

Recent Publications – Faculty of Science, Technology, Engineering and Mathematics

BY MEMBERS OF THE STAFF AND BY RESEARCH STUDENTS WORKING UNDER THEIR SUPERVISION

The publications information has been derived from the College's Research Support System. Every effort has been made to ensure that the information is accurate and complete. Please notify the Research Support Systems Administrator (email: rssadmin@tcd.ie) of any errors or omissions which will be corrected in next year's Calendar.

School of Biochemistry and Immunology

BIOCHEMISTRY

Cunningham, Colm, 'Extremes of baseline cognitive function determine the severity of delirium: a population study', *Brain*, 146, 5 (2023), 2132-2141 [A. Tsui, N. Yeo, S.D. Searle, H. Bowden, K. Hoffmann, D. Davis]

'Advancing specificity in delirium: the delirium subtyping initiative', *Alzheimer's and Dementia* (2023), <http://dx.doi.org/10.1002/alz.13419> [E.M.L. Bowman, N.E. Brummel, G.A. Caplan, C. Cunningham, E.L. Cunningham]

'Preclinical and translational models for delirium: recommendations for future research from the NIDUS delirium network', *Alzheimer's and Dementia*, 19, 5 (2023), 2150-2174 [S.M. Vasunilashorn, N. Lunardi, J.C. Newman, R.G. Eckenhoff]

Porter, Richard, 'Effect of breed and diet on the M. longissimus thoracis et lumborum transcriptome of steers divergent for residual feed intake', *Scientific Reports*, 13 (9034) (2023), <http://dx.doi.org/10.1038/s41598-023-35661-z> [K. Keogh, C. McKenna, S.M. Waters, R.K. Porter, C. Fitzsimons, M. McGee]

Ryzewski Strogulski, Nathan, 'Lower and higher volumes of physical exercise build up brain reserves against memory deficits triggered by a head injury in mice', *Experimental Neurology* (2023), <http://dx.doi.org/10.1016/j.expneurol.2023.114352> [A. Kopczynski, R.B. Carteri, M.S. Rodolphi, J.P. Oses, L.O. Portela, N.R. Strogulski]

'Short-term inflammatory biomarker profiles are associated with deficient mitochondrial bioenergetics in lymphocytes of septic shock patients - a prospective cohort study', *Shock (Augusta, Ga.)* (2022), <http://dx.doi.org/10.1097/shk.0000000000002055> [W.L. Nedel, N.R. Strogulski, M.S. Rodolphi, A. Kopczynski, T.H.M. Montes, L.V. Portela]

'Cerebrospinal fluid purinomics as a biomarker approach to predict outcome after severe traumatic brain injury', *Journal of Neurochemistry* (2022), <http://dx.doi.org/10.1111/jnc.15590> [N.R. Strogulski, M.A. Stefani, A.E. Böhmer, G. Hansel, M.S. Rodolphi, D.H. Smith]

'Nandrolone supplementation promotes AMPK activation and divergent ¹⁸[FDG] PET brain connectivity in adult and aged mice', *Neurochemical Research* (2022), <http://dx.doi.org/10.1007/s11064-022-03592-2> [N.R. Strogulski, A. Kopczynski, V.G. de Oliveira, R.B. Carteri, G. Hansel, M.S. Rodolphi]

'Antibiotic therapy does not alter mitochondrial bioenergetics in lymphocytes of patients with septic shock - a prospective cohort study', *Mitochondrion* (2022), <http://dx.doi.org/10.1016/j.mito.2022.07.001> [W.L. Nedel, M.S. Rodolphi, N.R. Strogulski, A. Kopczynski, T.H.M. Montes, J. Abruzzi]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

IMMUNOLOGY

Bowie, Andrew, 'SARM1 regulates NAD⁺-linked metabolism and select immune genes in macrophages', *The Journal of Biological Chemistry*, 300, 2 (2024), 105620 [K.A. Shanahan, G.M. Davis, C.G. Doran, R. Sugisawa, G.P. Davey, A.G. Bowie]

'Molluscum contagiosum virus protein MC008 targets NF- κ B activation by inhibiting ubiquitination of NEMO', *Journal of Virology*, 97, 3 (2023), <http://dx.doi.org/10.1128/jvi.00108-23> [T. Phelan, C. Lawler, A. Pichlmair, M.A. Little, A.G. Bowie, G. Brady]

'PYHIN protein IFI207 regulates cytokine transcription and IRF7 and contributes to the establishment of *K. pneumoniae* infection', *Cell Reports*, 42, 4 (2023), <http://hdl.handle.net/2262/102614> [M. Baran, C. Feriotti, A. McGinley, S.R. Carlile, Z. Jiang, A.G. Bowie]

Fletcher, Jean, 'Metformin has anti-inflammatory effects and induces immunometabolic reprogramming via multiple mechanisms in hidradenitis suppurativa', *The British Journal of Dermatology*, 189, 6 (2023), 730-740 [A. Petrasca, R. Hambly, N. Kearney, C.M. Smith, E.K. Pender, D. Winter, B. Kirby, J.M. Fletcher]

'Metformin treatment of hidradenitis suppurativa: effect on metabolic parameters, inflammation, cardiovascular risk biomarkers, and immune mediators', *International Journal of Molecular Sciences*, 24, 8 (2023), 6969 [R. Hambly, N. Kearney, R. Hughes, J.M. Fletcher, B. Kirby]

'Alterations in immune cell phenotype and cytotoxic capacity in HER2+ breast cancer patients receiving HER2-targeted neo-adjuvant therapy', *British Journal of Cancer*, 129, 6 (2023), 1022-1031 [N. Gaynor, A. Blanco, S.F. Madden, B. Moran, J.M. Fletcher, D.M. Collins]

'Targeting the NLRP3 inflammasome reduces inflammation in hidradenitis suppurativa skin', *The British Journal of Dermatology*, 189, 4 (2023), 447-458 [B. Moran, C.M. Smith, A. Zaborowski, M. Ryan, J.M. Fletcher]

McEntee, Craig, 'Group 2 innate lymphoid cells are detrimental to the control of infection with *Francisella tularensis*', *Journal of Immunology (Baltimore, Md.: 1950)*, 210, 5 (2023), 618-627 [J. Dow, U.M. Cytlak, J. Casulli, C.P. McEntee, C. Smedley, S.H. Hodge]

'Non-canonical inflammasome activation mediates the adjuvanticity of nanoparticles', *Cell Reports Medicine*, 4, 1 (2023), [N. Muñoz-Wolf, R.W. Ward, C.H. Hearnden, F.A. Sharp, E. Creagh, E.C. Lavelle]

Mills, Kingston, 'How immunology can help reverse the pertussis vaccine failure', *Nature Immunology*, 24, 11 (2023), 1779-1780 [K.H.G. Mills]

'Targeting the NLRP3 inflammasome reduces inflammation in hidradenitis suppurativa skin', *The British Journal of Dermatology*, 189, 4 (2023), 447-458 [B. Moran, C.M. Smith, A. Zaborowski, M. Ryan, J.M. Fletcher]

'Nasal vaccines for pertussis', *Current Opinion in Immunology*, 84, 102355 (2023), <http://hdl.handle.net/2262/103858> [P. Schmitt, L. Borkner, S.D. Jazayeri, K.N. McCarthy, K.H. Mills]

'Dimethyl fumarate and 4-octyl itaconate are anticoagulants that suppress tissue factor in macrophages via inhibition of type I interferon', *Nature Communications*, 14, 1 (2023), <http://hdl.handle.net/2262/103898> [T.A.J. Ryan, A. Hooftman, A.M. Rehill, M.D. Johansen]

'Publisher correction: Dimethyl fumarate and 4-octyl itaconate are anticoagulants that suppress tissue factor in macrophages via inhibition of type I interferon (Nature Communications, (2023), 14, 1, (3513), 10.1038/s41467-023-39174-1)', *Nature Communications*, 14, 1 (2023), <http://hdl.handle.net/2262/103899> [T.A.J. Ryan, A. Hooftman, A.M. Rehill, M.D. Johansen, E.C. O'Brien, J.E. Toller-Kawahisa]

'Intranasal covid-19 vaccine induces respiratory memory T cells and protects K18-hACE mice against SARS-CoV-2 infection', *NJP Vaccines*, 8, 1 (2023), <http://hdl.handle.net/2262/103859> [B.K. Diallo, C.N. Chasaide, T.Y. Wong, F.H. Damron, K.H.G. Mills]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

'PYHIN protein IFI207 regulates cytokine transcription and IRF7 and contributes to the establishment of *K. pneumoniae* infection', *Cell Reports*, 42, 4 (2023), <http://hdl.handle.net/2262/102614> [M. Baran, C. Feriotti, A. McGinley, S.R. Carlile, Z. Jiang, A.G. Bowie]

School of Chemistry

Batchelor-McAuley, Chris, 'Defining the onset potential', *Current Opinion in Electrochemistry*, 37 (2023), 101176 [C. Batchelor-McAuley]

'A simple microscopy approach quantifies biomineralized CO₂ in *Coccolithus braarudii* - a calcifying marine phytoplankton', *Environmental Science: Advances*, 2, 4 (2023), 645-651 [T. Morton-Collings, M. Yang, R. Compton]

'A critical evaluation of using physics-informed neural networks for simulating voltammetry: strengths, weaknesses and best practices', *Journal of Electroanalytical Chemistry*, 925 (2022), 116918 [H. Chen, C. Batchelor-McAuley, E. Kätelhön, J. Elliott, R.G. Compton]

'Single calcite particle dissolution kinetics: revealing the influence of mass transport', *ACS Measurement Science Au* (2022), <http://dx.doi.org/10.1021/acsmeasuresciau.2c00025> [X. Fan, C. Batchelor-McAuley, M. Yang, R.G. Compton]

'Does the life cycle stage matter for distinguishing phytoplankton via fluoro-electrochemical microscopy?', *Cell Reports Physical Science*, 4, 1 (2023), 101223 [J. Yu, M. Yang, C. Batchelor-McAuley, S. Barton, R.E.M. Rickaby, H.A. Bouman]

Colavita, Paula, 'Pro-Tects - a novel solution to the challenge of biologic instability', *ONdrugDelivery*, 2023, 142 (2023), 84-88 [S. Smith, E. Scanlan, P. Colavita]

'Effects of N-functional groups on the electron transfer kinetics of VO²⁺/VO₂⁺ at carbon: decoupling morphology from chemical effects using model systems', *Electrochimica Acta*, 475, 143640 (2024), 11 [M. Costa de Oliveira, C. Schröder, T.S. Perova, K. McKelvey, P.E. Colavita]

'Probing changes in the local structure of active bimetallic Mn/Ru oxides during oxygen evolution', *ACS Applied Energy Materials*, 6 (2023), <https://doi.org/10.1021/acsaem> [M.P. Browne, C. Dominguez, C. Kaplan, M.E.G. Lyons, E. Fonda, P.E. Colavita]

Delaney, Colm, 'Two-photon polymerization of sugar responsive 4D microstructures', *Advanced Functional Materials*, 33, 39 (2023), 10.1002/adfm.202213947 [A. Ennis, D. Nicdao, S. Kolagatla, L. Dowling, Y. Tskhe, A.J. Thompson]

'Controlled degradation of polycaprolactone-based micropillar arrays', *Biomaterials Science*, 11, 9 (2023), 3077-3091 [N. Geoghegan, M. O'Loughlin, C. Delaney, K.D. Rochfort, M. Kennedy, S. Kolagatla]

'Liquid crystalline network microstructures for stimuli responsive labels with multi-level encryption', *Small* (2023), <http://dx.doi.org/10.1002/smll.202306802> [S. Donato, S. Nocentini, D. Martella, S. Kolagatla, D.S. Wiersma, C. Delaney]

'Design of statistical copolypeptides as multipurpose hydrogel resins in 3D printing', *Advanced Functional Materials*, 33, 52 (2023), <http://dx.doi.org/10.1002/adfm.202306710> [R.D. Murphy, C. Delaney, S. Kolagatla, L. Florea, C.J. Hawker, A. Heise]

Dunne, Peter, 'Introducing materials science: experimenting with magnetic nanomaterials in the undergraduate chemistry laboratory', *Journal of Chemical Education*, 100, 6 (2023), 2387-2393 [A. Regan, J. O'Donoghue, C. Poree, P.W. Dunne]

Florea, Larisa, 'Liquid crystalline network microstructures for stimuli responsive labels with multi-level encryption', *Small* (2023), <http://dx.doi.org/10.1002/smll.202306802> [S. Donato, S. Nocentini, D. Martella, S. Kolagatla, D.S. Wiersma, L. Florea]

'Controlled degradation of polycaprolactone-based micropillar arrays', *Biomaterials Science*, 11, 9 (2023), 3077-3091 [N. Geoghegan, M. O'Loughlin, C. Delaney, K.D. Rochfort, M. Kennedy, Kolagatla, L. Florea]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

- 'New frontiers in materials and technologies for 3D two photon polymerization', *Advanced Functional Materials*, 33, 39 (2023), <http://dx.doi.org/10.1002/adfm.202305697> [L. Florea, E. Blasco, V. Mattoli]
- 'Design of statistical copolypeptides as multipurpose hydrogel resins in 3D printing', *Advanced Functional Materials*, 33, 52 (2023), <http://dx.doi.org/10.1002/adfm.202306710> [R.D. Murphy, C. Delaney, S. Kolagatla, L. Florea, C.J. Hawker, A. Heise]
- Gounko, Iouri, 'Layered double hydroxide/boron nitride nanocomposite membranes for efficient separation and photodegradation of water-soluble dyes', *Journal of Materials Chemistry A*, 11, 23 (2023), 12266-12281 [I. Coogan, N.G. Domacnech, D. Mc Ginley, T. Simonian, A. Rafferty, Y.K. Gun'ko]
- 'XRD and spectroscopic investigations of ZIF-microchannel glass plates composites', *Materials*, 16, 2410 (2023), 1-15 [J. Narimbi, S. Balakrishnan, T.S. Perova, G. Dee, G.F. Swiegers, Y.K. Gun'ko]
- Gunnlaugsson, Thorfinnur, 'Formation of lanthanide luminescent di-metallic helicates in solution using a bis-tridentate (1,2,3-triazol-4-yl)-picolinamide (tzpa) ligand', *Chemical Communications*, 59, 40 (2023), 6044-6047 [I.N. Hegarty, D.E. Barry, J.P. Byrne, O. Kotova, T. Gunnlaugsson]
- 'Synthesis of 3,4-dihydroxy-1,8-naphthalimides with inbuilt catechol and crown ether functionalities', *Organic and Biomolecular Chemistry*, 21, 29 (2023), 5970-5976 [E.E. Rudebeck, T.D. Ashton, A.F. Henwood, T. Gunnlaugsson, F.M. Pfeffer]
- 'Tripodal 1,3,5-benzenetricarboxamide ligand with dipicolinic acid units and its binding with Eu(III) ions', *Supramolecular Chemistry*, 34, 1 (2022), 10-19 [N. Klangwart, C. Ruijs, C.S. Hawes, T. Gunnlaugsson, O. Kotova]
- 'Photoinduced electron transfer (PeT) based fluorescent probes for cellular imaging and disease therapy', *Chemical Society Reviews*, 52, 7 (2023), 2322-2357 [H. Niu, J. Liu, H.M. O'Connor, T. Gunnlaugsson, T.D. James, H. Zhang]
- 'Synthesis of α -amino acid derived (1,2,3-triazol-4-yl)-picolinamide (tzpa) ligands and their corresponding luminescent Tb(III) complexes', *Organic Chemistry Frontiers*, 10, 8 (2023), 1915-1926 [I.N. Hegarty, C.S. Hawes, T. Gunnlaugsson]
- 'Time-resolved fluorescence imaging with color-changing, "turn-on/turn-on" AIE nanoparticles', *Chem*, 10, 2 (2024), 578-599 [A.F. Henwood, N. Curtin, S. Estalayo-Adrian, A.J. Savyasachi, T.A. Gudmundsson, T. Gunnlaugsson]
- Lyons, Michael, 'New analytical expressions of concentrations in packed bed immobilized cell photobioreactor', *Electrochem*, 4 (2023), 447-449 [P. Jeyabarathi, M. Abukhaled, M. Kannan, L. Rajendran, M.E.G. Lyons]
- 'Theoretical study of exothermic explosions in a slab using Akbari'-Ganji's Method', *Electrochem*, 4, 3 (2023), 424-434 [R. Vanaja, P. Jeyabarathi, L. Rajendran, M.E.G. Lyons]
- 'What is fundamentally interesting to fundamental electrochemists?', *Current Opinion in Electrochemistry*, 41 (2023), 101354 [C. Batchelor-McAuley, M.E.G. Lyons]
- 'Formal analysis of isothermal reaction/diffusion in a defined general geometry', *International Journal of Electrochemical Science*, 18 (2023), 100296 [M.E.G. Lyons, R. Joy Salomi, L. Rajendran]
- 'Probing changes in the local structure of active bimetallic Mn/Ru oxides during oxygen evolution', *ACS Applied Energy Materials*, 6 (2023), <https://doi.org/10.1021/acsaem> [M.P. Browne, C. Dominguez, C. Kaplan, M.E.G. Lyons, E. Fonda, P.E. Colavita]
- 'Homogeneous catalysis of electrochemical reactions: the steady state current and turnover frequency', *Journal of Physical Chemistry C*, 127 (2023), 11517-11525 [B. Manimegalai, R. Swaminathan, M.E.G. Lyons, L. Rajendran]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

- 'Theoretical analysis of amperometric response towards PPO based rotating disk bioelectrodes: Taylor series and hyperbolic function method', *International Journal of Electrochemical Science*, 18 (2023), 100083 [V. Silambuselvi, S. Rekha, R. Usha Rani, L. Rajendran, K. Angaleeshwari, M.E.G. Lyons]
- McGouran, Joanna**, 'Deploying solid-phase synthesis to access thymine-containing nucleoside analogs that inhibit DNA repair nuclease SNM1A', *Organic and Biomolecular Chemistry*, 21, 28 (2023), 5873-5879 [C.A. Arbour, E.M. Fay, J.F. McGouran, B. Imperiali]
- 'Exploring the binding pockets of the DNA damage repair enzyme SNM1A through nucleobase modification', *Results in Chemistry*, 5, 100939 (2023), <http://dx.doi.org/10.1016/j.rechem.2023.100939> [E.M. Fay, J.F. McGouran]
- 'Rapid capture of small peptide binders', *Nature Reviews Chemistry*, 7, 8 (2023), 534-535 [S.H. Calvert, J.F. McGouran]
- 'Two-step validation approach for tools to study the DNA repair enzyme SNM1A', *ChemBioChem*, 24, 13 (2023), <http://dx.doi.org/10.1002/cbic.202200756> [E.M. Fay, A. Newton, M. Berney, A.H. El-Sagheer, T. Brown, J.F. McGouran]
- Nicolosi, Valeria**, 'The effect of TiO₂ and GeO₂ composite mixing on the behavior of macroporous Li-ion battery anode materials', *Journal of the Electrochemical Society*, 170, 12 (2023), <http://dx.doi.org/10.1149/1945-7111/ad1371> [A. Carroll, A. Grant, Y. Zhang, U. Gulzar, D. Douglas-Henry, V. Nicolosi]
- 'Cobalt oxide 2D nanosheets formed at a polarized liquid|liquid interface toward high-performance Li-ion and Na-ion battery anodes', *ACS Applied Materials and Interfaces*, 15, 50 (2023), 58320-58332 [B. Konkena, C. Kalapu, H. Kaur, A. Holzinger, H. Geaney, V. Nicolosi]
- 'Optimization of piezo-driven jet valve dispensing process for the geometrical control of printed sensors based on silver and MXene inks', *IEEE Transactions on Instrumentation and Measurement*, 73 (2024), 9500211 [M. Borghetti, V. Nicolosi, E. Sardini, M. Serpelloni, D. Spurling]
- 'Layered double hydroxide/boron nitride nanocomposite membranes for efficient separation and photodegradation of water-soluble dyes', *Journal of Materials Chemistry A*, 11, 23 (2023), 12266-12281 [I. Coogan, N.G. Domacnech, D. Mc Ginley, T. Simonian, A. Rafferty, V. Nicolosi]
- 'Laser-powder bed fusion of silicon carbide reinforced 316L stainless steel using a sinusoidal laser scanning strategy', *Journal of Materials Research and Technology*, 18 (2022), 2672-2698 [A. Mussatto, R. Groarke, R.K. Vijayaraghavan, M.A. Obeidi, P.J. McNally, V. Nicolosi]
- 'When MXenes meet terahertz radiation', *Nature Photonics*, 17, 7 (2023), 556-557 [J. Liu, V. Nicolosi]
- 'Tantalum nitride-enabled solar water splitting with efficiency above 10%', *Advanced Energy Materials*, 13, 36 (2023), <http://dx.doi.org/10.1002/aenm.202301327> [Y. Pihosh, V. Nandal, T. Higashi, R. Shoji, R. Bekarevich, V. Nicolosi]
- 'Design and advanced manufacturing of electromagnetic interference shielding materials', *Materials Today*, 66 (2023), 245-272 [J. Liu, M-Y. Yu, Z-Z. Yu, V. Nicolosi]
- 'Realization of electron-deficient Ru sites via Co₄N coupling for synergistically enhanced alkaline hydrogen evolution', *Journal of Materials Chemistry A*, 11, 41 (2023), 22147-22153 [M. Xing, X. Guo, W. Yuan, W. Chen, M. Du, V. Nicolosi]
- 'Qualitative study on the perception of combustible cigarettes, e-cigarettes and heated tobacco cigarettes among pregnant women', *Journal of Addictive Diseases* (2023), [M. Maglia, M.C. Quattropani, R. Polosa, A. Panassidi, M. Caruso, V. Nicolosi]
- 'Inhibition of vacuum sublimation artefacts for (Scanning) Transmission Electron Microscopy (S)TEM of sulphur samples via encapsulation', *Open Research Europe*, 2 (2022) [O. Ronan, V. Nicolosi, C. Downing]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

'MXene functionalized collagen biomaterials for cardiac tissue engineering driving iPSC-derived cardiomyocyte maturation', *NPJ 2D Materials and Applications*, 7, 1 (2023) [G.A. Asaro, M. Solazzo, M. Suku, D. Spurling, K. Genoud, J.G. Gonzalez, V. Nicolosi]

'The potential of MXene materials as a component in the catalyst layer for the oxygen evolution reaction', *Current Opinion in Electrochemistry*, 34 (2022), [M.P. Browne, D. Tyndall, V. Nicolosi]

'Constructing hierarchical porous structure in micro-sized silicon/carbon nanotubes composite anode with LiF-rich solid-electrolyte interfaces for highly stable lithium-ion batteries', *JPhys Materials*, 6, 1 (2023) [M. Liang, J. Liu, A. O'Shea, V. Nicolosi]

'Water-soluble binders that improve electrochemical sodium-ion storage properties in a $\text{NaTi}_2(\text{PO}_4)_3$ anode', *Journal of the Electrochemical Society*, 170, 5 (2023) [Y. Zhang, A. Grant, A. Carroll, U. Gulzar, M. Ferguson, V. Nicolosi]

'Single walled carbon nanotube functionalisation in printed supercapacitor devices and shielding effect of Tin(II) oxide', *Electrochimica Acta*, 448 (2023), [S. Ryan, M.P. Browne, A. Zhussupbekova, D. Spurling, L. McKeown, V. Nicolosi]

'Expanding the perovskite periodic table to include chalcogenide alloys with tunable band gap spanning 1.5-1.9 eV', *Advanced Functional Materials*, 33, 41 (2023), [I. Sadeghi, J. Van Sambeek, T. Simonian, M. Xu, K. Ye, V. Nicolosi]

'Laser-powder bed fusion in-process dispersion of reinforcing ceramic nanoparticles onto powder beds via colloid nebulisation', *Materials Chemistry and Physics*, 287 (2022), [A. Mussatto, R. Groarke, R.K. Vijayaraghavan, M.A. Obeidi, R. MacLoughlin, V. Nicolosi]

'Nanostructured tantalum nitride for enhanced solar water splitting', *ACS Energy Letters*, 8, 5 (2023), 2106-2112 [Y. Pihosh, V. Nandal, R. Shoji, R. Bekarevich, T. Higashi, V. Nicolosi]

'Tailoring breathing behavior of solid electrolyte interphases unraveled by cryogenic transmission electron microscopy', *Advanced Energy Materials*, 13, 21 (2023), [X. Guo, X. Du, V. Nicolosi, B. Zhang, Y. Zhu]

'Surface reduced manganese states as a source of oxygen reduction activity in BaMnO_3 ', *Advanced Functional Materials*, 33, 24 (2023) [L. Hughes, A. Roy, C. Downing, M.P. Browne, A. Zhussupbekova, V. Nicolosi]

'High aspect-ratio germanium-tin alloy nanowires: potential as highly efficient Li-ion battery anodes', *Advanced Materials Interfaces*, 9, 29 (2022) [A. Garcia-Gil, S. Biswas, D. McNulty, A. Roy, K.M. Ryan, V. Nicolosi, J.D. Holmes]

'Additive-free silver nanoparticle ink development using flow-based laser ablation synthesis in solution and aerosol jet printing', *Chemical Engineering Journal*, 449 (2022) [S.P. Sreenilayam, A. McCarthy, L. McKeon, O. Ronan, R. McCann, V. Nicolosi]

'Understanding the effect of MXene in a TMO/MXene hybrid catalyst for the oxygen evolution reaction', *NPJ 2D Materials and Applications*, 7, 1 (2023) [D. Tyndall, L. Gannon, L. Hughes, J. Carolan, S. Pinilla, V. Nicolosi]

'Structural characterization of BaZrS(3-y)Sey perovskite thin films via scanning transmission electron microscopy', *Microscopy and Microanalysis: the Official Journal of Microscopy Society of America, Microbeam Analysis Society, Microscopical Society of Canada*, 29, 1 (2023), 1731-1732 [T. Simonian, M. Xu, I. Sadeghi, J. Van Sambeek, K. Ye, V. Nicolosi]

'Increasing volumetric capacity diminishes rate performance in Li-ion battery electrodes', *Journal of the Electrochemical Society*, 170, 9 (2023), [D.V. Horvath, V. Nicolosi, J.N. Coleman]

'3D printing of multifunctional conductive polymer composite hydrogels', *Advanced Functional Materials*, 33, 37 (2023), <http://hdl.handle.net/2262/103944> [J. Liu, J. Garcia, L.M. Leahy, R. Song, V. Nicolosi]

'Transparent conductors printed from grids of highly conductive silver nanosheets', *ACS Applied Materials and Interfaces*, 15, 33 (2023), 39864-39871 [A.G. Kelly, S. Sheil, D.A. Douglas-Henry, E. Caffrey, C. Gabbett, V. Nicolosi]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

- 'Interconnected metallic membrane enabled by mxene inks toward high-rate anode and high-voltage cathode for Li-ion batteries', *Advanced Function Materials* (2023), <http://hdl.handle.net/2262/102595> [C.J. Zhang, W. Zhao, S-H. Park, T. Guo, S. Deng, V. Nicolosi]
- 'Isolation of pseudocapacitive surface processes at monolayer MXene flakes reveals delocalized charging mechanism', *Nature Communications*, 14, 1 (2023), <http://dx.doi.org/10.1038/s41467-023-35950-1> [M. Brunet Cabre, D. Spurling, P. Martinuz, K. McKelvey]
- 'Demonstrating the source of inherent instability in NiFe LDH-based OER electrocatalysts', *Journal of Materials Chemistry A* (2023), <http://dx.doi.org/10.1039/d2ta07261k> [D. Tyndall, M.J. Craig, L. Gannon, M.P. Browne, V. Nicolosi]
- 'Additive manufacturing of Li-ion batteries: a comparative study between electrode fabrication processes', *Advanced Energy Materials* (2023), <http://hdl.handle.net/2262/103945> [S. Pinilla, S. Ryan, L. McKeon, M. Lian, S. Vaesen, V. Nicolosi]
- 'Two-dimensional chiroptically active copper oxide nanostructures', *Journal of Physical Chemistry C*, 126, 44 (2022), 18980-18987 [A. Coogan, L. Hughes, F. Purcell-Milton, S. Cardiff, V. Nicolosi, Y.K. Gun'Ko]
- 'Templated synthesis of SiO₂ nanotubes for lithium-ion battery applications: an in situ (scanning) transmission electron microscopy study', *ACS Omega* (2022), <http://dx.doi.org/10.1021/acsomega.2c06298> [O. Ronan, A. Roy, S. Ryan, L. Hughes, C. Downing, V. Nicolosi]
- 'Amorphous 2D-nanoplatelets of red phosphorus obtained by liquid-phase exfoliation yield high areal capacity Na-ion battery anodes', *Advanced Energy Materials*, 13, 6 (2023), <http://hdl.handle.net/2262/102240> [H. Kaur, B. Konkena, C. Gabbett, R. Smith, M. McCrystall, V. Nicolosi]
- '4D printing of MXene hydrogels for high-efficiency pseudocapacitive energy storage', *Nature Communications*, 13, 1 (2022), <http://dx.doi.org/10.1038/s41467-022-34583-0> [K. Li, J. Zhao, A. Zhussupbekova, C.E. Shuck, L. Hughes, V. Nicolosi]
- 'Liquid processing of interfacially grown iron-oxide flowers into 2D-platelets yields lithium-ion battery anodes with capacities of twice the theoretical value', *Small* (2022), <http://hdl.handle.net/2262/101346> [B. Konkena, H. Kaur, R. TIAN, C. Gabbett, M. McCrystall, V. Nicolosi]
- O'Brien, John**, 'Synthesis by diastereomeric resolution, biochemical evaluation and molecular modelling of chiral 3-hydroxyl b-lactam microtubule-targeting agents for the treatment of triple negative breast and chemoresistant colorectal cancers', *Bioorganic Chemistry*, 141 (2023), <http://dx.doi.org/10.1016/j.bioorg.2023.106877> [E.C. McLoughlin, B. Twamley, J.E. O'Brien, P. Hannon Barroeta, D.M. Zisterer, M.J. Meegan]
- O'Donoghue, John**, 'Current Chemistry Investigators (CCI): development and evaluation of a scientist in a classroom electrochemistry workshop', *Journal of Chemical Education*, 100, 10 (2023), 4138-4146 [J. O'Donoghue, N. Garcia Domenech, F. McArdle, M. Connolly, Y. Lang, N. McGoldrick]
- 'Introducing materials science: experimenting with magnetic nanomaterials in the undergraduate chemistry laboratory', *Journal of Chemical Education*, 100, 6 (2023), 2387-2393 [A. Regan, J. O'Donoghue, C. Poree, P.W. Dunne]
- Rozas, Isabel**, 'Novel design of dual-action Pt(IV) anticancer pro-drugs based on cisplatin and derivatives of the tyrosine kinase inhibitors imatinib and nilotinib', *Dalton Transactions*, 52, 39 (2023), 14110-14122 [D.F. Beirne, B. Farkas, C. Donati, V. Gandin, I. Rozas, T. Velasco-Torrijos]
- 'A tale of two proteases: MPro and TMPRSS2 as targets for covid-19 therapies', *Pharmaceuticals*, 16, 6 (2023), [B. Farkas, M. Minneci, M. Misevicius, I. Rozas]
- 'Green synthesis of nitroaryl thioureas: towards an improved preparation of guanidinium DNA binders', *Bioorganic and Medicinal Chemistry Letters*, 90 (2023), [M. Minneci, M. Misevicius, I. Rozas]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

- 'Simultaneous hydrogen bonds with different binding modes: the acceptor-rules - but the donor 'chooses', *Chemistry-A European Journal*, 29, 21 (2023), <http://dx.doi.org/10.1002/chem.202203577> [M.R. Garcia, I. Iribarren, I. Rozas, C. Trujillo]
- Scanlan, Eoin, 'Glycosylated quantum dots as fluorometric nanoprobe for trehalase', *Organic and Biomolecular Chemistry*, 21, 14 (2023), 2905-2909 [D.D. Barnes, V. Kuznetsova, A. Vishneratina, F. Purcell-Milton, M.A. Baranov, E.M. Scanlan]
- 'Pro-Tects - a novel solution to the challenge of biologic instability', *ONdrugDelivery*, 2023, 142 (2023), 84-88 [S. Smith, E. Scanlan, P. Colavita]
- 'Traceless thioacid-mediated radical cyclization of 1,6-dienes', *Journal of Organic Chemistry*, 88, 14 (2023), 10020-10026 [D.M. Lynch, M.D. Nolan, C. Williams, L. Van Dalsen, C. Trujillo, E.M. Scanlan]
- 'Nanomole-scale photochemical thiol-ene chemistry for high-throughput late-stage diversification of peptide macrocycles', *Peptide Science*, 116, 1 (2024), <http://dx.doi.org/10.1002/pep2.24310> [M.D. Nolan, M. Schaettel, E.M. Scanlan, A.L. Nielsen]
- 'Structure snapshots reveal the mechanism of a bacterial membrane lipoprotein N-acyltransferase', *Science Advances*, 9, 26 (2023), <http://dx.doi.org/10.1126/sciadv.adf5799> [L. Smithers, O. Degtjarik, D. Weichert, C-Y. Huang, C. Boland, E.M. Scanlan]
- Senge, Mathias, 'Antitumor immunity mediated by photodynamic therapy using injectable chitosan hydrogels for intratumoral and sustained drug delivery', *Biomacromolecules*, 25, 1 (2024), 24-42 [P. Gierlich, C. Donohoe, K. Behan, D.J. Kelly, M.O. Senge, L.C. Gomes-Da-Silva]
- 'A heterometallic porphyrin dimer as a potential quantum gate: magneto-structural correlations and spin coherence properties', *Angewandte Chemie-International Edition*, 62, 48 (2023), <http://hdl.handle.net/2262/104421> [D. Ranieri, A. Privitera, F. Santanni, K. Urbanska, R. Sessoli]
- 'The role of aromaticity in the cyclization and polymerization of alkyne-substituted porphyrins on Au(111)', *Nature Chemistry* (2023), <http://hdl.handle.net/2262/104410> [N. Cao, M.O. Senge, J.V. Barth, A. Riss]
- 'Structures of S-(pyridin-2-yl) 4-nitrobenzothioate, S-(pyridin-2-yl) 4-methylbenzothioate and S-(pyridin-2-yl) 4-methoxybenzothioate: building blocks for low-symmetry multifunctional tetrapyrroles', *Acta Crystallographica Section E: Crystallographic Communications*, 79, Pt 3 (2023), 157-162 [H.C. Sample, B. Twamley, M.O. Senge]
- 'Structure of (R,R)-4-bromo-2-{4-[4-bromo-1-(4-toluene-sulfonyl)-1H-pyrrol-2-yl]-1,3-di-nitro-but-2-yl}', *Acta Crystallographica Section E: Crystallographic Communications*, 79 (2023), 592-595 [H.C. Sample, B. Twamley, M.O. Senge]
- 'Bicyclo[1.1.1]pentane embedded in porphyrinoids', *Angewandte Chemie-International Edition*, 62, 26 (2023), <http://dx.doi.org/10.1002/anie.202302771> [N. Grover, M. Cheveau, B. Twamley, C.J. Kingsbury, C.M. Mattern, M.O. Senge]
- 'Supramolecular chirogenesis in a sterically hindered porphyrin: a critical theoretical analysis', *Chemistry-A European Journal*, 29, 49 (2023), <http://hdl.handle.net/2262/104416> [I. Osadchuk, H-E. Luts, V. Borovkov, M.O. Senge]
- 'On-surface synthesis of polyphenylene wires comprising rigid aliphatic bicyclo[1.1.1]pentane isolator units', *Angewandte Chemie-International Edition*, 62, 19 (2023), <http://hdl.handle.net/2262/104422> [B. Yang, K. Niu, N. Cao, N. Grover, J.V. Barth, M.O. Senge]
- Watson, Graeme, 'Cu₂SiSe₃ as a promising solar absorber: harnessing cation dissimilarity to avoid killer antisites', *Journal of Materials Chemistry A*, 11, 27 (2023), 14833-14839 [A. Nicolson, S.R. Kavanagh, C.N. Savory, G.W. Watson, D.O. Scanlon]
- 'Size-dependent activity of carbon dots for photocatalytic H₂ generation in combination with a molecular Ni cocatalyst', *Nanoscale*, 15, 38 (2023), 15775-15784 [C. Casadevall, A. Lage, M. Mu, H. Greer, D. Antón-García, G. Watson]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

'Solvation effects in the electrochemical reduction of hydrogen cyanide for ambient ammonia production on a Ni cathode', *Catalysis Science and Technology*, 14, 4 (2024), 1043-1051 [K. Brennan, G.W. Watson, M. García-Melchor]

School of Computer Science and Statistics

COMPUTER SCIENCE

Ahmad, Khurshid, 'Speech emotion recognition systems: a cross-language, inter-racial, and cross-gender comparison', *Future of information and communication conference (FICC)*, ed Kohei Arai, San Francisco, Springer Nature (2023), 375-390 [D. Datta, W. Jiang, C. Vogel, K. Ahmad]
'Agreement and disagreement between major emotion recognition systems', *Knowledge-Based Systems*, 276 (2023), 110579 [C. Vogel, K. Ahmad]

Botterweck, Goetz, 'Learning graph configuration spaces with graph embedding in engineering domains', *International conference on machine Learning, Optimization, and Data science (LOD 2023)* (2024), 334-348 [M. Mittermaier, T. Saber, G. Botterweck]

Bouroche, Melanie, 'Can connected autonomous vehicles improve mixed traffic safety without compromising efficiency in realistic scenarios?', *IEEE Transactions on Intelligent Transportation Systems*, 24, 6 (2023), 6674-6689 [M. Garg, M. Bourouche]

'Multi-agent reinforcement learning for safe lane changes by connected and autonomous vehicles: a survey', *AI Communications* (2023), <http://hdl.handle.net/2262/103857> [B. Hegde, M. Bourouche]

'Design of AI-based lane changing modules in connected and autonomous vehicles: a survey', *Twelfth international workshop on Agents in Traffic and Transportation, ATT 2022*, Vienna (2022), <http://hdl.handle.net/2262/102027> [B. Hegde, M. Bourouche]

Bresnihan, Nina, 'Pytorch-supporting learners over the bridge from blocks to text', *Proceedings of the 2023 conference on United Kingdom and Ireland Computing Education Research, UKICER '23*, Swansea, Wales, Association for Computing Machinery (2023), 1 [G. Strong, B. North, S. Fiori, B. Gillespie, N. Bresnihan]

Butterfield, Andrew, 'Applying formal verification to an open-source real-time operating system', *Theories of programming and formal methods*, eds J.P. Bowen, Q.Li, Q. Xu, Shanghai, China, Springer Nature Switzerland (2023), 348-366 [A. Butterfield, F. Tuong]

Conlan, Owen, 'Extracting and understanding call-to-actions of push-notifications', *International conference on applications of natural language to information systems, moving boundaries in translation studies* (2022), 147-159 [B. Esteves, K. Fraser, S. Kulkarni, O. Conlan]

'Extracting and understanding call-to-actions of push-notifications', *Natural language processing and information systems: 27th international conference on applications of natural language to information systems, NLDB 2022*, Valencia, Spain, June 15–17, 2022, *Moving boundaries in translation studies* (2022), 147 [O. Conlan]

'Weight stigma responses: patient perceptions and experiences of interactions with healthcare professionals across healthcare settings - a qualitative evidence synthesis protocol', *International Journal of Qualitative Methods*, 21 (2022), 16094069221102710 [L. Ryan, R. Coyne, C. Heary, S. Birney, M. Crotty, O. Conlan]

'Exploring the content of the STAND-VR intervention: a qualitative interview study', *PLoS Digital Health*, 2, 3 (2023), e0000210 [D. Healy, E. Carr, O. Conlan, A.C. Browne, J.C. Walsh]

'Weight stigma experienced by patients with obesity in healthcare settings: a qualitative evidence synthesis', *Obesity Reviews*, 24, 10 (2023), e13606 [L. Ryan, R. Coyne, C. Heary, S. Birney, M. Crotty, O. Conlan]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

'Onboarding stages and scrutable interaction: how experts envisioned explainability in proactive time management assistants', *Proceedings of the 11th international conference on human-agent interaction, the palgrave handbook of digital and public humanities* (2023), 306-315 [J. Jeromela, O. Conlan]

'A big data smart agricultural system: recommending optimum fertilisers for crops', *International Journal of Information Technology*, 15, 1 (2023), 249-265 [V.M. Ngo, T-V.T. Duong, T-B-T. Nguyen, C.N. Dang, O. Conlan]

'Classification and impact of call-to-actions in push-notifications', *International conference on advances in mobile computing and multimedia intelligence, The Palgrave handbook of digital and public humanities* (2022), 3-17 [S. Walsh, K. Fraser, O. Conlan]

'Older adults' experiences and perceptions of immersive virtual reality: systematic review and thematic synthesis', *JMIR Serious Games*, 10, 4 (2022), e35802 [D. Healy, A. Flynn, O. Conlan, J. McSharry, J. Walsh]

'ACM Hypertext 2021: conference report', *ACM SIGWEB newsletter*, 2022, Winter (2022), 1-5 [O. Conlan, E. Herder]

'A data-driven approach to public-focused digital narratives for cultural heritage', *The Palgrave handbook of digital and public humanities* (2022), 337-356 [N. Basaraba, J. Edmond, O. Conlan, P. Arnds]

'Voicing suggestions and enabling reflection: results of an expert discussion on proactive assistants for time management', *The 5th international conference on conversational user interfaces*, eds M. Lee, C. Munteanu, M. Porcheron, J. Trippas, S. Theres Völkel, Eindhoven, The Netherlands, Association for Computing Machinery, New York, NY, United States (2023), 1-6 [J. Jeromela, O. Conlan]

'First workshop on context representation in user modelling', *UMAP '23 adjunct: adjunct proceedings of the 31st ACM conference on user modeling, adaptation and personalization*, Limassol, Cyprus, Association for Computing Machinery, New York, NY, USA (2023), 174-176 [J. Jeromela, D. Barma, H. Zaal, A. Debnath, A. Akbar, J. Kay, O. Conlan]

Di Liberto, Giovanni, 'Seeing a talking face matters: gaze behavior and the auditory-visual speech benefit in adults' cortical tracking of infant-directed speech', *Journal of Cognitive Neuroscience*, 35, 11 (2023), 1741-1759 [S.H.J. Tan, M. Kalashnikova, G.M. Di Liberto, M.J. Crosse, D. Burnham]

'Atypical speech production of multisyllabic words and phrases by children with developmental dyslexia', *Developmental Science*, 27, 1 (2024), e13428 [M. Keshavarzi, G.M. Di Liberto, F. Gabrielczyk, A. Wilson, A. Macfarlane, U. Goswami]

'Increased top-down semantic processing in natural speech linked to better reading in dyslexia', *NeuroImage*, 273 (2023), 120072 [A. Klimovich-Gray, G. Di Liberto, L. Amoroso, A. Barrena, E. Agirre, N. Molinaro]

'Cortical tracking of sung speech in adults vs infants: a developmental analysis', *Frontiers in Neuroscience*, 16 (2022), 842447 [A. Attaheri, D. Panayiotou, A. Phillips, Á. Ni Choisdealbha, G.M. Di Liberto, S. Rocha]

'Seeing a talking face matters: the relationship between cortical tracking of continuous auditory-visual speech and gaze behaviour in infants, children and adults', *NeuroImage*, 256 (2022), 119217 [S.H.J. Tan, M. Kalashnikova, G.M. Di Liberto, M.J. Crosse, D. Burnham]

'The impact of temporal synchronisation imprecision on TRF analyses', *Journal of Neuroscience Methods*, 385 (2023), 109765 [S. Carta, A.M.A. Mangiacotti, A.L. Valdes, R.B. Reilly, F. Franco, G.M. Di Liberto]

Dingliana, John, 'Virtual rehabilitation for patients with osteoporosis: translating physiotherapy exercises into exergames', *Irish Machine Vision and Image Processing Conference 2023 (IMVIP2023)*, University of Galway, Ireland (2023), 1-8 [E. Thuillier, J. Carey, B. Whelan, J. Dingliana, M. Dempsey, S. Biggins]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

- Doherty, Gavin**, 'Exploring how politeness impacts the user experience of chatbots for mental health support', *International Journal of Human-Computer Studies* (2024) [R. Bowman, O. Cooney, J. Newbold, A. Thieme, L. Clark, G. Doherty]
- 'Between rhetoric and reality: real-world barriers to uptake and early engagement in digital mental health interventions', *ACM Transactions on Computer-Human Interaction*, 31, 2 (2024), 1-59 [J. Jardine, C. Nadal, S. Robinson, A. Enrique, M. Hanratty, G. Doherty]
- 'Deep learning for the prediction of clinical outcomes in internet-delivered CBT for depression and anxiety', *PLoS ONE*, 18, 11 (2023), e0272685 [N. Prasad, I. Chien, T. Regan, A. Enrique, J. Palacios, G. Doherty]
- 'Using thematic analysis in healthcare HCI at CHI: a scoping review', *CHI conference on human factors in computing systems (CHI '23)*, Hamburg, Germany, ACM (2023), 1-18 [R. Bowman, C. Nadal, K. Morrissey, A. Thieme, G. Doherty]
- 'A narrative review of factors affecting the implementation of privacy and security practices in software development', *ACM Computing Surveys*, 55, 14s (2023), <https://doi.org/10.1145/3589951> [L. Nurgalieva, A. Frik, G. Doherty]
- 'Patient acceptance of self-monitoring on smartwatch in a routine digital therapy: a mixed-methods study', *ACM Transactions on Computer-Human Interaction*, 31, 1 (2024), [C. Nadal, C. Earley, A. Enrique, C. Sas, D. Richards, G. Doherty]
- Dusparic, Ivana**, 'A survey on securing federated learning: Analysis of applications, attacks, challenges, and trends', *IEEE Access*, 11 (2023), 41928-41953 [H.N.C. Neto, J. Hribar, I. Dusparic, D.M.F. Mattos, N.C. Fernandes]
- 'Adaptive height optimisation for cellular-connected UAVs: a deep reinforcement learning approach', *IEEE Access*, 11 (2023), 5966-5980 [E. Fonseca, B. Galkin, R. Amer, L.A. DaSilva, I. Dusparic]
- Graham, Yvette**, 'Exploiting rich textual user-product context for improving personalised sentiment analysis', *Findings of the 61st annual meeting of the Association for Computational Linguistics, ACL 2023*, Toronto, Canada, Association for Computational Linguistics (2023), 1419-1429 [C. Lyu, L. Yang, Y. Zhang, Y. Graham, J. Foster]
- 'Is a video worth nxn images? A highly efficient approach to transformer-based video question answering', *Proceedings of the third workshop on simple and efficient natural language processing, ACL 2023*, Association for Computational Linguistics (2023), 183-189 [C. Lyu, T. Ji, Y. Graham, J. Foster]
- 'Semantic-aware dynamic retrospective-prospective reasoning for event-level video question answering', *Proceedings of the 61st annual meeting of the association for computational linguistics: student research workshop*, (2023), 50-56 [C. Lyu, T. Ji, Y. Graham, J. Foster]
- 'Memento 3.0: an enhanced lifelog search engine for LSC'23', *Proceedings of the 6th annual ACM lifelog search challenge*, Thessaloniki Greece, ACM (2023), 41-46 [N. Alam, Y. Graham, C. Gurrin]
- Gregg, David**, 'Building SSA in a compiler for PHP', *SSA-based compiler design*, eds F. Rastello, F. Bouchez-Tichadou, Springer (2022), 347-357 [P. Biggar, D. Gregg]
- 'EC-crypto: highly efficient area-delay optimized elliptic curve cryptography processor', *IEEE Access*, 11 (2023), 56649-56662 [K. Javeed, A. El-Moursy, D. Gregg]
- 'E2CSM: efficient FPGA implementation of elliptic curve scalar multiplication over generic prime field GF(p)', *Journal of Supercomputing*, 80, 1 (2024), 50-74 [K. Javeed, A. El-Moursy, D. Gregg]
- Haahr, Mads**, 'Joint Conference on Serious Games (JCSG)', *Lecture Notes in Computer Science (LNCS), International Conference for Interactive Digital Storytelling (ICIDS), 26-27 October 2023, Trinity College Dublin, Ireland*, eds M. Haahr, A. Rojas-Salazar, S. Goebel, Springer Verlag, 143092023, <https://doi.org/10.1007/978-3-031-44751-8>

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

'Alice Dali MR: a mixed reality interactive narrative experience', *Lecture Notes in Computer Science (LNCS), International Conference for Interactive Digital Storytelling (ICIDS)*, eds L. Holloway-Attaway, J.T. Murray, Kobe, Japan, Springer Verlag (2023), 246-254 [S. Rudenko, X. Fu, M. Haahr]

'Lovecraftian horror in story-driven games: narrative design challenges and solutions', *Lecture Notes in Computer Science (LNCS), International Conference for Interactive Digital Storytelling (ICIDS)*, eds L. Holloway-Attaway, J.T. Murray, Kobe, Japan, Springer Verlag (2023), 276-290 [M. Haahr]

'What really happened here? Dealing with uncertainty in the book of distance: a critical historiography perspective', *Lecture Notes in Computer Science (LNCS), International Conference for Interactive Digital Storytelling (ICIDS)*, eds L. Holloway-Attaway, J.T. Murray, Kobe, Japan, Springer Verlag (2023), 129-136 [J. Barbara, M. Haahr]

'On the interactions between narrative puzzles and navigation aids in open world games', *Lecture Notes in Computer Science (LNCS), International Conference for Interactive Digital Storytelling (ICIDS)*, eds L. Holloway-Attaway, J.T. Murray, Kobe, Japan, Springer Verlag (2023), 259-275 [S. Davern, M. Haahr]

'Towards procedural generation of narrative puzzles for open world games', *Lecture Notes in Computer Science (LNCS), International Conference for Interactive Digital Storytelling (ICIDS)*, eds L. Holloway-Attaway, J.T. Murray, Kobe, Japan, Springer Verlag (2023), 146-154 [S. Davern, M. Haahr]

'The CLG framework: a methodical approach to designing educational video games', *Lecture Notes in Educational Technology (LNET), Latin American Conference on Learning Technologies (LACLO 2023)*, ed S. Berzeueta, University of Cuenca, Ecuador, Springer Singapore (2023), 254-270 [A. Rojas-Salazar, M. Haahr]

'The use of serious games in knowledge-and skills-based digital counselling: applications to trafficking in persons in the war in Ukraine', *Lecture Notes in Computer Science (LNCS), Joint Conference on Serious Games (JCSG)*, eds M. Haahr, A. Rojas-Salazar, S. Goebel, Trinity College Dublin, Ireland, Springer Verlag (2023), 290-298 [E. Veldhuizen-Ochodnicanová, R. Cotton, C. Putney, M. Brennan, M. Haahr]

'Evaluating learning outcomes and intrinsic motivation: a case study of DS-hacker 3D', *Lecture Notes in Computer Science (LNCS), Joint Conference on Serious Games (JCSG)*, eds M. Haahr, A. Rojas-Salazar, S. Goebel, Trinity College Dublin, Ireland, Springer Verlag (2023), 314-327 [A. Rojas-Salazar, J. Rojas-Salazar, M. Haahr]

'Educational video game for learning binary search tree', *Lecture Notes in Computer Science (LNCS), Joint Conference on Serious Games (JCSG)*, eds M. Haahr, A. Rojas-Salazar, S. Goebel, Trinity College Dublin, Ireland, Springer Verlag (2023), 426-432 [A. Rojas-Salazar, M. Haahr]

'Synaesthesia gallery AR: journey through the senses - using augmented reality for education', *Lecture Notes in Computer Science, Joint Conference on Serious Games (JCSG)*, eds M. Haahr, A. Rojas-Salazar, S. Goebel, Trinity College Dublin, Ireland, Springer (2023), 211-217 [S. Rudenko, M. Haahr]

'DreaMR: mixed reality piano concert', Concert. Concert Room, Department of Music, Durham University, UK (2024), [S. Rudenko, X. Fu, M. Haahr]

'Daydreaming in mixed reality: piano and meta quest pro live', Joint Conference on Serious Games (JCSG), Boydell Recital Room, House 5, Trinity College Dublin (2023), [S. Rudenko, X. Fu, M. Haahr]

'Music for Alice Dali augmented reality experience: multisensory design soundscapes for locative mobile phone gaming (via synaesthesia)', *VII International congress synesthesia, science and art*, eds M.J. de Córdoba, Granada, Spain, University of Granada (2022), 1-6 [S. Rudenko, M. Haahr]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

- Hederman, Lucy**, 'Exploring the integration of a patient generated health data in a FAIR digital health system in low-resourced settings: a user-centered approach', *ACM International Conference Proceeding Series* (2023), 215-220 [A.A. Kawu, R. Kievit, A. Abubakar, M.V. Reisen, D. O'Sullivan, L. Hederman]
- 'Clinician's perspective on trusting patient generated health data for use in clinical decision-making: a qualitative interview study', *Proceedings-IEEE Symposium on Computer-Based Medical Systems*, 2023 June (2023), 252-256 [L. Hederman, D. Berry, A. Ormazabal]
- 'FAIR4PGHD: a framework for FAIR implementation over PGHD', *FAIR Connect*, 1, 1 (2023), 35-40 [A. Abubakar Kawu, D. O'Sullivan, L. Hederman, M. Van Reisen, B. Magagna]
- 'Data quality and patient characteristics in European ANCA-associated vasculitis registries: data retrieval by federated querying', *Annals of the Rheumatic Diseases*, 83, 1 (2024), 112-120 [K. Gisslander, M. Rutherford, L. Aslett, N. Basu, F. Dradin, L. Hederman]
- 'DECENT: a sociotechnical approach for developing mobile health apps in underserved settings', *Digital Health*, 9 (2023), <https://doi.org/10.1177/20552076231203595> [T. Ikwunne, L. Hederman, P.J. Wall]
- 'FAIRVASC: a semantic web approach to rare disease registry integration', *Computers in Biology and Medicine* (2022), 1-31 [K. McGlinn, M.A. Rutherford, K. Gisslander, L. Hederman, M.A. Little, D. O'Sullivan]
- Howard, Emma**, 'Protocol of a cluster randomised trial of BodyKind: a school-based body image programme for adolescents', *BMC Public Health*, 23, 2246 (2023), <http://hdl.handle.net/2262/104238> [C. Mahon, D. Hamburger, J.B. Webb, Z. Yager, E. Howard, A. Booth, A. Fitzgerald]
- Hua, Binh-Son**, 'Regression-based Monte Carlo integration', *ACM Transactions on Graphics (TOG)*, 41, 4 (2022), 1-14 [C. Salaun, A. Gruson, B-S. Hua, T. Hachisuka, G. Singh]
- Huggard, Meriel**, 'Important and difficult topics in CS2: an expert consensus via Delphi study', *ASEE annual conference and exposition*, Baltimore, MD (2023), 1-15 [L. Wittie, A. Kurdia, M. Huggard, K.N. Nguyen]
- Koutavas, Vasileios**, 'Fully abstract normal form bisimulation for call-by-value PCF', *2023 38th annual ACM/IEEE symposium on Logic in Computer Science (LICS)*, Boston, MA, USA, IEEE (2023), 1-13 [V. Koutavas, Y-Y. Lin, N. Tzevelekos]
- Koutsombogera, Maria**, 'Interaction of motion energy with gesture, extroversion, dominance, and collaboration in dialogue', *2023 International conference on Multimedia Computing, Networking and Applications (MCNA)*, Valencia, Spain (2023), 5-12 [Z. Khosrobeigi, M. Koutsombogera, C. Vogel]
- 'Gestural linguistic context vectors encode gesture meaning', *Gesture and Speech in Interaction (GeSpIn)*, eds W. Pouw, J. Trujillo, H. Rutger, L. Drijvers, M. Hoetjes, J. Holler, Nijmegen, NL (2023), <http://hdl.handle.net/2262/103904> [C. Vogel, M. Koutsombogera, A.C. Murat, Z. Khosrobeigi, X. Ma]
- 'Aspects of dynamics in dialogue collaboration', *Electronics*, 12, 10 (2023), 2210-1-2210-20 [C. Vogel, M. Koutsombogera, J. Reverdy]
- Leith, Douglas**, 'User cold-start learning in recommender systems using Monte Carlo tree search', *ACM Transactions on Recommender Systems* (2023), <https://doi.org/10.1145/3618002> [D.C. Rajapakse, D. Leith]
- 'Online caching with no regret: optimistic learning via recommendations', *IEEE Transactions on Mobile Computing* (2023), 1-17 [N. Mhaisen, G. Iosifidis, D. Leith]
- Lewis, David**, 'Semantics for implementing data reuse and altruism under EU's data governance act', *International conference on semantic systems (SEMANTICS)*, Leipzig, Germany (2023), 210-226 [B. Esteves, V. Rodriguez Doncel, H.J. Pandit, D. Lewis]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

- "Who should I trust with my data?" Ethical and legal challenges for innovation in new decentralized data management technologies', *Information*, 14, 7 (2023), [H. Asgarinia, A. Chomczyk Penedo, B. Esteves, D. Lewis]
- 'Ethics and diversity in artificial intelligence policies, strategies and initiatives', *AI and Ethics*, 3 (2023), 1095-1115 [C. Roche, P.J. Wall, D. Lewis]
- 'Fostering trust with transparency in the data economy era: an integrated ethical, legal, and knowledge engineering approach', *1st international workshop on data economy*, Association for Computing Machinery, New York, NY, USA (2022), 57-63 [B.z Esteves, H. Asgarinia, A. Chomczyk Penedo, B. Mutiro, D. Lewis]
- Lin Hou, Yu**, 'Fully abstract normal form bisimulation for call-by-value PCF', *2023 38th annual ACM/IEEE symposium on Logic in Computer Science (LICS)*, Boston, MA, USA, IEEE (2023), 1-13 [V. Koutavas, Y-Y. Lin, N. Tzevelekos]
- McDonnell, Rachel**, 'C3I-SynFace: a synthetic head pose and facial depth dataset using seed virtual human models', *Data in Brief*, 48, 109087 (2023), <http://hdl.handle.net/2262/105925> [S. Basak, F. Khan, H. Javidnia, P. Corcoran, R. McDonnell, M. Schukat]
- 'NeuroDog: quadruped embodiment using neural networks', *Proceedings of the ACM on Computer Graphics and Interactive Techniques*, 6, 3 (2023), <http://hdl.handle.net/2262/105926> [D. Egan, D. Cosker, R. McDonnell]
- 'Feel the music audience experiences of audio tactile feedback in a novel virtual reality volumetric music video', *Arts*, 156 (2023), 1-22 [G.W. Young, N. O'Dwyer, M.F. Vargas, R.M. Donnell, A. Smolic]
- 'State of the art in telepresence', *ACM SIGGRAPH 2022 Courses* (2022), <http://dx.doi.org/10.1145/3532720.3535673> [C. O'Sullivan]
- McGoldrick, Ciaran**, 'Reduced gate count for quantum state preparation of 2D data', *IEEE International conference on Quantum Computing and Engineering (QCE)*, Bellevue, WA, USA, IEEE (2023), <https://doi.org/10.1109/QCE57702.2023.10274> [J. Burke, B. Basu, C. McGoldrick]
- Murala, Subrahmanyam**, 'Multi-frame based adversarial learning approach for video surveillance', *Pattern Recognition*, 122 (2022), 108350 [P.W. Patil, A. Dudhane, S. Chaudhary, S. Murala]
- 'Wipernet: a lightweight multi-weather restoration network for enhanced surveillance', *IEEE Transactions on Intelligent Transportation Systems*, 23, 12 (2022), 24488-24498 [A. Kulkarni, S. Murala]
- 'Image inpainting via spatial projections', *Pattern Recognition*, 133 (2023), 109040 [S.S. Phutke, S. Murala]
- 'Fasnet: feature aggregation and sharing network for image inpainting', *IEEE Signal Processing Letters*, 29 (2022), 1664-1668 [S.S. Phutke, S. Murala]
- '(MLE2A2U)-Net', *IEEE Transactions on Emerging Topics in Computational Intelligence*, 7, 2 (2022), 523-536 [N. Mehta, S. Murala]
- 'Pseudo decoder guided light-weight architecture for image inpainting', *IEEE Transactions on Image Processing*, 31 (2022), 6577-6590 [S.S. Phutke, S. Murala]
- 'Con-Net: a consolidated light-weight image restoration network', *IEEE Transactions on Broadcasting*, 68, 4 (2022), 862-875 [N. Mehta, S. Murala]
- Nadal, Camille**, 'Using thematic analysis in healthcare HCI at CHI: a scoping review', *CHI conference on human factors in computing systems (CHI '23)*, Hamburg, Germany, ACM (2023), 1-18 [R. Bowman, C. Nadal, K. Morrissey, A. Thieme, G. Doherty]
- North, Ben**, 'Pytorch-supporting learners over the bridge from blocks to text', *Proceedings of the 2023 Conference on United Kingdom and Ireland Computing Education Research, UKICER '23*, Swansea, Wales, Association for Computing Machinery (2023), 1 [G. Strong, B. North, S. Fiori, B. Gillespie, N. Bresnihan]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

- O'Hare, Gregory**, 'Bacteriophages from faecal contamination are an important reservoir for AMR in aquatic environments', *EGU General Assembly 2023*, Vienna, Austria (2023), 165490 [T.M. Nolan, L. Sala-Comorera, L.J. Reynolds, N.A. Martin, J.H. Stephens, G.M.P. O'Hare]
- 'A comprehensive approach to assessing yield map quality in smart agriculture: void detection and spatial error mapping', *Agronomy*, 13, 7 (2023), 1943 [J. Byabazaire, G.M.P. O'Hare, R. Collier, C. Kulatunga, D. Delaney]
- 'A very-short-term online PV power prediction model based on RAN with secondary dynamic adjustment', *IEEE Transactions on Artificial Intelligence*, 4, 5 (2023), 1214-1224 [T. Zhang, F. Ma, C. Peng, Y. Yu, D. Yue, G.M.P. O'Hare]
- 'IoT data quality assessment framework using adaptive weighted estimation fusion', *Sensors*, 23, 13 (2023), <http://hdl.handle.net/2262/107302> [J. Byabazaire, G.M.P. O'Hare, R. Collier, D. Delaney]
- 'The use of transport time scales as indicators of pollution persistence in a macro-tidal setting', *Journal of Marine Science and Engineering*, 11, 5 (2023), 1073 [G. Gao, J.J. O'Sullivan, A. Corkery, Z. Bedri, G.M.P. O'Hare, W.G. Meijer]
- 'Land use as a critical determinant of faecal and antimicrobial resistance gene pollution in riverine systems', *Science of the Total Environment*, 871 (2023), 162052 [T.M. Nolan, L.J. Reynolds, L. Sala-Comorera, N.A. Martin, J.H. Stephens, G.M.P. O'Hare]
- 'Assessment of deep learning methods for classification of cereal crop growth stage pre and post canopy closure', *Journal of Electronic Imaging*, 32, 3 (2023), 033014-033014 [S. Rasti, C.J. Bleakley, G.C.M. Silvestre, G.M.P. O'Hare, D. Langton]
- 'Understanding technology acceptance in smart agriculture: a systematic review of empirical research in crop production', *Technological Forecasting and Social Change*, 189 (2023), 122374 [R.J. Thomas, G. O'Hare, D. Coyle]
- 'Proposal and comparative analysis of a voting-based election algorithm for managing service replication in MANETs', *Applied Intelligence*, 10 (2023), 1-23 [G. Guerrero-Contreras, S. Balderas-Díaz, J.L. Garrido, M.J. Rodríguez-Fórtiz, G.M.P. O'Hare]
- 'Understanding the impacts of dogs and birds on faecal pollution of bathing waters in Dublin Bay', *EGU General Assembly 2023*, Vienna, Austria (2023), [G. Gao, J. O'Sullivan, A. Corkery, L. Reynolds, N. Martin, G. O'Hare]
- 'The MÉRA data extraction toolkit', *Meteorological Applications*, 30, 1 (2023), e2111 [L. Görgü, D. Hawtree, M.J. O'Grady, C. Muldoon, B. Masterson, G.M.P. O'Hare]
- O'Sullivan, Carol**, 'Let it go! Point of release prediction for virtual throwing', *Computers and Graphics*, 110 (2023), 11-18 [G. Yamac, J.J.K. Chai, C. O'Sullivan]
- 'State of the art in telepresence (Part 1)', *ACM SIGGRAPH 2023 Courses*, Los Angeles, USA. (2023), [J. Lawrence, Y. Pan, D.B. Goldman, R. McDonnell, C. O'Sullivan, D. Luebke]
- 'Real-time detection of strawberry ripeness using augmented reality and deep learning', *Sensors*, 23, 17 (2023), [J.J.K. Chai, J.-L. Xu, C. O'Sullivan]
- 'Exploring the perception of center of mass changes for VR avatars', *ICAT-EGVE 2023-international conference on artificial reality and teleexistence and eurographics symposium on virtual environments*, Dublin, Ireland (2023), 1-12 [B. Vyas, L. Hoyet, C. O'Sullivan]
- O'Sullivan, Declan**, 'TWIG: towards pre-hoc hyperparameter optimisation and cross-graph generalisation via simulated KGE models', *IEEE 18th International Conference on Semantic Computing (ICSC)*, Laguna Hills, California, USA, IEEE Computer Society (2024), 122-129 [J. Sardina, J.D. Kelleher, D. O'Sullivan]
- 'MetaMap: facilitating mapping reuse and lifecycle documentation', *IEEE 18th International Conference on Semantic Computing (ICSC)*, Laguna Hills, California, USA, IEEE Computer Society (2024), 323-328 [S. Alzahrani, D. O'Sullivan]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

- 'Auto-generation of blockchain-based distributed applications using ontologies', *Blockchain and smart-contract technologies for innovative applications*, eds N. El Madhoun, I. Dionysiou, E. Bertin, Springer, Cham (2024), 217-258 [M. Uzair Qureshi, D. Graux, F. Orlandi, D. O'Sullivan]
- 'On the use of virtual knowledge graphs to improve environmental sensor data accessibility', *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, 17 (2024), 6671-6682 [J. Wu, F. Orlandi, D. O'Sullivan, S. Dev]
- 'The nurse's knowledge bank: a serious knowledge elicitation and evaluation game', *Games and Learning Alliance. GALA 2023*, Lecture Notes in Computer Science, Springer (2023), 1-8 [S. Impey, G. Stephens, D. O'Sullivan]
- 'Ontological modeling of climate data to improve climate analytics', *IGARSS 2023-IEEE International geoscience and remote sensing symposium*, Pasadena, CA, USA, IEEE (2023), 2317-2320 [J. Wu, F. Orlandi, D. O'Sullivan, S. Dev]
- 'Measurement of industrial smoke plumes from satellite images', *IGARSS 2023-IEEE International geoscience and remote sensing symposium*, Pasadena, CA, USA eds, IEEE (2023), 5680-5683 [J. Wu, C. O'Sullivan, F. Orlandi, D. O'Sullivan, S. Dev]
- 'Data quality and patient characteristics in European ANCA-associated vasculitis registries: data retrieval by federated querying', *Annals of the Rheumatic Diseases*, 83, 1 (2024), 112-120 [K. Gisslander, M. Rutherford, A.J. Mohammad]
- 'Ontology driven closed control loop automation', *IEEE 9th international conference on Network Softwarization (NetSoft)*, Madrid, Spain (2023), 528-533 [A. Randles, D. O'Sullivan, J. Keeney, L. Fallon]
- 'An interoperable, usable and open framework for linking environmental and health data', *SISMEC 2023: 12th Italian society for statistics, medicine and clinical epidemiology* (2023), 1-2 [A. Navarro-Gallinad, F. Orlandi, M. Woldeyes Arisido, L. Zuccolo, D. O'Sullivan]
- 'Preserving the alignment of LD with source data', *Fourth international workshop on knowledge graph construction, Extended Semantic Web Conference (ESWC)*, Hersonissos, Greece, openreview.net (2023), 1-15 [A. Randles, D. O'Sullivan]
- 'Eliciting and confirming data, information, knowledge and wisdom in a specialist health care setting: the WICKED method', *International Journal of Computer and Information Engineering*, 17, 6 (2023), 350-360 [S. Impey, D. Berry, S. Furtado, D. O'Sullivan, G. Stephens]
- Papaphilippou, Philippos, 'FPGA-extended general purpose computer architecture', *The 18th international symposium on Applied Reconfigurable Computing (ARC)* (2022), <http://dx.doi.org/10.48550/ARXIV.2203.10359> [P. Papaphilippou, M. Shah]
- 'FLIMS: a fast lightweight 2-way merger for sorting', *IEEE Transactions on Computers* (2022), <http://dx.doi.org/10.1109/tc.2022.3146509> [P. Papaphilippou, W. Luk, C. Brooks]
- 'Experimental survey of FPGA-based monolithic switches and a novel queue balancer', *IEEE Transactions on Parallel and Distributed Systems* (2023), <http://dx.doi.org/10.1109/TPDS.2023.3244589> [P. Papaphilippou, K. Sano, B.A. Adhi, W. Luk]
- Patane, Andrea, 'Design and characterization of effective solar cells', *Energy Systems*, 13, 2 (2022), 355-382 [V. Ojha, G. Jansen, A. Patane, A. La Magna, V. Romano, G. Nicosia]
- 'Physiologically-informed Gaussian processes for interpretable modelling of psycho-physiological states', *IEEE Journal of Biomedical and Health Informatics*, (2022), <http://dx.doi.org/10.1109/jbhi.2022.3224775> [S. Ghiasi, A. Patane, L. Laurenti, C. Gentili, E.P. Scilingo, A. Greco]
- 'L-lactate production in engineered *Saccharomyces cerevisiae* using a multistage multiobjective automated design framework', *Biotechnology and Bioengineering* (2023), <http://dx.doi.org/10.1002/bit.28391> [M.N. Amaradio, G. Jansen, J. Costanza, A. Patanè, P. Branduardi, D. Porro]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

- Pham, Viet, 'Deep learning for intelligent demand response and smart grids: a comprehensive survey', *Computer Science Review*, 51 (2024), 100617 [P. Boopathy, M. Liyanage, N. Deepa, M. Velavali, S. Reddy, Q-V. Pham]
- 'Secure precoding for satellite NOMA-aided integrated sensing and communication', *IEEE Internet of Things Journal* (2024), 1-1 [M. Huang, F. Gong, G. Li, N. Zhang, Q-V. Pham]
- 'Energy minimization for IRS-aided wireless powered federated learning networks with NOMA', *IEEE Internet of Things Journal* (2024), <https://doi.org/10.1109/JIOT.2024.3354453> [M.H. Alishahi, P. Fortier, M. Zeng, Q-V. Pham, X. Li]
- 'Distributed machine learning for UAV swarms: computing, sensing, and semantics', *IEEE Internet of Things Journal*, 11, 5 (2024), 7447-7473 [Y. Ding, Z. Yang, Q-V. Pham, Y. Hu, Z. Zhang, M. Shikh-Bahaei]
- 'A block-structured optimization approach for data sensing and computing in vehicle-assisted edge computing networks', *IEEE Sensors Journal*, 24, 1 (2024), 952-961 [L.N.T. Huynh, Md.D. Hossain, Q-V. Pham, Y. Kyaw Tun, E-N. Huh]
- 'VT-MCNet: high-accuracy automatic modulation classification model based on vision transformer', *IEEE Communications Letters*, 28, 1 (2024), 98-102 [T-T. Dao, D-I. Noh, Q-V. Pham, M. Hasegawa, H. Sekiya, W-J. Hwang]
- 'Incentive mechanism and semantic communication for edge computing-assisted metaverse', *IEEE Network* (2023), 1-1 [N. Cong Luong, T. Huynh-The, V-D. Nguyen, D. Wing Kwan Ng, S. Chatzinotas, D. Niyato, Q-V. Pham]
- 'Time-division based integrated sensing, communication, and computing in integrated satellite-terrestrial networks', *Digital Signal Processing*, 143 (2023), 104262 [X. Zhu, H. Wang, Z. Yang, Q-V. Pham]
- 'Intelligent spectrum sensing with ConvNet for 5G and LTE signals identification', *IEEE Statistical Signal Processing Workshop*, Hanoi, Vietnam (2023), 130-134 [T. Huynh-The, Q-V. Pham, T-H. Vu, D.B. da Costa, V-P. Hoang]
- 'An efficient deep network for modulation classification in impaired MIMO-OFDM systems', *IEEE Statistical Signal Processing Workshop*, Hanoi, Vietnam (2023), 130-134 [T. Huynh-The, Q-V. Pham, T-V. Nguyen, D.B. Da Costa, V-P. Hoang]
- 'Outage performance of THz-aided NOMA systems with spherical stochastic model', *IEEE Statistical signal processing workshop*, Hanoi, Vietnam (2023), 135-139 [T-H. Vu, K-T. Nguyen, Q-V. Pham, T. Huynh-The, D.B. Da Costa, V. Nguyen Quoc Bao]
- 'Performance analysis of RSMA-aided UAV-to-ground communications', *IEEE Global Communications Conference*, Kuala Lumpur, Malaysia (2023), <http://hdl.handle.net/2262/104227> [T-H. Vu, B. da Costa, Q-V. Pham, S. Kim]
- 'Solving complex sequential decision-making problems by deep reinforcement learning with heuristic rules', *International conference on computational science*, Prague, Czech Republic (2023), 298-305 [T. Thi Nguyen, C.M. Nguyen, T. Huynh-The, Q-V. Pham, Q. Viet Hung Nguyen, I. Razzak, V. Janapa Reddi]
- 'Wirelessly powered federated learning networks: joint power transfer, data sensing, model training, and resource allocation', *IEEE Internet of Things Journal* (2023), 1-1 [M. Le, D. Thai Hoang, D.N. Nguyen, W-J. Hwang, Q-V. Pham]
- 'Rate-splitting multiple access-assisted THz-based short-packet communications', *IEEE Wireless Communications Letters*, 12, 12 (2023), 2218-2222 [T-H. Vu, Q-V. Pham, D.B. da Costa, S. Kim]
- 'Federated learning for the healthcare metaverse: concepts, applications, challenges, and future directions', *IEEE Internet of Things Journal*, 10, 24 (2023), 21873-21891 [A. Kashif Bashir, N. Victor, S. Bhattacharya, T. Huynh-The, R. Chengoden, G. Yenduri, Q-V. Pham]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

- 'Physical layer security for NOMA systems: requirements, issues, and recommendations', *IEEE Internet of Things Journal*, 10, 24 (2023), 21721-21737 [S. Pakravan, J-Y. Chouinard, X. Li, M. Zeng, W. Hao, Q-V. Pham, O.A. Dobre]
- 'mISO: incentivizing demand-agnostic microservices for edge-enabled IoT networks', *IEEE Transactions on Services Computing*, 16, 5 (2023), 3536 [A. Samanta, Q-V. Pham, N-N. Dao, A. Muthanna, S. Cho]
- 'STAR-RIS-enabled short-packet NOMA systems', *IEEE Transactions on Vehicular Technology* (2023), 1-6 [T-H. Vu, T-V. Nguyen, Q-V. Pham, D.B. da Costa, S. Kim]
- 'Guest editorial special issue on aerial computing for the Internet of Things (IoT)', *IEEE Internet of Things Journal*, 10, 7 (2023), 5623-5625 [Q-V. Pham, M. Zeng, O.A. Dobre, Z. Ding, L. Song]
- 'Short-packet communications for UAV-based NOMA systems under imperfect CSI and SIC', *IEEE Transactions on Cognitive Communications and Networking*, 9, 2 (2023), 463-478 [T-H. Vu, T-V. Nguyen, Q-V. Pham, D.B. da Costa, S. Kim]
- 'THz-enabled UAV communications using non-orthogonal multiple access', *IEEE Transactions on Vehicular Technology*, 72, 8 (2023), 10977-10981 [N. Iradukunda, Q-V. Pham, Z. Ding, W-J. Hwang]
- 'A novel partial decode-and-amplify NOMA-inspired relaying protocol for uplink short-packet communications', *IEEE Wireless Communications Letters* (2023), 1-1 [T-H. Vu, T-T. Nguyen, Q-V. Pham, D.B. da Costa, S. Kim]
- 'AI-enabled mm-Waveform configuration for autonomous vehicles with integrated communication and sensing', *IEEE Internet of Things Journal* (2023), 1-1 [N.H. Chu, D.N. Nguyen, D.T. Hoang, Q-V. Pham, K.T. Phan, W-J. Hwang, E. Dutkiewicz]
- 'Enhancing secrecy performance of cooperative NOMA-based IoT networks via multi-antenna-aided artificial noise', *IEEE Internet of Things Journal*, 9, 7 (2022), 5108-5127 [R. Ruby, Q-V. Pham, K. Wu, A. Asghar Heidari, H. Chen, B.M. ElHalawany]
- 'Federated learning for cybersecurity: concepts, challenges, and future directions', *IEEE Transactions on Industrial Informatics*, 18, 5 (2022), 3501-3509 [M. Alazab, S.P. RM, P. M, P.K.R. Maddikunta, T.R. Gadekallu, Q-V. Pham]
- 'Aiding a disaster spot via multi-UAV-based IoT networks: energy and mission completion time-aware trajectory optimization', *IEEE Internet of Things Journal*, 9, 8 (2022), 5853-5867 [H. Yang, R. Ruby, Q-V. Pham, K. Wu]
- 'A survey on Zero touch network and Service Management (ZSM) for 5G and beyond networks', *Journal of Network and Computer Applications*, 203 (2022), 103362 [M. Liyanage, Q-V. Pham, K. Dev, S. Bhattacharya, P. Kumar Reddy Maddikunta, T.R. Gadekallu]
- 'Dynamic incremental ensemble fuzzy classifier for data streams in green internet of things', *IEEE Transactions on Green Communications and Networking*, 6, 3 (2022), 1316-1329 [J. Jiang, F. Liu, W.W.Y. Ng, Q. Tang, W. Wang, Q-V. Pham]
- 'Enhanced resource allocation in D2D communications with NOMA and unlicensed spectrum', *IEEE Systems Journal*, 16, 2 (2022), 2856-2866 [M. Le, Q-V. Pham, H-C. Kim, W-J. Hwang]
- 'Transfer learning for wireless networks: a comprehensive survey', *Proceedings of the IEEE*, 110, 8 (2022), 1073-1115 [C.T. Nguyen, N. Van Huynh, N.H. Chu, Y. Mulya Saputra, D.T. Hoang, Q-V. Pham]
- 'Blockchain for edge of things: applications, opportunities, and challenges', *IEEE Internet of Things Journal*, 9, 2 (2022), 964-988 [T.R. Gadekallu, Q-V. Pham, D.C. Nguyen, P. Kumar Reddy Maddikunta, N. Deepa]
- 'Deep reinforcement learning for energy-efficient federated learning in UAV-enabled wireless powered networks', *IEEE Communications Letters*, 26, 1 (2022), 99-103 [Q. Vinh Do, Q-V. Pham, W-J. Hwang]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

'Towards 6G: key technological directions', *ICT Express* (2022), <http://dx.doi.org/10.1016/j.ict.2022.10.005> [C. De Alwis, P. Kumar, Q-V. Pham, K. Dev, A. Kalla, M. Liyanage]

Ruffini, Marco, 'Novel optical networking architectures and open interfaces for 5G and future 6G networks', *Elsevier Optical Fiber Technology (OFT)* (2023), 1-2 [M. Ruffini, M. Furdek, R. Mûnoz, M. Ribeiro, S. Wey]

'Blockchain and smart contracts for telecommunications: requirements vs. cost analysis', *IEEE Access* (2023), 95653-95666 [N. Afraz, F. Wilhelmi H. Ahmadi, M. Ruffini]

'Two-tier PON virtualisation with scheduler synchronization supporting application-level ultra-low latency in MEC based Cloud-RAN, using MESH-PON', *Journal of Optical Communications and Networking* (2023), 100-107 [S. Das, F. Slyne, D. Kilper, M. Ruffini]

'Fairness guaranteed and auction-based x-haul and cloud resource allocation in multi-tenant O-RANs', *IEEE Transactions in Communications* (2023), 3452-3468 [S. Mondal, M. Ruffini]

'Cross-domain AI for early attack detection and defense against malicious flows in O-RAN', *IEEE International Conference on Communications (ICC)* (2024), 1-6 [B. Missi Xavier, M. Dzaferagic, I. Vilà, M. Martinello, M. Ruffini]

'Routing and spectrum allocation in broadband degenerate EPR-pair distribution', *IEEE International Conference on Communications (ICC)* (2023), 1-7 [R. Bali, A. Tittelbaugh, S.L. Jenkins, A. Agrawal, J. Horgan, M. Ruffini]

'Low-latency upstream scheduling in multi-tenant, SLA compliant TWDM PON', *Optical Fibre Communications (OFC)* (2024), 1-3 [A. Ganguli, M. Ruffini]

'Demonstration of cooperative transport Interface using open-source 5G OpenRAN and virtualised PON network', *Optical Fibre Communications (OFC)* (2024), 1-3 [F. Slyne, K. O'Sullivan, M. Dzaferagic, B. Richardson, M. Wrzeszcz, M. Ruffini]

'Progress on integrating quantum communications in optical systems testbeds', *Asia Communications and Photonics Conference (ACP)* (2023), 1-3 [J. Horgan, D. Briantcev, A. Kaszubowska-Anandarajah, M. Ruffini, D. Kilper]

'Self-normalizing neural network, enabling one shot transfer learning for modeling EDFA wavelength dependent gain', *European Conference on Optical Communications (ECOC)* (2023), 1-3 [A. Raj, Z. Wang, F. Slyne, T. Chen, D. Kilper, M. Ruffini]

'Metro access network with convergence of coherent and analog RoF data services', *European Conference on Optical Communications (ECOC)* (2023), 1-3 [A. Delmade, F. Slyne, C. Browning, D. Kilper, L. Barry, M. Ruffini]

'Machine learning-based early attack detection using open RAN intelligent controller', *IEEE International Conference on Communications (ICC)* (2023), 1-6 [B.M. Xavier, M. Dzaferagic, D. Collins, G. Comarela, M. Martinello, M. Ruffini]

'Experimental demonstration of network convergence with coherent and analog radio-over-fibre signals for densified 5.5G/6G small cell networks', *IEEE International Conference on Communications (ICC)* (2023), 1-6 [F. Slyne, C. Browning, A. Delmade, L.P. Barry, M. Ruffini]

'Connected OFCity challenge: an updated perspective on technology for connected cities', *Optical Fibre Communications (OFC)* (2023), 1-3 [M. Ruffini, C. Xie, L. Shi, J.S. Wey]

'Real-time, low latency virtual DBA hypervisor for SLA-compliant multi-service operations over shared passive optical networks', *Optical Fibre Communications (OFC)* (2023), 1-3 [A. Ganguli, F. Slyne, M. Ruffini]

'Experimental demonstration of ML-based DWDM system margin estimation', *Optical Fibre Communications (OFC)* (2023), 1-3 [J. Muller, F. Slyne, K. Kaeval, S. Troia, T. Fehenberger, M. Ruffini]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

Stephens, Gaye, 'PRECISION ALS - an integrated pan European patient data platform for ALS', *Amyotrophic Lateral Sclerosis and Frontotemporal Degeneration*, 24, 5-6 (2023), 389-393 [R. McFarlane, M. Galvin, M. Heverin, É. Mac Domhnaill, D. Murray, G. Stephens]

'The nurse's knowledge bank: a serious knowledge elicitation and evaluation game', *Games and Learning Alliance*, 12th international conference, GALA 2023, Dublin, Ireland, November 29th December 1, 2023, *Proceedings* <https://link.springer.com/book/10.1007/978-3-031-49065-1>, International Conference on Games and Learning Alliance, eds P. Dondio, M. Rocha, A. Brennan, A. Schönbohm, F. de Rosa, A. Koskinen, Dublin (2023), 77-85 [S. Impey, D. O'Sullivan, G. Stephens]

'Eliciting and confirming data, information, knowledge and wisdom in a specialist health care setting: the WICKED method', *International Journal of Computer and Information Engineering*, 17, 6 (2023), 350-360 [S. Impey, D. Berry, S. Furtado, M. Galvin, L. Grogan, G. Stephens]

'Eliciting and confirming data, information, knowledge and wisdom in a specialist health care setting - the WICKED method', *ICHIHIM 2022: International Conference on Health Informatics and Health Information Management*, Riga, Latvia, International Journal of Medical and Health Sciences (2022), 10-20 [S. Impey, D. Berry, S. Furtado, M. Galvin, L. Grogan, G. Stephens]

Strong, Glenn, 'Pytorch-supporting learners over the bridge from blocks to text', *Proceedings of the 2023 Conference on United Kingdom and Ireland Computing Education Research, UKICER '23*, Swansea, Wales, Association for Computing Machinery (2023), 1 [G. Strong, B. North, S. Fiori, B. Gillespie, N. Bresnihan]

Tangney, Brendan, 'Overcoming barriers to teaching 21C skills: the Bridge21 approach', *Irish Educational Studies* (2023), <https://doi.org/10.1080/03323315.2023.2270564> [B. Tangney, C. Girvan, E. Ní Chorca, A. Bray]

Tewari, Hitesh, 'Cyber security on the edge: efficient enabling of machine learning on IoT devices', *Information*, 15, 126 (2024), 28 [S. Kumari, V. Tulshyan, H. Tewari]

'Blockchain-enabled nextgen service architecture for mobile internet offload', *Future Internet*, 15, 5 (2023), 1-14 [R. Singh, Z. Pervez, H. Tewari]

'Blockchain-enabled chebyshev polynomial-based group authentication for secure communication in an internet of things network', *Future Internet*, 15, 3 (2023), 1-15 [R. Singh, S. Sturley, H. Tewari]

'Anonymous homomorphic IBE with application to anonymous aggregation', *Cryptography*, 7, 2 (2023), 1-19 [M. Clear, H. Tewari]

Ventresque, Anthony, 'Parameter coverage for testing of autonomous driving systems under uncertainty', *ACM Transactions on Software Engineering and Methodology*, 32, 3 (2023), 1-31 [T. Laurent, S. Klikovits, P. Arcaini, F. Ishikawa, A. Ventresque]

'Mutation-based analysis of queueing network performance models', *Journal of Systems and Software*, 191(2022), 111385 [T. Laurent, P. Arcaini, C. Trubiani, A. Ventresque]

Vogel, Carl, 'Need a good book about privacy? Evaluating dictionary-based corpus query for detecting the topic of privacy in literary texts', *Journal of Computational Literary Studies*, 2, 1 (2024), 1-19 [E. Ketzan, J. Edmond, C. Vogel]

'Interaction of motion energy with gesture, extroversion, dominance, and collaboration in dialogue', *2023 International Conference on Multimedia Computing, Networking and Applications (MCNA)*, Valencia, Spain (2023), 5-12 [Z. Khosrobeigi, M. Koutsombogera, C. Vogel]

'Cultural differences in the assessment of synthetic voices', *International Journal of Neural Systems*, 34, 2 (2024), 2450008 [M. Cuciniello, T. Amorese, C. Greco, Z. Callejas Carrion, C. Vogel, G. Cordasco]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

- 'Speech emotion recognition systems: a cross-language, inter-racial, and cross-gender comparison', *Advances in information and communication: proceedings of the 2023 Future of Information and Communication Conference (FICC)*, 1, San Francisco, Cham: Springer (2023), 375-390 [D. Datta, W. Jiang, C. Vogel, K. Ahmad]
- 'Moving fingers write history and having writ become digital: towards a big data framework for the analysis of parliamentary proceedings', *Advances in information and communication: proceedings of the 2023 Future of Information and Communication Conference (FICC)*, 1, Cham: Springer (2023), 459-479 [A. Thundiyil Saseendran, C. Vogel, K. Ahmad]
- 'Head orientation of public speakers: variation with emotion, profession and age', *Advances in Information and Communication: Proceedings of the 2023 Future of Information and Communication Conference (FICC)*, 2, Springer (2023), 79-95 [Y.P.K. Murali, C. Vogel, K. Ahmad]
- 'A synthetic voice for an assistive conversational agent: a survey to discover Italian preferences regarding synthetic voice's gender and quality level', *Human Behavior and Emerging Technologies*, (2023), 8858268 [M. Cuciniello, T. Amorese, C. Greco, Z. Callejas Carrion, C. Vogel, G. Cordasco]
- 'The impact of gender-inclusive methods on design decision making', *Communication and Gender: Debates in English, Italian and Spanish*, Melchiorre, eds S.M. Melchiorre, S. Marin Conejo, Viterbo, Italy, Sette Citta (2023), 221-240 [M. Ribeiro Lopes, C. Vogel]
- 'The proof is in the pudding: using automated theorem proving to generate cooking recipes', *Journal for Language Technology and Computational Linguistics*, 36, 2 (2023), 29-85 [L. Mahon, C. Vogel]
- 'Agreement and disagreement between major emotion recognition systems', *Knowledge-Based Systems*, 276 (2023), 110579 [C. Vogel, K. Ahmad]
- 'Gestural linguistic context vectors encode gesture meaning', *Gesture and Speech in Interaction (GeSpln)*, eds W. Pouw, J. Trujillo, H. Rutger, L. Drijvers, M. Hoetjes, J. Holler, S. Kadava, Nijmegen, NL (2023), <http://hdl.handle.net/2262/103904> [C. Vogel, M. Koutsombogera, A.C. Murat, Z. Khosrobeigi, X. Ma]
- 'Generative adversarial networks in federated learning', *Applications of Artificial Intelligence and Neural Systems to Data Science*, eds A. Esposito, M. Faundez-Zanuy, F.C. Morabito, E. Pasero, Singapore, Springer Nature (2023), 341-350 [M. Wei, C. Vogel]
- 'Aspects of dynamics in dialogue collaboration', *Electronics*, 12, 10 (2023), 2210-1-2210-20 [C. Vogel, M. Koutsombogera, J. Reverdy]
- Wade, Vincent**, 'Multi-dimensional learner profiling by modeling irregular multivariate time series with self-supervised deep learning', *Artificial Intelligence in Education AIED 2023, The International Conference on Artificial Intelligence in Education (AIED)*, eds N. Wang, G. Rebolledo-Mendez, N. Matsuda, O.C. Santos, V. Dimitrova, Tokyo, Japan, Springer, Cham (2023), 674-680 [Q. Xiao, B. Pitt, K. Johnston, V. Wade]
- Young, Gareth**, 'Evaluating social impact of smart city technologies and services: methods, challenges, future directions', *Multimodal Technologies and Interaction*, 7, 3 (2023), 33 [E. Hodson, T. Vainio, S. Yli-Kauhaluoma, G.W. Young]
- 'Feel the music audience experiences of audio tactile feedback in a novel virtual reality volumetric music video', *Arts*, 156(2023), 1-22 [G.W. Young, N. O'Dwyer, M.F. Vargas, R.M. Donnell, A. Smolic]
- 'Utilizing virtual reality to assist social competence education and social support for children from under-represented backgrounds', *Computers and Education*, 201 (2023), 1-18 [X. Wang, G.W. Young, A. Plechatá, C. Mc Guckin, G. Makransky]
- 'The potential of extended reality in rural education's future-perspectives from rural educators', *Education and Information Technologies* (2023), 1-25 [X. Wang, G.W. Young, M. Iqbal, C.M. Guckin]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

'Prototyping VR training tools for healthcare with off-the-shelf CGI', *Advances in Medical Technologies and Clinical Practice* (2022), 160-186 [G.W. Young, T. Zawadzki, S. Nikiel]

'A virtual reality volumetric music video: featuring New Pagans', *Proceedings of the Sound and Music Computing Conferences* (2022), 677-678 [G.W. Young, N. O'Dwyer, A. Smolic]

'Audience experiences of a volumetric virtual reality music video', *2022 IEEE Conference on Virtual Reality and 3D User Interfaces (VR)* (2022), [G.W. Young, N. O'Dwyer, M. Moynihan, A. Smolic]

'Extended reality: music in immersive XR environments: the possibilities (and approaches) for (AI) music in immersive XR environments', *Artificial Intelligence and Music Ecosystem* (2022), 68-82 [G.W. Young, A. Smolic]

'A virtual reality volumetric music video', *Proceedings of the 13th ACM multimedia systems conference* (2022), <http://dx.doi.org/10.1145/3524273.3532907> [G.W. Young, N. O'Dwyer, A. Smolic]

Research student

Suriyawongkul, Arthit, 'PyThaiNLP: Thai natural language processing in Python', *Proceedings of the 3rd Workshop for Natural Language Processing Open Source Software (NLP-OSS 2023)*, [L. Tan, D. Milajevs, G. Chauhan, C. Udomcharoenchaikit]

STATISTICS

Benavoli, Alessio, 'Determinants of intravenous infusion longevity and infusion failure via a nonlinear model analysis of smart pump event logs: retrospective study', *JMIR AI*, 2(2023), e48628 [A. Kia, J. Waterson, N. Bargary, S. Rolt, K. Burke, A. Benavoli]

'Robust target area search using sets of probabilities', *Digital Signal Processing*, 142 (2023), 104195 [B. Ristic, A. Benavoli, A. Skvortsov]

Brophy, Caroline, 'LegacyNet: introducing an international multi-site experiment investigating potential benefits of increasing the species diversity of grassland leys within crop rotations', *Grassland Science in Europe, European Grassland Federation Symposium 2023*, Lithuania (2023), 249-251 [J. O'Malley, J.A. Finn, C.S. Malisch, P.R. Adler, F. Zhu, C. Brophy]

'ExPeCT: a randomised trial examining the impact of exercise on quality of life in men with metastatic prostate cancer', *Supportive Care in Cancer*, 31 (2023), 292 [G. Sheill, L. Brady, B. Hayes, A.M. Baird, E. Guinan, R. McDermott]

'Seed quality and variety preferences amongst potato farmers in North-Western Kenya: lessons for the adoption of new varieties', *Potato Research* (2023), <https://doi.org/10.1007/s11540-023-09626-8> [T.K. Kwambai, D. Griffin, P.C. Struik, L. Stack, S. Rono, C. Brophy]

'Going beyond richness: modelling the BEF relationship using species identity, evenness, richness and species interactions via the DImodels R package', *Methods in Ecology and Evolution*, 14 (2023), 2250-2258 [R.A. Moral, R. Vishwakarma, J. Connolly, L. Byrne, C. Hurley, J.A. Finn, C. Brophy]

'Estimation of the non-linear parameter in generalised diversity-interactions models is unaffected by change in structure of the interaction terms', *Environmental and Ecological Statistics*, 30 (2023), 555-574 [R. Vishwakarma, L. Byrne, J. Connolly, R.A. Moral, C. Brophy]

'Functional group richness increases multifunctionality in intensively managed grasslands', *Grassland Research*, 2 (2023), 225-240 [L. Argens, C. Brophy, W.W. Weisser, S. Meyer]

'The effects of functional trait diversity on productivity of grass-legume swards across multiple sites and two levels of nitrogen fertiliser', *European Journal of Agronomy*, 151 (2023), 126993 [M. Jørgensen, A.K. Bakken, L. Østrem, C. Brophy]

'Positive effects of plant diversity on dry matter yield while maintaining a high level of forage digestibility in intensively managed grasslands across two contrasting environments', *Grass and Forage Science*, 78 (2023), 438-461 [B. Golinska, R. Vishwakarma, C. Brophy, P. Golinski]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

Georgiadis, Athanasios, 'Duals of Besov spaces on metric spaces associated with operators', *Constructive Approximations*, 57, 2 (2023), 547-577 [A.G. Georgiadis, G. Kyriazis]

'Establishing the link: does web traffic from various marketing channels influence direct traffic source purchases?', *Marketing Letters* (2023), 1-13 [G. Filippou, A.G. Georgiadis, A. Kumar Jha]

Ng, Tin, 'Fairness-aware processing techniques in survival analysis: promoting equitable predictions', *Joint European conference on machine learning and knowledge discovery in databases*, Turin, Italy, Springer Nature Switzerland (2023), 460-476 [Z. Zhao, T.L.J. Ng]

White, Arthur, 'A comparison of relative-efficacy estimate(s) derived from both matching-adjusted indirect comparisons and standard anchored indirect treatment comparisons: a review of matching-adjusted indirect comparisons', *Value in Health*, 26, 11 (2023), 1665-1674 [O. Cassidy, M. Harte, L. Trela-Larsen, C. Walsh, A. White, L. McCullagh]

'Data quality and patient characteristics in European ANCA-associated vasculitis registries: data retrieval by federated querying', *Annals of the Rheumatic Diseases*, 83, 1 (2024), 112-120 [K. Gisslander, M. Rutherford, L. Aslett, N. Basu, M.A. Little, A.J. Mohammad]

'Extending beyond Bagust and Beale: fully parametric piecewise exponential models for extrapolation of survival outcomes in health technology assessment', *Value in Health* (2023), <http://dx.doi.org/10.1016/j.jval.2023.06.007> [P. Cooney, A. White]

Zhang, Mimi, 'A theoretical analysis of density peaks clustering and the component-wise peak-finding algorithm', *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 46, 2 (2024), 1109-1120 [J. Tobin, M. Zhang]

'Reinforced EM algorithm for clustering with Gaussian mixture models', *Proceedings of the 2023 SIAM international conference on Data Mining (SDM)* (2023), 118-126 [J. Tobin, C. Pang Ho, M. Zhang]

'Review of clustering methods for functional data', *ACM Transactions on Knowledge Discovery from Data*, 17, 7 (2023), 1-34 [M. Zhang, A. Parnell]

'Incorporating ignorance within game theory: an imprecise probability approach', *International Journal of Approximate Reasoning*, 154, March (2023), 133-148 [B. Fares, M. Zhang]

School of Engineering

CIVIL, STRUCTURAL AND ENVIRONMENTAL ENGINEERING

Ali, Muhammad, 'Genomics tools to study membrane-based systems', *Experimental methods for membrane applications in desalination and water treatment*, eds S.G. Salinas-Rodríguez, L.O. Villacorte eds, London UK (2024), <http://hdl.handle.net/2262/104417> [M. Ali, L. Ruiz Haddad, M. Fauzi Haroon, P.E. Saikaly]

'Combination of advanced coagulation Fe(VI) and UF membrane to effectively remove organic compounds and mitigate biofouling during harmful algal blooms', *Desalination*, 565 (2023), 116882 [A.H. Alshahri, M. Obaid, A.H.A. Dehwah, T.M. Missimer, M. Ali, N. Ghaffour]

'Performance evaluation of a pilot-scale aerobic granular sludge integrated with gravity-driven membrane system treating domestic wastewater', *ACS ES&T Water*, 3, 8 (2023), 2681-2690 [M. Ali, Y. Singh, L. Fortunato, Z. Ur Rehman, S. Manjunath, J.S. Vrouwenvelder]

Basu, Biswajit, 'Reduced gate count for quantum state preparation of 2D data', *IEEE International Conference on Quantum Computing and Engineering (QCE)*, Bellevue, WA, USA, IEEE (2023), <https://doi.org/10.1109/QCE57702.2023.10274> [J. Burke, B. Basu, C. Mc Goldrick]

Bellec, Morgane, 'Performance of a closed cycle power takeoff for a shore-based wave energy device', *Applied Sciences*, 13, 11 (2023), 6377 [M. Bellec, L. Gibson, C. Meskell]

'Performance of a closed cycle power take off for mutriku breakwater', *The 12th international conference on flow-induced vibration*, ed L. Zimmer, Paris-Saclay (2022), 219-226 [M. Bellec, C. Gurhy, L. Gibson, C. Meskell]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

- Bhaskaran, Dhivyabharathi, 'Travel time prediction utilizing hybrid deep learning models', *Transportation Research Record: Journal of the Transportation Research Board* (2023), <http://hdl.handle.net/2262/103124> [D. Bharathi, J.M. González Sopeña, S. Clarke, B. Ghosh]
- Broderick, Brian, 'Structural damping estimation from live monitoring of a tall modular building', *The Structural Design of Tall and Special Buildings* (2023), <http://hdl.handle.net/2262/104025> [J. Hickey, H. Moore, B. Broderick, B. Fitzgerald]
- 'Damping ratio estimation for a slender modular building from full scale ambient response monitoring', *Experimental Vibration Analysis for Civil Engineering Structures*, Milan (2023), <http://hdl.handle.net/2262/103698> [J. Hickey, H. Moore, B. Broderick, B. Fitzgerald]
- 'The effect of acceleration signal length on the outputs from modal identification methods', *34th Irish Signals and Systems Conference (ISSC)* (2023), <http://hdl.handle.net/2262/103066> [H. Moore, B. Fitzgerald, J. Hickey, B. Broderick]
- 'Mitigation of wind induced accelerations in tall modular buildings', *Structures* (2022), <http://hdl.handle.net/2262/102431> [J. Hickey, B. Broderick, B. Fitzgerald, H. Moore]
- Caulfield, Brian, 'There's no such thing as cycle traffic: a critical discourse analysis of public opposition to pro-cycle planning', *Journal of Cycling and Micromobility Research*, 2, 100014 (2024), <http://hdl.handle.net/2262/104394> [R. Egan, B. Caulfield]
- 'Examining the long-term reduction in commuting emissions from working from home', *Transportation Research Part D: Transport and Environment*, 127, 104063 (2024), <http://hdl.handle.net/2262/104380> [A. Stefaniec, W. Brazil, W. Whitney, W. Zhang, B. Colleary, B. Caulfield]
- 'Pre and post covid preferences for working from home', *Travel Behaviour and Society*, 34 (2024), 100679 [A. Richards, S. Convery, M. O'Mahony, B. Caulfield]
- 'Optimising shared electric mobility hubs: insights from performance analysis and factors influencing riding demand', *Case Studies on Transport Policy*, 13 (2023), 101052 [K. Hosseini, A. Stefaniec, M. O'Mahony, B. Caulfield]
- 'Understanding domestic consumer attitude and behaviour towards energy: a study on the Island of Ireland', *Energy Policy*, 181 (2023), 113693 [A. Brown, H. Hampton, A. Foley, D. Furszyfer, D. Del Rio, C. Lowans]
- 'Identifying optimal locations for community electric vehicle charging', *Sustainable Cities and Society*, 94 (2023), 104573 [A. Charly, N. Thomas, A. Foley, B. Caulfield]
- Egan, Robert, 'There's no such thing as cycle traffic: a critical discourse analysis of public opposition to pro-cycle planning', *Journal of Cycling and Micromobility Research*, 2, 100014 (2024), <http://hdl.handle.net/2262/104394> [R. Egan, B. Caulfield]
- 'Planning for diverse cycling practices: a cycle-parking type preference typology', *Case Studies on Transport Policy*, 10, 3 (2022), 1930-1944 [R. Egan, C.M. Dowling, B. Caulfield]
- Fitzgerald, Breiffni, 'Impact of sources of damping on the fragility estimates of wind turbine towers', *ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems, Part B: Mechanical Engineering* (2024), <http://hdl.handle.net/2262/105723> [S. Baishtakur, V. Pakrashi, S. Bhattacharya, B. Fitzgerald]
- 'Design of tuned mass damper fluid inerter for wind-induced vibration control of a tall building', *Journal of Structural Engineering*, 150, 3 (2024), <https://doi.org/10.1061/JSENDH.STENG-12599> [S. Sarkar, B. Fitzgerald]
- 'Structural damping estimation from live monitoring of a tall modular building', *The Structural Design of Tall and Special Buildings* (2023), <http://hdl.handle.net/2262/104025> [J. Hickey, H. Moore, B. Broderick, B. Fitzgerald]
- 'Damping ratio estimation for a slender modular building from full scale ambient response monitoring', *Experimental Vibration Analysis for Civil Engineering Structures*, Milan (2023), <http://hdl.handle.net/2262/103698> [J. Hickey, H. Moore, B. Broderick, B. Fitzgerald]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

- 'The effect of acceleration signal length on the outputs from modal identification methods', *34th Irish Signals and Systems Conference (ISSC)* (2023), <http://hdl.handle.net/2262/103066> [H. Moore, B. Fitzgerald, J. Hickey, B. Broderick]
- 'Enhancing the reliability of floating offshore wind turbine towers subjected to misaligned wind-wave loading using tuned mass damper inerters (TMDIs)', *Renewable Energy*, 211 (2023), 522-538 [B. Fitzgerald, J. McAuliffe, S. Baisthakur, S. Sarkar]
- 'Mitigation of wind induced accelerations in tall modular buildings', *Structures* (2022), <http://hdl.handle.net/2262/102431> [J. Hickey, B. Broderick, B. Fitzgerald, H. Moore]
- Gallagher, John, 'A numerical analysis of particulate matter control technology integrated with HVAC system inlet design and implications on energy consumption', *Building and Environment*, 211, 108726 (2022), 1-16 [B. Considine, P. Kumar, J. Gallagher, A. McNabola]
- Ghaani, Mohammad, 'Double life of methanol: experimental studies and nonequilibrium molecular-dynamics simulation of methanol effects on methane-hydrate nucleation', *Journal of Physical Chemistry C*, 126, 13 (2022), 6075-6081 <http://dx.doi.org/10.1021/acs.jpcc.2c00329> [M. Lauricella, M.R. Ghaani, P.K. Nandi, S. Meloni, B. Kvamme, N.J. English]
- 'Development of a new electrochemical sensor based on molecularly imprinted biopolymer for determination of 4,4'-methylene diphenyl diamine', *Sensors (Basel, Switzerland)* (2022), <http://dx.doi.org/10.3390/s23010046> [M. Ghaani, D. Büyükt, D. Carullo, S. Farris]
- 'Investigation of dipolar response of the hydrated hen-egg white lysozyme complex under externally applied electric fields: insights from non-equilibrium molecular dynamics', *The Journal of Physical Chemistry B*, 126, 4 (2022), 858-868 [H. Wu, M. Reza Ghaani, P. K. Nandi, N.J. English]
- 'Effects of externally applied electric fields on the manipulation of solvated-chignolin folding: static- versus alternating-field dichotomy at play', *Journal of Physical Chemistry B*, 126, 2 (2022), 376-386 [H. Wu, M.R. Ghaani, Z. Futera, N.J. English]
- 'Controlling hydrogen release from remaining-intact clathrate hydrates by electromagnetic fields: molecular engineering: via microsecond non-equilibrium molecular dynamics', *RSC Advances*, 12, 7 (2022), 4370-4376 [Y. Krishnan, P.G. Rosingana, M.R. Ghaani, N.J. English]
- 'Mesoporous selenium nanoparticles for therapeutic goals: a review', *Journal of Nanoparticle Research*, 24, 10 (2022), <http://dx.doi.org/10.1007/s11051-022-05572-7> [F. Davarani Asl, M. Mousazadeh, M. Azimzadeh, M.R. Ghaani]
- 'Ultrasensitive electrochemical miR-155 nanocomposite biosensor based on functionalized/conjugated graphene materials and gold nanostars', *Sensors and Actuators B: Chemical*, 375 (2023), <http://dx.doi.org/10.1016/j.snb.2022.132877> [F. Khosravi, M. Rahaie, M.R. Ghaani, M. Azimzadeh, E. Mostafavi]
- 'A novel approach to bio-mineralization of electrospun PCL scaffolds by protein and hydroxyapatite nanoparticles; molecular dynamics simulation and in-vitro evaluation', *European Polymer Journal*, 182 (2023), 111739 [S. Afza, H. Esfahani, A. Nourian, M.R. Ghaani]
- 'Thermodynamic evaluation of inhibitors for methane-hydrate formation', *Fuel*, 324 (2022), <http://dx.doi.org/10.1016/j.fuel.2022.124672> [L. Keshavarz, M.R. Ghaani, N.J. English]
- Ghosh, Bidisha, 'Travel time prediction utilizing hybrid deep learning models', *Transportation Research Record: Journal of the Transportation Research Board* (2023), <http://hdl.handle.net/2262/103124> [D. Bharathi, J.M. González Sopeña, S. Clarke, B. Ghosh]
- 'Development of hybrid models to estimate gross primary productivity at a near-natural peatland using sentinel 2 data and a light use efficiency model', *Remote Sensing*, 15 (2023), 1673 [R. Ingle, S. Bhatnagar, B. Ghosh, L. Gill, S. Regan, J. Connolly, M. Saunders]
- Gill, Laurence, 'Assessment of climatic and anthropogenic effects on flood dynamics in the Cerknjško polje (SW Slovenia) based on a 70-year observation dataset', *Journal of Hydrology: Regional Studies*, 51 (2024), 101609 [M. Blatnik, F. Gabrovšek, N. Ravbar, P. Frantar, L.W. Gill]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

- 'Using sterol profiles supported with other chemical microbial source tracking methods to identify human faecal contamination from septic tanks in rural catchments', *Environmental Pollution*, 341 (2024), 122884 [D. Dubber, L. Brophy, D. O'Connell, P. Behan, M. Moloney, L.W. Gill]
- 'Intercomparison of marine tracer and catchment-based submarine groundwater discharge estimates for a karst aquifer', *Journal of Hydrology*, 627 (2023), 130358 [M. Savatier, P. Morrissey, L.W. Gill, C. Rocha]
- 'Dynamic groundwater contamination vulnerability assessment techniques: a systematic review', *Hydrology*, 10, 9 (2023), 182 [A. Banerjee, L. Creedon, N. Jones, L.W. Gill, S. Gharbia]
- 'UISCEmod: open-source software for modelling water level time series in ephemeral karstic wetlands', *Environmental Modelling and Software*, 16 (2023), 105761 [J. Campanyà, T. McCormack, L.W. Gill, P.M. Johnston, A. Licciardi, O. Naughton]
- 'Inception horizon: a case study in the science communication of groundwater through song', *EGU general assembly 2023*, Vienna, Austria (2023), [F. McAuliffe, L.W. Gill, N.C. Walsh]
- 'The effect of nature-based willow system deployment at a catchment scale for flood control', *EGU general assembly 2023*, Vienna, Austria (2023), [B.A. Sarkar, L.W. Gill]
- 'Successful characterisation of on-site wastewater treatment system bioreactors using the Microbes of Activated Sludge and Anaerobic Digesters (MiDAS) taxonomic database', *EGU general assembly 2023*, Vienna, Austria (2023), [A.J. Criado Monleon, J. Knappe, C. Somlai, C.O. Betancourth, M. Ali, T.P. Curtis, L.W. Gill]
- 'Phosphorus bioavailability and speciation dynamics within fluvial suspended sediments', *EGU general assembly 2023*, Vienna, Austria (2023), <https://doi.org/10.5194/egusphere-egu23-7187> [D. O'Connell, Q. Zhang, D. Ferreira, S. Sandstrom, R. Goodhue, L. Gill, Y. Hu]
- 'Development of hybrid models to estimate gross primary productivity at a near-natural peatland using sentinel 2 data and a light use efficiency model', *Remote Sensing*, 15 (2023), 1673 [R. Ingle, S. Bhatnagar, B. Ghosh, L. Gill, S. Regan, J. Connolly, M. Saunders]
- 'Modelling the impacts of changing land use and climate on sediment and nutrient retention in lake Tana basin, upper Blue Nile River basin, Ethiopia', *Ecological Modelling*, 482, 110383 (2023), <https://doi.org/10.1016/j.ecolmodel.2023.110383> [B.G. Tikuye, L. Gill, M. Rusnak, B.R. Manjunatha]
- 'Hydraulic conductivity assessment of falling head percolation tests used for the design of on-site wastewater treatment systems', *Water Research*, 236, 119968 (2023), <https://doi.org/10.1016/j.watres.2023.119968> [L.W. Gill, J. Mac Mahon, J. Knappe, P. Morrissey]
- 'Development of hybrid models to estimate gross primary productivity at a near-natural peatland using sentinel 2 data and light use efficiency model', *Remote Sensing*, 15, 1673 (2023), <https://doi.org/10.3390/rs15061673> [R. Ingle, S. Bhatnagar, B. Ghosh, L. Gill, S. Regan, J. Connolly, M. Saunders]
- Grey, Thomas**, 'Residential long-term care and the built environment: balancing quality of life and infection control', *Journal of the American Medical Directors Association* (2023), <http://hdl.handle.net/2262/102862> [J. O'Donoghue, D. Xidous, T. Grey, D. O'Neill]
- 'Growing older urbanism: exploring the nexus between ageing, the built environment, and urban ecosystems', *Urban Transformations*, 5 (2023), 8 [T. Grey, D. Xidous, D. O'Neill, M.J. Collier]
- Hickey, John**, 'A time and ensemble equivalent linearization method for nonlinear systems under combined harmonic and random excitation', *Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science* (2023), <http://hdl.handle.net/2262/104107> [J. Hickey, T. Butlin, R. Langely, N. Onozato]
- 'Damping ratio estimation for a slender modular building from full scale ambient response monitoring', *Experimental Vibration Analysis for Civil Engineering Structures*, Milan (2023), <http://hdl.handle.net/2262/103698> [J. Hickey, H. Moore, B. Broderick, B. Fitzgerald]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

'The effect of acceleration signal length on the outputs from modal identification methods', *34th Irish Signals and Systems Conference (ISSC)* (2023), <http://hdl.handle.net/2262/103066> [H. Moore, B. Fitzgerald, J. Hickey, B. Broderick]

'Mitigation of wind induced accelerations in tall modular buildings', *Structures* (2022), <http://hdl.handle.net/2262/102431> [J. Hickey, B. Broderick, B. Fitzgerald, H. Moore]

'Alternative metrics for design decisions based on separating aleatory and epistemic probabilistic uncertainties', *Mechanical Systems and Signal Processing* (2022), <http://hdl.handle.net/2262/102270> [J. Hickey, R. Langley]

Hosseini, Seyedkeyvan, 'Optimising shared electric mobility hubs: insights from performance analysis and factors influencing riding demand', *Case Studies on Transport Policy*, 13 (2023), 101052 [K. Hosseini, A. Stefaniec, M. O'Mahony, B. Caulfield]

'A wolf in sheep's clothing: exposing the structural violence of private electric automobility', *Energy Research and Social Science* (2023), <http://hdl.handle.net/2262/102321> [K. Hosseini, A. Stefaniec]

McCormack, Sarah, 'Down-shifting of the incident light for photovoltaic applications', *Comprehensive Renewable Energy (Second Edition)*, ed T.M. Letcher, Elsevier Ltd (2022), 27 [Y. Jestin, S. Chandra, B. Cass, H. Ahmed, S.J. McCormack]

McNabola, Aonghus, 'A trait-based investigation into evergreen woody plants for traffic-related air pollution mitigation over time', *Science of the Total Environment*, 914, 169713 (2024), 1-20 [Y. Barwise, P. Kumar, K.V. Abhijith, J. Gallagher, A. McNabola, J.F. Watts]

'Energy savings potential and life cycle costs of deep energy retrofits in buildings with and without habitable style loft attic conversions: a case study of Ireland's residential sector', *Energy Policy*, 185, 113980 (2024), 1-12 [B. Considine, Y. Liu, A. McNabola]

'Performance analysis of a pumps-as-turbine under cavitating conditions', *40th International School of Hydraulics: Advances in Hydraulics Research*, Katy Rybackie, Poland (2023), 1-9 [C. Stephen, B. Basu, A. McNabola]

'Fish friendly micro-hydropower: centrifugal screw pump-as-turbines', *Proceedings of the 40th IAHR World Congress*, Vienna, Austria (2023), 1-6 [C. Stephen, M. Crespo-Chacon, A. McNabola]

'An economic and environmental optimization model for sizing a hybrid renewable energy and battery storage system in off-grid farms renewable energy', *Renewable Energy*, 220 (2024), 1-17 [A. Merida Garcia, J. Gallagher, J.A. Rodriguez Diaz, A. McNabola]

'Design and long-term performance of a pilot wastewater heat recovery system in a commercial kitchen in the tourism sector', *Water*, 15, 3646 (2023), 1-20 [J. Spriet, A.P. Sing, B. Considine, M.K. Murali, A. McNabola]

'Researching green process innovation across borders and boundaries through collaborative inquiry', *Journal of Applied Behavioral Science*, 59, 4 (2023), 556-584 [P. Coughlan, R. Bellini, A. Bello-Dambatta, N. Walker, P. Williams]

'Recycling waste heat from industrial wastewater treatment processes', *40th IAHR World Congress*, Vienna Austria (2023), 1-7 [M.K. Murali, J. Spriet, A. McNabola]

Misstear, Bruce, 'The water sources and chemistry of Irish holy wells', *Holy wells of Ireland, sacred realms and popular domains*, eds C. Ray, F. McCormick, Indiana, USA, Indiana University Press (2023), 77-89 [B.D.R. Misstear, L. Gill, C. McKenna, R. Foley]

'The use of sterol profiles, supported with other faecal source tracking methods, to apportion septic tanks contamination in rural catchments', *Environmental Pollution*, 341, 122884 (2023), <https://doi.org/10.1016/j.envpol.2023.122884> [D. Dubber, L. Brophy, D. O'Connell, P. Behan, M. Danaher, B. Misstear]

Wells and wellbeing: the hydrogeology of Irish holy wells, First, Dublin, Geological Survey Ireland (2023), 1-176 [B.D.R. Misstear]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

- O'Connell, David, 'The use of sterol profiles, supported with other faecal source tracking methods, to apportion septic tanks contamination in rural catchments', *Environmental Pollution*, 341, 122884 (2023), <https://doi.org/10.1016/j.envpol.2023.122884> [D. Dubber, L. Brophy, D. O'Connell, P. Behan, M. Danaher, C. Evans]
- O'Kelly, Brendan, 'Evaluation of arched EPS block and geocell inclusions in trench backfill for protection of buried flexible pipes', *Geotextiles and Geomembranes* (2024), 19 [S.N. Moghaddas Tafreshi, N. Joz Darabi, M. Azizian, B.C. O'Kelly, A. Faramarzi]
- 'Mixing nanoclay additive to improve internal erosion resistance of earth dams constructed of silty sand', *Proceedings of the first Mediterranean Geosciences Union Annual Meeting (MedGU 2021): Recent research on geotechnical engineering, remote sensing, geophysics and earthquake seismology*, eds A. Çiner, Z.A. Ergüler, M. Bezzeghoud, M. Ustuner, M. Eshagh, H. El-Askary, Istanbul, Turkey, Springer, Cham (2024), 65-69 [S.M.A. Zomorodian, M.J. Ataei Noghab, M. Zolghadr, B.C. O'Kelly]
- 'Laboratory hydraulic tensile strength correlation with strength-based brittleness indices for carbonate reservoirs', *Geosciences*, 14, 2 (2024), 16 (52) [M. Ezazi, E. Ghorbani, A. Shafiei, E.S. Teshnizi, B.C. O'Kelly]
- 'Sustainability challenges of clean-energy critical minerals: copper and rare earths', *Environmental Geotechnics* (2024), 13 [E.K. Paleologos, A.O. Mohamed, D.N. Singh, B.C. O'Kelly, M. El Gamal, A. Mohammad]
- 'Theory of liquid and plastic limits for fine soils, methods of determination and outlook', *Geotechnical Research*, 11, 1 (2024), 43-61 [B.C. O'Kelly]
- 'Discussion: development of a single-point method to determine soil plastic limit using fall-cone data [Geotech Geol Eng 41:4473-4485, 2023]', *Geotechnical and Geological Engineering* (2023), 13 [B.C. O'Kelly, A. Soltani]
- 'Effect of nano-silica on engineering properties of lime-treated marl soil', *Transportation Geotechnics*, 43 (2023), 14 (101123) [J. Karimiazar, E. Sharifi Teshnizi, B.C. O'Kelly, S. Sadeghi, N. Karimizad, A. Yazdi]
- 'Reverse extrusion test for fine-grained soil characterisation: internal flow pattern with ANN-enhanced particle tracking', *Proceedings of the fourth international symposium on machine learning and big data in geoscience*, Cork, Ireland (2023), 3 (94) [S. Xu, J. Lai, B.C. O'Kelly, B. Zhao]
- 'Converting optimum compaction properties of fine-grained soils between rational energy levels', *Transportation Geotechnics*, 42 (2023), 12 (101096) [A. Soltani, M. Azimi, B.C. O'Kelly, S. Horpibulsuk]
- 'Discussion of 'Uniqueness of suction stress value at liquid limit of soil'', *Journal of Geotechnical and Geoenvironmental Engineering*, 149, 11 (2023), 2 (07023016) [S.K. Haigh, B.C. O'Kelly, P.J. Vardanega]
- 'Discussion: A fuzzy classification process for swelling soils [Transp. Infrastruct. Geotechnol. 10 (3), 474-487]', *Transportation Infrastructure Geotechnology* (2023), 13 [A. Soltani, M. Azimi, B.C. O'Kelly]
- '3D deformation and strain fields in drying kaolinite obtained from tracking internal bubbles using x-ray CT and ANN', *Acta Geotechnica*, 19, 1 (2024), 99-113 [S. Xu, J. Lai, B.C. O'Kelly, B. Zhao]
- 'Effect of chitin, chitosan and NaCMC biopolymers on the consistency limits of organic silt', *International Journal of Environmental Science and Technology*, 21, 2 (2024), 2121-2128 [G. Kannan, B.C. O'Kelly, E.R. Sujatha]
- 'A comprehensive review of soil remolding toughness determination and its use in the classification of fine-grained soils', *Applied Sciences*, 13, 9 (2023), 19 (article 5711) [B.C. O'Kelly, J. Alonso-Azcárate J.M. Moreno-Maroto]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

- 'Discussion of 'Practical transitions among undrained shear strengths of remolded samples from pocket penetrometer tests and other laboratory tests' eds T.O. Budak, A. Gurbuz, B. Eksioglu, [Catena 213 (2022) 106148]', *Catena*, 228 (2023), 4 Geosciences [B.C. O'Kelly]
- O'Mahony, Margaret*, 'Optimising shared electric mobility hubs: insights from performance analysis and factors influencing riding demand', *Case Studies on Transport Policy*, 13 (2023), 101052 [K. Hosseini, A. Stefaniec, M. O'Mahony, B. Caulfield]
- Pavia, Sara*, 'Potential of spent fluid cracking catalyst (FCC) waste for low-carbon cement production', *Cement*, 14 (2023), <http://hdl.handle.net/2262/103963> [Z. Lei, S. Pavia]
- 'Alkali fusion of bauxite refining residue (red mud-RM) to produce low carbon cements', *SN Applied Sciences*, 5, 216 (2023), <http://hdl.handle.net/2262/104006> [S. Pavia, R. Goodhue, O. Alelweet]
- 'Hot-lime-mixed hemp concretes', *Bio-based building materials*, eds Amziane, Merta, Springer (2023), 185-197 [Z. Wang, S. Pavia]
- 'Appraisal of alum sludge waste for low-carbon, calcium aluminate cement production', *Proceedings of the 2nd int. conf. Construction, Energy, Environment and Sustainability-CEES 2023*, Madeira, (2023), <http://hdl.handle.net/2262/104005> [Z. Lei, S. Pavia]
- 'Properties of alkali activated materials made with bauxite refining residue (red mud-RM) and blends of RM with fly ash (FA)', *Proceedings of the 2nd int. conf. Construction, Energy, Environment and Sustainability-CEES 2023*, Madeira, (2023), <http://hdl.handle.net/2262/104004> [O. Alelweet, S. Pavia]
- 'Hot-lime-mixed hemp concretes', *5th International Conference on Bio-Based Building Materials, ICBBM-2023*, eds Amziane, Merta, Vienna, Austria (2023), 1-10 [Z. Wang, S. Pavia]
- 'Suitability of a high-calcium slag for alkali activation, and strength and microstructure of the resultant materials', *1st international conference on environmental science and green energy*, ed G. Edwards, Clichy, Paris (2022), <http://hdl.handle.net/2262/102390> [O. Alelweet, S. Pavia]
- 'RILEM TC 277-LHS report: how hot are hot-lime-mixed mortars? A review', *Materials and Structures* (2023), 56-87 [S. Pavia, R. Veiga, J. Hughes, G. Pesce, J. Valek, J.I Alvarez]
- 'Reactivity of raw, pyroprocessed and GGBS-blended alum sludge (AS) waste for sustainable cement production', *Journal of Building Engineering*, 65, 105787 (2023), <http://hdl.handle.net/2262/102297> [Z. Lei, S. Pavia]
- 'Medieval lime-gypsum mortars in Ireland', *Conf. Ins. sur la Chaux (CIC-2023)*, ed Ibnoussina, Université Cadi Ayyad, Faculté des Sciences Semlalia, Marrakech (2023), <http://hdl.handle.net/2262/102313> [S. Pavia]
- 'The mortars of Coliemore harbour: comparison with other 19th century mortars of harbours and fortifications in Dublin Bay', *Conf. Ins. sur la Chaux (CIC-2023)*, ed Ibnoussina, Université Cadi Ayyad, Faculté des Sciences Semlalia, Marrakech (2023), <http://hdl.handle.net/2262/102312> [J. Craig, S. Pavia]
- 'Virtual historic centers: digital representation of archaeological heritage', *Handbook of Cultural Heritage Analysis*, S. D'Amico, V. Venuti eds, Switzerland, Springer Nature (2022), <http://hdl.handle.net/2262/102310> [M. Murphy, S. Fai, L. Chow, E. Meegan, S. Scandurra, S. Pavia, A. Corns, J. Cahill]
- 'Pozzolanic and hydraulic activity of bauxite for binder production', *Journal of Building Engineering*, 51, 104186 (2022), <http://hdl.handle.net/2262/102298> [O. Alelweet, S. Pavia]
- Shi, Yunhong*, 'Real-world natural passivation phenomena can limit microplastic generation in water', *Chemical Engineering Journal*, 425 (2022), <http://hdl.handle.net/2262/98026> [Y. Shi, D. Li, L. Xiao, D. Mullarkey, D.K. Kehoe, E.D. Sheerin]
- 'The influence of drinking water constituents on the level of microplastic release from plastic kettles', *Journal of Hazardous Materials*, 425 (2022), DOI: 10.1016/j.jhazmat.2021.12 [Y. Shi, D. Li, L. Xiao, D. Mullarkey, E.D. Sheerin, L. Yang]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

Stefaniec, Agnieszka, 'Optimising shared electric mobility hubs: insights from performance analysis and factors influencing riding demand', *Case Studies on Transport Policy*, 13(2023), 101052 [Hosseini, K., Stefaniec, A., O'Mahony, M., Caulfield, B]

'A wolf in sheep's clothing: exposing the structural violence of private electric automobility', *Energy Research and Social Science* (2023), <http://hdl.handle.net/2262/102321> [K. Hosseini, A. Stefaniec]

West, Roger, 'State of the art review of bamboo reinforced concrete structural elements', *Magazine of Concrete Research* (2023), 27 [P.R. Himasree, C. Korde, R.P. West, N. Ganesan]

'Public sector BIM adoption: development and evaluation of government policy interventions: a systematic literature review', *30th EG-ICE international conference on intelligent computing*, UCL, London (2023), 531-538 [S. Kuang, A. Hore, A. Hassan, B. McAuley, R.P. West]

'Polystyrene concrete', *A cast of 50*, eds R.P. West, R. Byrne, Dublin (2023), 84 [R.P. West]

A Cast of 50, Dublin, Irish Concrete Society (2023), 1-123 [R.P. West, R. Byrne]

Xiao, Liwen, 'Role of suspended solids on the co-precipitation of pathogenic indicators and antibiotic resistance genes with struvite from digested swine wastewater', *Journal of Hazardous Materials*, 459 (2023), 132235 [B. Wenjin, T. Ru, W. Guangxu, W. We, Y. Shouju, L. Xiao]

'Co-precipitation of heavy metals with struvite from digested swine wastewater: role of suspended solids', *Journal of Hazardous Materials*, 455 (2023), 131633 [B. Wenjin, T. Ru, W. Guangxu, W. We, Y. Shouju, L. Xiao]

'A novel strategy of high oxygen vacancy concentration regulation for promoting the formation of nonradical species in the directional activation of peroxymonosulfate', *Chemical Engineering Journal*, 468 (2023), 143839 [C. Huanq, L. Zhen, Y. Xingji, H. Peiha, S. Chunxu, L. Xiao]

'Recent implementations of hydrogel-based Microbial Electrochemical Technologies (METs) in sensing applications', *Sensors*, 23, 2 (2023), 641 [Z. Wang, D. Li, Y. Shi, Y. Sun, S. Okeke, L. Xiao]

'Alcohol pretreatment to eliminate the interference of micro additive particles in the identification of microplastics using Raman spectroscopy', *Environmental Science and Technology*, 56, 17 (2022), 12158-12168 [D. Li, E.D. Sheerin, Y. Shi, L. Xiao, L. Yang, J. Boland]

'Structure evolution of air cathodes and their application in electrochemical sensor development and wastewater treatment', *Science of The Total Environment*, 869 (2023), 161689 [D. Li, Y. Sun, Y. Shi, Z. Wang, S. Okeke, L. Xiao]

'Characterising operational performance and oxygen crossover of the low-cost cylindrical cathode in microbial fuel cells', *Journal of Environmental Chemical Engineering*, 11, 2 (2023), 109462 [D. Li, Y. Shi, Z. Wang, F. Gao, L. Yang, L. Xiao]

'High levels of microparticles release from biodegradable polylactic acid paper cups compared with polyethylene-lined cups', *Chemical Engineering Journal*, 468 (2023), 143620 [L. Yang, D. Li, Y. Shi, C. Hill, R. Pilliadugula, L. Xiao]

'Application of 3D printing technology in sensor development for water quality monitoring', *Sensors*, 23, 5 (2023), 2366 [Y. Sun, D. Li, Y. Shi, Z. Wang, S. Okeke, L. Xiao]

'Microbe-based sensor for long term detection of urine glucose', *Sensors*, 22 (2022), 5340 [D. Li, Y. Shi, Y. Sun, Z. Wang, D.K. Kehoe, L. Xiao]

'The influence of drinking water constituents on the level of microplastic release from plastic kettles', *Journal of Hazardous Materials*, 425, 127997 (2022), <http://hdl.handle.net/2262/98027> [Y. Shi, D. Li, L. Xiao, E.D. Sheerin, D. Mullarkey, L. Yang]

ELECTRONIC AND ELECTRICAL ENGINEERING

Cleare, Ann, 'Gravity dreams iii (orbiting)', for two electric guitars (2023), [A. Cleare]

'Gravity Dreams ii', for two pianos, Miller Theatre, Columbia Univeristy (2023), [A. Cleare]

'MIDHE', MIDHE for solo voices, solo accordion, spatialised choir, orchestra (2023), [A. Cleare]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

- Dowling, William, 'Inertial rotational diffusion and magnetic relaxation of the spin system in a strong magnetic field', *Phys. Rev. B*, 107, 17 (2023), 174426-1-174426-10 [S.V. Titov, W.J. Dowling, V.A. Shchelkonogov, A.S. Titov]
- Eadie, Jimmy, 'Soundscapes of a century: the art and transmission of Irish broadcasting's 100-year milestone', *Leonardo*, 57, 1 (2024), 56-68 [J. Eadie]
- 'Ragaireacht', *A sound word almanac*, ed B. Herzogenrath, London, Bloomsbury Publishing (2024), 172-180 [J. Eadie]
- 'History play', Project Art Centre, Dublin Theatre Festival, Arts Council (2023), [J. Eadie]
- 'Automated audio time alignment for multi-microphone setups - an open-source approach', *IEEE explore, signal processing, circuits and systems, SPA 2023, Signal Processing-Algorithms Architecture and Applications*, Pozan, Poland, IEEE (2023), 10 [J. Eadie]
- 'Collaboration in sound design and music composition for theatre', *Center of advanced studies research group, staging sound. Reflecting theatre music and sound design*, Department of Theatre Studies at the LMU Munich, Gedanken und Analysen zur aktuellen Praxis der Theatermusik (2023), 5-15 [J. Eadie]
- 'Cascando', Skibbereen, Co. Kerry, Ireland, Arts Council/Skibberreen Arts Festival (2023), [J. Eadie]
- 'Theory and praxis within sound, hybrid, and installation art', *New aesthetic expressions new media, technology, and the arts, eighteenth international conference on the arts in society*, Jagiellonian University Kraków, Poland, The Arts in Society (2023), 20-30 [J. Eadie]
- 'The sudden', Dublin Dance Festival, Project Arts Centre, Dublin, Ireland, Arts Council Ireland (2023), [J. Eadie, Pan Pan Theatre]
- 'Mespil in the dark', Fastnet Film Festival, Schull, Cork, Ireland, Fastnet (2023), [J. Eadie]
- 'Dinner for One (360 VR)', Philadelphia Independent Film Festival (2023), [J. Eadie]
- 'Mespil in the dark', Philadelphia Independent Film Festival, Pennsylvania, USA (2023), [J. Eadie]
- 'Intermediality and the aural pivot', *SpokenWeb research network, reverb: echo-locations of sound and space*, University of Alberta, Humanities Centre, Edmonton, AB, Canada, UALBERTA (2023), 15-25 [J. Eadie]
- 'Audial kinetics and the disembodied voice', *Lecture Notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering*, 11 (2023) [Jimmy Eadie]
- Fannin, Paul, 'Experimental investigations on the ferromagnetic resonance and absorbing properties of a ferrofluid in the microwave range', *Magnetochemistry* 2024, 10, 7, 10, 7 (2024), 1-16 [I. Malaescu, C.N. Marin, P.C. Fannin]
- Farhang, Arman, 'RIS meets aerodynamic HAPS: a multi-objective optimization approach', *IEEE Wireless Communications Letters* (2023), 1-1 [A. Azizi, A. Farhang]
- 'Low-complexity reliability-based equalization and detection for OTFS-NOMA', *arXiv* (2023), <http://dx.doi.org/10.48550/arXiv.2304.13607> [S. McWade, A. Farhang, M.F. Flanagan]
- 'Downlink transmission in FBMC-based massive MIMO with co-located and distributed antennas', *TechRxiv* (2023), <http://dx.doi.org/10.36227/techrxiv.22720837> [H. Hosseiny, A. Farhang, B. Farhang-Boroujeny]
- 'Channel estimation and turbo equalization for coded OTFS and OFDM: a comparison', *IEEE Wireless Communications Letters* (2023), <http://dx.doi.org/10.1109/LWC.2023.3284778> [X. Huang, A. Farhang, R. Chen]
- 'Joint channel estimation and equalization in massive MIMO using a single pilot subcarrier', *arXiv* (2022), <http://dx.doi.org/10.48550/arXiv.2212.07781> [D.L. Li, A. Farhang]
- 'Time and frequency synchronization for OTFS', *TechRxiv* (2022), <http://dx.doi.org/10.36227/techrxiv.19638375> [M. Bayat, A. Farhang]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

- 'RIS meets aerodynamic HAPS: a multi-objective optimization approach', *arXiv* (2023), <http://dx.doi.org/10.48550/arXiv.2301.10682> [A. Azizi, A. Farhang]
- 'OTFS without CP in massive MIMO: breaking Doppler limitations with TR-MRC and windowing', *IEEE Wireless Communications and Networking Conference (WCNC)*, Austin, TX, USA (2022), 2518-2523 [D.L. Li, A. Farhang]
- 'Low-complexity equalization and detection for OTFS-NOMA', *IEEE International conference on communications*, Rome, Italy (2023), <http://dx.doi.org/10.48550/arXiv.2211.07388> [S. McWade, M.F. Flanagan, A. Farhang]
- 'A practical pilot for channel estimation of OTFS', *IEEE International conference on communications*, Rome, Italy (2023), <http://hdl.handle.net/2262/102896> [P.S. Sanoopkumar, A. Farhang]
- 'Joint CFO and channel estimation for RIS-aided multi-user massive MIMO systems', *IEEE Transactions on Vehicular Technology* (2023), <https://doi.org/10.1109/TVT.2023.3268247> [S. Jeong, A. Farhang, N.S. Perovic, M.F. Flanagan]
- 'Practical synchronization for OTFS', *IEEE International conference on communications*, Rome, Italy (2023), <http://hdl.handle.net/2262/102893> [M. Bayat, P.S. Sanoopkumar, A. Farhang]
- 'Time and frequency synchronization for OTFS', *IEEE Wireless Communications Letters*, 11, 12 (2022), 2670-2674 [M. Bayat, A. Farhang]
- Kaszubowska-Anandarajah, Aleksandra**, 'Generation of a wideband OFC by the correlation of multiple modes of a gain-switched Fabry Pérot laser', *Journal of Lightwave Technology*, 41, 15 (2023), 5084-5090 [P.D. Lakshmijayasimha, A. Kaszubowska-Anandarajah, M. Srivastava, E.P. Martin, P.M. Anandarajah]
- 'A wavelength tunable multi-section PIC as an upstream transmitter for TWDM networks', *Journal of Lightwave Technology*, 41, 14 (2023), 4672-4679 [A. Sharma, A.M. Kaszubowska-Anandarajah, M. Wallace, G. Jain, J. Braddell, F. Smyth]
- 'Microresonator-based spectral translation of a gain-switched semiconductor laser comb', *Optics Letters*, 48, 9 (2023), 2309 [W. Weng, A. Kaszubowska-Anandarajah, P.M. Anandarajah, A.N. Luiten]
- 'Reconfigurable photonic integrated transmitter for metro-access networks', *Journal of Optical Communications and Networking*, 15, 3 (2023), A92 [A. Kaszubowska-Anandarajah, S.T. Ahmad, C.G.H. Roeloffzen, P.W.L. van Dijk, A. Sharma, M. Srivastava]
- 'A six-section photonic integrated transmitter with chirp control for extension of the transmission reach', *IEEE Photonics Journal*, 14, 4 (2022), 1-7 [A. Sharma, A.M. Kaszubowska-Anandarajah, Aleksandra, M.N. Hammad, M. Wallace, J. Braddell, F. Smyth]
- 'Optical linewidth tolerant mmW generation employing a dual-stage active demultiplexer', *IEEE Photonics Technology Letters*, 34, 9 (2022), 451-454 [P.D. Lakshmijayasimha, A. Kaszubowska-Anandarajah, S. Tajammul A., E.P. Martin, P.M. Anandarajah]
- 'Microresonator dissipative kerr solitons synchronized to an optoelectronic oscillator', *Physical Review Applied*, 17, 2 (2022), 10.1103/PhysRevApplied.17.024030 [W. Weng, J. He, A. Kaszubowska-Anandarajah, P.M. Anandarajah, T.J. Kippenberg]
- Lopez Valdes, Alejandro**, 'Editorial: Bridging the gap between integrative neuroscience and translational neuroscience', *Frontiers in Integrative Neuroscience*, 17 (2023), 1296701- [E. Manjarrez, G. Curia, K. Stecina, A. Lopez Valdes]
- "The Mind' promotes brain synchronization: an ecological evaluation of brain synchronization in co-operative tasks", *Annual international conference of the IEEE engineering in medicine and biology society. IEEE engineering in medicine and biology society. Annual international conference*, 2023 (2023), 1-4 [S. Farrell, A. Lopez Valdes]
- 'Age-friendly initiatives: Mexico', *The Journal of Nutrition, Health and Aging* (2023), <https://doi.org/10.1016/j.jnha.2023.100007> [S. Solis-López, A. Gutiérrez-Torres, A. López-Valdés, J.A. Ávila-Funes, C. García-Peña, B. Lawlor]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

- 'The impact of temporal synchronisation imprecision on TRF analyses', *Journal of Neuroscience Methods*, 385 (2023), 109765 [S. Carta, A.M.A. Mangiacotti, A.L. Valdes, R.B. Reilly, F. Franco, G.M. Di Liberto]
- Marchetti, Nicola**, '3-D beam-steering MIMO antenna for on-body IoT applications', *IEEE Transactions on Antennas and Propagation*, 72, 3 (2024), 2241-2251 [A. Zandamela, N. Marchetti, M.J. Ammann, A. Narbudowicz]
- 'Analysis of temporal robustness in massive machine type communications', *IEEE Internet of Things Journal*, 10, 8 (2023), 6915-6927 [D. Goswami, M. Dzaferagic, H. Siljak, S.S. Das, N. Marchetti]
- 'Low-complexity dynamic directional modulation: vulnerability and information leakage', *IEEE Internet of Things Journal* (2023), 1-1 [P.E.G. Silva, A. Narbudowicz, N. Marchetti, P.H.J. Nardelli, R.A.A. de Souza, J.M. Moualeu]
- 'Semantic-functional communications in cyber-physical systems', *IEEE Network* (2023), 1-1 [P.E.G. Silva, P.H.J. Nardelli, A.S. De Sena, H. Siljak, N. Nevaranta, N. Marchetti, R.A.A. De Souza]
- 'Channel emulator framework for underwater acoustic communications', *Applied Sciences (Switzerland)*, 13, 9 (2023), <http://dx.doi.org/10.3390/app13095818> [I. Dey, N. Marchetti]
- 'Handover optimisation for high-capacity low-latency 5G NR mmWave communication', *Ad Hoc Networks*, 153, 103328 (2024), <http://dx.doi.org/10.1016/j.adhoc.2023.103328> [D. da Silva Brilhante, J.F. de Rezende, N. Marchetti]
- 'Small dual-band 3D beamforming MIMO antenna', *European microwave conference*, Berlin, IEEE (2023), <http://hdl.handle.net/2262/104163> [A. Zandamela, N. Marchetti, A. Narbudowicz]
- 'Enabling semantic-functional communications for multiuser event transmissions via wireless power transfer', *MDPI Sensors*, 23, 5 (2023), <http://dx.doi.org/10.3390/s23052707> [P. Gorla, N. Marchetti, P. Nardelli, R. De Souza]
- 'Exploiting multimode antennas for MIMO and AoA estimation in size-constrained IoT devices', *IEEE Sensors Letters*, 7, 3 (2023), <http://dx.doi.org/10.1109/LSENS.2023.3244870> [A. Zandamela, A. Chiumento, N. Marchetti, M. Ammann, A. Narbudowicz]
- 'Energy-efficient physical layer security for wearable IoT devices', *Proceedings of the 17th European conference on antennas and propagation*, Florence, Italy (2023), <http://hdl.handle.net/2262/101963> [A. Zandamela, N. Marchetti, A. Narbudowicz]
- O'Loughlin, Declan**, 'Design limitations of using magnetic inductive coupling to verify nasogastric tube placement', *17th European conference on antennas and propagation*, Florence, Italy (2023), <http://hdl.handle.net/2262/101969> [N.P. Silva, A. Elahi, M. O'Halloran, D.T. O'Keeffe, D. O'Loughlin]
- Perova, Tatiana**, 'Effects of N-functional groups on the electron transfer kinetics of VO²⁺/VO₂⁺ at carbon: decoupling morphology from chemical effects using model systems', *Electrochimica Acta*, 475, 143640 (2024), 11 [M. Costa de Oliveira, C. Schröder, M. Brunet-Cabré, H. Nolan, A. Forner-Cuenca, T.S. Perova]
- 'XRD and spectroscopic investigations of ZIF-microchannel glass plates composites', *Materials*, 16, 2410 (2023), 1-15 [J. Narimbi, S. Balakrishnan, T.S. Perova, G. Dee, G.F. Swiegers, Y.K. Gun'ko]
- Siljak, Harun**, 'Analysis of temporal robustness in massive machine type communications', *IEEE Internet of Things Journal*, 10, 8 (2023), 6915-6927 [D. Goswami, M. Dzaferagic, H. Siljak, S.S. Das, N. Marchetti]
- 'Guest editorial special feature on quantum biology', *IEEE Transactions on Molecular, Biological and Multi-Scale Communications*, 9, 2 (2023), 233-234 [H. Šiljak]
- 'Quantum observer: the representation of quantum science and technology in visual media and arts', *Morals and Machines*, 2, 2 (2023), 54-63 [H. Šiljak, F. McDermott]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

- 'A hybrid indoor altimetry based on barometer and UWB', *Sensors*, 23, 9 (2023), 4180 [S. Minghao, W. Yunjia, Z. Ning, S. Cheekiat, S. Harun]
- 'Semantic-functional communications in cyber-physical systems', *IEEE Network* (2023), 1-1 [P.E.G. Silva, P.H.J. Nardelli, A.S. De Sena, H. Siljak, N. Nevaranta, N. Marchetti]
- Vij, Jagdish**, 'Optical activity and linear electrooptic response in the paraelectric subphase of an achiral ferroelectric nematic compound', *Liquid Crystals*, 50, 7-10 (2023), 1375-1382 [N. Yadav, Y.P. Panarin, J.K. Vij, W. Jiang, G.H. Mehl]
- 'Anomalous diffusion, gigahertz, and terahertz spectroscopy of aliphatic ketones', *Physical Review E*, 106, 6 (2022), <http://dx.doi.org/10.1103/PhysRevE.106.064612> [A.S. Titov, S.V. Titov, J.K. Vij]
- 'Collective relaxation processes in nonchiral nematics', *Crystals*, 13, 6 (2023), <http://dx.doi.org/10.3390/cryst13060962> [N. Yadav, Y.P. Panarin, W. Jiang, G.H. Mehl, J.K. Vij]
- 'Response to an applied electric field in an antiferroelectric 1/2 subphase: the role of thermal fluctuations', *Physical Review E*, 107, 6 (2023), 11 [K. Shirota, A. Fukuda, N. Yadav, V.P. Panov, J.K. Vij, Y. Yamagata]
- 'Spontaneous mirror symmetry breaking and chiral segregation in the achiral ferronematic compound DIO', *Phys. Chem. Chem. Phys.*, 25 (2023), 9083-9091 [N. Yadav, Y.P. Panarin, G.H. Mehl, J.K. Vij]
- 'Two mechanisms for the formation of the ferronematic phase studied by dielectric spectroscopy', *Journal of Molecular Liquids*, 378 (2023), 121570 [N. Yadav, Y.P. Panarin, J.K. Vij, W. Jiang, G.H. Mehl]
- Wetterling, Friedrich**, 'Advanced theranostic nanocarrier-mediated delivery of NGF in a combination therapy trigger enhanced recovery after stroke', *Journal of Cerebral Blood Flow and Metabolism, Brain and Brain-PET 2022*, Glasgow, Scotland (2022), 263-264 [M. Wacker, F. Wetterling, T. Feczko, K. Arkelius, A. Arnou, J. Lellouche, S. Ansar]
- 'In silico modelling of flow-induced collapse of blood vessels: a comparative study of volume statuses', *29th annual conference of the section of bioengineering of the royal academy of medicine in Ireland (Bini 2024)*, Belfast, Northern Ireland (2024), <http://hdl.handle.net/2262/107805> [N. Aristokleous, D. Collopy, F. Wetterling, F. Sweeney, E. O'Cearbhaill, M. O'Rourke]
- 'How inferior vena cava collapsibility index from a novel implantable sensor correlates with estimated plasma volume and nt-PROBNP: a study in patients with chronic heart failure', *Czech Cardiovascular Research and Innovation Days 2023*, Prague, Czech Republic (2023), 1 [F. Málek, P. Došká, F. Wetterling, Z. Marešová, V. Reddy, P. Neužil]
- 'Monitoring of volume status using a novel sensor for the assessment of inferior vena cava area and collapsibility in a patient with HFREF receiving advanced heart failure therapies', *Czech Cardiovascular Research and Innovation Days 2023*, Prague, Czech Republic (2023), 1 [F. Málek, P. Došká, F. Wetterling, Z. Marešová, V. Reddy, P. Neužil]
- 'Changes in inferior vena cava area represent a more sensitive metric than changes in filling pressures during experimental manipulation of intravascular volume and tone', *European Journal of Heart Failure*, 24, 3 (2022), 455-462 [J.B. Ivey-Miranda, F. Wetterling, R. Gaul, S. Sheridan, J.M. Testani]

Research student

- Zandamela, Abel Abdul**, 'Energy-efficient physical layer security for wearable IoT devices', *Proceedings of the 17th European conference on antennas and propagation*, Florence, Italy (2023), <http://hdl.handle.net/2262/101963> [A. Zandamela, N. Marchetti, A. Narbudowicz]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

MECHANICAL, MANUFACTURING AND BIOMEDICAL ENGINEERING

Ahearne, Mark, 'Optimization and evaluation of oxygen-plasma-modified, aligned, poly (ϵ -caprolactone) and silk fibroin nanofibrous scaffold for corneal stromal regeneration', *Biomaterials and Biosystems*, 12, 100083 (2023), <http://dx.doi.org/10.1016/j.bbiosy.2023.100083> [P. Bhattacharjee, P.W. Madden, E. Patriarca, M. Ahearne]

Bennett, Gareth, 'Ultra-broadband sound absorption in a compact multi-chamber micro-perforated panel absorber with varying depths', *AIP Advances*, 14, 1 (2024), <http://hdl.handle.net/2262/104341> [J. Wang, G.J. Bennett]

'Review of civil airplane landing gear noise study and its control approaches', *Hangkong Xuebao/Acta Aeronautica et Astronautica Sinica*, 43, 8 (2022), <http://dx.doi.org/10.7527/S1000-6893.2022.26996> [K. Zhao, J. Liang, I. Belyaev, V. Kopiev, G. Bennett]

'Aeroacoustics research in Europe: the CEAS-ASC report on 2022 highlights', *Journal of Sound and Vibration*, 568 (2024), 117895 [C. Schram, G.J. Bennett]

'Numerical study of the trajectory, penetration, and interaction of single and tandem jets in a crossflow using LES', *Journal of Aerospace Engineering*, 37, 1 (2024), <http://hdl.handle.net/2262/103990> [L. Huang, K. Zhao, G.J. Bennett]

'Design and testing of an acoustic-to-flow energy conversion device', *AIAA AVIATION 2023 Forum*, San Diego, CA, USA, American Institute of Aeronautics and Astronautics (2023), <http://dx.doi.org/10.2514/6.2023-3564> [K.M. Figueroa-Ibrahim, E.P. Ross, G.J. Bennett, S. Morris, D.L. Sutliff]

'Evaluation of an additive-manufactured acoustic metamaterial as an nacelle liner using the active noise control fan', *AIAA AVIATION 2023 Forum*, San Diego, CA, USA, American Institute of Aeronautics and Astronautics (2023), <http://dx.doi.org/10.2514/6.2023-3827> [E. Ross, K.M. Figueroa-Ibrahim, D.L. Sutliff, S. Morris, G.J. Bennett]

'Low-frequency broadband noise absorption of multi-chamber micro-perforated pane absorbers in normal and grazing acoustic incidence', *AIAA AVIATION 2023 Forum*, San Diego, CA, USA, American Institute of Aeronautics and Astronautics (2023), <http://dx.doi.org/10.2514/6.2023-3829> [J. Wang, G.J. Bennett, T. Humbert, Y. Auregan, M. Åbom, H. Boden]

'Acoustic plate-valve resonator for low-frequency sound absorption', *AIP Advances*, 13, 6 (2023), 065210 [M.R. Hossain, E.P. Ross, G.J. Bennett]

Buckley, Conor, 'Harmonization and standardization of nucleus pulposus cell extraction and culture methods', *JOR Spine*, 6, 1 (2023), <http://dx.doi.org/10.1002/jsp2.1238> [S. Basatvat, F.C. Bach, M.N. Barcellona, A.L. Binch, C.L. Le Maitre]

'Preclinical to clinical translation for intervertebral disc repair: effects of species-specific scale, metabolism, and matrix synthesis rates on cell-based regeneration', *JOR Spine* (2023), <http://hdl.handle.net/2262/103962> [E.E. McDonnell, N. Wilson, M.N. Barcellona, T. Ni Neill, J. Bagnall, C.T. Buckley]

Hoey, David, 'Bioengineering extracellular vesicles: smart nanomaterials for bone regeneration', *Journal of Nanobiotechnology*, 21, 1 (2023), 137 [K. Man, N.M. Eisenstein, D.A. Hoey, S.C. Cox]

'A microphysiological model of bone development and regeneration', *Biofabrication* (2023), <http://dx.doi.org/10.1088/1758-5090/acd6be> [I.T. Whelan, R. Burdis, S. Shahreza, E. Moeendarbary, D.A. Hoey, D.J. Kelly]

'Mechanoregulatory role of TRPV4 in prenatal skeletal development', *Science Advances*, 9, 4 (2023), <http://hdl.handle.net/2262/102541> [N.S. Khatib, J. Monsen, S. Ahmed, Y. Huang, D.A. Hoey, N.C. Nowlan]

Kelly, Daniel, 'A multifunctional scaffold for bone infection treatment by delivery of microRNA therapeutics combined with antimicrobial nanoparticles', *Advanced Materials*, 36, 6 (2024), <http://dx.doi.org/10.1002/adma.202307639> [J.M. Sadowska, R.N. Power, K.J. Genoud, A. Matheson, A.R. Boccaccini, F.J. O'Brien]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

'The influence of pH and salt concentration on the microstructure and mechanical properties of meniscus extracellular matrix-derived implants', *Journal of Biomedical Materials Research-Part A*, 112, 3 (2024), 359-372 [S. Salinas-Fernandez, O. Garcia, D.J. Kelly, C.T. Buckley]

'Morphological induced improvements in the bulk mechanical properties of chemically etched additively manufactured Ti-6Al-4V micro-struts', *Additive Manufacturing*, 75, 103748 (2023), <http://dx.doi.org/10.1016/j.addma.2023.103748> [C. O'Keeffe, D. Taylor, C. Lally, D.J. Kelly]

'Bioprinting of scaled-up meniscal grafts by spatially patterning phenotypically distinct meniscus progenitor cells within melt electrowritten scaffolds', *Biofabrication*, 16, 1 (2024), <http://dx.doi.org/10.1088/1758-5090/ad0ab9> [X. Barcela, K. Eichholz, A. Dufour, O. Garcia, D.J. Kelly]

'Corrigendum: 3D organ-on-a-chip: the convergence of microphysiological systems and organoids (Frontiers in Cell and Developmental Biology, (2022), 10, (1043117), 10.3389/fcell.2022.1043117)', *Frontiers in Cell and Developmental Biology*, 12, 1365671 (2024), <http://dx.doi.org/10.3389/fcell.2024.1365671> [L.S. Baptista, C. Porini, G.S. Kronemberger, D.J. Kelly, C.M. Perrault]

'Temporal enzymatic treatment to enhance the remodeling of multiple cartilage microtissues into a structurally organized tissue', *Advanced Healthcare Materials*, 13, 3 (2024), <http://dx.doi.org/10.1002/adhm.202300174> [R. Burdis, X.B. Gallostra, D.J. Kelly]

'Integrating melt electrowriting and fused deposition modeling to fabricate hybrid scaffolds supportive of accelerated bone regeneration', *Advanced Healthcare Materials*, 13 (2023), 1-14 [K.F. Eichholz, P. Pitacco, R. Burdis, F. Chariyev-Prinz, X. Barceló, D.J. Kelly]

'Melt electrowritten scaffold architectures to mimic tissue mechanics and guide neo-tissue orientation', *Journal of the Mechanical Behavior of Biomedical Materials*, 150 (2024), 1-15 [A.S. Federici, B. Tornifoglio, C. Lally, O. Garcia, D.J. Kelly, D.A. Hoey]

'Antitumor immunity mediated by photodynamic therapy using injectable chitosan hydrogels for intratumoral and sustained drug delivery', *Biomacromolecules*, 25, 1 (2024), 24-42 [P. Gierlich, C. Donohoe, K. Behan, D.J. Kelly, M.O. Senge, L.C. Gomes-Da-Silva]

'Time-dependent anabolic response of hMSC-derived cartilage grafts to hydrostatic pressure', *Journal of Tissue Engineering and Regenerative Medicine*, 2023, 9976121 (2023), <http://dx.doi.org/10.1155/2023/9976121> [F. Chariyev-Prinz, N. Neto, M.G. Monaghan, D.J. Kelly]

'Engineering high-quality cartilage microtissues using hydrocortisone functionalized microwells', *Tissue Engineering-Part C: Methods*, 29, 4 (2023), 121-133 [R. Burdis, G.S. Kronemberger, D.J. Kelly]

'An assessment of the response of human MSCs to hydrostatic pressure in environments supportive of differential chondrogenesis', *Journal of Biomechanics*, 154, 111590 (2023), <http://dx.doi.org/10.1016/j.jbiomech.2023.111590> [F. Chariyev-Prinz, A. Szojka, N. Neto, R. Burdis, M.G. Monaghan, D.J. Kelly]

'Localized nanoparticle-mediated delivery of miR-29b normalizes the dysregulation of bone homeostasis caused by osteosarcoma whilst simultaneously inhibiting tumor growth', *Advanced Materials*, 35, 23 (2023), <http://dx.doi.org/10.1002/adma.202207877> [F.E. Freeman, P. Dosta, L.C. Shanley, N. Ramirez Tamez, C.J. Riojas Javelly, D.J. Kelly]

'Chondroitinase ABC treatment improves the organization and mechanics of 3D bioprinted meniscal tissue', *ACS Biomaterials Science and Engineering*, 9, 6 (2023), 3488-3495 [X. Barcelon, O. Garcia, D.J. Kelly]

'Development of a 3D-printed bioabsorbable composite scaffold with mechanical properties suitable for treating large, load-bearing articular cartilage defects', *European Cells and Materials*, 45 (2023), 158-172 [M. Joyce, T. Hodgkinson, M. Lemoine, D.J. Kelly, F.J. O'Brien]

'Editorial: Special Issue on biofabrication of cartilage, bone and their interface', *Biofabrication*, 15, 3 (2023), <http://dx.doi.org/10.1088/1758-5090/acc3c4> [D.J. Kelly, M. Zenobi-Wong]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

- '3D printing of mechanically functional meniscal tissue equivalents using high concentration extracellular matrix inks', *Materials Today Bio*, 20, 100624 (2023), <http://dx.doi.org/10.1016/j.mtbio.2023.100624> [B. Wang, S. Von Euw, D.J. Kelly]
- 'A microphysiological model of bone development and regeneration', *Biofabrication* (2023), <http://dx.doi.org/10.1088/1758-5090/acd6be> [I.T. Whelan, R. Burdis, S. Shahreza, E. Moeendarbary, D.A. Hoey, D.J. Kelly]
- Lupoi, Rocco, 'Erratum to 'Mechanical milling/alloying, characterization and phase formation prediction of Al0.1- 0.5(Mn)CoCrCuFeNi-HEA powder feedstocks for cold spray deposition processing' [J. Alloy. Compd. 961 (2023)170854] (Journal of Alloys and Compounds (2023) 961, (S0925838823021576), (10.1016/j.jallcom.2023.170854))', *Journal of Alloys and Compounds*, 963, 171268 (2023), <http://dx.doi.org/10.1016/j.jallcom.2023.171268> [J.F.B. Vasquez, W.M. Abbott, S. Yin, M. Morris, R. Lupoi]
- 'Binder evaporation during powder sheet additive manufacturing', *Solid freeform fabrication 2023: proceedings of the 34th annual international solid freeform fabrication symposium, an additive manufacturing conference*, Austin, Texas USA (2023), 324-328 [J. Volpp, W. Zhang, W. Abbott, A. Coban, S. McConnell, R. Lupoi]
- 'Powder sheet additive manufacturing of multi-material structures: experimental and computational characterizations', *Composites Part B: Engineering*, 272 (2024), 111203 [W. Zhang, X. Lu, A. Coban, M. Cervera, M. Chiumenti, R. Lupoi]
- 'Erosion behavior of cold-sprayed coatings made of CoCrFeMnNi HEA and tungsten carbide nanoparticles in a nickel matrix', *Journal of Thermal Spray Technology* (2024), 1-18 [G. Cappelli, A. Sasnauskas, S. Yin, R. Lupoi]
- 'Enhancement on mechanical properties of CoCrNi medium entropy alloy via cold spray additive manufacturing associated with sintering', *Journal of Manufacturing Processes*, 94 (2023), 423 [Y. Zhang, B. Qin, K. Chan, R. Lupoi, S. Yin, Y. Xie]
- 'Evaluation of the role of hatch-spacing variation in a lack-of-fusion defect prediction criterion for laser-based powder bed fusion processes', *The International Journal of Advanced Manufacturing Technology*, 126 (2023), 659-673 [R. Harkin, H. Wu, S. Nikam, S. Yin, R. Lupoi, P. Walls]
- 'Microstructure evolution and mechanical behavior of additively manufactured CoCrFeNi high-entropy alloy fabricated via cold spraying and post-annealing', *Materials Science and Engineering: A*, 873(2023), 144748 [N. Fan, A. Rafferty, R. Lupoi, W. Li, Y. Xie, S. Yin]
- 'Fragmentation and branch elimination of primary martensite in additively manufactured Ti-6Al-4V alloy', *Metals*, 13, 1983 (2023), 1-8 [M. Ahmed, F. McNamara, G. Duggan, C. Tomonto, G.E. O'Donnell, R. Lupoi]
- 'Printing Cu on cold sprayed Cu plate via selective laser melting-a hybrid additive manufacturing', *Journal of Manufacturing and Materials Processing*, 7, 188 (2023), 1-11 [Q. Chai, C. Jiang, C. Huang, Y. Xie, X. Yan, R. Lupoi]
- 'Revealing melt-vapor-powder interaction towards laser powder bed fusion process via DEM-CFD coupled model', *Surface Science and Technology*, 1, 14 (2023), 12 [W. Yuan, H. Chen, C. Peng, R. Lupoi, S. Yin]
- 'Atmospheric pressure glow discharge plasma sintering of solvent-free silver lines made by laser ablation dry aerosol printing', *CIRP Annals-Manufacturing Technology*, 71, 1 (2023), 153-156 [W. Su, J.G. Lunney, R. Lupoi]
- 'Tailoring the theory of critical distances to better assess the combined effect of complex geometries and process-inherent defects during the fatigue assessment of SLM Ti-6Al-4V', *International Journal of Fatigue*, 172 (2023), 107602 [B. Gillham, A. Yankin, F. McNamara, C. Tomonto, C. Huang, R. Lupoi]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

- 'Powder sheets additive manufacturing: principles and capabilities for multi-material printing', *Additive Manufacturing Letters*, 8 (2024), 100187 [W. Zhang, A. Sasnauskas, A. Coban, S. Marola, R. Casati, R. Lupoi]
- 'Towards high-strength cold spray additive manufactured metals: methods, mechanisms and properties', *Journal of Materials Science and Technology*, 170 (2023), 47-64 [S. Yin, N. Fan, C. Huang, Y. Xie, C. Zhang, R. Lupoi, W. Li]
- 'Mechanical milling/alloying, characterization and phase formation prediction of Al_{0.1}-0.5(Mn)CoCrCuFeNi-HEA powder feedstocks for cold spray deposition processing', *Journal of Alloys and Compounds*, 961 (2023), 170854 [S. Özbilen, J.F. Baez Vasquez, W.M. Abbott, S. Yin, M. Morris, R. Lupoi]
- 'Formation mechanism of heterogeneous microstructures and shape memory effect in NiTi shape memory alloy fabricated via laser powder bed fusion', *Materials and Design*, 232 (2023), 112107 [H.Z. Lu, L.H. Liu, X. Luo, H.W. Ma, W.S. Cai, R. Lupoi]
- 'Erosion behaviour of cold sprayed coatings made of CrMnFeCoNi high-entropy alloy or composite powders containing WC hard particles in a pure nickel matrix', *International thermal spray conference 2023 (ITSC 2023)*, Quebec City (Canada) (2023), 1-8 [G. Cappelli, S. Yin, R. Lupoi]
- 'A novel antibacterial and biocompatible Ta-Ag coating fabricated by cold spray technology', *International Thermal Spray Conference 2023 (ITSC 2023)*, Quebec City (Canada) (2023), 1-9 [P. Yu, K.J. Genoud, Y. Xie, F.J. O'Brien, S. Yin, R. Lupoi]
- 'Interparticle bonding and interfacial nanocrystallization mechanisms in cold sprayed metallic glass', *International Thermal Spray Conference (ITSC)*, Vienna (2022), <http://hdl.handle.net/2262/101914> [N. Fan, C. Huang, P. Yu, W. Chen, R. Lupoi, L. Liu Yin]
- 'Systematic research on the formation of heterogenous microstructure in FeCoNiCrMn high entropy cold spray', *International Thermal Spray Conference (ITSC)*, Vienna (2022), <http://hdl.handle.net/2262/101915> [P. Yu, N. Fan, S. Yin, R. Lupoi]
- 'The stimulation of grain structure evolution in aluminium cold spray by Monte Carlo method', *International Thermal Spray Conference (ITSC)*, Vienna (2022), <http://hdl.handle.net/2262/101916> [P. Yu, S. Yin, R. Lupoi]
- 'Investigation of the effect of low-temperature annealing and impact angle on the erosion performance of nickel-tungsten carbide cold spray coating using design of experiments', *International Thermal Spray Conference (ITSC)*, Vienna (2022), <http://hdl.handle.net/2262/101917> [M. Kazasidis, E. Verna, S. Yin, R. Lupoi]
- McGinn, Conor**, 'Development and demonstration of a wireless ultraviolet sensing network for dose monitoring and operator safety in room disinfection applications', *Sensors*, 23, 5 (2023), <http://dx.doi.org/10.3390/s23052493> [M.F. Cullinan, R. Scott, J. Linogao, H. Bradwell, L. Cooper, C. McGinn]
- 'Development and usability testing of an air disinfection robot to reduce air clearance times following aerosol-generating procedures (AGPs)', *Accelerating Strategic Changes for Digital Transformation in the Healthcare Industry*, eds P. Ordóñez de Pablos X. Zhang (2023), 127-142 [C. McGinn, R. Scott, J. Linogao, K. Roberts, M.F. Cullinan, H. Bradwell]
- "Who said that?" Applying the situation awareness global assessment technique to social telepresence', *ACM Transactions on Human-Robot Interaction* (2023), <http://hdl.handle.net/2262/102490> [A.K. Coyne, K. Sapkota, C. McGinn]
- Meskill, Craig**, 'Performance of a closed cycle power takeoff for a shore-based wave energy device', *Applied Sciences*, 13, 11 (2023), 6377 [M. Bellec, L. Gibson, C. Meskill]
- Monaghan, Michael**, 'Cholesterol crystals drive metabolic reprogramming and M1 macrophage polarisation in primary human macrophages', *Atherosclerosis*, 352 (2022), 35-45 [S.A. O'Rourke, N.G.B. Neto, E. Devilly, L.C. Shanley, H.K. Fitzgerald, M.G. Monaghan]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

- '2P-FLIM unveils time-dependent metabolic shifts during osteogenic differentiation with a key role of lactate to fuel osteogenesis via glutaminolysis identified', *Stem Cell Res Ther*, 14, 364 (2023), [N.G.B. Neto, M. Suku, D.A. Hoey, M.G. Monaghan]
- 'Melt electrowriting of a biocompatible photo-crosslinkable poly(D,L-lactic acid)/poly(--caprolactone)-based material with tunable mechanical and functionalization properties', *Journal of Biomedical Materials Research-Part A*, 111, 6 (2023), 851-862 [C. Darroch, G.A. Asaro, C. Greant, M. Suku, N. Pien, M.G. Monaghan]
- 'A workflow to produce a low-cost in vitro platform for the electric-field pacing of cellularised 3D porous scaffolds', *ACS Biomaterials Science and Engineering*, 9, 8 (2023), 4573-4582 [M. Solazzo, M.G. Monaghan]
- 'Probing organoid metabolism using fluorescence lifetime imaging microscopy (FLIM): the next frontier of drug discovery and disease understanding', *Advanced Drug Delivery Reviews*, 201 (2023), <http://dx.doi.org/10.1016/j.addr.2023.115081> [M. Barroso, M.G. Monaghan, R. Niesner, R.I. Dmitriev]
- 'Thou shall not heal: overcoming the non-healing behaviour of diabetic foot ulcers by engineering the inflammatory microenvironment', *Advanced Drug Delivery Reviews*, 203 (2023), <http://dx.doi.org/10.1016/j.addr.2023.115120> [M.G. Monaghan, R. Borah, C. Thomsen, S. Browne]
- 'MXene functionalized collagen biomaterials for cardiac tissue engineering driving iPSC-derived cardiomyocyte maturation', *NPJ 2D Materials and Applications*, 7, 1 (2023), [G.A. Asaro, M. Solazzo, M. Suku, D. Spurling, K. Genoud, M.G. Monaghan]
- 'Time-dependent anabolic response of hMSC-derived cartilage grafts to hydrostatic pressure', *Journal of Tissue Engineering and Regenerative Medicine*, 2023, 9976121 (2023), <http://dx.doi.org/10.1155/2023/9976121> [F. Chariyev-Prinz, N. Neto, M.G. Monaghan, D.J. Kelly]
- 'An assessment of the response of human MSCs to hydrostatic pressure in environments supportive of differential chondrogenesis', *Journal of Biomechanics*, 154, 111590 (2023), <http://dx.doi.org/10.1016/j.jbiomech.2023.111590> [F. Chariyev-Prinz, A. Szojka, N. Neto, R. Burdis, M.G. Monaghan, D.J. Kelly]
- O'Shaughnessy, Seamus**, 'Experimental investigation of dual jet flow past a heated surface: effect of Reynolds number', *International Journal of Heat and Mass Transfer*, 218, 124786 (2024), <http://dx.doi.org/10.1016/j.ijheatmasstransfer.2023.124786> [P.J. Murphy, S. Alimohammadi, S.M. O'Shaughnessy]
- 'An experimental-numerical study of heat transfer enhancement in a minichannel using asymmetric pulsating flows', *IEEE Transactions on Components, Packaging and Manufacturing Technology*, 13, 8 (2023), 1147-1154 [P.S. Kumavat, S. Alimohammadi, S.M. O'Shaughnessy]
- 'Characterisation of force and torque with auxiliary heating during friction stir spot welding of AA2024-T3', *Results in Materials*, 21, 100535 (2024), <http://dx.doi.org/10.1016/j.rinma.2024.100535> [D. Tobin, S. O'Shaughnessy, D. Trimble]
- 'An experimental-numerical study of heat transfer enhancement in a minichannel using asymmetric pulsating flows', *IEEE Transactions on Components, Packaging and Manufacturing Technology* (2023), 1-1 [P.S. Kumavat, S. Alimohammadi, S.M. O'Shaughnessy]
- 'Experimental investigation of heat transfer to a dual jet flow with varying velocity ratio', *2023 22nd IEEE intersociety conference on thermal and thermomechanical phenomena in electronic systems (ITherm)*, Florida, USA (2023), <http://dx.doi.org/10.1109/itherm55368.2023.10177606> [P.J. Murphy, S. Alimohammadi, S.M. O'Shaughnessy]
- 'Liquid immersion thermal management of lithium-ion batteries for electric vehicles: an experimental study', *Journal of Energy Storage*, 72 (2023), 108636 [N.P. Williams, D. Trimble, S.M. O'Shaughnessy]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

- 'Thermal management of lithium-ion batteries for electric vehicles through immersion cooling', *2023 22nd IEEE intersociety conference on thermal and thermomechanical phenomena in electronic systems (ITherm)* 30 May-2 June 2023, Florida, USA (2023), <http://dx.doi.org/10.1109/itherm55368.2023.10177593> [N.P. Williams, D. Trimble, S.M. O'Shaughnessy]
- 'Experimental analysis of heat transfer to a dual jet flow: effect of Reynolds number', *2022 28th international workshop on thermal investigations of ICs and systems (THERMINIC)* 28-30 Sept. 2022, Dublin, Ireland (2022), <http://dx.doi.org/10.1109/THERMINIC57263.2022.9950682> [P. Murphy, S. Alimohammadi, S. O'Shaughnessy]
- Pakdel, Amir**, 'An automatic apparatus for simultaneous measurement of seebeck coefficient and electrical resistivity', *Energies*, 16, 17 (2023), <http://dx.doi.org/10.3390/en16176319> [R. Xiong, S. Masoumi, A. Pakdel]
- 'Synergistic growth of cobalt hydroxide on reduced graphene oxide/nickel foam for supercapacitor application', *Journal of Energy Storage*, 83, 110666 (2024), <http://dx.doi.org/10.1016/j.est.2024.110666> [C. Jagtap, V. Kadam, B. Kamble, P.E. Lokhande, A. Pakdel, D. Kumar]
- Persoons, Tim**, 'Towards quieter air-cooling systems: rotor self-noise prediction for axial cooling fans', *2022 28th international workshop on thermal investigations of ICs and systems (THERMINIC)*, Dublin, Ireland (2022), <http://hdl.handle.net/2262/103049> [W. Zhao, S. Wasala, T. Persoons]
- Reilly, Richard**, 'Diagnostic accuracy of a portable ECG device in rowing athletes', *Diagnostics* (2022), <https://doi.org/10.3390/diagnostics12102271> [F. Wilson, C. McHugh, C. MacManus, A. Baggish, C. Tanayan, R.B. Reilly]
- Simms, Ciaran**, 'Prophylactic onlay mesh placement techniques for optimal abdominal wall closure: randomized controlled trial in an ex vivo biomechanical model', *British Journal of Surgery*, 110, 5 (2023), 568-575 [I. Stephens, J. Conroy, D. Winter, C. Simms, M. Bucholz, M. Sugrue]
- 'Forward dynamics computational modelling of a cyclist fall with the inclusion of protective response using deep learning-based human pose estimation', *Journal of Biomechanics*, 163, 111959 (2024), <http://dx.doi.org/10.1016/j.jbiomech.2024.111959> [K. Gildea, D. Hall, C.R. Cherry, C. Simms]
- 'Skeletal muscle extracellular matrix structure under applied deformation observed using second harmonic generation microscopy', *Acta Biomaterialia*, 172 (2023), 135-146 [N. Hennessy, C. Simms]
- 'Detailed analysis of New York City subway pedestrian incidents from 2019', *Transportation Research Record*, 2677, 11 (2023), 642-650 [D. Hall, J. Linogao, L. Zentz, G. Shaw, T. Lamb, C. Simms]
- 'Assessment of high-speed train interactions with containment walls in post-derailment collisions', *Mechanisms and Machine Science*, 146 (2024), 1011-1017 [G. Deng, Y. Peng, B. Li, K. Wang, C. Simms]
- 'Computer vision-based assessment of cyclist-tram track interactions for predictive modeling of crossing success', *Journal of Safety Research*, 87 (2023), 202-216 [K. Gildea, D. Hall, C. Mercadal-Baudart, B. Caulfield, C. Simms]
- Smolic, Aljosa**, 'Feel the music audience experiences of audio tactile feedback in a novel virtual reality volumetric music video', *Arts*, 156 (2023), 1-22 [G.W. Young, N. O'Dwyer, M.F. Vargas, R.M. Donnell, A. Smolic]
- Spence, Stephen**, 'Investigating the suitability of multi-scroll volutes for improving spanwise incidence of mixed flow turbine rotors with varying blade cone angles in automotive turbocharging applications', *ASME Journal of Turbomachinery*, 146, 6 (2024), <http://hdl.handle.net/2262/105928> [P. Martin, S. Spence, C. Stuart, T. Leonard, A. Starke, M. Geron]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

- 'Energy analysis of fleet operations using green liquid hydrogen and synthetic kerosene', *AIAA aviation forum 2023*, San Diego, USA (2023), <https://doi.org/10.2514/6.2023> [C. Gallagher, C. Stuart, S. Spence]
- 'Validation and calibration of conceptual design tool SUAVE', *AIAA aviation forum 2023*, San Diego, USA (2023), <https://doi.org/10.2514/6.2023> [C. Gallagher, C. Stuart, S. Spence]
- Stuart, Charles**, 'Investigating the suitability of multi-scroll volutes for improving spanwise incidence of mixed flow turbine rotors with varying blade cone angles in automotive turbocharging applications', *ASME Journal of Turbomachinery*, 146, 6 (2024), <http://hdl.handle.net/2262/105928> [P. Martin, S. Spence, C. Stuart, T. Leonard, A. Starke, M. Geron]
- 'Investigation of the map width improvement in a radially reduced diffuser design concept for a centrifugal compressor', *ASME turbo expo 2022* (2022), <http://dx.doi.org/10.1115/gt2022-78684> [L. McLaughlin, S. Spence, D. Rusch, C. Stuart, M. Geron, K. Kai So]
- 'Energy analysis of fleet operations using green liquid hydrogen and synthetic sustainable aviation fuel', *Sir Bernard Crossland symposium 2023*, University of Limerick (2023), <http://hdl.handle.net/2262/104423> [C. Gallagher, C. Stuart, S. Spence]
- 'Energy analysis of fleet operations using green liquid hydrogen and synthetic kerosene', *AIAA aviation forum 2023*, San Diego, USA (2023), <https://doi.org/10.2514/6.2023> [C. Gallagher, C. Stuart, S. Spence]
- 'Validation and calibration of conceptual design tool SUAVE', *AIAA aviation forum 2023*, San Diego, USA (2023), <https://doi.org/10.2514/6.2023> [C. Gallagher, C. Stuart, S. Spence]
- Taylor, David**, 'A systematic study of biological SE systems from complexity and design perspectives', *Journal of Engineering Design*, 34, 11 (2023), 897-921 [S. Brooks, R. Roy, J-H. Dirks, D. Taylor]
- 'Calculations of biaxial fatigue limits with models using the experimental crack direction', *International Journal of Fatigue* (2023), 107726-107726 [V. Chaves, J.A. Balbin A. Navarro, L. Susmel, D. Taylor]
- 'Mechanical fatigue in trees mitigated by annual growth: a theoretical model', *Journal of Theoretical Biology*, 569 (2023), 111523-111523 [D. Taylor]
- 'The application of the theory of critical distances to non-homogenous materials', *Fatigue and Fracture of Engineering Materials and Structures*, 46, 4 (2023), 1314-1329 [L. Marsavina, A. Sapora, L. Susmel, D. Taylor]
- 'Morphological induced improvements in the bulk mechanical properties of chemically etched additively manufactured Ti-6Al-4V micro-struts', *Additive Manufacturing*, 75, 103748 (2023), <http://dx.doi.org/10.1016/j.addma.2023.103748> [C. O'Keeffe, D. Taylor, C. Lally, D.J. Kelly]
- 'Tailoring the theory of critical distances to better assess the combined effect of complex geometries and process-inherent defects during the fatigue assessment of SLM Ti-6Al-4V', *International Journal of Fatigue*, 172 (2023), 107602 [B. Gillham, A. Yankin, F. McNamara, C. Tomonto, C. Huang, D. Taylor]
- Thomas, Jijo**, 'A drug-free strategy to combat bacterial infections with magnetic nanoparticles biosynthesized in bacterial pathogens', *Nanoscale* (2022), <http://dx.doi.org/10.1039/d1nr07435k> [S. Kaushik, J. Thomas, V. Panwar, P. Murugesan, V. Chopra, N. Salaria]
- Tornifoglio, Brooke**, 'Integrating melt electrowriting and fused deposition modeling to fabricate hybrid scaffolds supportive of accelerated bone regeneration', *Advanced Healthcare Materials*, 13 (2023), 1-14 [K.F. Eichholz, P. Pitacco, R. Burdis, F. Chariyev-Prinz, X. Barceló, B. Tornifoglio]
- 'Melt electrowritten scaffold architectures to mimic tissue mechanics and guide neo-tissue orientation', *Journal of the Mechanical Behavior of Biomedical Materials*, 150 (2024), 1-15 [A.S. Federici, B. Tornifoglio, C. Lally, O. Garcia, D.J. Kelly, D.A. Hoey]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

- 'Towards a whole sample imaging approach using diffusion tensor imaging to examine the foreign body response to explanted medical devices', *Polymers* (2022), <http://dx.doi.org/10.3390/polym14224819> [R.E. Levey, B. Tornifoglio, A.J. Stone, C. Kerskens, C. Lally, G.P. Duffy]
- Trimble, Daniel**, 'Thermal management of lithium-ion batteries for electric vehicles through immersion cooling', *2023 22nd IEEE intersociety conference on thermal and thermomechanical phenomena in electronic systems (ITherm) 30 May-2 June 2023*, Florida, USA (2023), <http://dx.doi.org/10.1109/itherm55368.2023.10177593> [N.P. Williams, D. Trimble, S.M. O'Shaughnessy]
- 'Liquid immersion thermal management of lithium-ion batteries for electric vehicles: an experimental study', *Journal of Energy Storage*, 72 (2023), 108636 [N.P. Williams, D. Trimble, S.M. O'Shaughnessy]
- Wasala, Sahana**, 'Towards quieter air-cooling systems: rotor self-noise prediction for axial cooling fans', *2022 28th international workshop on thermal investigations of ICs and systems (THERMINIC)*, Dublin, Ireland (2022), <http://hdl.handle.net/2262/103049> [W. Zhao, S. Wasala, T. Persoons]
- Yin, Shuo**, 'Improving the processability and grain structures of additively manufactured Al-Fe-Cu-xZr alloy: experiment and high-fidelity simulation', *Additive Manufacturing*, 84 (2024), 104074 [J.-Y. Xu, W.-H. Yuan, C. Zhang, J. Pan, S. Yin, H. Chen.]
- 'Pitting corrosion mechanism of BCC+ FCC dual-phase structured laser cladding FeCoCrNiAl_{0.5}Ti_{0.5} HEAs coating', *Journal of Alloys and Compounds*, 980 (2024), 173643 [Y. Guo, J. Zhu, J. Cao, Z. Qiu, C. Chang, S. Yin]
- 'Powder sheet additive manufacturing of multi-material structures: experimental and computational characterizations', *Composites Part B: Engineering*, 272 (2024), 111203 [W. Zhang, X. Lu, A. Coban, M. Cervera, M. Chiumenti, S. Yin]
- 'Evolution of microstructure and mechanical properties of cold spray additive manufactured aluminum deposit on copper substrate', *Materials Science and Engineering A*, 891 (2024), 146024 [X. Yang, T. Meng, Y. Su, X. Chai, Z. Guo, S. Yin]
- 'Effects of light exposure intensity and time on printing quality and compressive strength of β -TCP scaffolds fabricated with digital light processing', *Journal of the European Ceramic Society*, 44, 4 (2023), 2581-2589 [N. Butler, Y. Zhao, S. Lu, S. Yin]
- 'Powder sheets additive manufacturing: principles and capabilities for multi-material printing', *Additive Manufacturing Letters*, 8 (2023), 100187 [W. Zhang, A. Sasnauskas, A. Coban, S. Marola, R. Casati, S. Yin]
- 'Revealing melt-vapor-powder interaction towards laser powder bed fusion process via DEM-CFD coupled model', *Surface Science and Technology*, 1, 1 (2023), 14 [W. Yuan, H. Chen, C. Peng, R. Lupoi, S. Yin]
- 'Significant improvement of mechanical properties of cold-spray-additive manufactured FeCoNiCrMn high-entropy alloy via post-annealing', *Materials Characterization*, 206 (2023), 113350 [D. Wu, Y. Xu, W. Li, N. Fan, Y. Yang, S. Yin]
- 'The failure behavior of thermally grown oxide of the AlCoCrFeNi bond coating prepared by atmospheric plasma spray at 900-1000°C', *Journal of Materials Research and Technology*, 26 (2023), 6807-6822 [X. Zhang, N. Zhang, M. Liu, C. Deng, C. Wang, S. Yin]
- 'Constructing a core-shell structure in Ti-based alloys with exceptional 2 mechanical properties through semi-solid sintering', *Journal of Materials Research and Technology*, 26 (2023), 9437-9449 [C. Yang, Y.X. Liao, W.S. Cai, H.Z. Lu, Y.G. Yao, S. Yin]
- 'Effect of annealing treatment on microstructural evolution and compressive behavior of Al_{0.5}CrFeNi_{2.5}Si_{0.25} high-entropy alloy', *Materials Characterization* (2023), 113233 [B. Jin, N. Zhang, B. Xing, F. Ningsong, S. Nie, S. Yin]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

- 'An extended version of cellular automata model for powder bed fusion to unravel the dependence of microstructure on printing areas for Inconel 625', *Additive Manufacturing*, 73 (2023), 103676 [Q. Xie, X. Yan, S. Yin, X. Li, M. Liu, Y. Wang]
- 'Laser powder bed fusion of a Ni₃Al-based intermetallic alloy with tailored microstructure and superior mechanical performance', *Advanced Powder Materials* (2023), 100152 [M. Liu, J. Wang, T. Hu, S. Xu, S. Shuai, S. Yin]
- 'Towards high-strength cold spray additive manufactured metals: methods, mechanisms and properties', *Journal of Materials Science and Technology*, 170 (2023), 47-64 [S. Yin, N. Fan, C. Huang, Y. Xie, C. Zhang, R. Lupoi]
- 'Mechanical milling/alloying, characterization and phase formation prediction of Al_{0.1}-0.5(Mn)CoCrCuFeNi-HEA powder feedstocks for cold spray deposition processing', *Journal of Alloys and Compounds*, 961 (2023), 170854 [S. Özbilen, J.F. Baez Vasquez, W.M. Abbott, S. Yin, M. Morris, R. Lupoi]
- 'Formation mechanism of heterogeneous microstructures and shape memory effect in NiTi shape memory alloy fabricated via laser powder bed fusion', *Materials and Design*, 232 (2023), 112107 [H.Z. Lu, L.H. Liu, X. Luo, H.W. Ma, W.S. Cai, S. Yin]
- 'Influence of debinding parameter and nano-ZrO₂ particles on the silica-based ceramic cores fabricated by stereolithography-based additive manufacturing', *Ceramics International*, 49 (2023), 20878-20889 [Y. Yin, J. Wang, Q. Huang, S. Xu, S. Shuai, S. Yin]
- 'Evaluation of a lack-of-fusion prediction criterion with corrections for laser-based powder bed fusion processes and the role of hatch spacing variation', *International Journal of Advanced Manufacturing Technology*, 126 (2023), 659-673 [R. Harkin, H. Wu, S. Nikam, S. Yin, R. Lupoi, P. Walls]
- 'Microstructure evolution and mechanical behavior of additively manufactured CoCrFeNi high-entropy alloy fabricated via cold spraying and post-annealing', *Materials Science and Engineering A*, 873 (2023), 144748 [N. Fan, A. Rafferty, R. Lupoi, W. Li, Y. Xie, S. Yin]
- 'Influence of aging treatment regimes on microstructure and mechanical properties of selective laser melted 17-4 pH steel', *Micromachines*, 14, 4 (2023), 871 [D. Dong, J. Wang, C. Chen, X. Tang, Y. Ye, S. Yin]
- 'Wear-resistant ceramic coatings deposited by liquid thermal spraying', *Ceramics International*, 48, 22 (2022), 33245-33255 [H. Hu, L. Mao, S. Yin, H. Liao, C. Zhang]
- 'Tailoring the theory of critical distances to better assess the combined effect of complex geometries and process-inherent defects during the fatigue assessment of SLM Ti-6Al-4V', *International Journal of Fatigue*, 172 (2023), 107602 [B. Gillham, A. Yankin, F. McNamara, C. Tomonto, C. Huang, S. Yin]
- Zhan, Siyuan**, 'An offline closed-form optimal predictive power management strategy for plug-in hybrid electric vehicles', *IEEE Transactions on Control Systems Technology*, 31, 2 (2022), 543-554 [S. Zhan, W.J.B. Midgley, W-H. Chen, T. Steffen]
- 'Distributed multi-agent collision avoidance using robust differential game', *ISA transactions*, 134 (2023), 95-107 [W. Xue, S. Zhan, Z. Wu, Y. Chen, J. Huang]
- 'Computationally efficient infinite-horizon indefinite model predictive control with disturbance preview information', *Automatica*, 146 (2022), 110667 [S. Zhan, W-H. Chen, T. Steffen, J.V. Ringwood]
- 'Optimal coordination in logistics warehousing with sensing and communication limits: a distributed differential game approach', *Asian Journal of Control*, 26, 1 (2024), 419-435 [W. Xue, S. Zhan, N. Chen, J. Huang]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics
School of Genetics and Microbiology

GENETICS

- Campbell, Matthew**, 'Near-complete drusen resolution with brolocizumab: a mechanism for proinflammatory mediated drusen clearance?', *Ophthalmic Surgery Lasers and Imaging Retina*, 54, 6 (2023), 371-374 [M. O'Riordan, N. Hudson, J. O'Callaghan, M. Campbell, M. Cahill]
- 'Polypathology-associated neurodegeneration after remote head injury', *Clinical Neuropathology*, 42, 6 (2023), 201-211 [D. Brennan, C. Delaney, M. Farrell, M. Campbell, C.P. Doherty]
- 'Evaluation of inflammation in the peripheral multiple sclerosis retina using ultra-widefield optical coherence tomography: a pilot study', *Ophthalmic Surgery Lasers and Imaging Retina*, 54, 10 (2023), 586-588 [M.M. O'Riordan, M.T. Cahill, M. Campbell, H. Kearney]
- 'Reply: de novo mutations in CLDN5: alternating hemiplegia of childhood or not?', *Brain*, 146, 8 (2023), E59-E60 [I. Desguerre, M. Aubart, Y. Hashimoto, M. Campbell]
- 'Development of an intracellular quantitative assay to measure compound binding kinetics', *Cell Chemical Biology*, 29, 2 (2022), 287-299.e8 [C.S. Lay, D.A. Thomas, J.P. Evans, M. Campbell, P.D. Craggs]
- 'Matrix metalloproteinase-3 (MMP-3)-mediated gene therapy for glaucoma', *Science Advances*, 9, 16 (2023), <http://dx.doi.org/10.1126/sciadv.adf6537> [J. O'Callaghan, C. Delaney, M. O'Connor, M. Campbell]
- 'Neurovascular adaptations modulating cognition, mood, and stress responses', *Trends in Neurosciences*, 46, 4 (2023), 276-292 [L. Dion-Albert, K.A. Dudek, S.J. Russo, M. Campbell, M. Menard]
- 'Erratum: Development of an intracellular quantitative assay to measure compound binding kinetics (Cell Chemical Biology (2022) 29 (2) (287-299.e8), (S2451945621003585), (10.1016/j.chembiol.2021.07.018))', *Cell Chemical Biology* (2023), 1692 [C.S. Lay, D.A. Thomas, J.P. Evans, M. Campbell, P.D. Craggs]
- 'The CLDN5 gene at the blood-brain barrier in health and disease', *Fluids and Barriers of the CNS* (2023), <http://dx.doi.org/10.1186/s12987-023-00424-5> [Y. Hashimoto, C. Greene, A. Munnich, M. Campbell]
- 'Non-canonical inflammasome activation mediates the adjuvanticity of nanoparticles', *Cell Reports Medicine*, 4, 1 (2023), [N. Muñoz-Wolf, R.W. Ward, C.H. Hearnden, E. Creagh, E.C. Lavelle]
- Cassidy, Lara**, 'Genomic insights into a tripartite ancestry in the Southern Ryukyu Islands', *Evolutionary Human Sciences*, 5 (2023), e23 [N.P. Cooke, V. Mattiangeli, L.M. Cassidy, K. Okazaki, K. Kasai, D.G. Bradley]
- 'The first genomic portrait of a Neanderthal family', *Nature*, 610, 7932 (2022), 454-455 [L.M. Cassidy]
- Farrar, Gwyneth**, 'Usher Syndrome on the island of Ireland: a genotype-phenotype review', *Investigative Ophthalmology and Visual Science*, 64, 10 (2023), <http://dx.doi.org/10.1167/iov.64.10.23> [K.A.J. Stephenson, L. Whelan, J. Zhu, A. Dockery, D.J. Keegan]
- 'Targeted sequencing and in vitro splice assays shed light on ABCA4-associated retinopathies missing heritability', *Human Genetics and Genomics Advances*, 4, 4 (2023), <http://hdl.handle.net/2262/104346> [Z. Corradi, M. Khan, R. Hitti-Malin, K. Mishra, F.P.M. Cremers]
- 'Whole genome sequencing for USH2A-associated disease reveals several pathogenic deep-intronic variants that are amenable to splice correction', *Human Genetics and Genomics Advances*, 4, 2 (2023), <http://dx.doi.org/10.1016/j.xhgg.2023.100181> [J. Reurink, N. Weisschuh, A. Garanto, A. Dockery, S. Roosing]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

- 'Detailed analysis of an enriched deep intronic ABCA4 variant in Irish Stargardt disease patients', *Scientific Reports*, 13, 1 (2023), <http://hdl.handle.net/2262/104340> [L. Whelan, A. Dockery, K.A.J. Stephenson, J. Zhu, G.J. Farrar]
- 'Optimisation of AAV-NDI1 significantly enhances its therapeutic value for correcting retinal mitochondrial dysfunction', *Pharmaceutics*, 15, 2 (2023), <http://hdl.handle.net/2262/102713> [N. Chadderton, A. Palfi, D.M. Maloney, M. Carrigan, G.J. Farrar]
- 'RPE-directed gene therapy improves mitochondrial function in murine dry AMD models', *International Journal of Molecular Sciences*, 24, 4 (2023), <http://hdl.handle.net/2262/102715> [S. Millington-Ward, N. Chadderton, L.K. Finnegan, A. Palfi, G.J. Farrar]
- Hokamp, Karsten**, 'Mechanically activated mesenchymal-derived bone cells drive vessel formation via an extracellular vesicle mediated mechanism', *Journal of Tissue Engineering*, 14 (2023), 20417314231186918 [N. Shen, M. Maggio, I. Woods, M.C. Lowry, R. Almasri, K. Hokamp]
- 'Plasminogen activator inhibitor 1 is associated with high-grade serous ovarian cancer metastasis and is reduced in patients who have received neoadjuvant chemotherapy', *Frontiers in Cell and Developmental Biology*, 11 (2023), 1150991 [T.E. Kelly, C.L. Spillane, M.P. Ward, K. Hokamp, S.A. O'Toole, J.J. O'Leary]
- 'Targeting the NLRP3 inflammasome reduces inflammation in hidradenitis suppurativa skin', *The British Journal of Dermatology*, 189, 4 (2023), 447-458 [B. Moran, C.M. Smith, A. Zaborowski, M. Ryan, J.M. Fletcher]
- 'Systematic analysis of tup1 and cyc8 mutants reveals distinct roles for TUP1 and CYC8 and offers new insight into the regulation of gene transcription by the yeast Tup1-Cyc8 complex', *PLoS Genetics*, 19, 8 (2023), e1010876 [B. Lee, M. Church, K. Hokamp, M.M. Alhussain, A.A. Bamagoos, A.B. Fleming]
- Humphries, Peter**, 'Optimisation of AAV-NDI1 significantly enhances its therapeutic value for correcting retinal mitochondrial dysfunction', *Pharmaceutics*, 15, 2 (2023), <http://hdl.handle.net/2262/102713> [N. Chadderton, A. Palfi, D.M. Maloney, G.J. Farrar]
- 'RPE-directed gene therapy improves mitochondrial function in murine dry AMD models', *International Journal of Molecular Sciences*, 24, 4 (2023), <http://hdl.handle.net/2262/102715> [S. Millington-Ward, N. Chadderton, L.K. Finnegan, I.J.M. Post, G.J. Farrar]
- Kenna, Paul**, 'RPE-directed gene therapy improves mitochondrial function in murine dry AMD models', *International Journal of Molecular Sciences*, 24, 4 (2023), <http://hdl.handle.net/2262/102715> [S. Millington-Ward, N. Chadderton, L.K. Finnegan, I.J.M. Post, M. Carrigan, P.F. Kenna]
- McLysaght, Aoife**, 'Independent rediploidization masks shared whole genome duplication in the sturgeon-paddlefish ancestor', *Nature Communications*, 14, 1 (2023), 2879 [A.K. Redmond, D. Casey, M.K. Gundappa, D.J. Macqueen, A. McLysaght]
- 'Ohnologs and SSD paralogs differ in genomic and expression features related to dosage constraints', *Genome Biology and Evolution*, 15, 10 (2023), evad174 [Z. Vance, A. McLysaght]
- 'Horizontal transfer of vertebrate vision gene *IRBP* into the chordate ancestor', *Proceedings of the National Academy of Sciences of the United States of America*, 120, 34 (2023), e2310390120 [A.K. Redmond, A. McLysaght]
- Ramaswami, Mani**, 'The transcriptional response to oxidative stress is independent of stress-granule formation', *Molecular Biology of the Cell*, 33, 3 (2022), <http://dx.doi.org/10.1091/mbc.E21-08-0418> [A. Singh, A.R. Kandi, D. Jayaprakashappa, G. Thuery, D.J. Purohit, M. Ramaswami]
- 'A *Drosophila* circuit for habituation override', *Journal of Neuroscience*, 42, 14 (2022), 2930-2941 [S. Trisal, M. Aranha, A. Chodankar, K. VijayRaghavan, M. Ramaswami]
- 'Local translation provides the asymmetric distribution of CaMKII required for associative memory formation', *Current Biology*, 32, 12 (2022), 2730-2738.e5 [N. Chen, Y. Zhang, M. Adel, E.A. Kuklin, M.L. Reed, M. Ramaswami]

Recent publications – Faculty of of Science, Technology, Engineering and Mathematics

- 'Emotional states: sweet relief for depressed flies', *Current Biology*, 32, 18 (2022), R954-R957 [M.M. Aranha, M. Ramaswami]
- Wellmer, Frank**, 'Floral induction systems for the study of *Arabidopsis* flower development', *Methods in Molecular Biology (Clifton, N.J.)*, 2686 (2023), 285-292 [D. Ó'Maoiléidigh, B. Thomson, F. Wellmer]
- 'One pattern analysis (OPA) for the quantitative determination of protein interactions in plant cells', *Plant Methods*, 19, 1 (2023), 73 [J.E. Maika, B. Krämer, V.I. Strotmann, F. Wellmer, S. Weidtkamp-Peters, Y. Stahl]
- 'Floral homeotic factors: a question of specificity', *Plants (Basel, Switzerland)*, 12, 5 (2023), 1128 [K. Goslin, A. Finocchio, F. Wellmer]
- MICROBIOLOGY
- Corr, Sinead**, 'Negative regulation of innate immune signaling by components of the button mushroom *Agaricus bisporus*', *Molecular Nutrition and Food Research*, 67, 14 (2023), <http://dx.doi.org/10.1002/mnfr.202200845> [M. O'Sullivan, E. Dempsey, S. Case, E.E. Hackett, A.E. Ledwith, S.C. Corr]
- 'Editorial: Advances in inflammatory bowel disease: mucosal defense mechanisms against gut inflammation', *Frontiers in Pharmacology*, 14, 1147936 (2023), <http://dx.doi.org/10.3389/fphar.2023.1147936> [S.C. Corr, G. Aviello]
- 'Recognition of yeast β -glucan particles triggers immunometabolic signaling required for trained immunity', *iScience*, 27, 3 (2024), <http://dx.doi.org/10.1016/j.isci.2024.109030> [C.J.H. Horneck Johnston, A.E. Ledwith, M.L.E. Lundahl, H. Charles-Messance, E.E. Hackett, S.C. Corr]
- Dorman, Charles**, 'Gene regulatory networks and hierarchies in bacterial pathogens', *Molecular Medical Microbiology*, Third edition, eds Y-W. Tang, M. Hindiyyeh, D. Liu, A. Sails, P. Spearman, J. Zhang, Amsterdam, Elsevier (2024), 337-355 [C.J. Dorman]
- 'A Pi-calculus model of supercoiling DNA circuits', *ALIFE: ghost in the machine, Alife 2023*, Sapporo, Japan, MIT Press (2023), https://doi.org/10.1162/isal_a_00582 [P. Faulkner Rainford, A. Mogre, V. Velasco-Berrelleza, C.J. Dorman, S. Harris, C. Kroger, S. Stepney]
- Fleming, Alastair**, 'The KdmB-EcoA-RpdA-SntB (KERS) chromatin regulatory complex controls development, secondary metabolism and pathogenicity in *Aspergillus flavus*', *Fungal Genetics and Biology: FG and B*, 169 (2023), 103836 [B. Karahoda, B.T. Pfannenstiel, Ö Sarikaya-Bayram, Z. Dong, K. Wong, A.B. Fleming]
- 'Systematic analysis of *tup1* and *cyc8* mutants reveals distinct roles for TUP1 and CYC8 and offers new insight into the regulation of gene transcription by the yeast Tup1-Cyc8 complex', *PLoS Genetics*, 19, 8 (2023), e1010876 [B. Lee, M. Church, K. Hokamp, M.M. Alhussain, A.A. Bamagoos, A.B. Fleming]
- Kroger, Carsten**, 'Hierarchic regulation of a metabolic pathway: H-NS, CRP, and SsrB control *myo*-inositol utilization by *Salmonella enterica*', *Microbiology Spectrum*, 12, 1 (2024), e0272423 [A. Felsl, D. Brokatzky, C. Kröger, R. Heermann, T.M. Fuchs]
- 'Plasmid-encoded lactose metabolism and mobilized colistin resistance (*mcr-9*) genes in *Salmonella enterica* serovars isolated from dairy facilities in the 1980s', *Microbial Genomics*, 9, 11 (2023), <http://dx.doi.org/10.1099/mgen.0.001149> [C. Kröger, N.A. Lermينياux, A.S. Ershova, K.D. MacKenzie, M.W. Kirzinger, E. Märklbauer]
- O'Brien, Siobhan**, 'Ecological dependencies and the illusion of cooperation in microbial communities', *Microbiology*, 170, 2 (2024), <http://hdl.handle.net/2262/107279> [E. Hesse, S. O'Brien]
- 'Community composition drives siderophore dynamics in multispecies bacterial communities', *BMC Ecology and Evolution*, 23, 45 (2023), <http://hdl.handle.net/2262/103831> [S. O'Brien, C. Culbert, T.G. Barraclough]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

'Cultivating antimicrobial resistance: how intensive agriculture ploughs the way for antibiotic resistance', *Microbiology*, 169, 8 (2023), <http://hdl.handle.net/2262/103801> [M. Kelbrick, E. Hesse, S. O'Brien]

Roberts, Kim, 'Development and usability testing of an air disinfection robot to reduce air clearance times following aerosol-generating procedures (AGPs)', *Accelerating Strategic Changes for Digital Transformation in the Healthcare Industry*, eds P. Ordóñez de Pablos X. Zhang (2023), 127-142 [C. McGinn, R. Scott, J. Linogao, K. Roberts, M.F. Cullinan, H. Bradwell]

School of Mathematics

Cremaschi, Tommaso, 'Effective contraction of skinning maps', *Proceedings of the American Mathematical Society, Series B*, 9 (2022), 445-459 [T. Cremaschi, L. Dello Schiavo]

'On volumes and filling collections of multicurves', *Journal of Topology*, 15, 3 (2022), 1107-1153 [T. Cremaschi, J.A. Rodriguez-Migueles, A. Yarmola]

'Hyperbolic limits of cantor set complements in the sphere', *Bulletin of the London Mathematical Society*, 54, 3 (2022), 1104-1119 [T. Cremaschi, F. Vargas Pallete]

De Leeuw, Marius, 'Integrable deformations of AdS/CFT', *Journal of High Energy Physics* (2022), [http://dx.doi.org/10.1007/JHEP05\(2022\)012](http://dx.doi.org/10.1007/JHEP05(2022)012) [M. de Leeuw, A. Pribytok, A.L. Retore, P. Ryan]

Fritzsch, Patrick, 'Singlet channel scattering in a composite Higgs model on the lattice', *The European Physical Journal C*, 82, 1 (2022), <http://dx.doi.org/10.1140/epjc/s10052-021-09914-y> [V. Drach, P. Fritzsch, A. Rago, F. Romero-López]

'Properties, ensembles and hadron spectra with stabilised wilson fermions', *Proceedings of the 38th international symposium on lattice field theory, PoS (LATTICE2021)* (2022), <http://dx.doi.org/10.22323/1.396.0118> [A.S. Francis, F. Cuteri, P. Fritzsch, G. Pederiva, A. Rago, A. Schindler]

'Master-field simulations of QCD', *Proceedings of the 38th international symposium on lattice field theory, PoS (LATTICE2021)* (2022), <http://dx.doi.org/10.22323/1.396.0465> [P. Fritzsch, J. Bulava, M. Cè, A. Francis, M. Lüscher, A. Rago]

'Approaching the master-field: hadronic observables in large volumes', *Proceedings of the 38th international symposium on lattice field theory, PoS (LATTICE2021)* (2022), <http://dx.doi.org/10.22323/1.396.0383> [M. Cè, M. Bruno, J. Bulava, A. Francis, P. Fritzsch, J. Green]

'An update on QCD+QED simulations with C* boundary conditions', *Proceedings of the 38th international symposium on lattice field theory, PoS (LATTICE2021)* (2022), <http://dx.doi.org/10.22323/1.396.0293> [J. Luecke, L. Bushnaq, I. Campos, M. Catillo, A. Cotellucci, P. Fritzsch]

'Baryon masses from full QCD+QED_c simulations', *Proceedings of the 38th international symposium on lattice field theory, PoS (LATTICE2021)* (2022), <http://dx.doi.org/10.22323/1.396.0373> [M.E.B. Dale, L. Bushnaq, I. Campos, M. Catillo, A. Cotellucci, P. Fritzsch]

'Hadronic vacuum polarization with C* boundary conditions', *Proceedings of the 39th international symposium on lattice field theory, PoS (LATTICE2022)* (2022), <http://dx.doi.org/10.22323/1.430.0312> [R. Gruber, A. Altherr, L. Bushnaq, I. Campos, M. Catillo, P. Fritzsch]

'Hadronic observables from master-field simulations', *Proceedings of the 39th international symposium on lattice field theory, PoS (LATTICE2022)* (2023), <http://dx.doi.org/10.22323/1.430.0052> [M. Cè, M. Bruno, J. Bulava, A. Francis, P. Fritzsch, J.R. Green]

'Benchmark continuum limit results for spectroscopy with stabilized Wilson fermions', *Proceedings of the 39th international symposium on lattice field theory, PoS (LATTICE2022)* (2023), <http://dx.doi.org/10.22323/1.430.0074> [G. Pederiva, F. Cuteri, A. Francis, P. Fritzsch, A. Rago]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

- 'Tuning of QCD+QED simulations with C^* boundary conditions', *Proceedings of The 39th International Symposium on Lattice Field Theory, PoS (LATTICE2022)* (2023), <http://dx.doi.org/10.323/1.430.0259> [A. Cotellucci, A. Altherr, L. Bushnaq, I. Campos, M. Catillo, P. Fritzsche]
- ' $N_f = 1+2+1$ QCD+QED simulations with C^* boundary conditions', *Proceedings of the 39th international symposium on lattice field theory, PoS (LATTICE2022)* (2023), <http://dx.doi.org/10.22323/1.430.0064> [J. Lücke, A. Altherr, L. Bushnaq, I. Campos, N. Tantaló, P. Tavella]
- 'Gauge generation and dissemination in OpenLat', *Proceedings of the 39th international symposium on lattice field theory, PoS (LATTICE2022)* (2023), <http://dx.doi.org/10.22323/1.430.0426> [A.S. Francis, F. Cuteri, P. Fritzsche, G. Pederiva, A. Rago, A. Shindler]
- 'Strange and charm contributions to the HVP from C^* boundary conditions', *proceedings of the 39th international symposium on lattice field theory, PoS (LATTICE2022)* (2023), <http://dx.doi.org/10.22323/1.430.0281> [P. Tavella, A. Altherr, L. Bushnaq, I. Campos, M. Catillo, P. Fritzsche]
- 'On improvement of the axial-vector current with stabilised Wilson fermions', *Proceedings of the 39th international symposium on lattice field theory, PoS (LATTICE2022)* (2023), <http://dx.doi.org/10.22323/1.430.0287> [J.T. Kuhlmann, P. Fritzsche, J. Heitger]
- Hahn, Marvin**, 'Tropical jucys covers', *Math. Z.*, 301, 2 (2022), 1719–1738 [M.A. Hahn, D. Lewanski]
- 'Triply mixed coverings of arbitrary base curves: quasimodularity, quantum curves and a mysterious topological recursion', *Ann. Inst. Henri Poincaré D*, 9, 2 (2022), 239–296 [M.A. Hahn, Marvin Anas, J.-W.M. van Ittersum, F. Leid]
- 'Strongly semistable reduction of syzygy bundles on plane curves', *J. Lond. Math. Soc. (2)*, 105, 3 (2022), 1518–1545 [M.A. Hahn, A. Werner]
- 'Mustafin models of projective varieties and vector bundles', *Int. Math. Res. Not. IMRN*, 20 (2022), 15684–15720 [M.A. Hahn]
- 'Orders and polytropes: matrix algebras from valuations', *Beitr. Algebra Geom.*, 63, 3 (2022), 515–531 [Y. El Maazouz, M.A. Hahn, G. Nebe, M. Stanojkovski, B. Sturmfels]
- 'Intersecting psi-classes on tropical Hassett spaces', *Comb. Theory*, 2, 3 (2022), 9, 30 [M.A. Hahn, S. Li]
- Manschot, Jan**, 'Numerical experiments on coefficients of instanton partition functions', *Communications in Number Theory and Physics*, 17, 4 (2023), 941–983 [A. Chattopadhyaya, J. Manschot]
- McLoughlin, Tristan**, 'Quantum chaos in perturbative super-Yang-Mills Theory', *SciPost Physics*, 14, 3 (2023), <http://dx.doi.org/10.21468/SciPostPhys.14.3.049> [T. McLoughlin, R. Pereira, A. Spiering]
- 'Chaotic spin chains in AdS/CFT', *Journal of High Energy Physics*, 2022, 9 (2022), [http://dx.doi.org/10.1007/JHEP09\(2022\)240](http://dx.doi.org/10.1007/JHEP09(2022)240) [T. McLoughlin, A. Spiering]
- 'Celestial holography on Kerr-Schild backgrounds', *Journal of High Energy Physics*, 2022, 10 (2022), [http://dx.doi.org/10.1007/JHEP10\(2022\)073](http://dx.doi.org/10.1007/JHEP10(2022)073) [R. Gonzo, T. McLoughlin, A. Puhm]
- 'The SAGEX review on scattering amplitudes', *Journal of Physics A: Mathematical and Theoretical*, 55, 44 (2022), <http://dx.doi.org/10.1088/1751-8121/ac8380> [G. Travaglini, A. Brandhuber, P. Dorey, T. McLoughlin, C.D. White]
- 'The SAGEX review on scattering amplitudes chapter 11: soft theorems and celestial amplitudes', *Journal of Physics A: Mathematical and Theoretical*, 55, 44 (2022), <http://dx.doi.org/10.1088/1751-8121/ac9a40> [T. McLoughlin, A. Puhm, A.M. Raclariu]
- Naef, Florian**, 'Stable cohomology of graph complexes', *Selecta Mathematica, New Series*, 29, 2 (2023), <http://dx.doi.org/10.1007/s00029-023-00830-5> [M. Felder, F. Naef, T. Willwacher]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

'Poincaré complex diagonals and the Bass trace conjecture', *Proceedings of the Royal Society of Edinburgh Section A: Mathematics* (2023), <http://dx.doi.org/10.1017/prm.2023.65> [J.R. Klein, F. Naef]

Oldham, Elizabeth, 'Innovative experiential practice(s) in teacher education: a case study in an Irish university', *The Mathematics Education for the Future Project Symposium: Innovative teaching practices*, eds J. Morska, A. Rogerson, Oxford, England, WTM-Verlag (2023), 174-180 [E. Oldham, A. Bray]

'Problems for teachers? Views of members of the Irish mathematics teachers' association on current issues in mathematics education', *Ninth Conference on Research in Mathematics Education in Ireland (MEI 9)*, eds A. Twohill, S. Quirke, Dublin City University, DCU Institute of Education, Dublin City University (2023), 132-139 [C. Duffy, E. Oldham]

'Investigation of the degree to which the study of the old applied mathematics course affected students' performance in other Leaving Certificate subjects', *Ninth conference on research in mathematics education in Ireland (MEI 9)*, eds A. Twohill, S. Quirke, Dublin City University (2023), 116-123 [S. Curran, E. Oldham]

Shatashvili, Samson, 'Berezin quantization, conformal welding and the Bott-Virasoro group', *Annales Henri Poincaré* (2023), <http://dx.doi.org/10.1007/s00023-023-01324-y> [A. Alekseev, S. Shatashvili, L. Takhtajan]

School of Natural Sciences

BOTANY

Caldararu, Silvia, 'Higher global gross primary productivity under future climate with more advanced representations of photosynthesis', *Science Advances*, 9, 46 (2023), eadh9444- [J. Knauer, M. Cuntz, B. Smith, J.G. Canadell, B.E. Medlyn, S. Caldararu]

'Modelled forest ecosystem carbon-nitrogen dynamics with integrated mycorrhizal processes under elevated CO₂', *Biogeosciences Discussions*, 2023 (2023), 1 -30 [M.A. Thurner, S. Caldararu, J. Engel]

'On the predictability of turbulent fluxes from land: PLUMBER2 MIP experimental description and preliminary results', *EGU sphere*, (2024), 1-47 [G. Abramowitz, A. Ukkola, S. Hobeichi, P.J. Cranko, M. Lipson, M. De Kauwe]

'Ideas and perspectives: beyond model evaluation - combining experiments and models to advance terrestrial ecosystem science', *Biogeosciences*, 20 (2023), 3637-364 [S. Caldararu, V. Rolo, B.D. Stocker, T.E. Gimeno, R. Nair]

Collier, Marcus, 'Distribution of nature-based solutions in cities across Europe', *Land Use Policy*, 141(2024), 107160 [C. Cooper, N. Cunningham, L.J. Bracken, M.J. Collier]

'Embedding co-production of nature-based solutions in urban governance: emerging co-production capacities in three European cities', *Environmental Science and Policy*, 152 (2024), 103652 [K. Holscher, N. Frantzeskaki, D. Kindlon, M.J. Collier, G. Dick, A. Dziubaa]

'Strategies for mainstreaming nature-based solutions in urban governance capacities in ten European cities', *NPJ Urban Sustainability*, 3, 1 (2023), <http://hdl.handle.net/2262/104109> [K. Holscher, N. Frantzeskaki, M.J. Collier, S. Connop, E.D. Kooijman, V. Velikova]

'An integrated process for planning, delivery, and stewardship of urban nature-based solutions: the Connecting Nature Framework', *Nature-Based Solutions*, 3 (2023), 100060 [M.J. Collier, N. Frantzeskaki, S. Connop, G. Dick, A. Dumitru, D. Xidou]

'Finding justice in wild, novel ecosystems: a review through a multispecies lens', *Urban Forestry and Urban Greening*, 83 (2023), 127902 [M. Pineda-Pinto, C. Kennedy, M.J. Collier, C. Cooper, M. O'Donnell, F. Nulty, N. Rodriguez Castaneda]

'Growing older urbanism: exploring the nexus between ageing, the built environment, and urban ecosystems', *Urban Transformations*, 5 (2023), 8 [T. Grey, D. Xidou, D. O'Neill, M.J. Collier]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

- The Connecting Nature Framework: facilitating and connecting innovations for the large-scale implementation of nature-based solutions*, Brussels, European Commission, DG Research and Innovation (2022), <https://doi.org/10.5281/zenodo.7502565> [K. Hölscher, K. Allaert, M. Lodder, D. Sillen, M.J. Collier, K. van de Sijpe]
- Cooper, Clair, 'Distribution of nature-based solutions in cities across Europe', *Land Use Policy*, 141 (2024), 107160 [C. Cooper, N. Cunningham, L.J. Bracken, M.J. Collier]
- 'Finding justice in wild, novel ecosystems: a review through a multispecies lens', *Urban Forestry and Urban Greening*, 83 (2023), 127902 [M. Pineda-Pinto, C. Kennedy, M.J. Collier, C. Cooper, M. O'Donnell, F. Nulty, N. Rodríguez Castaneda]
- Harper, Carla, 'A fungal mycelium containing abundant endoconidia from the lower Devonian Rhynie chert of Scotland', *Review of Palaeobotany and Palynology*, 313 (2023), 104891 [M. Krings, C.J. Harper]
- 'Oldest fossil evidence of tylosis formation in plants', *Nature Plants*, 9 (2023), 695-698 [A.L. Decombeix, C.J. Harper, C. Prestianni, T. Durieux, M. Ramel, M. Krings]
- 'Early Jurassic silicified woods from carapace Nunatak, South Victoria Land, Antarctica', *Fossil Record*, 26, 1 (2023), 103-115 [A. Toumoulin, A.L. Decombeix, C.J. Harper, R. Serbet]
- 'Tyloses in fossil plants: new data from an early carboniferous tree, with a review of previous records', *Botany Letters*, 168(2022), 510-526 [A.L. Decombeix, C.J. Harper, J. Galtier, B. Meyer-Berthaud, M. Krings]
- Hodkinson, Trevor, 'Taxonomic revision of the genus *Chimonocalamus* (Arundinarieae, Bambusoideae, Poaceae) in Thailand', *Phytotaxa*, 636, 4 (2024), 279-286 [W. Arthan, T.R. Hodkinson, N. Xia, K.M. Wong, W. O-Chakull, A. Teerawatananon]
- 'Characterization of anatomical characters of *Peperomia* (Piperaceae) from Asia for taxonomy', *Botanical Journal of the Linnean Society* (2024), boad075 [C. Suwanphakdee, P. Sutthithon, T.R. Hodkinson]
- 'Characterization of mesosulfuron-methyl iodosulfuron-methyl and pyroxulam-resistant annual bluegrass (*Poa annua*) in an annual cropping system', *Weed Science*, doi:10.1017/wsc.2023 (2023), 23 [V. Alwarnaidu Vijayarajan, C. Morgan, N. Onkokesung, S.K. Cook, T.R. Hodkinson, S. Barth]
- 'Three new species, two new records and additional taxonomic notes of *Piper* (Piperaceae) from Thailand', *Nordic Journal of Botany* (2023), 1-19 [C. Suwanphakdee, S. Karapan, Y. Banchong, T.R. Hodkinson]
- 'Genetic variation of paclitaxel biosynthesis genes in yews (*Taxus*) and allies', *Conservación y restauración de los bosques de tejo en Europa: 11-18. Monografías do Ibader, Serie Biodiversidade, Lugo.*, eds P. Ramil-Rego, M.A. Rodríguez Guitián, J. Ferreiro da Costa, L. Gómez-Orellana, Galicia, Spain, Ibader, USC (2023), 341-351 [P. Coughlan, J.C. Carolan, I.L. Hook, T.R. Hodkinson]
- Kelly, Daniel, 'Current status of gastrointestinal tract cancer brain metastasis and the use of blood-based cancer biomarker biopsy', *Clinical and Experimental Metastasis*, 39, 1 (2022), 61-69 [Y. Shoji, S. Furuhashi, D.F. Kelly, J. Bilchik, D.S.B. Hoon, M.A. Bustos]
- 'Supraorbital and mini-pterial keyhole craniotomies for brain tumors: a clinical and anatomical comparison of indications and outcomes in 204 cases', *Journal of Neurosurgery*, 136, 5 (2022), 1314-1324 [M.B. Avery, R.J. Mallari, G. Barkhoudarian, D.F. Kelly]
- 'Diagnostic pitfalls in Cushing disease: surgical remission rates, test thresholds, and lessons learned in 105 patients', *Journal of Clinical Endocrinology and Metabolism*, 107, 1 (2022), 205-218 [R.J. Mallari, J.D. Thakur, G. Barkhoudarian, A. Eisenberg, A. Rodriguez, D.F. Kelly]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

'Nature-themed video intervention may improve cardiovascular safety of psilocybin-assisted therapy for alcohol use disorder', *Frontiers in Psychiatry*, 14, 1215972 (2023), <http://dx.doi.org/10.3389/fpsy.2023.1215972> [K.G. Heinzerling, K. Sergi, M. Linton, R. Rich, B. Youssef, D.F. Kelly]

'Minimally invasive pericranial flap harvest through a supraorbital eyebrow craniotomy: technical note in salvage skull base reconstruction', *Clinical Neurology and Neurosurgery*, 217, 107266 (2022), <http://dx.doi.org/10.1016/j.clineuro.2022.107266> [M.G. Olson, M.B. Avery, S. Javaherian, W. Sivakumar, D.F. Kelly, C. Griffiths]

'Cell-free plasma microRNAs that identify patients with glioblastoma', *Laboratory Investigation*, 102, 7 (2022), 711-721 [M.A. Bustos, N. Rahimzadeh, S. Ryu, R. Gross, D.S.B. Hoon]

'Critical appraisal of minimally invasive keyhole surgery for intracranial meningioma in a large case series', *PLoS ONE*, 17, 7 July (2022), <http://dx.doi.org/10.1371/journal.pone.0264053> [J.D. Thakur, R.J. Mallari, A. Corlin, S. Yawitz, D.F. Kelly]

'Handgrip strength is related to hippocampal and lobar brain volumes in a cohort of cognitively impaired older adults with confirmed amyloid burden', *Journal of Alzheimer's Disease*, 91, 3 (2023), 999-1006 [S. Meysami, C.A. Raji, R.M. Glatt, E.S. Popa, D.A. Merrill]

'Psychedelic-assisted therapy and psychedelic science: a review and perspective on opportunities in neurosurgery and neuro-oncology', *Neurosurgery*, 92, 4 (2023), 680-694 [D.F. Kelly, K. Heinzerling, A. Sharma, S. Gowrinathan, K. Sergi, R.J. Mallari]

'Treatment of Cushing disease with pituitary-targeting seliciclib', *Journal of Clinical Endocrinology and Metabolism*, 108, 3 (2023), 726-735 [N-A. Liu, A. Ben-Shlomo, J.D. Carmichael, C. Wang, M. Tighiouart, S. Melmed]

'Enhanced recovery after brain tumor surgery: pilot protocol implementation in a large healthcare system', *Neurosurgical Focus*, 55, 6 (2023), <http://dx.doi.org/10.3171/2023.9.FOCUS23563> [W. Sivakumar, J. Guan, J.P. Langevin, G. Barkhoudarian, D.F. Kelly, N. Martin]

'NGS analysis of plasma cfDNA and cfmiRNA signatures in melanoma brain metastasis patients', *Current Cancer Research*, Part F1235 (2023), 491-510 [R.I. Ramos, S.Y. Lin, M.A. Bustos, A. Eisenberg, S. Ryu, D.F. Kelly]

'A prospective, multicenter, observational study of surgical vs nonsurgical management for pituitary apoplexy', *The Journal of Clinical Endocrinology and Metabolism*, 109, 2 (2024), e711-e725 [A.N. Mamelak, A.S. Little, P.A. Gardner, J.P. Almeida, V. Bonert]

'Single-dose psilocybin treatment for major depressive disorder a randomized clinical trial', *JAMA*, 330, 9 (2023), 843-853 [C.L. Raison, G. Sanacora, J. Woolley, K. Heinzerling, B.W. Dunlop, R.R. Griffiths]

'Pilot study of high-dose pemetrexed in patients with progressive chordoma', *Clinical Cancer Research*, 30, 2 (2024), 323-333 [S. Kesari, N. Wagle, J.A. Carrillo, A. Sharma, T.M. Juarez]

'Two new critically endangered species of *Begonia* sect. *Gireoudia* (Begoniaceae) from Mesoamerica', *Novon, A Journal for Botanical Nomenclature*, 32 (2024), 1-7 [P.W. Moonlight, D.L. Kelly]

'Investigation of the copper requirements of the metallophyte liverworts *Cephaloziella nicholsonii* Douin and *C. massalongoi* (Spruce) Müll.Frib', *Plants*, 12, 12 (2023), <http://dx.doi.org/10.3390/plants12122265> [C. Campbell, D.L. Kelly, N. Smyth, N. Lockhart, D.T. Holyoak, D. Long]

Knapp, Jessica, 'Roadmap for action on the environmental risk assessment of chemicals for insect pollinators (iPol-ERA)', *EFSA Supporting Publications* (2023), <https://doi.org/10.2903/sp.efsa.2023.EN-8431> [J. Henty Williams, A. Bordonì, A. Bednarska, A. Pinto, Z. Filipiak, C.J. Topping]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

- McElwain, Jennifer**, 'Mercury sequestration pathways under varying depositional conditions during Early Jurassic (Pliensbachian and Toarcian) Karoo-Ferrar volcanism', *Palaeogeography, Palaeoclimatology, Palaeoecology*, 637, 111977 (2024), <http://dx.doi.org/10.1016/j.palaeo.2023.111977> [M. Ruhl, R.L. Silva, J.C. McElwain, M. Reolid, C. Korte, W. Ruebsam]
- 'Nitrogen isotopes reveal independent origins of N₂-fixing symbiosis in extant cycad lineages', *Nature Ecology and Evolution*, 8, 1 (2024), 57-69 [M.A. Kipp, M. Slodownik, V. Vajda, R. Buick]
- 'A systems approach to understanding how plants transformed Earth's environment in deep time', *Annual Review of Earth and Planetary Sciences*, 51 (2023), 551-580 [W.J. Matthaeus, S.I. Macarewicz, C.J. Poulsen]
- 'Toward a Cenozoic history of atmospheric CO₂', *Science*, 382, 6675 (2023), <http://dx.doi.org/10.1126/science.ad5177> [D.L. Royer, D.O. Breecker, J.C. Zachos, L. Zhang]
- 'Annual yields of multispecies grassland mesocosms outperformed monocultures across a drought gradient due to complementarity effects and rapid recovery', *Grassland Research*, 2, 4 (2023), 309-321 [E. Haughey, J.C. McElwain, J.A. Finn]
- Mitchell, Fraser**, 'Declining potential nectar production of the herb layer in temperate forests under global change', *Journal of Ecology*, 112, 4 (2024), 1-16 [W. De Schuyter, E. De Lombaerde, L. Depauw, K. Verheyen]
- 'Regional variability in peatland burning at mid-to high-latitudes during the Holocene', *Quaternary Science Reviews*, 305, 108020 (2023), 1-17 [T.G. Sim, G.T. Swindles, P.J. Morris, C. Zacccone, H. Zhang]
- 'Trees vs. grazers: who wins? The palaeoecological perspective', *The nature of the first forests in NW Europe*, ed M. Stewart, Perth, Native Woodlands Discussion Group (2023), 3-14 [F.J.G. Mitchell]
- Moonlight, Peter**, 'Elevation modulates the impacts of climate change on the Brazilian Cerrado flora', *Diversity and Distributions*, e13832(2024), <https://doi.org/10.1111/ddi.13832> [M.C. Silva, L. Rowland, R.S. Oliveira, R.T. Pennington, P. Moonlight]
- 'Two new critically endangered species of *Begonia* sect. *Gireoudia* (Begoniaceae) from Mesoamerica', *Novon, A Journal for Botanical Nomenclature*, 32 (2024), 1-7 [P.W. Moonlight, D.L. Kelly]
- 'Another recently recognized monotypic genus is no longer monotypic: a second species of *Pachycaulos* (Gesneriaceae) from the Huancabamba depression in Northern Peru', *Systematic Botany*, 48, 3 (2023), 410-418 [J.L. Clark, J.F. Smith, P.W. Moonlight]
- 'A new species of *Begonia* (Begoniaceae) from the eastern Cordillera of Colombia', *Phytotaxa*, 616, 2 (2023), 169-175 [O.A. Jara-Munoz, P.W. Moonlight, J.C. Zabala Rivera]
- 'The genus *Begonia* in Peru', *European Journal of Taxonomy*, 881(2023), 1-334 [P.W. Moonlight, O.A. Jara-Muñoz, D.A. Purvis, J. Delves, J.P. Allen, C. Reynel]
- 'Spatial distribution of aboveground biomass stock in tropical dry forest in Brazil', *iForest Biogeosciences and Forestry*, 16 (2023), 116-126 [H.K.V. Santos, R. Borges de Lima, R.L. Figueiredo de Souza, T. Pennington, O.L. Phillips]
- 'A taxonomic revision of *Keraunea*, including three new species and its phylogenetic realignment within Ehretiaceae (Boraginales)', *Phytokeys*, 219 (2023), 145-170 [P.W. Moonlight and D.B.O.S. Cardoso]
- 'Mapping wood volume in seasonally dry vegetation of Caatinga in Bahia State, Brazil', *Scientia Agricola*, 80 (2023), e20220161 [T.H. Silva, R.B.d. Lima, R.L.F.d Souza, P.W. Moonlight, D. Cardoso, R.T. Pennington, O.L. Phillips]
- 'Toward diverse seed sourcing to upscale ecological restoration in the Brazilian Cerrado', *Frontiers in Ecology and Evolution*, 10 (2023), 1045591 [M.C. Silva, P.W. Moonlight, R.S. Oliveira, R.T. Pennington, L. Rowland]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

Nair, Richard, 'Semantic segmentation of plant roots from RGB (mini) rhizotron images-generalisation potential and false positives of established methods and advanced deep-learning models', *Plant Methods*, 19, 22 (2023) [P. Baykalov, B. Bussmann, R. Nair, A.G. Smith, G. Bodner, O. Hadar]

'Leaf-level coordination principles propagate to the ecosystem scale', *Nature Communications*, 14 (2023), <https://doi.org/10.1038/s41467-023-39572-5> [U. Gomasasca, M. Migliavacca, J. Kattge, J.A. Nelson, U. Niinemets, R. Nair]

'Rooting vegetation models in realism', *Global Change Biology*, 29 (2023), 2868-2870 [R. Nair]

'Ideas and perspectives: beyond model evaluation-combining experiments and models to advance terrestrial ecosystem science', *Biogeosciences*, 20 (2023), 3637-364 [S. Caldaranu, V. Rolo, B.D. Stocker, T.E. Gimeno, R. Nair]

Parnell, John, 'Seed morphology of *Eriocaulon* (Eriocaulaceae) in Thailand', *Kew Bulletin*, 78, 4 (2024), 1-37 [B. Wantongsuk, J.A.N. Parnell, A. Prajaksood]

'Three new species of *Syzygium* Gaertn. (Myrtaceae) from Cambodia and Vietnam', *Adansonia*, 46, 4 (2024), 29-36 [W.K. Soh, H.V. Sam, J.A.N. Parnell]

'Zingiberaceae', *Flora of Thailand 16 (2)*, eds K. Chayamarit, H. Balslev, M.F. Newman, A.S. Barford, H-J. Esser, J.A.N Parnell, Bangkok, The Forest Herbarium, Department of National Parks, Wildlife and Plant Conservation (2023), 333-747+LXXXVIII [M.F. Newman, S. Sangvirotjanap]

'Sorting out *Aeginetia* (Orobanchaceae) in Indochina: *A. sessilis* is a synonym of *A. acaulis*', *Phytotaxa*, 597, 4 (2023), 269-279 [M.S. Nuraliev, V. The Pham, V. Canh Nguyen, J.A.N. Parnell]

Pineda Pinto, Melissa, 'Pulse of social-ecological justice: nature's voice through Melbourne's environmental stewards', *Sustainability Science*, 18 (2023), 2469-2484 [M. Pineda-Pinto, N. Frantzeskaki, C. Raymond]

Saunders, Matthew, 'Assessing nitrous oxide emissions in time and space with minimal uncertainty using static chambers and eddy covariance from a temperate grassland', *Agricultural and Forest Meteorology*, 313 (2022), 108743 [R.M. Murphy, K.G. Richards, D.J. Krol, A.W. Gebremichael, L. Lopez-Sangil, M. Saunders]

'Nitrous oxide emission factors from an intensively grazed temperate grassland: a comparison of cumulative emissions determined by eddy covariance and static chamber methods', *Agriculture, Ecosystems and Environment*, 324 (2022), 107725 [R.M. Murphy, M. Saunders, K. G. Richards, D.J. Krol, A.W. Gebremichael, J. Rambaud]

'The 2018 European heatwave led to stem dehydration but not to consistent growth reductions in forests', *Nature Communications*, 13, 1 (2022), <http://dx.doi.org/10.1038/s41467-021-27579-9> [R.L. Salomón, R.L. Peters, R. Zweifel, F. Lebourgeois]

'Development of hybrid models to estimate gross primary productivity at a near-natural peatland using sentinel 2 data and a light use efficiency model', *Remote Sensing*, 15 (2023), 1673 [R. Ingle, S. Bhatnagar, B. Ghosh, L. Gill, S. Regan, J. Connolly, M. Saunders]

Stout, Jane, 'Notes on the use of 'bee hotels' by stem-nesting *Hymenoptera* in three County Dublin orchards', *Irish Naturalists' Journal*, 40 (2023), 40-44 [S. Hodge, S. Maher, J.C. Stout]

'Responses in honeybee and bumblebee activity to changes in weather conditions', *Oecologia*, 201, 3 (2023), 689-701 [A. Karbassioon, J. Yearlsey, T. Dirilgen, S. Hodge, J.C. Stout, D.A. Stanley]

'Fertilizer and herbicide alter nectar and pollen quality with consequences for pollinator floral choices', *PeerJ*, 11, e15452 (2023), <http://dx.doi.org/10.7717/peerj.15452> [L. Russo, F. Ruedenauer, A. Gronert, I. Van de Vreken, M. Vanderplanck, J.C. Stout]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

- 'Signatures of adaptation, constraints, and potential redundancy in the canonical immune genes of a key pollinator', *Genome Biology and Evolution*, 15, 4 (2023), <http://dx.doi.org/10.1093/gbe/evad039> [S.J. Larragy, J.C. Stout, J.C. T.J. Carolan, T.J. Colgan]
- 'Impact of landscape configuration and composition on pollinator communities across different European biogeographic regions', *Frontiers in Ecology and Evolution*, 11, 1128228 (2023), <http://dx.doi.org/10.3389/fevo.2023.1128228> [I. Bottero, C. Dominik, O. Schweiger, M. Albrecht, J.C. Stout]
- 'Manipulating network connectance by altering plant attractiveness', *PeerJ*, 11, e16319 (2023), <http://dx.doi.org/10.7717/peerj.16319> [L. Russo, J.C. Stout]
- 'Protecting farmland pollinators: whole farm scorecard - experiences and recommendations', *Journal of Pollination Ecology*, 34, 5 (2023), 312-328 [S. Kavanagh, N. Phelan, N. Rodriguez-Gasol, S. O' Brien, J.C. Stout]
- 'Honey bees and bumble bees may be exposed to pesticides differently when foraging on agricultural areas', *Science of the Total Environment*, 896, 166214 (2023), <http://dx.doi.org/10.1016/j.scitotenv.2023.166214> [E. Zioga, B. White, J.C. Stout]
- 'Differential responses of honeybees and bumblebees to weather conditions', *Oecologia* (2023), <http://hdl.handle.net/2262/102282> [A. Karbassioon, J. Yearlsey, T. Dirilgen, S. Hodge, J.C. Stout, D.A. Stanley]
- Williams, Michael**, 'Environmental and land use consequences of replacing milk and beef with plant-based alternatives', *Journal of Cleaner Production* (2023), <http://dx.doi.org/10.1016/j.clepro.2023.138826> [M. Porto Costa, S. Saget, B. Zinnermann, E. Petig, E. Angenendt, M. Williams]
- GEOGRAPHY**
- Akers, Pete**, 'An extraction method for nitrogen isotope measurement of ammonium in a low-concentration environment', *Atmospheric Measurement Techniques*, 16, 17 (2023), 4015-4030 [A. Lamothe, J. Savarino, P. Ginot, L. Soussaintjean, E. Gautier, P.D. Akers]
- Bourke, Mary**, 'Morphometric trends and implications for the formation of araneiform clusters', *Earth and Planetary Science Letters*, 607, 118049 (2023), <https://doi.org/10.1016/j.epsl> [L.E. Mc Keown, S. Diniega, M.C. Bourke, M.E. Schwamb]
- Carmody, Padraig**, 'From 'debt diplomacy' to donorship? China's changing role in global development', *Global Political Economy* (2022), <http://hdl.handle.net/2262/102400> [P. Carmody, T. Zajontz, R. Reboredo]
- Connolly, John**, 'Development of hybrid models to estimate gross primary productivity at a near-natural peatland using sentinel 2 data and a light use efficiency model', *Remote Sensing*, 15 (2023), 1673 [R. Ingle, S. Bhatnagar, B. Ghosh, L. Gill, S. Regan, J. Connolly]
- 'A new hybrid index to estimate gross primary productivity of peatlands under variable climatic conditions', *Remote Sensing*, 15, 6 (2023), 1673 [R. Ingle, S. Bhatnagar, B. Ghosh, L. Gill, S. Regan, J. Connolly]
- Davies, Anna**, 'Food sharing in a pandemic: urban infrastructures, prefigurative practices and lessons for the future', *Cities*, 145 (2024), 627 [M. Rut, A.R. Davies]
- 'Climate smart: geography, place and climate change adaptation education', *Geography*, 109, 1 (2024), 27-35 [A.R. Davies, S. Hugel, G. Ryan, A. Norman]
- 'What role for citizens? Evolving engagement in quadruple helix smart district initiatives', *Urban Planning*, 8, 2 (2023), 70-80 [H. Devine-Wright, A.R. Davies]
- 'The power of platforms: precarity and place', *Cambridge Journal of Regions, Economy and Society*, 16, 2 (2023), <http://hdl.handle.net/2262/103068> [A.R. Davies, B. Donald, M. Grey]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

Edwards, Robin, 'Two centuries of relative sea-level rise in Dublin, Ireland, reconstructed by geological tide gauge', *Open Quaternary*, 9 (2023), <http://hdl.handle.net/2262/103792> [Z.A. Roseby, K. Southall, F. Alvarez-Agoues, N. Cahill, G.D. McCarthy, R.J. Edwards]

'Reconstruction of the palaeo-sea level of Britain and Ireland arising from empirical constraints of ice extent: implications for regional sea level forecasts and North American ice sheet volume', *Journal of Quaternary Science*, 38, 6 (2023), 791-805 [S. Bradley, J. Ely, C. Clark, R. Edwards, I. Shennan]

Jackson, Margaret, 'Quaternary glaciation in Africa', *Encyclopaedia of Quaternary Studies*, Third edition, eds J. Ehlers, P. Gibbard, P. Hughes (2024), <https://doi.org/10.1016/B978-0-323-99931-1.00169-0> [M.S. Jackson, P. Hughes]

Lawton, Thaddeus, 'From edge city to city edge', *Built Environment*, 49, 1 (2023), 58-74 [P. Lawton, C.M. Kayanan]

Möller, Iris, 'Shear strength and erosion resistance of salt marsh substrates: which method to use?', *Estuarine, Coastal and Shelf Science*, 292 (2023), 108452 [H. Brooks, I. Moeller, T. Spencer, K. Royce]

'Top ten priorities for global saltmarsh restoration, conservation and ecosystem service research', *Science of the Total Environment*, 898 (2023), 165544 [J. Pétilon, E. McKinley, M. Alexander, J.B. Adams, L. Zhang, M.W. Skov]

'Plant trait-mediated drag forces on seedlings of four tidal marsh pioneer species', *Frontiers in Marine Science*, 10 (2023), <http://dx.doi.org/10.3389/fmars.2023.1172492> [C.S. Steinigeweg, S. Löbel, B. Schröder, K. Schoutens, S. Reents, I. Möller]

'Bio-physical controls on wave transformation in coastal reed beds: insights from the Razelm-Sinoe lagoon system, Romania', *Frontiers in Marine Science*, 9 (2022), <http://dx.doi.org/10.3389/fmars.2022.813474> [I. Möller, M. Smaranda Ionescu, A.M. Constantinescu, B.R. Evans, A. Scriciu, A. Stanica]

'Biological-physical interactions are fundamental to understanding and managing coastal dynamics', *Royal Society Open Science*, 10, 7 (2023), <http://dx.doi.org/10.1098/rsos.230155> [M. Solan, T. Spencer, D.M. Paterson, L.O. Amoudry]

Murphy, Susan, 'Restricted participation: drivers, experiences and implications of disability stigma in Ethiopia', *African Journal of Disability*, 11 (2023), <http://hdl.handle.net/2262/102274> [E. Breffka, C. Jagoe, S.P. Murphy, B.B. Tsegaw]

Sokol, Martin, 'Financial innovation for climate justice: central banks and transformative 'creative disruption'', *Climate and Development* (2023), 1-12 [J.C. Stephens, M. Sokol]

'Making sense of the financialization of households: state of the art and beyond', *Socio-Economic Review*, 21, 4 (2023), 2233-2258 [A. Bobek, M. Mikuš, M. Sokol]

'Financialisation, central banks and 'new' state capitalism: the case of the US federal reserve, the European central bank and the bank of England', *Environment and Planning A: Economy and Space* (2022), <https://doi.org/10.1177/0308518X221133114> [M. Sokol]

GEOLOGY

Chandra, Subhash, 'Down-shifting of the incident light for photovoltaic applications', *Comprehensive Renewable Energy (Second Edition)*, ed T.M. Letcher, Elsevier Ltd (2022), 27 [Y. Jestin, S. Chandra, B. Cass, H. Ahmed, S.J. McCormack]

'Down-shifting of the incident light for photovoltaic applications', *Comprehensive Renewable Energy (Second Edition)*, ed T.M. Letcher, Oxford, Elsevier (2022), 534-560 [Y. Jestin, S. Chandra, B. Cass, H. Ahmed, S.J. McCormack]

'Introducing luminescent solar waveguides for sustainable buildings for enhanced circadian rhythm regulation', *Sustainable Buildings*, 6 (2023), 6 [W.Q. Tham, S. Chandra, B. Norton, S. McCormack]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

- 'Assessment of large-area luminescent solar concentrators as building-integrated geodesic dome panels', *Sustainable Buildings*, 6 (2023), 7 [T. Flynn, S. Chandra, A. Ortega, S. McCormack]
- 'Design, fabrication and preliminary testing of plasmonic luminescent solar concentrator devices', *Sustainable Buildings*, 6 (2023), 8 [A. Glenn, S. Chandra, S. McCormack]
- Crowley, Quentin**, 'Application of GIS and spatiotemporal analyses in viral infection modelling using multiple datasets - a case study on the SARS-CoV-2 epidemic', *Medicina de Familia*, 50, 4 (2024), 102159 [M. Mousavi Aghdam, Q. Crowley]
- 'Assessment of natural radioactivity and radon release potential of Silurian black shales', *Radiation Physics and Chemistry* (2023), 111347 [S. DaPelo, M. Aghdam, V. Dentoni, A. Loi, P. Randaccio, Q. Crowley]
- 'Applying machine learning to model radon using topsoil geochemistry', *Applied Geochemistry*, 158 (2023), 105790 [M. Banrón, M. Cobelli, Q.G. Crowley]
- 'Application of airborne geophysical survey data in a logistic regression model to improve the predictive power of geogenic radon maps. A case study in Castleisland, County Kerry, Ireland', *Science of the Total Environment*, 894 (2023), 164965 [M. Dardac, J. Elío, M.M. Aghdam, M. Banrón, Q. Crowley]
- Dickens, Gerald**, 'Gas hydrate systems on the Brazilian continental margin', *World atlas of submarine gas hydrates in continental margins* (2022), 343-352 [M. Ketzer, A. Viana, D. Miller, A. Augustin, G.R. Dickens, A. Malinverno]
- 'Gravity complexes as a focus of seafloor fluid seepage: the Rio Grande cone, SE Brazil', *Scientific Reports*, 13, 1 (2023), <http://dx.doi.org/10.1038/s41598-023-31815-1> [M. Ketzer, D. Praeg, A.H. Augustin, L.F. Rodrigues, A.K. Steiger, G.R. Dickens]
- 'The late Miocene-early Pliocene biogenic bloom: an integrated study in the Tasman Sea', *Paleoceanography and Paleoclimatology*, 38, 4 (2023), <http://dx.doi.org/10.1029/2022pa004565> [M.E. Gastaldello, C. Agnini, T. Westerhold, A.J. Drury, R. Sutherland, G.R. Dickens]
- 'Calcareous nannofossil biostratigraphy and biochronology across the Eocene-Oligocene transition: the record at IODP Site U1509 (Tasman Sea) and a global overview', *Newsletters on Stratigraphy* (2023), <http://dx.doi.org/10.1127/nos/2023/0751> [A. Viganò, E. Dallanave, L. Alegret, T. Westerhold, R. Sutherland, G.R. Dickens]
- 'Radiolarian size and silicification across the Paleocene-Eocene boundary and into the early Eocene', *Palaeogeography, Palaeoclimatology, Palaeoecology*, 609 (2023), 111287 [S. Westacott, C.J. Hollis, K.M. Pascher, G.R. Dickens, P.M. Hull]
- Drost, Kerstin**, 'Caves, dinosaurs and the Carnian pluvial episode: recalibrating Britain's Triassic karst 'fissures'', *Palaeogeography, Palaeoclimatology, Palaeoecology*, 638 (2024), 112041 [M.J. Simms, K. Drost]
- 'Geochronology and correlations in the Central African fold belt along the northern edge of the Congo craton: new insights from U-Pb dating of zircons from Cameroon, Central African Republic, and south-western Chad', *Gondwana Research*, 107 (2022), 296-324 [S.F. Toteu, M. de Wit, J. Penaye, M. Doucouré]
- 'Precise U-Pb dating of incremental calcite slickenfiber growth: evidence for far-field Eocene fold reactivation in Ireland', *Geology*, 51, 7 (2023), 611-615 [V. Monchal, K. Drost, D. Chew]
- 'The influence of Cenozoic Eurasia-Arabia convergence on the southeast Arabian foreland basin: new geochronological and geochemical constraints from syn-kinematic carbonate mineralization', *Scientific Reports*, 13, 1 (2023), 10.1038/s41598-023-31611-x [F. Aboit, K. Drost, A. Decarlis, D. Chew, D. Hennhofer, A. Ceriani]
- 'Constraining the tectonic evolution of rifted continental margins by U-Pb calcite dating', *Scientific Reports*, 13, 1 (2023), 10.1038/s41598-023-34649-z [Å. Hestnes, K. Drost, T.O. Sømme, D. Gasser, T. Scheiber, H. Linge]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

- 'A two-stage, fault-controlled paleofluid system at the southern termination of the Gypsum Valley salt wall, Paradox basin, Colorado, USA', *Basin Research* (2022), <http://dx.doi.org/10.1111/bre.12649> [L.R. Lueck, M.P. Fischer, N.J. Williams, K. Drost, J.P. Dodd, D.M. Chew]
- Graham, John**, 'Sedimentary provenance of Silurian basins in western Ireland during Iapetus closure', *New Developments in the Appalachian-Caledonian-Variscan Orogen*, eds Y.D. Kuiper, J.B. Murphy, R.D. Nance, R.A. Strachan, M.D. Thompson (2022), 17 [N.R. Riggs, B.J. McConnell, J.R. Graham]
- 'Structural control of the deposition and subsequent deformation of the Killary harbour-Joyce country Silurian succession', *Irish Journal of Earth Sciences*, 41 (2023), 1-26 [M.E. Badley, J.R. Graham, B.E. Leake]
- 'The central Ox mountains', *A field guide to the geology of western Ireland*, ed P.D. Ryan, Switzerland, Springer (2022), 107-130 [J.R. Graham]
- 'Devonian and Carboniferous', *A field guide to the geology of western Ireland*, ed P.D. Ryan, Switzerland, Springer (2022), 363-404 [J.R. Graham]
- 'The Silurian of north Galway and south Mayo', *A field guide to the geology of western Ireland*, ed P.D. Ryan, Switzerland, Springer (2022), 245-302 [J.R. Graham, J.F. Dewey, P.D. Ryan]
- 'The Ordovician fore-arc and arc complex', *A field guide to the geology of western Ireland*, eds P.D. Ryan eds, Switzerland, Springer (2022), 179-227 [P.D. Ryan, J.F. Dewey, J.R. Graham]
- 'A lower Devonian age for the Corvock granite and its significance for the structural history of south Mayo and the Laurentian margin of western Ireland', *Canadian Journal of Earth Sciences*, 59, 1 (2022), 1-11 [J.R. Graham, N.R. Riggs]
- 'Spatial variation in provenance signal: identifying complex sand sourcing within a Carboniferous basin using multiproxy provenance analysis', *Journal of the Geological Society*, 179, 1 (2022), <http://dx.doi.org/10.1144/jgs2021-045> [B. Anders, S. Tyrrell, D. Chew, C. Mark, G. O'Sullivan, J.R. Graham]
- 'Wildfires and monsoons: cryptic drivers for highly variable provenance signals within a Carboniferous fluvial system', *Geosciences (Switzerland)*, 12, 1 (2022), <http://dx.doi.org/10.3390/geosciences12010020> [B. Anders, S. Tyrrell, D. Chew, G. O'Sullivan, C. Mark, J. Graham]
- 'The geology of western Ireland: a record of the 'birth' and 'death' of the Iapetus Ocean', *A field guide to the geology of western Ireland*, ed P.D. Ryan, Springer Geology (2022), 405-421 [P.D. Ryan, D.M. Chew, R.A. Cliff, B.W. D. Yardley]
- McKenna, Cora**, 'Repeat, fast, and high-resolution mapping of fine-scale trace element distribution in pyrite and marcasite by LA-Q-ICP-MS with the Aerosol Rapid Introduction System (ARIS)', *American Mineralogist*, 108, 1 (2023), 18-30 [M.A. Reynolds, B.S. Kamber, C.A. McKenna, M. Oelze, S.A. Gleeson]
- Sinnesael, Matthias**, 'A Bayesian astrochronology for the Cambrian first occurrence of trilobites in west Gondwana (Morocco)', *Geology*, 52, 3 (2024), 205-209 [M. Sinnesael, A.R. Millard, M.R. Smith]
- Stock, Michael**, 'Compositional evidence for dynamic, transcrustal mush systems at an ocean island volcano: the 289 ka Fasnía eruption, Tenerife', *Journal of Petrology*, 63, 10 (2022), egac095 [E.L. Horn, R.N. Taylor, T.M. Gernon, M.J. Stock, E.M.R. Farley]
- 'Editorial: Multidisciplinary investigations for determining the structure and dynamics of active volcanic systems', *Frontiers in Earth Science*, 10 (2022), <http://hdl.handle.net/2262/102994> [R. Isaia, M.J. Di Giuseppe, J. Gottsmann, M.J. Stock, A. Troiano]
- 'Determining the impact of magma water contents on porphyry Cu fertility: constraints from hydrous and nominally anhydrous mineral analysis', *GSA Bulletin* (2023), <http://hdl.handle.net/2262/102995> [W. Huang, M.J. Stock, Z. Cui, X-P. Xia, O. Liyun, J. Zhang]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

- Wyse Jackson, Patrick, 'Metamorphism as the cause of bone alteration in the Jarrow assemblage (Langsettian, Pennsylvanian) of Ireland', *Palaeontology*, 65, 6 (2022), 1-19 [A. Ó Gogáin, G. O'Sullivan, T. Clements, B.C. Hoare, J. Murray, P.N. Wyse Jackson]
- 'Richard Griffith's small scale geological map of Ireland (1853)', *IUGS E-Bulletin*, 199 (2023), 1-5 [P.N. Wyse Jackson, D. Hawley]
- 'Latitudinal influences on bryozoan calcification through the Paleozoic', *Paleobiology*, 49, 2 (2023), 271-283 [C.M. Reid, P.N. Wyse Jackson, M.M. Key]
- 'Astogenetic morphologic variation in the bryozoan *Prophyllodictya gracilis* from the Middle Ordovician of Russia and inferred colony-wide feeding currents', *Papers in Palaeontology*, 9, 3 (2023), 1-13 [M.M. Key, P.N. Wyse Jackson, M. McDowell, M.K. Nestell]

ZOOLOGY

- Barnett, James, 'Continuous variation in an aposematic pattern affects background contrast, but is not associated with differences in microhabitat use', *Frontiers in Ecology and Evolution*, 10 (2022), <http://dx.doi.org/10.3389/fevo.2022.803996> [J. Yeager, J.B. Barnett]
- Buckley, Yvonne, 'Multidimensional responses of grassland stability to eutrophication', *Nature Communications*, 14, 1 (2023), <http://dx.doi.org/10.1038/s41467-023-42081-0> [Q. Chen, S. Wang, E.T. Borer, J. Alberti, Y. Hautier]
- 'Flock size and structure influence reproductive success in four species of flamingo in 540 captive populations worldwide', *Zoo Biology*, 42, 3 (2023), 343-356 [A. Mooney, J.A. Teare, J. Staerk, S.Q. Smeele, P. Rose, Y.M. Buckley]
- 'Measuring the shape of mortality across animals and plants: alternatives to H entropy metrics reveal hidden type IV survivorship curves and associations with parental care at macro-ecological scales', *Ecology and Evolution*, 13, 5 (2023), <http://dx.doi.org/10.1002/ece3.10076> [K. Healy, R. Kelly, A. Carnevale, Y.M. Buckley]
- 'Human land use is comparable to climate as a driver of global plant occurrence and abundance across life forms', *Global Ecology and Biogeography*, 32, 9 (2023), 1618-1631 [C.M. McKeon, R. Kelly, A. De Palma, Y.M. Buckley]
- 'The contribution of geographically common and rare species to the spatial distribution of biodiversity', *Global Ecology and Biogeography*, 32, 10 (2023), 1730-1747 [H.J. White, C.M. McKeon, R.J. Pakeman, Y.M. Buckley]
- 'Maximizing the potential for living cell banks to contribute to global conservation priorities', *Zoo Biology*, 42, 6 (2023), 697-708 [A. Mooney, O.A. Ryder, M.L. Houck, J. Staerk, D.A. Conde, Y.M. Buckley]
- 'Plant size, latitude, and phylogeny explain within-population variability in herbivory', *Science*, 382, 6671 (2023), 679-683 [M.L. Robinson, P.G. Hahn, B.D. Inouye, L.N. Zehr, Z. Zhong, W.C. Wetzel]
- 'Visitor demographics, site-type and activities determine the occurrence and severity of environmental impacts at nature-based tourist destinations', *Ecological Solutions and Evidence*, 4, 1 (2023), <http://dx.doi.org/10.1002/2688-8319.12207> [A. Torsney, Y.M. Buckley]
- 'Spatial phenotypic variability is higher between island populations than between mainland populations worldwide', *Ecography*, 2024, 1 (2024), <http://dx.doi.org/10.1111/ecog.06787> [K. Healy, D.P. O'Connell, M.E.A. Baudraz, D.J. Kelly, Q. Yang, Y.M. Buckley]
- 'Root traits vary as much as leaf traits and have consistent phenotypic plasticity among 14 populations of a globally widespread herb', *Functional Ecology* (2024), <http://dx.doi.org/10.1111/1365-2435.14504> [W. Dawson, E.M. Wandrag, A. Finn, Y.M. Buckley]
- 'When function, not origin, matters', *Science (New York, N.Y.)*, 383, 6682 (2024), 478-479 [Y.M. Buckley, A. Torsney]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

- 'Twin pressures of intensification and abandonment negatively impact grassland biodiversity in the Burren', *Biology and Environment*, 122B, 2 (2022), 123-136 [C.M. McKeon, A. Finn, M.P. Long, I. Donohue, Y.M. Buckley]
- 'Impact of roadside burning on genetic diversity in a high-biomass invasive grass', *Evolutionary Applications*, 15, 5 (2022), 790-803 [B. Di, J. Firn, Y.M. Buckley, K. Lomas, J.G. Pausas, A.L. Smith]
- 'Common species contribute little to spatial patterns of functional diversity across scales in coastal grasslands', *Journal of Ecology*, 110, 5 (2022), 1149-1160 [H.J. White, R.J. Pakeman, Y.M. Buckley]
- 'Reconciling climate action with the need for biodiversity protection, restoration and rehabilitation', *Science of the Total Environment*, 857, 1 (2023), 159316 [C.E. Gorman, A. Torsney, A. Gaughran, C. McKeon, C. Farrell, Y.M. Buckley]
- Holland, Celia**, 'A walk on the wild side: a review of the epidemiology of *Toxocara canis* and *Toxocara cati* in wild hosts', *International Journal for Parasitology: Parasites and Wildlife*, 22 (2023), 216-228 [C.V. Holland]
- 'The timid invasion: behavioural adjustments and range expansion in a non-native rodent', *Proceedings of the Royal Society B*, 290 (2023), 20230823 [J.A. Eccard, V. Mazza, C. Holland, P. Stuart]
- 'Presence and identity of *Babesia microti* in Ireland', *Ticks and Tick-borne diseases*, 14 (2023), 102221 [A. Zintl, A. McManus, M. Galan, M. Diquattro, L. Giuffredi, C. Holland]
- 'Caring for canines: a survey of dog ownership and parasite control practices in Ireland', *Veterinary Sciences*, 10 (2023), 90 [C. Sherlock, C. Holland, J.D. Keegan]
- Jackson, Andrew**, 'Regionally endothermic traits in planktivorous basking sharks *Cetorhinus maximus*', *Endangered Species Research*, 51 (2023), 227-232 [H.R. Dolton, A.L. Jackson, R. Deaville, J. Hall, G. Hall, G. McManus]
- Marples, Nicola**, 'Social network centrality predicts dietary decisions in a wild bird population', *BioRxiv* (2023), 2023.08. 25.554636 [K. McMahon, N.M. Marples, L.G. Spurgin, H.M. Rowland, B.S. Sheldon, J.A. Firth]
- 'An investigation of *Mycobacterium bovis* and helminth coinfection in the European badger *Meles meles*', *International Journal for Parasitology: Parasites and Wildlife*, 19 (2022), 311-316 [D. Kelly, N. Marples, R. Byrne, U. Fogarty, K. Kenny, H. Cameron]
- O'Connor, Nessa**, 'Linking environmental monitoring data and the predicted effects of climate change for urban coastal management: a case study of Dublin Bay', *Journal of Sea Research*, 196, 102442 (2023), <http://dx.doi.org/10.1016/j.seares.2023.102442> [K.S.H. Schertenleib, M. Bruen, T.P. Crowe, N.E. O'Connor]
- 'What does the future look like for kelp when facing multiple stressors?', *Ecology and Evolution*, 13, 6 (2023), <http://dx.doi.org/10.1002/ece3.10203> [B. Wear, N.E. O'Connor, M.J. Schmid, M.C. Jackson]
- 'Seasonal and spatial variability in rates of primary production and detritus release by intertidal stands of *Laminaria digitata* and *Saccharina latissima* on wave-exposed shores in the northeast Atlantic', *Ecology and Evolution*, 13, 6 (2023), <http://dx.doi.org/10.1002/ece3.10146> [A.R. Gilson, L.J. White, M.T. Burrows, D.A. Smale, N.E. O'Connor]
- Payne, Nicholas**, 'Regionally endothermic traits in planktivorous basking sharks *Cetorhinus maximus*', *Endangered Species Research*, 51(2023), 227-232 [H.R. Dolton, A.L. Jackson, R. Deaville, J. Hall, G. Hall, N.L. Payne]
- 'Heating tolerance of ectotherms is explained by temperature's non-linear influence on biological rates', *BioRxiv* (2022), 2022-12 [J.D. Kong, J-F. Arnoldi, A.L. Jackson, A.E. Bates, S.A. Morley, N.L. Payne]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

- 'Tiger sharks support the characterization of the world's largest seagrass ecosystem', *Nature Communications*, 13, 1 (2022), 6328 [A.J. Gallagher, J.W. Brownscombe, N.A. Alsudairy]
- 'Identifying the limits where variation in consumer stable isotope values reflect variation in diet', *BioRxiv* (2023), 2023-04 [J-F. Arnoldi, J.R. Bortoluzzi, H. Rowland, C. Harrod, A.C. Parnell, N. Payne]
- 'Thermal sensitivity of metabolic rate mirrors biogeographic differences between teleosts and elasmobranchs', *Nature Communications*, 14, 1 (2023), 2054 [Y.Y. Watanabe, N.L. Payne]
- 'Short-term behavioural responses of Atlantic bluefin tuna to catch-and-release fishing', *Conservation Physiology*, 10, 1 (2022), <http://dx.doi.org/10.1093/conphys/coac060> [A. Lloyd Jackson, H.R. Dolton, A.L. Jackson, A. Drumm, N.L. Payne]
- 'Capture heats up sharks', *Conservation Physiology*, 10, 1 (2022), <http://hdl.handle.net/2262/102063> [A. Lloyd Jackson, L. Harding, A. Gallagher, A. Jackson, J. Bortoluzzi, N. Payne]
- Piggott, Jeremy**, 'Fine sediment and the insecticide chlorantraniliprole inhibit organic-matter decomposition in streams through different pathways', *Freshwater Biology*, 69, 3 (2024), 365-375 [L. Mack, D. Buchner, M.V. Brasseur, W. Kaijser, F. Leese, J.J. Piggott]
- Rolfe, Rebecca**, 'Regionally endothermic traits in planktivorous basking sharks *Cetorhinus maximus*', *Endangered Species Research*, 51(2023), 227-232 [H.R. Dolton, A.L. Jackson, R. Deaville, J. Hall, G. Hall, R.A. Rolfe]
- TRINITY CENTRE FOR THE ENVIRONMENT
- Collier, Marcus**, 'Distribution of nature-based solutions in cities across Europe', *Land Use Policy*, 141(2024), 107160 [C. Cooper, N. Cunningham, L.J. Bracken, M.J. Collier]
- 'Embedding co-production of nature-based solutions in urban governance: emerging co-production capacities in three European cities', *Environmental Science and Policy*, 152 (2024), 103652 [K. Holscher, N. Frantzeskaki, D. Kindlon, M.J. Collier, G. Dick, A. Dziubaa]
- 'Strategies for mainstreaming nature-based solutions in urban governance capacities in ten European cities', *NPJ Urban Sustainability*, 3, 1 (2023), <http://hdl.handle.net/2262/104109> [K. Holscher, N. Frantzeskaki, M.J. Collier, S. Connop, E.D. Kooijman, V. Velikova]
- 'An integrated process for planning, delivery, and stewardship of urban nature-based solutions: the Connecting Nature Framework', *Nature-Based Solutions*, 3 (2023), 100060 [M.J. Collier, N. Frantzeskaki, S. Connop, G. Dick, A. Dumitru, D. Xidous]
- 'Finding justice in wild, novel ecosystems: a review through a multispecies lens', *Urban Forestry and Urban Greening*, 83 (2023), 127902 [M. Pineda-Pinto, C. Kennedy, M.J. Collier, C. Cooper, M. O'Donnell, F. Nulty, N. Rodriguez Castaneda]
- 'Growing older urbanism: exploring the nexus between ageing, the built environment, and urban ecosystems', *Urban Transformations*, 5 (2023), 8 [T. Grey, D. Xidous, D. O'Neill, M.J. Collier]
- The Connecting Nature Framework: facilitating and connecting innovations for the large-scale implementation of nature-based solutions*, Final, Brussels, European Commission, DG Research and Innovation (2022), <https://doi.org/10.5281/zenodo.7502565> [K. Holscher, K. Allaert, M. Lodder, D. Sillen, M.J. Collier, K. van de Sijpe]
- Crowley, Quentin**, 'Application of GIS and spatiotemporal analyses in viral infection modelling using multiple datasets - a case study on the SARS-CoV-2 epidemic', *Medicina de Familia*, 50, 4 (2024), 102159 [M. Mousavi Aghdam, Q. Crowley]
- 'Assessment of natural radioactivity and radon release potential of Silurian black shales', *Radiation Physics and Chemistry* (2023), 111347 [S. DaPelo, M. Aghdam, V. Dentoni, A. Loi, P. Randaccio, Q. Crowley]
- 'Applying machine learning to model radon using topsoil geochemistry', *Applied Geochemistry*, 158 (2023), 105790 [M. Banrion, M. Cobelli, Q.G. Crowley]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

'Application of airborne geophysical survey data in a logistic regression model to improve the predictive power of geogenic radon maps. A case study in Castleisland, County Kerry, Ireland', *Science of the Total Environment*, 894 (2023), 164965 [M. Dardac, J. Elío, M.M. Aghdam, M. Banrion, Q. Crowley]

Piggott, Jeremy, 'Fine sediment and the insecticide chlorantraniliprole inhibit organic-matter decomposition in streams through different pathways', *Freshwater Biology*, 69, 3 (2024), 365-375 [L. Mack, D. Buchner, M.V. Brasseur, W. Kaijser, F. Leese, J.J. Piggott]

School of Physics

Bello, Frank, 'Nanoscale gap-plasmon-enhanced superconducting photon detectors at single-photon level', *Nano Letters* (2023), <http://hdl.handle.net/2262/104166> [J-W. Yang, T-Y. Peng, D.A. Clarke, F.D. Bello, O. Hess, Y-J. Lu]

Binder, Felix, 'Fisher information of correlated stochastic processes', *New Journal of Physics*, 25, 5 (2023), 053037 [M. Radaelli, G.T. Landi, K. Modi, F.C. Binder]

'Landauer versus Nernst: what is the true cost of cooling a quantum system?', *PRX Quantum*, 4, 1 (2023), 010332 [P. Taranto, F. Bakhshinezhad, A. Bluhm, C. Fabien, M. Huber]

'Work extraction from unknown quantum sources', *Physical Review Letters*, 130, 21 (2023), 210401 [D. Safranek, D. Rosa, F.C. Binder]

Coey, J.M.D., 'Quasistatic magnetization evolution in the compensated ferrimagnetic half-metal $\text{Mn}_2\text{Ru}_x\text{Ga}$ ', *Physical Review B*, 108, 22 (2023), <http://dx.doi.org/10.1103/PhysRevB.108.224413> [A. Jha, S. Lenne, G. Atcheson, K. Rode, J.M.D. Coey, P. Stamenov]

'Magnetism, transport, and atomic structure of amorphous binary YxCo_{1-x} alloys', *Physical Review B*, 109, 1 (2024), <http://dx.doi.org/10.1103/PhysRevB.109.014409> [Z. Hu, J. Besbas, K. Siewierska, R. Smith, P. Stamenov, J.M.D. Coey]

'Interaction and stability of nanobubbles and prenucleation calcium clusters during ultrasonic treatment of hard water', *ACS Omega* (2023), <http://dx.doi.org/10.1021/acsomega.3c07305> [E. Fitzgerald, A. Kumar, S. Poulouse, J.M.D. Coey]

'The basics of electron transport in spintronics-textbook with lectures, exercises and solutions', ed V. Baltz, France, EDP Sciences (2023) [V. Baltz, M. Coey]

'Electrical detection of spin pumping in van der Waals ferromagnetic $\text{Cr}_2\text{Ge}_2\text{Te}_6$ with low magnetic damping', *Nature Communications*, 14 (2023), 1-10 [H. Xu, K. Jia, Y. Huang, F. Meng, Q. Zhang, G. Yu]

'Realization of zero-field skyrmions in a magnetic tunnel junction', *Advanced Electronic Materials*, 9 (2023), 1-8 [B. He, Y. Hu, C. Zhao, J. Wei, J. Zhang, G. Yu]

'Magnetic field enhancement of water evaporation in confined spaces', *IEEE Magnetism Letters*, 14 (2023), 3500105-1-3500105-5 [S. Poulouse, Y. Alvarez-Braña, L. Basabel-Desmonts, F. Benito-Lopez, J.M.D. Coey]

'Deterministic multi-level spin orbit torque switching using focused He^+ ion beam irradiation', *Applied Physics Letters*, 122 (2023), 032402-1-032402-5 [J. Kurian, A.J., Salia Cherifi-Hertel, C. Fowley, G. Hlawacek, P. Dunne, J.M.D. Coey]

'A fully compensated ferrimagnetic half metal $\text{Co}_{1-x}\text{Cr}_x\text{S}_2$ with Curie temperature above room temperature', *Journal of Applied Physics*, 133 (2023), 143906-1-143906-6 [Y. He, J.M.D. Coey, Z. Gercsi]

'Structural, magnetic and electronic properties of L21-ordered $\text{Ru}_{2-x}\text{Mn}_{1+x}\text{Al}$ Heusler alloy thin films', *Journal of Magnetism and Magnetic Materials*, 579 (2023), 170853-1-170853-6 [K.E. Siewierska, H. Kurt, B. Shortall, A. Jha, N. Teichert, J.M.D. Coey]

'Ferromagnetic resonance damping mechanisms in CoFeB thin films with Cr substitution', *Physical Review B*, 108 (2023), 094402-1-094402-11 [C. Lacroix, K. Oguz, J.M.D. Coey, D. Ménard]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

- 'Influence of topology on the phase transition of a ferromagnetic metal', *Proceedings of the National Academy of Sciences*, 120 (36), 36 (2023), 1-6 [R. Zhang, Y. He, J.M.D. Coey]
- 'Comment on 'Magnetization compensation temperature and frustration-induced topological defects in ferrimagnetic antiperovskite Mn_xN ', *Physical Review Letters*, 131 (2023), 089701-1-089701-2 [Z. Gercsi, Y. He, J.M.D. Coey]
- 'Rare-earth-free noncollinear metallic ferrimagnets $\text{Mn}_{4-x}\text{Z}_x\text{N}$ with compensation at room temperature', *Acta Materialia* (2022), 118021-1-118021-9 [R. Zhang, Y. He, D.I Fruchart, J.M.D. Coey, Z. Gercsi]
- Coleman, Jonathan**, 'Quantitative analysis of printed nanostructured networks using high-resolution 3D FIB-SEM nanotomography', *Nature Communications*, 15, 1 (2024), <http://dx.doi.org/10.1038/s41467-023-44450-1> [C. Gabbett, L. Doolan, K. Synnatschke, L. Gambini, S. Sanvito, J.N. Coleman]
- 'Mechanical properties of conducting printed nanosheet network thin films under uniaxial compression', *Advanced Materials* (2023), <http://dx.doi.org/10.1002/adma.202306954> [A.D. Sinnott, A. Kelly, C. Gabbett, G.L.W. Cross]
- 'Cobalt oxide 2D nanosheets formed at a polarized liquid|liquid interface toward high-performance Li-ion and Na-ion battery anodes', *ACS Applied Materials and Interfaces*, 15, 50 (2023), 58320-58332 [B. Konkana, C. Kalapu, H. Kaur, A. Holzinger, H. Geaney, J.N. Coleman]
- 'Increasing volumetric capacity diminishes rate performance in Li-ion battery electrodes', *Journal of the Electrochemical Society*, 170, 9 (2023), [V. Nicolosi, J.N. Coleman]
- 'High selectivity and sensitivity in chemiresistive sensing of Co(II) ions with liquid-phase exfoliated functionalized MoS_2 : a supramolecular approach', *Small* (2023), <http://hdl.handle.net/2262/103948> [A. Zhuravlova, A.G. Ricciardulli, A. Kelly, J.N. Coleman]
- 'Solution-processed heterojunction photodiodes based on WSe_2 nanosheet networks', *Small* (2023), <http://hdl.handle.net/2262/103949> [S. Liu, T. Carey, J. Munuera, K. Synnatschke, H. Kaur, J.N. Coleman]
- 'Exfoliability, magnetism, energy storage and stability of metal thiophosphate nanosheets made in liquid medium', *2D Materials*, 10, 2 (2023), <http://hdl.handle.net/2262/103947> [K. Synnatschke, J. van Dinter, S.J. Haigh, C. Backes]
- 'Tuneable piezoresistance of graphene-based 2D:2D nanocomposite networks', *Advanced Functional Materials*, 33, 20 (2023), <http://dx.doi.org/10.1002/adfm.202214855> [J.R. Garcia, M. McCrystal, T. Carey, J.N. Coleman]
- 'Transparent conductors printed from grids of highly conductive silver nanosheets', *ACS Applied Materials and Interfaces*, 15, 33 (2023), 39864-39871 [A.G. Kelly, S. Sheil, D.A. Douglas-Henry, E. Caffrey, C. Gabbett, J.N. Coleman]
- '3D printing of multifunctional conductive polymer composite hydrogels', *Advanced Functional Materials*, 33, 37 (2023), <http://hdl.handle.net/2262/103944> [J. Liu, J. Garcia, L.M. Leahy, R. Song, D. Mullarkey, J.N. Coleman]
- 'Unveiling charge-transport mechanisms in electronic devices based on defect-engineered MoS_2 covalent networks', *Advanced Materials*, 35, 15 (2023), <http://hdl.handle.net/2262/103951> [S. Ippolito, F. Urban, W. Zheng, O. Mazzarisi, C. Valentini, A.G. Kelly]
- 'Additive manufacturing of Li-ion batteries: a comparative study between electrode fabrication processes', *Advanced Energy Materials* (2023), <http://hdl.handle.net/2262/103945> [S. Pinilla, S. Ryan, L. McKeon, M. Lian, S. Vaesen, J.N. Coleman]
- 'Quantifying the piezoresistive mechanism in high-performance printed graphene strain sensors', *ACS applied Materials and Interfaces* (2022), <http://hdl.handle.net/2262/98390> [E. Caffrey, J.R. Garcia, D. O'Suilleabhain, C. Gabbett, T. Carey, J.N. Coleman]
- Cross, Graham**, 'Mechanical properties of conducting printed nanosheet network thin films under uniaxial compression', *Advanced Materials* (2023), <http://dx.doi.org/10.1002/adma.202306954> [A.D. Sinnott, A. Kelly, C. Gabbett, J. Munuera, L. Doolan, G.L.W. Cross]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

- Dooley, Stephen**, 'Ab initio and kinetic modeling of β -D-xylopyranose under fast pyrolysis conditions', *The Journal of Physical Chemistry A*, 128, 6 (2024), 1009-1024 [J. Lupi, L. Ayarde-Henriquez, M. Kelly, S. Dooley]
- Eastham, Paul**, 'Optimizing performance of quantum operations with non-Markovian decoherence: the tortoise or the hare?', *Physical Review Letters*, 132 (2024), 060401 [E.P. Butler, G. Fux, C. Ortega-Taberner, B.W. Lovett, J. Keeling, P.R. Eastham]
- 'Synchronization and spacetime vortices in one-dimensional driven-dissipative condensates and coupled oscillator models', *Physical Review B*, 108 (2023), 195302 [J.P. Moroney, P.R. Eastham]
- Goold, John**, 'Quantum thermodynamics with fast driving and strong coupling via the mesoscopic leads approach', *Physical Review B*, 107, 19 (2023), <http://dx.doi.org/10.1103/PhysRevB.107.195117> [A.M. Lacerda, A. Purkayastha, M. Kewming, G.T. Landi, J. Goold]
- 'Evidence of Kardar-Parisi-Zhang scaling on a digital quantum simulator', *NPJ Quantum Information*, 9, 1 (2023), <http://dx.doi.org/10.1038/s41534-023-00742-4> [N. Keenan, N.F. Robertson, T. Murphy, S. Zhuk, J. Goold]
- 'Thermodynamics of a continuously monitored double-quantum-dot heat engine in the repeated interactions framework', *Physical Review E*, 107, 4 (2023), <http://dx.doi.org/10.1103/PhysRevE.107.044102> [L.P. Bettmann, M.J. Kewming, J. Goold]
- 'Deterministic quantum computation with one-clean-qubit model as an open quantum system', *Physical Review A*, 107, 4 (2023), <http://dx.doi.org/10.1103/PhysRevA.107.042222> [J. Xuereb, S. Campbell, J. Goold, A. Xuereb]
- 'Quantum many-body scars in dual-unitary circuits', *Physical Review Letters*, 132, 1 (2024), <http://dx.doi.org/10.1103/PhysRevLett.132.010401> [S. Dooley, S. Pappalardi, J. Goold]
- Halder, Anita**, 'Theoretical perspective on the modification of the magnetocrystalline anisotropy at molecule-cobalt interfaces', *Physical Review Materials*, 7, 6 (2023), 064409 [A. Halder, S. Bhandary, D.D. O'Regan, S. Sanvito, A. Droghetti]
- Hess, Ortwin**, 'Control of plexcitonic strong coupling via substrate-mediated hotspot nanoengineering', *Advanced Optical Materials* (2022), 2200557 [X. Xiong, Y. Lai, D. Clarke, N. Kongsuwan, Z. Dong, O. Hess]
- 'Near-field generation and control of ultrafast, multipartite entanglement for quantum nanoplasmonic networks', *Nano Letters*, 22, 7 (2022), 2801-2808 [F.D. Bello, N. Kongsuwan, O. Hess]
- 'Sensitive control of broad-area semiconductor lasers by cavity shape', *APL Photonics*, 7, 5 (2022), 056106 [K. Kim, S. Bittner, Y. Jin, Y. Zeng, S. Guazzotti, O. Hess]
- 'Nanoheating and nanoconduction with near-field plasmonics: prospects for harnessing the moiré and seebeck effects in ultrathin films', *Advanced Optical Materials*, 10, 23 (2022), <http://dx.doi.org/10.1002/adom.202201358> [F.D. Bello, D.D.A. Clarke, I. Tarasenko, J.F. Donegan, O. Hess]
- Hutzler, Stefan**, 'Equilibrium shape of a bubble in a liquid-filled horizontal capillary', *International Journal of Multiphase Flow*, 172 (2024), 104729 [Z. Jing, F. Chen, J. Ryan-Purcell, S. Hutzler]
- 'Packing soft spheres: experimental demonstrations with hydrogels', *European Journal of Physics*, 44 (2023), 065501 [A. Irannezhad, A. Baragry, A. Weaire, A. Mughal, S. Hutzler]
- 'A continuum description of the buckling of a line of spheres in a transverse harmonic confining potential', *Royal Society Open Science*, 10, 7 (2023), 230293 [S. Hutzler, J. Ryan-Purcell, A. Mughal, D. Weaire]
- 'Stability maps for columnar structures', *Philosophical Magazine*, 103, 14 (2023), 1328-1344 [A. Mughal, J. Winkelmann, D. Weaire, S. Hutzler]
- 'Coulomb calligraphy', *Forma*, 38 (2023), 1-5 [A. Mughal, S. Hutzler, D. Weaire]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

- Jones, Lewys**, 'A retrofittable photoelectron gun for low-voltage imaging applications in the scanning electron microscope', *Microscopy and Microanalysis*, 29, 5 (2023), 1610-1617 [F. Quigley, C. Downing, C. McGuinness, L. Jones]
- 'Quantitative analysis of printed nanostructured networks using high-resolution 3D FIB-SEM nanotomography', *Nature Communications*, 15, 1 (2024), <http://dx.doi.org/10.1038/s41467-023-44450-1> [C. Gabbett, L. Doolan, K. Synnatschke, L. Gambini, E. Coleman, L. Jones]
- 'Probing the atomic-scale internal phases with the electron beam of multiferroic domain walls formed during dynamics', *Microscopy and Microanalysis: The Official Journal of Microscopy Society of America, Microbeam Analysis Society, Microscopical Society of Canada*, 29, 1 (2023), 1363 [M.S. Conroy, E. O'Connell, K. Moore, L. Jones, Q. Ramasse, S. Griffin]
- 'How fast is your detector? The effect of temporal response on image quality', *Microscopy and Microanalysis: The Official Journal of Microscopy Society of America, Microbeam Analysis Society, Microscopical Society of Canada*, 29, 4 (2023), 1402-1408 [T. Mullarkey, M. Geever, J.J.P. Peters, I. Griffiths, P.D. Nellist, L. Jones]
- 'Electron counting detectors in scanning transmission electron microscopy via hardware signal processing', *Nature Communications*, 14, 1 (2023), <http://dx.doi.org/10.1038/s41467-023-40875-w> [J.J.P. Peters, T. Mullarkey, E. Hedley, L. Jones]
- 'Retrofitting and reconfiguring existing microscopes for digital DPC: an accessible approach to low-dose phase mapping', *Microscopy and microanalysis: the Official Journal of Microscopy Society of America, Microbeam Analysis Society, Microscopical Society of Canada*, 29, 1 (2023), 1878-1879 [J.M. Bekkevold, J.J.P. Peters, T. Mullarkey, L. Jones]
- 'Progress update on the development of a user adjustable pole-piece', *Microscopy and Microanalysis: The Official Journal of Microscopy Society of America, Microbeam Analysis Society, Microscopical Society of Canada*, 29, 1 (2023), 1885-1886 [P. McBean, G.M. Alves, F. Thompson, R. Sagawa, L. Jones]
- 'A new low-dose STEM imaging mode with probability driven intra-pixel beam blanking', *Microscopy and microanalysis: the Official Journal of Microscopy Society of America, Microbeam Analysis Society, Microscopical Society of Canada*, 29, 1 (2023), 1754-1755 [J.J.P. Peters, B.W. Reed, Y. Jimbo, A. Porter, D. Masiel, L. Jones]
- 'Machine-learning approach for quantified resolvability enhancement of low-dose STEM data', *Machine Learning: Science and Technology*, 4, 1 (2023), <http://hdl.handle.net/2262/102397> [L. Gambini, T. Mullarkey, L. Jones, S. Sanvito]
- 'Correcting for probe wandering by precession path segmentation', *Ultramicroscopy*, 248 (2023), 113715 [G. Nordahl, L. Jones, E.F. Christiansen, K.A. Hunnestad, M. Nord]
- 'Experimental reconstructions of 3D atomic structures from electron microscopy images using a Bayesian genetic algorithm', *NPJ Computational Materials* (2022), <http://hdl.handle.net/2262/102612> [A. De Backer, S. Van Aert, C. Faes, E. Arslan Irmak, P.D. Nellist, L. Jones]
- Khatibi, Zahra**, 'Proximity spin-orbit coupling in graphene on alloyed transition metal dichalcogenides', *Physical Review B*, 106, 12 (2022), <http://dx.doi.org/10.1103/physrevb.106.125417> [Z. Khatibi]
- 'Emergence of interface states in graphene/transition metal dichalcogenide heterostructures with lateral interface', *Physical Review B*, 108, 3 (2023), <http://dx.doi.org/10.1103/physrevb.108.035415> [Z. Khatibi, S.R. Power]
- Lunghi, Alessandro**, 'Efficient generation of stable linear machine-learning force fields with uncertainty-aware active learning', *Machine Learning: Science and Technology*, 4, 3 (2023), 035005 [V. Briganti, A. Lunghi]
- 'Spin-phonon decoherence in solid-state paramagnetic defects from first principles', *NPJ Computational Materials*, 9, 1 (2023), [S. Mondal, A. Lunghi]
- 'The critical role of ultra-low-energy vibrations in the relaxation dynamics of molecular qubits', *Nature Communications*, 14, 1 (2023), [E. Garlatti, A. Albino, S. Chicco, A. Lunghi, S. Carretta]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

- 'Stiffness and atomic-scale friction in superlubricant MoS₂ bilayers', *The Journal of Physical Chemistry Letters*, 14, 26 (2023), 6086-6091 [R. Dong, A. Lunghi, S. Sanvito]
- Lunney, James, 'Atmospheric pressure glow discharge plasma sintering of solvent-free silver lines made by laser ablation dry aerosol printing', *CIRP Annals-Manufacturing Technology*, 71, 1 (2023), 153-156 [W. Su, J.G. Lunney, R. Lupoi]
- Lupi, Jacopo, 'Ab initio and kinetic modeling of β -d-xylopyranose under fast pyrolysis conditions', *The Journal of Physical Chemistry A*, 128, 6 (2024), 1009-1024 [J. Lupi, L. Ayarde-Henríquez, M. Kelly, S. Dooley]
- Maguire, Kate, 'Panning for gold, but finding helium: discovery of the ultra-stripped supernova SN 2019wxt from gravitational-wave follow-up observations', *Astronomy and Astrophysics*, 675(2023), A201 [I. Agudo, L. Amati, T. An, F.E. Bauer, S. Benetti, M.G. Bernardini]
- 'SN 2022oj: a peculiar type ia supernova possibly driven by an asymmetric helium-shell double detonation', *The Astrophysical Journal*, 958, 2 (2023), 178 [C. Liu, A.A. Miller, S.J. Boos, B. Wold]
- 'An updated measurement of the Hubble constant from near-infrared observations of type Ia supernovae', *Astronomy and Astrophysics*, 679 (2023), A95 [L. Galbany, T. de Jaeger, A.G. Riess, K.J. Maguire, S.W. Jha]
- 'Early-time spectroscopic modelling of the transitional type Ia supernova 2021rhu with TARDIS', *Monthly Notices of the Royal Astronomical Society*, 522, 3 (2023), 4444-4467 [L. Harvey, K. Maguire, M.R. Magee, M. Bulla, S. Dhawan, S. Schulze]
- 'The rise and fall of the iron-strong nuclear transient PS16dtm', *Astronomy and Astrophysics*, 669 (2023), <http://dx.doi.org/10.1051/0004-6361/202244623> [T. Petrushevska, G. Leloudas, D. Ilic, M. Bronikowski, P. Charalampopoulos, T. Wevers]
- 'The luminous type Ia supernova 2022ilv and its early excess emission', *Astrophysical Journal Letters*, 943, 2 (2023), <http://dx.doi.org/10.3847/2041-8213/acb2ce> [S. Srivastav, S.J. Smartt, M.E. Huber, G. Dimitriadis, K.C. Chambers, M.D. Fulton]
- 'A JWST near-and mid-infrared nebular spectrum of the type Ia supernova 2021aefx', *Astrophysical Journal Letters*, 944, 1 (2023), <http://dx.doi.org/10.3847/2041-8213/acb4ec> [L.A. Kwok, S.W. Jha, T. Temim, O.D. Fox, C. Larison, Y. Camacho-Neves]
- 'SN 2020jgb: a peculiar type Ia supernova triggered by a helium-shell detonation in a star-forming galaxy', *Astrophysical Journal*, 946, 2 (2023), <http://dx.doi.org/10.3847/1538-4357/acbb5e> [C. Liu, A.A. Miller, A. Polin, A.E. Nugent, K. De, P.E. Nugent]
- 'A systematic study of Ia-CSM supernovae from the ZTF bright transient survey', *Astrophysical Journal*, 948, 1 (2023), <http://dx.doi.org/10.3847/1538-4357/acbc16> [Y. Sharma, J. Sollerman, C. Fremling, S.R. Kulkarni, K. De, I. Irani]
- 'SN 2021zny: an early flux excess combined with late-time oxygen emission suggests a double white dwarf merger event', *Monthly Notices of the Royal Astronomical Society*, 521, 1 (2023), 1162-1183 [G. Dimitriadis, K. Maguire, V.R. Karambelkar, R.J. Lebron, C. Liu, Y. Yang]
- 'Photometric study of the late-time near-infrared plateau in type Ia supernovae', *Monthly Notices of the Royal Astronomical Society*, 521, 3 (2023), 4414-4430 [M. Deckers, O. Graur, K. Maguire, L. Shingles, S.J. Brennan, J.P. Anderson]
- 'A radio-detected type Ia supernova with helium-rich circumstellar material', *Nature*, 617, 7961 (2023), 477-482 [E.C. Kool, J. Johansson, J. Sollerman, J. Mould, T.J. Moriya, S. Mattila]
- 'SN 2020udy: an SN Iax with strict limits on interaction consistent with a helium-star companion', *Monthly Notices of the Royal Astronomical Society*, 525, 1 (2023), 1210-1228 [K. Maguire, M.R. Magee, G. Leloudas, A.A. Miller, G. Dimitriadis, M. Pursiainen]
- 'No plateau observed in late-time near-infrared observations of the underluminous type Ia supernova 2021qvv', *Monthly Notices of the Royal Astronomical Society*, 526, 2 (2023), 2977-2990 [O. Graur, E.P. Gonzalez, J. Burke, M. Deckers, S.W. Jha, L. Galbany]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

- 'The orbital period, black hole mass, and distance to the x-ray transient GRS 1716-249 (=N Oph 93)', *Monthly Notices of the Royal Astronomical Society*, 526, 4 (2023), 5209-5219 [J. Casares, I.V. Yanes-Rizo, M.A.P. Torres, T.M.C. Abbott, M.A. Padilla, K. Maguire]
- Matra, Luca**, 'Inner edges of planetesimal belts: collisionally eroded or truncated?', *Monthly Notices of the Royal Astronomical Society*, 522, 4 (2023), 6150-6169 [A.I. Blanco, S. Marino, L. Matrà, M. Booth, J. Carpenter, V. Faramaz]
- 'An SMA survey of chemistry in disks around herbig AeBe stars', *Astrophysical Journal*, 948, 1 (2023), <http://dx.doi.org/10.3847/1538-4357/acbf31> [J. Pegues, K.I. Öberg, C. Qi, S.M. Andrews, J. Huang, L. Matrà]
- 'The SHARDDS survey: limits on planet occurrence rates based on point sources analysis via the Auto-RSM framework', *Astronomy and Astrophysics*, 666 (2022), <http://dx.doi.org/10.1051/0004-6361/202244145> [C.-H. Dahlqvist, J. Milli, O. Absil, F. Cantalloube, L. Matra, E. Choquet]
- 'Primordial or secondary? Testing models of debris disk gas with ALMA', *Astrophysical Journal*, 951, 2 (2023), <http://dx.doi.org/10.3847/1538-4357/acd6f3> [G. Cataldi, Y. Aikawa, K. Iwasaki, S. Marino, A. Brandeker, L. Matrà]
- 'ALMA observations of the HD 110058 debris disk', *Astrophysical Journal*, 940, 2 (2022), <http://dx.doi.org/10.3847/1538-4357/ac9cd3> [A.S. Hales, S. Marino, P.D. Sheehan, S. Ulloa, S. Pérez, L. Matrà]
- 'Potential effects of stellar winds on gas dynamics in debris disks leading to observable belt winds', *Astronomy and Astrophysics*, 669 (2023), <http://dx.doi.org/10.1051/0004-6361/202243729> [Q. Kral, J.E. Pringle, L. Matrà, P. Thébault]
- Mitchison, Mark**, 'Robust nonequilibrium edge currents with and without band topology', *Physical Review Letters*, 128, 12 (2022), <http://dx.doi.org/10.1103/physrevlett.128.120403> [M.T. Mitchison, Á. Rivas, M.A. Martin-Delgado]
- 'Robust nonequilibrium surface currents in the three-dimensional Hofstadter model', *Physical Review Research* (2022), <http://dx.doi.org/10.1103/PhysRevResearch.4.043032> [M.T. Mitchison, Á. Rivas, M.A. Martin-Delgado]
- 'Diverging current fluctuations in critical Kerr resonators', *Physical Review A* (2022), <http://dx.doi.org/10.1103/PhysRevA.106.033707> [M.J. Kewming, M.T. Mitchison, G.T. Landi]
- 'Extractable work in quantum electromechanics', *Physical Review E*, 106, 3 (2022), <http://dx.doi.org/10.1103/PhysRevE.106.L032104> [O. Culhane, M.T. Mitchison, J. Goold]
- 'Time periodicity from randomness in quantum systems', *Physical Review A*, 106, 2 (2022), <http://dx.doi.org/10.1103/PhysRevA.106.022209> [G. Guarnieri, M.T. Mitchison, A. Purkayastha, D. Jaksch, B. Buča, J. Goold]
- 'Dephasing-enhanced performance in quasiperiodic thermal machines', *Physical Review B*, 105, 13 (2022), <http://dx.doi.org/10.1103/PhysRevB.105.134203> [C. Chiaracane, A. Purkayastha, M.T. Mitchison, J. Goold]
- 'Taking the temperature of a pure quantum state', *Physical Review A*, 105, 3 (2022), <http://dx.doi.org/10.1103/PhysRevA.105.L030201> [M.T. Mitchison, A. Purkayastha, M. Brenes, A. Silva, J. Goold]
- O'Regan, David**, 'High-throughput determination of Hubbard U and Hund J values for transition metal oxides via the linear response formalism', *Physical Review Materials*, 8, 1 (2024), <http://dx.doi.org/10.1103/PhysRevMaterials.8.014409> [G.C. Moore, M.K. Horton, E. Linscott, A.M. Ganose, M. Siron, D.D. O'Regan]
- 'Reconciling the theoretical and experimental electronic structure of NbO₂', *Physical Review B*, 108, 15 (2023), 155141 [S. Berman, A. Zhussupbekova, J.E. Boschker, J. Schwarzkopf, D.D. O'Regan, I.V. Shvets]
- 'The convexity condition of density-functional theory', *Journal of Chemical Physics*, 159, 21 (2023), <http://dx.doi.org/10.1063/5.0174159> [A.C. Burgess, E. Linscott, D.D. O'Regan]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

- 'Optimization strategies developed on NiO for Heisenberg exchange coupling calculations using projector augmented wave based first-principles DFT+U+J', *Physical Review B*, 108, 24 (2023), [L. Macenulty, D.D. O'Regan]
- 'Monolayer capping provides close to optimal resistance to laser dewetting of Au films', *ACS Applied Electronic Materials*, 5, 8 (2023), 4080-4093 [C.P. Murray, D. Mamyrainov, M. Ali, C. Downing, I.M. Povey, D. O'Regan]
- 'Theoretical perspective on the modification of the magnetocrystalline anisotropy at molecule-cobalt interfaces', *Physical Review Materials*, 7, 6 (2023), 064409 [A. Halder, S. Bhandary, D. O'Regan, S. Sanvito, A. Droghetti]
- 'Unraveling the atomic and electronic structure of nanocrystals on superconducting Nb(110): impact of the oxygen monolayer', *Physical Review B*, 107, 16 (2023), <http://dx.doi.org/10.1103/PhysRevB.107.165425> [S. Berman, A. Zhussupbekova, B. Walls, K. Walshe, S.I. Bozhko, D.D. O'Regan]
- Patil, Urvesh**, 'Linear Jacobi-Legendre expansion of the charge density for machine learning-accelerated electronic structure calculations', *NPJ Computational Materials*, 9, 1 (2023), <http://hdl.handle.net/2262/107829> [B. Focassio, M. Domina, U. Patil, A. Fazzio, S. Sanvito]
- 'Cluster expansion constructed over Jacobi-Legendre polynomials for accurate force fields', *Physical Review B*, 108, 9 (2023), <http://hdl.handle.net/2262/107830> [M. Domina, U. Patil, M. Cobelli, S. Sanvito]
- Patterson, Charles**, 'Many-body theory calculations of positron scattering and annihilation in H₂, N₂, and CH₄', *Physical Review Letters*, 130, 26 (2023), <https://doi.org/10.1103/PhysRevLett.130.263001> [C.M. Rawlins, J. Hofierka, B. Cunningham, C.H. Patterson, D.G. Green]
- 'Spectroscopic identification of the charge transfer state in thiophene/fullerene heterojunctions: electroabsorption spectroscopy from GW/BSE calculations', *The Journal of Physical Chemistry C*, 127, 32 (2023), 15928-15942 [S.R. Sahoo, C.H. Patterson]
- Sanvito, Stefano**, 'Machine-learning-assisted construction of ternary convex hull diagrams', *Journal of Chemical Information and Modeling* (2024), <https://doi.org/10.1021/acs.jcim.3c01391> [H. Rossignol, M. Minotakis, M. Cobelli, S. Sanvito]
- 'Quantitative analysis of printed nanostructured networks using high-resolution 3D FIB-SEM nanotomography', *Nature Communications*, 15 (2024), 278 [C. Gabbett, L. Doolan, K. Synnatschke, S. Sanvito, L. Jones, J.N. Coleman]
- 'High-performance molecular spin filters based on a square-planar four-coordinate Fe complex and covalent pyrazine anchoring groups', *Journal of Materials Chemistry C*, 12 (2024), 1297-1308 [Y. Wang, H. Pan, Y. Jiang, J. Li, D. Lin, S. Sanvito]
- 'A theoretical perspective on the modification of the magnetocrystalline anisotropy at molecule-cobalt interfaces', *Physical Review Materials*, 7 (2023), 064409 [A. Halder, S. Bhandary, D.D. O'Regan, S. Sanvito, A. Droghetti]
- 'Metastable high entropy alloy of TiZrHfTa with glass-like characteristics at low temperatures', *Acta Materialia*, 255 (2023), 119031 [Y. Zhang, Y. Zhou, L. Wang, S. Sanvito]
- 'Highly degenerate 2D ferroelectricity in pore decorated covalent/metal organic frameworks', *Materials Horizon*, 10 (2023), 2599-2608 [L. Zhang, C. Tang, S. Sanvito, A. Du]
- 'ZnSe and ZnTe as tunnel barriers for Fe-based spin valves', *Physical Chemistry Chemical Physics*, 25 (2023), 13533-13541 [G. Shukla, A. Ray, H.M. Abdullah, S. Tyagi, A. Manchon, S. Sanvito]
- 'Does a blatter radical retain its open-shell character when incorporated into gold-molecule-gold junctions?', *The Journal of Physical Chemistry C*, 127, 19 (2023), 9268-9277 [Y. Jiang, S. Li, Y. Wang, H. Pan, Y. Wang, S. Sanvito]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

'Linear Jacobi-Legendre expansion of the charge density for machine learning-accelerated electronic structure calculations', *NPJ Computational Materials*, 9, 1 (2023), <http://hdl.handle.net/2262/107829> [B. Focassio, M. Domina, U. Patil, A. Fazzio, S. Sanvito]

'Machine learning predictions of high-Curie-temperature materials', *Applied Physics Letters*, 123, 4 (2023), <https://doi.org/10.48550/arXiv.2307.06879> [J. F. Belot, V. Taufour, S. Sanvito, G.L.W. Hart]

'Machine-learning surrogate model for accelerating the search of stable ternary alloys', *Physical Review Materials*, 7, 9 (2023), 10.1103/PhysRevMaterials.7.093802 [M. Minotakis, H. Rossignol, M. Cobelli, S. Sanvito]

'A rule-free workflow for the automated generation of databases from scientific literature', *NPJ Computational Materials*, 9, 1 (2023), 10.1038/s41524-023-01171-9 [L.P.J. Gilligan, M. Cobelli, V. Taufour, S. Sanvito]

'Author correction: A rule-free workflow for the automated generation of databases from scientific literature', *NPJ Computational Materials*, 10, 1 (2024), <https://doi.org/10.1038/s41524-023-01171-9> [L.P.J. Gilligan, M. Cobelli, V. Taufour, S. Sanvito]

'Cluster expansion constructed over Jacobi-Legendre polynomials for accurate force fields', *Physical Review B*, 108, 9 (2023), <http://hdl.handle.net/2262/107830> [M. Domina, U. Patil, M. Cobelli, S. Sanvito]

'Ab initio study of alkali-metal-based bismuth selenides (ABiSe_2 ; A = K, Na) for photovoltaic and thermoelectric applications', *Physical Review Materials*, 8, 1 (2024), <https://doi.org/10.1103/PhysRevMaterials.8.015404> [S.A. Abolade, S.B. Akinpelu, D.O. Obada, S. Kumar R, F. El-Mellouhi, S. Sanvito]

Stamenov, Plamen, 'Ab initio comparison of spin-transport properties in MgO-spaced ferrimagnetic tunnel junctions based on Mn_3Ga and Mn_3Al ', *AIP Advances*, 13, 2 (2023), <http://dx.doi.org/10.1063/9.0000556> [M. Stamenova, P. Stamenov, N. Baadjij]

'Accelerating nature: induced atomic order in equiatomic FeNi', *Advanced Science* (2023), <http://dx.doi.org/10.1002/advs.202302696> [L.H. Lewis, P.S. Stamenov]

'Hardware, methodology and applications of 2+D backscatter Mössbauer spectroscopy with simultaneous x-ray and γ -ray detection', *Measurement Science and Technology*, 35, 2 (2024), <http://dx.doi.org/10.1088/1361-6501/ad044b> [J. O'Brien, H. Ahmadian Baghbaderani, F.O. Keller, N. Dempsey, L.H. Lewis, P. Stamenov]

'Phonon and magnon jets above the critical current in nanowires with planar domain walls', *Physical Review Letters*, 131, 20 (2023), <http://dx.doi.org/10.1103/PhysRevLett.131.206302> [M. Stamenova, P. Stamenov, T. Todorov]

'Topological spin semimetal feature in a fully compensated ferrimagnet CoRuVSi ', *ACS Applied Electronic Materials*, 5, 11 (2023), 5944-5953 [J. Nag, R. Venkatesh, A. Jha, P. Stamenov, P.D. Babu, A. Alam]

'Magnetism, transport, and atomic structure of amorphous binary YxCo_{1-x} alloys', *Physical Review B*, 109, 1 (2024), <http://dx.doi.org/10.1103/PhysRevB.109.014409> [Z. Hu, J. Besbas, K. Siewierska, R. Smith, P. Stamenov, J.M.D. Coey]

'Quasistatic magnetization evolution in the compensated ferrimagnetic half-metal $\text{Mn}_2\text{Ru}_x\text{Ga}$ ', *Physical Review B*, 108, 22 (2023), <http://dx.doi.org/10.1103/PhysRevB.108.224413> [A. Jha, S. Lenne, G. Atcheson, K. Rode, J.M.D. Coey, P. Stamenov]

'Iron oxide induced preparation of nanoscrolls of reduced graphene oxide for electrochemical charge storage applications', *Journal of Power Sources*, 580, 233384 (2023), <http://dx.doi.org/10.1016/j.jpowsour.2023.233384> [M. Sathyan, P.J. Jandas, M. Venkatesan, P. Stamenov, S.C. Pillai, H. John]

'3D printing of multifunctional conductive polymer composite hydrogels', *Advanced Functional Materials*, 33, 37 (2023), <http://hdl.handle.net/2262/103944> [J. Liu, J. Garcia, L.M. Leahy, R. Song, D. Mullarkey, P. Stamenov]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

- 'Au₄Mn: a localized ferromagnet with strong spin-orbit coupling, long-range ferromagnetic exchange, and high Curie temperature', *Physical Review B*, 106 (2022), 1-8 [Y. He, Z. Gercsi, R. Zhang, Y. Kang, Y. Skourski, P. Stamenov]
- Venkatesan, Munuswamy, 'Iron oxide induced preparation of nanoscrolls of reduced graphene oxide for electrochemical charge storage applications', *Journal of Power Sources*, 580, 233384 (2023), <http://dx.doi.org/10.1016/j.jpowsour.2023.233384> [M. Sathyan, P.J. Jandas, M. Venkatesan, P. Stamenov, S.C. Pillai, H. John]
- 'Magnetic field enhancement of water evaporation in confined spaces', *IEEE Magnetics Letters*, 14(2023), 3500105-1-3500105-5 [S. Poulouse, Y. Alvarez-Braña, L. Basabel-Desmonts, F. Benito-Lopez, J.M.D. Coey]
- 'A fully compensated ferrimagnetic half metal Co_{1-x}Cr_xS₂ with Curie temperature above room temperature', *Journal of Applied Physics*, 133 (2023), 143906-1-143906-6 [Y. He, J.M.D. Coey, Z. Gercsi]
- 'Structural, magnetic and electronic properties of L21-ordered Ru_{2-x}Mn_{1+x}Al Heusler alloy thin films', *Journal of Magnetism and Magnetic Materials*, 579 (2023), 170853-1-170853-6 [K.E. Siewierska, H. Kurt, B. Shortall, A. Jha, N. Teichert, M. Venkatesan]
- 'Rare-earth-free noncollinear metallic ferrimagnets Mn_{4-x}Z_xN with compensation at room temperature', *Acta Materialia* (2022), 118021-1-118021-9 [R. Zhang, Y. He, D. Fruchart, J.M.D. Coey, Z. Gercsi]
- Vos, Johanna, 'The JWST early release science program for direct observations of exoplanetary systems. IV. NIRISS aperture masking interferometry performance and lessons learned', *Astrophysical Journal Letters*, 963, 1 (2024), <http://dx.doi.org/10.3847/2041-8213/ad21fb> [S. Sallum, S. Ray, J. Kammerer, A. Sivaramakrishnan, R. Cooper, Y. Zhou]
- 'A near-infrared variability survey of young planetary-mass objects', *Monthly Notices of the Royal Astronomical Society*, 527, 3 (2024), 6624-6674 [P. Liu, B.A. Biller, J.M. Vos, N. Whiteford, Z. Zhang, M.C. Liu]
- 'On the unusual variability of 2MASS J06195260-2903592: a long-lived disk around a young ultracool dwarf', *Astronomical Journal*, 164, 4 (2022), <http://dx.doi.org/10.3847/1538-3881/ac8cee> [M.C. Liu, E.A. Magnier, Z. Zhang, E. Gaidos, T.J. Dupuy, J.M. Vos]
- 'The Perkins Infrared Exosatellite Survey (PINES) I. survey overview, reduction pipeline, and early results', *Astronomical Journal*, 163, 6 (2022), <http://dx.doi.org/10.3847/1538-3881/ac64aa> [P. Tamburo, P.S. Muirhead, A.M. McCarthy, M. Hart, D. Gracia, J.M. Vos]
- 'Let the great world spin: revealing the stormy, turbulent nature of young giant exoplanet analogs with the spitzer space telescope', *Astrophysical Journal*, 924, 2 (2022), [J.M. Vos, J.K. Faherty, J. Gagne, M. Marley, S. Metchev, J. Gizis]
- 'Top-of-the-atmosphere and vertical cloud structure of a fast-rotating late T dwarf', *Astronomical Journal*, 164, 2 (2022), <http://dx.doi.org/10.3847/1538-3881/ac7953> [E. Manjavacas, T. Karalidi, X. Tan, J.M. Vos, B.W.P. Lew, B.A. Biller]
- 'Disentangling the signatures of blended-light atmospheres in L/T transition brown dwarfs', *Astrophysical Journal*, 934, 2 (2022), <http://dx.doi.org/10.3847/1538-4357/ac7aab> [A. Ashraf, D.C. Bardalez Gagliuffi, E. Manjavacas, J.M. Vos, C. Meckmann, J.K. Faherty]
- 'Informed systematic method to identify variable mid- and late-T dwarfs', *Astrophysical Journal*, 939, 2 (2022), <http://dx.doi.org/10.3847/1538-4357/ac96f2> [N. Oliveros-Gomez, E. Manjavacas, A. Ashraf, D.C. Bardalez-Gagliuffi, J.M. Vos, J.K. Faherty]
- 'The Perkins Infrared Exosatellite Survey (PINES). II. transit candidates and implications for planet occurrence around L and T dwarfs', *Astronomical Journal*, 164, 6 (2022), <http://dx.doi.org/10.3847/1538-3881/ac9a52> [P. Tamburo, P.S. Muirhead, A.M. McCarthy, M. Hart, J.M. Vos, E. Agol]

Recent publications – Faculty of Science, Technology, Engineering and Mathematics

'An atmospheric retrieval of the brown dwarf Gliese 229B', *Astrophysical Journal*, 940, 2 (2022), <http://dx.doi.org/10.3847/1538-4357/ac9cc9> [E. Calamari, J.K. Faherty, B. Burningham, E. Gonzales, D. Bardalez-Gagliuffi, J.M. Vos]

Weaire, Denis, 'Packing soft spheres: experimental demonstrations with hydrogels', *European Journal of Physics*, 44 (2023), 065501 [A. Irannezhad, A. Baragry, D. Weaire, A. Mughal, S. Hutzler]

'A continuum description of the buckling of a line of spheres in a transverse harmonic confining potential', *Royal Society Open Science*, 10, 7 (2023), 230293 [S. Hutzler, J. Ryan-Purcell, A. Mughal, D. Weaire]

'Stability maps for columnar structures', *Philosophical Magazine*, 103, 14 (2023), 1328-1344 [A. Mughal, J. Winkelmann, D. Weaire, S. Hutzler]

'Coulomb calligraphy', *Forma*, 38 (2023), 1-5 [A. Mughal, S. Hutzler, D. Weaire]

Zhang, Hongzhou, 'Unravelling the data retention mechanisms under thermal stress on 2D memristors', *ACS Omega*, 30 (2023), 27543-27552 [S. Aldana, H. Zhang]

'On the switching mechanism and optimisation of ion irradiation enabled 2D MoS₂ memristors', *Nanoscale*, 15, 13 (2023), 6408-6416 [S. Aldana, J. Jadwiszczak, H.Z. Zhang]