that there was a committed core of active users on both sides of the referendum that actively engaged across ideological divisions.

Lead author MACSI PhD student David O'Sullivan explained why the research team chose to analyse tweets relating to this vote in particular: *"The marriage referendum posed a clear yes/no question in comparison to other, more complex votes such as Irish general elections where you have a ranked preference of outcomes. Also, the high volume of activity on Twitter relating to the Irish Marriage Referendum provided an excellent opportunity to understand how users interact around controversial or polarising topics."* In an era where accurate polling and assessing the public's sentiment is becoming more difficult, research like this can have potential applications in the integration of data and metadata to study opinion dynamics, public opinion modelling and polling.

2017 Bernal Research Awards Day

The 2017 Bernal Research Day was held in the Analog Devices Building, on Thursday 23rd November, the event serves to increase visibility and awareness of the breadth of current research activities and resources across the Bernal Institute. This year's event focused on the impact of Bernal research activities, leading to the theme of "Advancing Materials for Impact". Guest speakers included Mr. Patrick Edmond (Group Strategy Director & Managing Director of International Aviation Services Centre (IASC), Shannon) and Dr Kieran Curran (Curran Scientific, Cala Medical & UL). An important part of the day involved a series of research presentations via a "thesis-in-3" presentation mode. These presentations are designed to be clear and succinct, research presentations, lasting no more than 3 minutes and 3-slides in length. Two awards of €250 were issued for best presentation, one nominated by a review panel and the other by the audience. The winning presentations were;

"From Photosynthesis To Solar Energy Conversion" by Andrés Molina, PhD student at the Department of Chemical Sciences, University of Limerick and "Concussion – Tackling The Problem" by Darragh Walsh, PhD students at the Department of Mechanical, Aeronautical and Biomedical Engineering.

Marine Technology and Renewable Energy Research Day



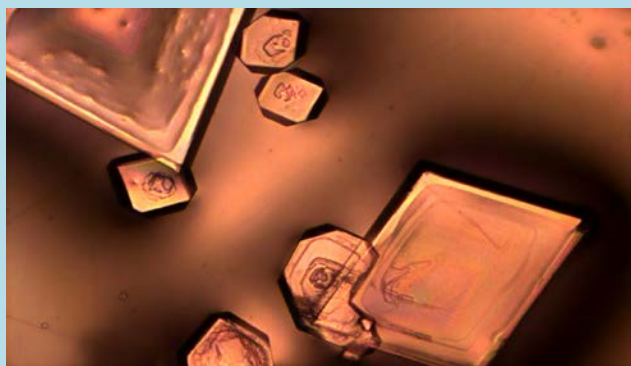
The Mobile & Marine Robotics Research Centre (M&MRRC), Department of Electronic & Computer Engineering (ECE) organised a Marine Technology and Renewable Energy Research Day on the 26th October 2017. The event was held in the Department of ECE at the University of Limerick, and hosted a number of visitors from all over Ireland.

UL researchers presented the wide variety of projects in the group, and had a chance to discuss new ideas and development opportunities with visitors from NetFeasa, ESB, Shannon Foynes Port Company, Limerick City & County Council, and many more. At the end of the day, the visitors enjoyed a tour of Limerick Docks, where they saw a demonstration of some of the M&MRRC equipment including the new 2 Million Euro MRE ROV which has recently been commissioned.

Physics Researchers Discover Potential to Produce Electricity from Tears

A group of Limerick-based scientists has discovered how to generate electricity from human tears, saliva, and milk. It's hoped the discovery by the University of Limerick (UL) research team may ultimately provide an alternative method of controlling the release of drugs into the body. Conventional biomedical devices feature energy harvesters containing toxic elements such as lead. The research team, based at the Bernal Institute, UL, discovered how to produce electricity by applying pressure to a protein, called lysozyme, found in the egg whites of birds, as well as in the tears, saliva and milk of mammals. 'The Direct Piezoelectric Effect in the Globular Protein Lysozyme' by Aimee Stapleton, Mohamed R. Noor, John Sweeney, Vincent Casey, Andrei Kholkin, Christophe Silien, Abbasi A. Gandhi, Tewfik Soulimane and Syed A. M. Tofailare is published in the journal Applied Physics Letters and has rapidly gained momentum across the global media. The story was covered in Europe, North America, South America, Asia, Africa and Australia. UL Press Office conservatively estimates that the global audience reach of this story is in 10s of millions. The article can be accessed at <https://doi.org/10.1063/1.4997446>.

Direct piezoelectricity is already found in materials in mobile phones, deep ocean sonars, ultrasound imaging, bone, tendon and wood, but the capacity to generate electricity through the phenomenon had not been explored, until now. The discovery may have wide-reaching applications and could lead to further research in the area of energy-harvesting and flexible electronics for biomedical devices. Future applications of the discovery may include controlling the release of drugs in the body by using lysozyme as a physiologically mediated pump that scavenges energy from its surroundings.



A colour graphic from the work of Aimee Stapleton et al. was accepted as the cover illustration of the 02 October 2017 issue of the prestigious journal Applied Physics Letters

Best 2017 Electrical Engineering thesis in Brazil

The PhD thesis of José Galeti, co-supervised by Prof. Claudio Kitano (Universidade Estadual Paulista, Brazil) and Prof. Michael Connelly (Dept. Electronic & Computer Engineering), was selected as "*the best 2017 Electrical Engineering thesis in Brazil*" by the Brazil Research Funding Agency.

José will receive a medal, to be presented at a special ceremony in the Federal Capital city Brasília in December and a twelve months post-doc fellowship. His research was on optical interferometry and real-time signal processing for nanometre displacement, vibration and high-voltage sensing. A significant part of his research was carried out during a 12 month research visit to the Optical Communications Research Group (www.ocrg.ul.ie), resulting in three top quartile papers (J. Applied Optics and IEEE J. Selected Topics in Quantum Electronics) and an invited paper presented by Prof. Michael Connelly at the Acoustics Society of America/European Acoustics Association conference in Boston.

Lero-Open University Research Workshop

Research teams from The Open University's Software Engineering & Design (SEAD) research group (<http://sead1.open.ac.uk/>) and Lero's Security, Privacy, Adaptation & Requirements Engineering (SPARE) research group (<http://spare.lero.ie/>) met at the University of Limerick (UL) for their annual "away days" research workshop on 17-20 July 2017. The workshop programme included working groups discussing software engineering, security, privacy and digital forensics applications in the areas of health & wellbeing, aviation, policing and adaptive systems. The workshop opened with a keynote by Professor Michel Jackson and closed with a mindfulness session for the attendees. An open research poster sessions also drew visitors from across Lero and UL CSIS Department.



Bernal atomic-scale materials design accelerates development of a new breed of electronic devices

Bernal scientists together with scientists from National University of Singapore and University of Central Florida, have shown for the first time that "molecular electronic" devices can perform just as well as traditional silicon-based devices. Their report is published online at Nature Nanotechnology <https://phys.org/news/2017-07-molecular-electronics-scientists-shatter-impossible.html>

Bernal Institute scientist Dr Damien Thompson, who modelled the physics behind the devices in Science Foundation Ireland-funded work, explains that the computer simulations, performed at the Irish Centre for High-End Computing, revealed that electrostatic "binding" between the molecules and the metal contacts creates a massive population of charge conduits in the device, far higher than previously thought possible.

IComp to Revolutionize Shipbuilding

A new European research project, FIBRESHIP, seeks to revolutionize the shipbuilding sector by replacing steel with composite materials for the construction of more efficient large length ships.

[FIBRESHIP](#) is an ambitious project that will allow for the construction of light commercial vessels, passenger and leisure transport and oceanographic vessels more than 50 meters in length using fibre reinforced polymer (FRP) composite materials. It is one of the largest innovation projects funded by the EU with a budget of €11 million, of which €9 million is funded by the EU's Horizon 2020 Programme. Innovation actions such as these are positioned at the higher end of the technology readiness level (TRL) scale, indicating the diversity of research activities ongoing at the Bernal Institute. For further information about this project contact Dr. Ioannis Manolakis (FIBRESHIP Project Manager, IComp) and/or Dr. Anthony Comer (PI, IComp)

Cala Medical Device to Fight Sepsis

The Cooney group, led by Dr Jakki Cooney, Department of Biological Sciences, is a blended basic/applied research group which examines the structure and function of bacterial proteins which interact with the human host. In collaboration with Prof Paul O'Toole, University College Cork, they study the structure and function of proteins from human intestinal commensal bacteria, which are centrally involved in microbe-host communication and modulation of host response. With the support of Enterprise Ireland Commercialisation Funding her group has developed a medical device which targets sepsis – a serious unmet medical need. Together with Dr Todd Kagawa and Dr Brian Noonan, Dr Cooney established Cala Medical – a spinout company, tasked with bringing this applied research project through to clinical trials. Cala Medical is funded through angel investors and EI HPSU (high-potential start up) funding. The company is currently based in the Nexus Innovation Centre, University of Limerick.

€3.6 million EU fellowship programme



Ireland has been selected to manage a new €3.6 million EU fellowship programme for international software researchers. ALECS (Advanced Learning in Evolving Critical Systems) will be co-ordinated by UL and Lero, the Irish Software Research Centre. The initiative is being funded by the EC under the Marie Skłodowska-Curie programme and by Science Foundation Ireland through Lero.

Under the ALECS programme Ireland will benefit from the influx of 26 international advanced software researchers. The fellowships will be open to overseas PhD degree holders or researchers with at least four years' high-level research background. The benefits will be spread across Irish industry as the two year programme will require a 3-6 month secondment to an industry partner.

The launch coincides with the first meeting of PERFORM, a recently announced €3.8 million EU programme headed up by Lero and DCU designed to enable European high street and online retailers counter the competitive threat posed by foreign global players.

I.NY Creativity in Education Symposium

SAUL lecturers, Grainne Hassett and Morgan Flynn, presented at the inaugural I.NY Creative Education Symposium at the University of Limerick. The event was part of the I.NY festival which took place in Limerick celebrating the relationship between Ireland and New York. The symposium was intended to initiate an interdisciplinary conversation that explores, debates, advances and contests emerging narratives of creativity in education.



Smart Cities

Lero is investing €500,000 in a Science Foundation Ireland funded research project designed to develop the IT and Enterprise architecture needed to create Smart Cities of the future. Limerick has been selected as a national case study for the project.

As part of the case study, researchers from Lero at Dublin City University together with Limerick City & County Council, will develop a new digital service (Insight Limerick) which offers citizens a portal for information sharing, open data and data visualisation while analytics will be used to gain insights leading to better services.

The Internet of Things will facilitate data capture from potentially thousands of sensors and devices from water, soil and air quality, traffic, cycling and pedestrian movement, parking event management and other sources. For the people, communities and businesses in Limerick to maximise the benefits derived from these new sources of information the data needs to be connected, shared, analysed and protected in a coherent and consistent way in order for new services to be developed and existing ones improved.

Bright Summer School in Software Engineering

Invited by colleagues at the University of Gothenburg, Sweden, Prof Ita Richardson lectured on the Bright Summer School in Software Engineering organised by the Systems and Software Centre at Makerere University, Kampala, Uganda. Ita presented on Software Quality, Software Regulations in Healthcare and Connected Health, about which she is researching within Lero – the Irish Software Research Centre and the Health Research Institute at the University of Limerick. The Summer School was attended by over 40 students and faculty, and the other visiting lecturers were Dr Xiaofeng Wang, University of Bolzano, who previously was a post-doctoral researcher in Lero@UL, Dr Eric Knauss, University of Gothenburg, and Prof Michel Chaudron, University of Gothenburg. Apart from lectures and tutorials, 14 students presented their research during a PhD symposium, getting feedback from the lecturers and their own colleagues.

The Bright Summer School is sponsored by SIDA, the Swedish International Development Cooperation Agency, through a project funded to University of Gothenburg, Chalmers University, both in Sweden, Mbarare University of Science and Technology and Makerere University, both in Uganda and is jointly led by Prof Engineer Bainomugisha (Makerere University) and Prof Michel Chaudon, University of Gothenburg. The aim of the project is to contribute towards sustainable socio-economic growth in Uganda. Ten PhD students from Uganda, who are researching the areas of digital innovation, software engineering and entrepreneurship are being trained through this research program.

Travelling to Uganda has been an interesting experience for Ita – from visiting the University and its facilities, to visiting locations in Kampala, where traffic is interestingly chaotic. The students have been given a great opportunity through the SIDA sponsorship - seven PhD students have spent between 1 month and 1 year in the University of Gothenburg and others plan to travel there during the next year. Thanks to the school organisers, hosts at the College of Computing and Information Science, Dr Regina Hebig, University of Gothenburg, who proposed Ita for this opportunity, and to SIDA, sponsors of the Summer School

BRIGHT Summer School Lecturers and Organisers: Dr Benjamin Kanagwa, Dr Xiaofeng Wang, Prof Michel Chaudron, Prof Ita Richardson, Dr Joyce Nakatumba-Nabende, Kamulegeya Grace Bugembe, Dr Eric Knauss.



WiSTEM2D AY 2017/18 launch

Dr Martin Hayes and Dr. John Nelson attended the WiSTEM2D Society AY 2017/18 launch hosted by Liz Dooley of Johnson and Johnson on Wednesday September 18.

The ECE department is committed to supporting the fledgling WiSTEM2D society and will leverage its links with the J&J sponsored Ladies Soccer squad to continue the series of fun Futsal days for transition year students in collaboration with the WiSTEM2D society. The objective of these fun days is to inform transition year girls about senior cycle subject choices to increase the available student resource base for the STEM disciplines.



The ECE department hosted the WiSTEM2D society movie night event in the B2-005 "Data Communications" laboratory. This event proved very successful with 35 attendees (34 female/ 1 male).

Autumn Engineering TY Week



The Autumn Engineering TY Week was a full week split between the Electronic and Computer Engineering (ECE) Department and the School of Engineering to give Transition Year (TY) students a practical taste of these complementary engineering areas under the supervision of the technical staff. Areas covered in the Electronic and Computer Engineering Department laboratories included interactive coding, pneumatic electronic control, data communications, construction of FM radio transmitter and electronic heart beat counter circuits. The School of Engineering laboratories included 3 D Printer scanning and modelling, aircraft design build and fly, large scale wind tunnel and testing of air foil, manufacture of composite materials, jet engine aircraft maintenance. This will be followed up with a Spring Engineering TY Week – ‘Women in Engineering’ to coincide with Engineers Week.

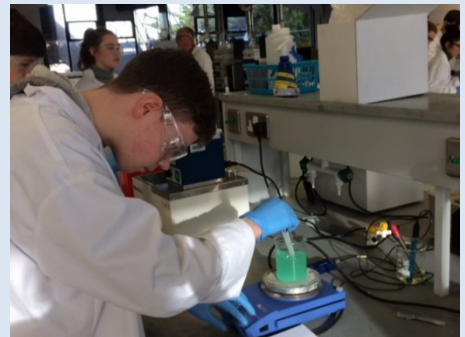
Parsons School / School of Design Exchange Agreement

In 2013 Parsons in New York City and UL established an exchange programme subsequently formalized through a formal exchange agreement in 2016. This programme is open to the design-led disciplines at UL, and thus far has taken the form of a coordinated studio with students in Parsons and students in SAUL working on the same site in Limerick, and studio-based lectures and critical dialogues. This year the exchange has been brought to a new level with SAUL Masters candidate Noreile Breen studying in the Lighting Design programme at Parsons and SAUL Y3 student. Harry Lloyd (SAUL) has been accepted to the BFA Architecture programme and Patrick Leonard (PDT) has been accepted to the BFA Industrial Design programme. Both will start as exchange students for Spring 2018. These initiatives mark significant steps for the undergraduate and post graduate students at the School of Design in UL in developing links with one of the world's top ranking Design Universities. Credit is due to Merritt Bucholz and Niall Deloughry for developing these links and facilitating the student exchanges.

TY Science Work Experience



This year's Transition Year Science Work Experience Week took place from the November 27th to December 1st with 32 Transition Year pupils from 15 different schools across Ireland. The week began with a team-building activity, facilitated by John Loftus from BT Ireland. Over the course of the week the pupils experienced a range of practical activities across all the science disciplines. One of the week's highlights was taking a tour of J&J Vision Care where the students had the opportunity to experience working in a scientific industry for real. Throughout the week, students researched and presented posters on the topic of raw materials. Ella Traas from Presentation Secondary School in Clonmel won a Fairphone for best poster. At the end of the week all pupils presented on their experiences and provided detailed feedback about the week.



Science Week in the Faculty



The Limerick Festival of Science, coordinated by the Faculty of Science and Engineering - a partnership between the University of Limerick, Mary Immaculate College, Limerick Institute of Technology, took place from the 13th to 18th November 2017. The Festival brought together a range of activities and experiences celebrating the role of science and technology in the everyday lives of people in the Mid-West region. It provided a wonderful opportunity for the three third level institutions in Limerick City to share their enthusiasm for science, engineering, technology and mathematics with everyone - primary, secondary and college students, parents, teachers and anybody who wanted to find out more about science. One of the Festival aims was to challenge stereotypes so young people could see for themselves the diversity of people that work in STEM (Science, Technology, Engineering and Mathematics).

This year as part of the Festival, the staff and students in the Faculty of Science and Engineering organised over twenty-five UL talks and workshops both on campus, in venues in Limerick City Centre and County, including Shannon and Ennis town centres. Approximately 4,000 primary and secondary school pupils attended UL Science events throughout the week in addition to Science and Engineering Faculty visiting schools throughout the Munster region. Examples of events included talks on How to build an Iron man suit; What is happening our Bees; Science of a Successful Athlete; Secrets of Super Hero science; Science of Aircraft Design; 3D Space Show – bring outer space into the classroom; The Ugly Animal Show; The Science of Mindfulness; Chemistry Magic Workshops; Technology Workshops, Cell Explorers - hands-on discovery of cellular and molecular biology workshops, Fab Lab workshops, Workshops on the Physiology of Olympic cyclists; The Athlete Brain Workshop; From Coach to the Athlete Workshop; Gross Germs and Bacteria Workshops, FameLab Science Communication Competition, Science Quiz and much more.

Space Week 2017

“The Future of the Human Race”, David Moore, Astronomy Ireland, 4th October 2017, Analog Devices Building.

This one-hour lecture starts at the Sun, its family of planets, asteroids and comets, looking at where life might exist in our Solar system. David looks out into the wider universe to see where the billions of Earth-like planets are and how the stars and planets came to be. Black holes, Dark Matter, Dark Energy, and the Big Bang are all laid bare. We had a full house of approximately 200 students for both the primary (9.30am show) and the secondary (12.00pm show).



Dr David Moore with primary school students from Monaleen NS.

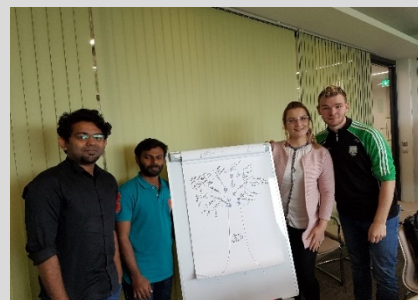


Dr David Moore at the secondary school show, an all female audience.

Northern Trust Student Engagement Day

Northern Trust (NT) hosted its first Student Engagement day on the 12th October. This initiative seeks to demonstrate the wide-range of interesting technical and project roles that exist within the company.

Particular interest was evident in projects related to Blockchain, which is the secure data transfer standard for the Internet of Things (IoT). The Department of Electronic and Computer Engineering Graduating classes were invited to attend this engagement day. Students found this event to very worthwhile – with one student saying that it “was a wonderful experience, apart from the valuable industrial exposure, their hospitality was truly amazing. It was a pleasure listening to each one of the speakers today”.



Science Week at Lero

Lero has a very successful Science Week 2017 Nov 12-19. Sorren Hanvey, Rafael Dantas, Faeq Alrimawi, Fayola Peters and Clare McInerney ran

technology workshops for 120 primary schools students on Tuesday and Thursday. A photo from the technology workshops was featured on the Irish Times Images of the Day <https://www.irishtimes.com/news/world/images-of-the-day-1.3291954> Bilal Ahmad and Mohannad Abdur Razzak participated in the Limerick Famelab competition on Wednesday in Limerick. Joe Walsh in IT Tralee ran a STEM Enterprise and Careers Expo on Friday and STEM Showcase and Family Day on Saturday as part of the Kerry Science Festival. Thanks to everyone involved in Science Week activities.

Frontiers of Physics

This year's Institute of Physics Ireland held its 17th annual Frontiers of Physics teachers conference in the new Analog Devices Building, on Saturday 23rd September 2017. Supported by the Professional Development Service for Teachers, the event is a showcase both for cutting edge physics which can be brought into the classroom and for a host of hands-on activities for all teachers of physics.



It was a day of lectures, demonstrations, and workshops, resources and networking for all teachers of physics including Junior Science Teachers. Distinct highlights from the event included keynote speaker, Rogerios Martins from Lisbon with his talk - 'My bike is a physics expert!', while Barry Fitzgerald from TU Delft in the Netherlands explored some 'Secrets of Superhero Science'. UL contributors gave an insight into many aspects of physics including crystals, smart phone experiments for students and some deeper questions on what makes a good science teacher. Andrea Bourke from Waterford Institute of Technology spoke on the physics of electricity networks while the Science on Stage team brought their latest set of project ideas which they had picked up at the recent European festival in Debrecen. Almost 140 teachers, presenters and exhibitors took part in the event

Black Rock Recovery

4 researchers from the Mobile & Marine Robotics Research Centre (M&MRRC), Department of (ECE), headed down to Cork to join the MaREI stand during the Cork Science Week 2017 held in the Neptune Stadium on 19th November 2017.

The Cork Science Week was a week-long event, accompanied by similar events all around Ireland that are making science more accessible to everyone, from children to elders. The researches enjoyed talking with curious children and their parents, mostly about the recent recovery from the shores of Doolin, a Black Rock mini boat that has crossed the Atlantic Ocean and survived the Ophelia Storm before getting stranded on Irish shores. The Black Rock will be repaired and sent back to sea in the beginning of the new year!



Black Rock made her way to Ireland after being deployed into the Gulf Stream on 21st of May 2017, under the NOAA project known as "Educational Passages". Sixth, seventh and eighth grade students from Swan's Island Elementary School helped to prepare the mini boat for the long journey and were able to track her movements, as she got pushed across the Atlantic Ocean by wind and current. During a total of 172 days at sea, *Black Rock* has successfully battled the rough Atlantic Ocean and Storm Ophelia, with peak winds of 185 km/h.

Black Rock is now situated in the Rooftop Garden, just outside of the M&MRRC lab, Department of Electronic and Computer Engineering, at the University of Limerick. Her current position allows the GPS tracking ping to share the location of the boat with watchers all over the world. Check it out on the [live map](#)! Needless to say the students at the Swan's Island Elementary School were delighted to hear of the safe recovery of the Black Rock and look forward to following its next endeavour.

Researchers, Petar Trslic and Oran Dolphin-Murray from the Mobile & Marine Robotics Research Centre (M&MRRC), Department of ECE, participated in the Science@Sea course. This intensive 3 days course was held on RV Celtic Voyager, just offshore of Cork, 22-24th November 2017. The researchers had the opportunity to experience multidisciplinary marine science in an applied skills training focused on data collection, analytics and a multidisciplinary approach to investigating the marine environment. Some of the core marine disciplines covered were: oceanography, benthic ecology, fisheries biology, marine geosciences and hydrography. Science@Sea training programmes are supported by the Marine Institute, and funded under the MARine Research Programme of the Irish Government.

Science @ Sea



Circular Design Internship



As a part of Learning for Innovative Design for Sustainability (L4IDS) Erasmus+ Knowledge Alliance project, the first Circular Design Internship was conducted in the School of Design, UL, between September 1st – November 28th, 2017. The interns were from various departments in the School of Design, UL, Universitat Politècnica de Catalunya in Spain, NHL University of Applied Sciences in the Netherlands, and Linköping University in Sweden.

The interns were divided into three teams and worked with three Irish clients on different projects: *Retrofitting* with

One Off (Dublin), *Material Explorations* Mamukko (Kinsale) and *Eliminating Food Waste* with Southern Region Waste Management Office (Limerick). The final presentations took place on November 28th, 2017, in the Millstream Common Room. The projects were then exhibited in the Erasmus+ 30 Years Event on December 1st, 2017, in the foyer of the Irish World Academy of Music and Dance, University of Limerick.

FABLAB Activities

Summer Camps: Kids from 6 - 12 were invited to take part in two week-long summer camps, exploring their own creativity and imagination with the use of 3D printers, laser cutters, basic electronics and much more. Through the camps kids gain unique insights and hands-on experiences into the world of digital fabrication, through designing, problem solving and exploration of basic structural and electronic principles.

Elemental Festival: Elemental, Limerick's Art Festival took place recently on the 8th, 9th and 10th of September. Fab Lab Limerick were delighted to work with Elemental, with various public workshops taking place over the weekend. These workshops included LearnIT's "Building Tomorrow's Engineers" - Lego workshops for different age groups from 6 to adults. And as part of the Aardman Model-making workshop, an expert model maker from Aardman studios in the UK was brought to Limerick, giving a number of workshops on making the world famous Aardman character Gromit. Also part of Elemental, we held an open day for Open Source Prosthetics, exhibiting work with 3D printing prosthesis, and invite the public to learn about 3D printing technology and topics related to prosthetic design, produced by Fab Lab Limerick and a local community of designers, manufacturers, medical experts, tinkerers and volunteers to explore new ways of using digital fabrication for upper limb prosthesis.

Culture Night 2017: In September, Fab Lab Limerick took part in Culture Night 2017, with free tutorials and activities on 3D printing, laser cutting for young and old, interested in digital fabrication. On the night, there were demonstrations by Elizabeth O' Connor, a traditional weaver from county Limerick, and kids activities with Open House Limerick.

Design Skills and Digital Fabrication Course in collaboration with Creative Spark. Supported by Enterprise Ireland: Fab Lab collaborated with Creative Spark in a ten week course aims to provide learners with a broad overview of design and digital fabrication. The programme includes a two-day study visit to FabLab Limerick to give the opportunity to realise prototypes/models.

Build your own siren whistle: Limerick Festival of Science – kids learned how to use Fab Lab Limerick laser cutter and build from scratch their own siren whistle, a device that uses cool physics to produce loud sounds within a tiny footprint.

EWTEC Delegation visits Limerick Docks' testing base

The European Wave and Tidal Energy Conference (EWTEC) 2017 conference took place in Cork in September. As a part of the last day of the conference, a delegation from EWTEC, led by Prof Tony Lewis, came to Limerick to visit the UL marine robotics and gKinetic renewables testing base in Limerick Docks guided by members of the Mobile & Marine Robotics Research Centre..



Prototyping Coastal, Riverine Urban Futures

Peter Carroll Senior Lecturer SAUL and Rosie Webb Senior Architect Limerick City and County Council visited University of Massachusetts Boston from October 29th – November 3rd '17 as part of a shared research proposal with The School of Architecture University of Limerick entitled "Prototyping Coastal, Riverine Urban Futures: Resiliency Planning Across the North Atlantic" .

Faculty from each university were invited to visit Limerick and Boston to compare across both cities' efforts to prototype a resilient coastal and riverine future. These research findings will be used to write a research paper on the importance of addressing sea rise through participatory, community-driven resiliency planning and architectural design. The jointly authored paper will be used as the call for an ACSP Global Planning Education Association conference at UMB on the topic of sea rise and resilience involving both Universities as well as local interest groups and national organisations.

Open House Limerick 2017

The life and work of renowned Limerick architect Andy Devane was discussed at length, particularly his work on St. Mary's Primary School in Kings Island Limerick focussing on a detailed context model of the school that SAUL Year 2 students made in 2014. Attendance at the event was full capacity and a lively conversation was enjoyed by everyone present including the family of Andy Devane. Participants included: Shane O'Toole Architecture Critic and Journalist; Emma Gilleece Deputy Editor of Architecture Ireland; Sarah Newell Architect at National Housing Agency and Limerick City and County Council; Peter Carroll SAUL Senior Lecturer and Maria Donoghue Chair of Open House Limerick and Limerick City and County Council.



David Lorge Parnas Fellowship

The David Lorge Parnas Fellowship has been established to honour David Parnas who was Professor of Software Engineering at the University of Limerick until his retirement in 2008, and where he is now Emeritus Professor of Software Engineering. The Fellowship is a senior position and is intended to allow talented software researchers and developers to visit Lero on a short-term basis. Fellows can be hosted at any of the Lero partner institutions but are expected to visit at least two Lero sites during their stay. Fellows are also expected to collaborate closely with relevant industry partners. Fellows will deliver a Distinguished Lecture while at Lero and will discuss research topics with Lero students and staff. This distinguished Fellowship will cover expenses plus a fellowship award of €7,000.



SAUL Student Study Trip to Paris & Basel

We spent the majority of our visit to Paris in the Périphérique of the city. Our first afternoon was spent walking around Ivry-sur-Seine, sketching and dissecting the complex structures designed by Jean Renaudie and Renée Gailhoustet. In the evening we travelled west to Boulogne-Billancourt to a newly completed mixed use development as a comparison to Renaudie Ivry. Our second day in Paris was spent studying mostly Gothic structures. We began in the centre of the city studying the Sainte Chapelle and then travelled back out to the Périphérique to the suburb of St. Denis to the Basilique Cathédrale de Saint Denis, studying its more irregular and adhoc composition in contrast to Saint Chapelle. We then travelled to the commune of Le Raincy, to the Église Notre-Dame de la Consolation du Raincy by Auguste and Gustave Perret to consider its spearheading use of reinforced concrete in the modern age as well as its simplicity and efficiency in structure and cost. We finished our day at Le Centre Pompidou.

The next day we arrived in Basel, Switzerland and began our day with a guided tour of the Novartis Campus. There we saw a fine example of master planning in a complex full of buildings designed by some of the world's most renowned architects such as Tadao Ando, SANAA, David Chipperfield, Eduardo Souto De Moura, Rafael Moneo, Herzog & de Meuron, Peter Markli, Yoshio Taniguchi, Alvaro Siza, Frank Gehry, among others. In the afternoon we walked around Basel observing some of the many buildings designed by Herzog & de Meuron in their home city, as well as other notable buildings in the city, such as the KUNSTMUSEUM by Christ & Gantenbein and the TransitLager by BIG. We spent some time sketching at the General Trade School designed by Hermann Baur.

Our last visit arranged for the trip was a day long visit to the Vitra campus in Weil am Rhein, just over the border in Germany. We received a guided tour of the whole campus which included the first building designed by Zaha Hadid, among other buildings by the likes of SANAA, Tadao Ando, Buckminster Fuller, Alvaro Siza and Herzog & de Meuron and more. While there we enjoyed their exhibition on the work of Charles and Ray Eames as well as their full collection.



Outside the Schaudapot on Vitra campus.



SAUL Y4/Y5 Studio 2 Class Study Trip to Bologna

The theme for our study trip to Bologna was City Rooms. With this in mind, we began on 15th of October in the Piazza Santo Stefano, one of the most renowned city squares in the city of Bologna. We met with renowned Donegal architect (now based in Bologna) Elizabeth Francis who kindly brought us around the medieval city, allowing us to get our bearings. We make our own studies of Le Sette Chiese, or The Seven Churches, along with the Piazza di Porta Ravegnana (The Two Towers), Piazza Maggiore, The Basilica di San Petronio and the Palazzo Comunale. In the afternoon, we visited the home and exhibition of Bolognese painter and artist Giorgio Morandi, and then to finish, 5th year thesis students had a thesis seminar with our year staff, Prof Elizabeth Hatz and Ger Carty, accompanied by Dr John Logan, not before sampling the delights of the local Bolognese cuisine

On Sunday 16th October we took a 3 hour train trip to Assisi, the home of St Francis of Assisi. Here, we spent the day studying the Upper and Lower Churches of the Basilica d'Assisi where the work of painter Giotto di Bondone covers the walls in rich frescoes. We also studied the Temple of Minerva, Piazza del Commune, and the Roman Forum.

On Monday, we find our way to Ravenna, near the east coast of Italy, where we make studies of the Mausoleum of Theoderic and of Galla Placidia, the Neonian Baptistry (5th century), San Vitale, and the Basilica of San Francesco. The day ends with dinner and drinks with our year staff, celebrating the birthday of one of our peers!



Autumn Conferring 2017



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- 1 . Dr Sinead Morley graduating with her PhD in Biomedical Engineering.
- 2. Monica Loo is pictured with her daughter Chloe Ah King and her husband Richard Ah King after graduating with a BSc in Mathematical Sciences.
- 3. Sinead O Regan, Karen Ryan and Katie Gillane, graduated with a Bachelor of Engineering in Biomedical Engineering
- 4. Dr. Hilary Barrett received her PhD in Biomedical Engineering.
- 5. Ben Sorensen graduated with a Bachelor of Engineering in Mechanical Engineering and Kasper Hohmann graduated with a Bachelor of Engineering in Aeronautical Engineering
- 6. Ryan O Hanlon graduated with a Bachelor of Science in Construction Management and Engineering and also received the Global Programme Coop Award
- 7. Niamh Mehigan, Hayley Cosgrove and Maria Heir, graduated with a Bachelor of Science in Financial Maths.
- 8. Twins Fiona Melvin and Clodagh Melvin both graduated with a Bachelor of Science in Food Science and Health



The FESTA Strategic Career Manager

A new software application, designed to help break the glass ceiling in academia globally, was formally launched at the University of Limerick (UL). The application was developed by Lero, as part of an EU funded gender equality project. FESTA (Female Empowerment in Science & Technology Academia) received EU funding of €4.3m of which €730,000 is allocated to UL. The software application – The FESTA Strategic Career Manager - has been developed at the University of Limerick (UL) in collaboration with six international universities. Following detailed research of the career paths of over 100 female and male academics across Ireland, Denmark, Bulgaria and Turkey, FESTA research has identified 39 potential barriers to gender equality in academia.

Retirees

The Faculty extends best wishes to those who retired in September:

Prof. Michael Pomeroy - School of Engineering
 Prof. Kieran Hodnett - Dept. of Chemical Sciences
 Prof. Catherine Adley - Dept. of Chemical Sciences
 Dr. Donal Heffernan - Dept. of Electronic and Computer Engineering
 Dr. Mark Burke - Dept. of Mathematics and Statistics
 Mr. Paddy O'Regan - Stokes Laboratories / Bernal Institute
 Dr. Michael Coughlan - Dept. of Computer Science & Information Systems

New Staff

Dr. Luis Padrela LBB in Bioprocessing, Dept. of Chemical Sciences
 Dr Neil O'Connor, LBB in Games Development and Playable Media, Dept. of Computer Science & Information Systems
 Dr James Patten, LBB in Computer Games Development, Dept. of Computer Science & Information Systems.
 Dr. Bernard Hartigan, LBB in Product Design Drawing, School of Design
 Dr John Spillane, Lecturer in Construction Management & Engineering, School of Engineering
 Dr Tadhg Kennedy, LBB in Environmental Technology, Dept. of Chemical Sciences
 Dr Maurice Collins, LBB in Biomedical Engineering, School of Engineering
 Anthony O'Carroll, Technical Officer, School of Engineering

Dates for your Diary

BT Young Scientist	10 – 13 January 2018
UL Open Day	13 January 2018
Winter Conferring	15 – 18 January 2018
Spring Semester	22 January – 11 May 2018
S&E Faculty Board	7 February & 28 March 2018
Engineers Week	24 Feb – 2 March 2018
Summer Exam Board	7 June 2018
Graduate Career Information Evenings	22 February – LM116
	8 March – LM077/LM115/LM118
	LM063/LM082/LM120
	12 April – LM099/LM076
Inaugural Lecturers	26 April – LM123/LM068/LM093
	26 January 2018 – Prof Tiziana Margaria
	1 March 2018 – Prof Luuk Van Der Wielen
Summer Exam Board	25 April 2018 – Prof Paul Weaver
Summer Exam Board	7 June 2018
S&E Summer Camps	25 th and 26 th June 2018

Condolences

The Faculty of Science and Engineering extend condolences to the following

Ms Donna Moore, School of Engineering, on the death of her father Mr. Donald (Sonny) Moore.

Dr. Michael English, Department of Computer Science & Information Systems, on the death of his father Mr. Michael English.

Dr Terry McGrail, IComp Director, on the death of his wife Mrs Julie McGrail.

Dr. Martin Wilkinson, Department of Biological Sciences, on the death of his mother Mrs. Margaret Wilkinson.