

# Recent Publications - Faculty of Science, Technology, Engineering and Mathematics

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

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## School of Biochemistry and Immunology

### BIOCHEMISTRY

- Budanov, Andrei**, 'Mitochondrial localization of Sesn2', *PLoS ONE*, 15, 4 (2020), e0226862, [I.E. Kovaleva, A.V. Tokarchuk, A.O. Zheltukhin (...), M. Chumakov, A.V. Budanov]
- Creagh, Emma**, 'Caspase-11 mediated cell death contributes to the pathogenesis of imiquimod-induced psoriasis', *Journal of Investigative Dermatology* (2019), 2389-2393 [S. Kenealy, J. Maniis, M. Raverdeau, N. Munoz-Wolf, G. Barber, A. Liddicoat, E.C. Lavelle, E.M. Creagh]  
'Guardians of the cell: effector-triggered immunity steers mammalian immune defense', *Trends in Immunology*, 11, 10 (2019), <http://hdl.handle.net/2262/89480> [T.A. Kufer, E.M. Creagh, C. Bryant]  
'Caspase-11 promotes allergic airway inflammation', *Nature Communications* (2020), <http://hdl.handle.net/2262/93508> [Z. Zalona, E. Flis, M.M. Wilk (...), E.M. Creagh, L. O'Neill]
- Cunningham, Colm**, 'Publisher correction: Delirium (Nature Reviews Disease Primers, (2020), 6, 1, (90), 10.1038/s41572-020-00223-4)', *Nature Reviews Disease Primers*, 6, 1 (2020), <http://hdl.handle.net/2262/95389> [J.E. Wilson, M.F. Mart, C. Cunningham, Y. Shehabi, T.D. Girard, A.M.J. MacLulich, A.J.C. Slooter, E.W. Ely]  
'Characterising neuropsychiatric disorders in patients with covid-19', *The Lancet Psychiatry*, 7, 11 (2020), 932-933 [M.A. Oldham, A.J.C. Slooter, C. Cunningham (...), E.W. Ely, A. MacLulich]  
'A roadmap to advance delirium research: recommendations from the NIDUS scientific think tank', *Alzheimer's and Dementia*, 16, 5 (2020), 726-733 [E.S. Oh, O. Akeju, M.S. Avidan (...), P. Vlisides, S.K. Inouye]  
'International drive to illuminate delirium: a developing public health blueprint for action', *Alzheimer's and Dementia*, 16, 5 (2020), 711-725 [A.S. Khachaturian, K.M. Hayden, J.W. Devlin, L.A. Fleisher, S.L. Lock, C. Cunningham, S.K. Inouye]  
'Correction: Acute transient cognitive dysfunction and acute brain injury induced by systemic inflammation occur by dissociable IL-1-dependent mechanisms (Molecular Psychiatry, (2019), 24, 10, (1533-1548), 10.1038/s41380-018-0075-8)', *Molecular Psychiatry*, 24, 10 (2019), 1566 [D.T. Skelly, D.M. Griffin and Bannerman, C. Cunningham]  
'Study protocol: ASCRIBED: the impact of an Acute Systematic Inflammation upon cerebrospinal fluid and blood Biomarkers of brain inflammation and injury in Dementia: a study in acute hip fracture patients', *BMC Neurology*, 19, 1 (2019), <http://dx.doi.org/10.1186/s12883-019-1447-7> [N. Leavey, S.P. Hammond, L. Shepstone, J. Cross, H. Zetterberg, C. Cunningham, C. Fox]

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

- 'A single systemic inflammatory insult causes acute motor deficits and accelerates disease progression in a mouse model of human tauopathy', *Alzheimer's and Dementia: Translational Research and Clinical Interventions*, 5 (2019), 579-591 [M. Torvell, D.W. Hampton, P. Connick, A.M.J. MacLulich, C. Cunningham, S. Chandran]
- 'Delirium', *Nat Rev Dis Primers*, 6, 90 (2020), <https://doi-org.elib.tcd.ie/10.1038/s41572-020-00223-4> [J.E. Wilson, M.F. Mart, C. Cunningham, *et al.*]
- Fayne, Darren**, '3-vinylazetidin-2-ones: synthesis, antiproliferative and tubulin destabilizing activity in MCF-7 and MDA-MB-231 breast cancer cells', *Pharmaceuticals*, 12, 2 (2019), <http://dx.doi.org/10.3390/ph12020056> [S. Wang, A.M. Malebari, T.F. Greene, N.M. O'Boyle, D. Fayne, D.M. Zisterer, M.J. Meegan]
- 'Synthesis and biological evaluation of 1-(diarylmethyl)-1H-1,2,4-triazoles and 1-(diarylmethyl)-1H-imidazoles as a novel class of anti-mitotic agent for activity in breast cancer', *Pharmaceuticals*, 14, 2 (2021), 169, [G. Ana, P.M. Kelly, A.M. Malebari, S. Noorani, S.M. Nathwani, B. Twamley, D. Fayne, M.J. Meegan]
- Finlay, David**, 'De novo polyamine synthesis supports metabolic and functional responses in activated murine natural killer cells', *European Journal of Immunology* (2020), <http://dx.doi.org/10.1002/eji.202048784> [K.L. O'Brien, N. Assmann, E. O'Connor (...), K. Dettmer, D.K. Finlay]
- 'Metabolic but not transcriptional regulation by PKM2 is important for natural killer cell responses', *eLIFE* (2020), <http://hdl.handle.net/2262/93884> [J.F. Walls, J.J. Subleski, E.M. Palmieri, M. Gonzalez Cotto, C.M. Gardiner, D.W. McVicar, D.K. Finlay]
- 'Diverse immunoregulatory roles of oxysterols - the oxidized cholesterol metabolites', *Metabolites*, 10, 10 (2020), E384, [C. Choi, D.K. Finlay]
- Kelly, Vincent**, 'The eukaryotic tRNA-guanine transglycosylase enzyme inserts queuine into tRNA via a sequential bi-bi mechanism', *Chemical Communications*, 56 (2020), 3915-3918 [M.A. Alqasem, C. Fergus, J.M. Southern, S.J. Connon, V.P. Kelly]
- 'Spiroindoline-capped selective HDAC6 inhibitors: design, synthesis, structural analysis, and biological evaluation', *ACS Medicinal Chemistry Letters* (2020), <http://hdl.handle.net/2262/93724> [A. Prasanth Saraswati, V.P. Kelly, G. Campiani]
- 'Queuine micronutrient deficiency promotes Warburg metabolism and reversal of the mitochondrial ATP synthase in hela cells', *Nutrients*, 12, 3 (2020), <http://dx.doi.org/10.3390/nu12030871> [P. Hayes, C. Fergus, M. Ghanim (...), D.P. Nolan, V.P. Kelly]
- 'Heterozygous disruption of ALAS1 in mice causes an accelerated age-dependent reduction in free heme, but not total heme, in skeletal muscle and liver', *Archives of Biochemistry and Biophysics*, 697 (2021), 108721 [K. van Wijk, V.P. Kelly, M. Takagi, K. Kodama, K. Takahashi, T. Tanaka, M. Nakajima, O. Nakajima]
- O'Neill, Luke**, 'Caspase-11 promotes allergic airway inflammation', *Nature Communications* (2020), <http://hdl.handle.net/2262/93508> [Z. Zaslona, M. Wygrecka, E.M. Creagh, L. O'Neill]
- 'Pharmacological activation of pyruvate kinase M2 inhibits CD4+ T cell pathogenicity and suppresses autoimmunity', *Cell Metabolism*, 31, 2 (2020), 391-405.e8 [S. Angiari, E.L. Pearce, K. Mills, L. O'Neill]
- 'Influenza A virus causes maternal and fetal pathology via innate and adaptive vascular inflammation in mice', *Proceedings of the National Academy of Sciences of the United States of America* (2020), <http://hdl.handle.net/2262/95391> [S. Liang, L. O'Neill, S. Bozinovski, R. Vlahos, P.C. Papagianis, J.J. O'Leary, D.A. Brooks, S. Selemidis]
- 'The immunomodulatory metabolite itaconate modifies NLRP3 and inhibits inflammasome activation', *Cell Metabolism* (2020), <http://hdl.handle.net/2262/95416> [A. Hoofman, S. Angiari, R. Fischer, L. O'Neill]

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

- 'Glutathione transferase omega-1 regulates NLRP3 inflammasome activation through NEK7 deglutathionylation', *Cell Reports* (2019), <http://hdl.handle.net/2262/95418> [M.M. Hughes, S.C. Corr, K. Mills, R.J.S. Preston, L. O'Neill]
- 'Immunometabolism pathways as the basis for innovative anti-viral strategies (INITIATE): a Marie Skłodowska-Curie innovative training network', *Virus Research*, 287, 198094 (2020), <http://hdl.handle.net/2262/95401> [B. van den Hoogen, L. O'Neill, F. van Kuppeveld, R. Fouchier, J. Hiscott]
- 'Modification of proteins by metabolites in immunity', *Immunity*, 54, 1 (2021), 19-31 [C. Diskin, T.A.J. Ryan, L. O'Neill]
- 'Bridging the gap - a new role for STAT3 in TLR4-mediated metabolic reprogramming', *Immunology and Cell Biology*, 99, 2 (2021), 122-125 [H.J. Weiss, L. O'Neill]
- 'TCA cycle signalling and the evolution of eukaryotes', *Current Opinion in Biotechnology*, 68 (2021), 72-88 [D.G. Ryan, C. Frezza, L. O'Neill]
- 'The role of HIF in immunity and inflammation', *Cell Metabolism*, 32, 4 (2020), 524-536 [A.F. McGettrick, L. O'Neill]
- 'Role for retinoic acid-related orphan receptor alpha (ROR $\alpha$ ) expressing macrophages in diet-induced obesity', *Frontiers in Immunology*, 11, 1966 (2020), <http://hdl.handle.net/2262/95417> [E. Hams, J. Roberts, R. Bermingham, A.E. Hogan, D. O'Shea, L. O'Neill, P.G. Fallon]
- 'Cytokine-like roles for metabolites in immunity', *Molecular Cell*, 78, 5 (2020), 814-823 [Z. Zaslona, L. O'Neill]
- '*Pseudomonas* persists by feeding off itaconate', *Cell Metabolism*, 31, 6 (2020), 1045-1047 [M.C. Runtsch, L. O'Neill]
- 'Spatial properties of reactive oxygen species govern pathogen-specific immune system responses', *Antioxidants and Redox Signaling*, 32, 13 (2020), 982-992 [E.E. To, J.J. O'Leary, L. O'Neill (...), D.A. Brooks, S. Selemidis]
- 'Krebs cycle reborn in macrophage immunometabolism', *Annual Review of Immunology*, 38 (2020), 289-313 [D.G. Ryan, L. O'Neill]
- 'ACLY-matizing macrophages to histone modification during immunometabolic reprogramming', *Trends in Immunology*, 41, 2 (2020), 93-94 [N.C. Williams, L. O'Neill]
- 'Improved performance of near infrared excitation Raman spectroscopy using reflective thin-film gold on glass substrates for cytology samples', *Analytical Methods*, 11, 47 (2019), 6023-6032 [S.J. Barton, K. O'Dwyer, M. Butler, A. Dignam, H.J. Byrne, L. O'Neill, B.M. Hennelly]
- 'Specific inhibition of the NLRP3 inflammasome as an antiinflammatory strategy in cystic fibrosis', *American Journal of Respiratory and Critical Care Medicine*, 200, 11 (2019), 1381-1391 [O.J. McElvaney, Z. Zaslona, E. Gulbins, L. O'Neill, E.P. Reeves, N.G. McElvaney]
- 'The next decade of metabolism', *Nature Metabolism*, 1, 1 (2019), 2-4 [E. Bugianesi, H. Christofk, I. Dikic, R. Gupta, W.B. Mair, L. O'Neill, M. Ralser, D.M. Sabatini]
- Porter, Richard**, 'UCP3 reciprocally controls CD4+ Th17 and Treg cell differentiation', *PLoS ONE*, 15, 11 (2020), e02, [E.B. O'Connor, N. Muñoz-Wolf, G. Leon, E.C. Lavelle, K. Mills, P.T. Walsh, R.K. Porter]
- 'Mitochondrial abundance and function in skeletal muscle and liver from Simmental beef cattle divergent for residual feed intake', *Animal* (2020), 1-8 [C. McKenna, R.K. Porter, C. Fitzsimons, S.M. Waters, M. McGee, D.A. Kenny]
- 'Prolonged oral coenzyme Q10- $\beta$ -cyclodextrin supplementation increases skeletal muscle complex I+III activity in young, untrained healthy thoroughbreds', *Journal of Applied Animal Nutrition*, 8, 1 (2020), 11-20 [M.F. Rooney, C.E. Curley, J. Sweeney, M.E. Griffin, R.K. Porter, E.W. Hill, L.M. Katz]
- 'Mitochondrial physiology', *Bioenergetics Communications* (2020), <http://hdl.handle.net/2262/89947> [E. Aasander Frostner, D. Acuna-Castroviejo, B. Ahn (...), R.K. Porter *et al.*]

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

- 'Prolonged oral coenzyme Q10- $\beta$ -cyclodextrin supplementation increases skeletal muscle complex I+III activity in young thoroughbreds', *Journal of Applied Animal Nutrition*, 8, 1 (2020), 11-20 [M.F. Rooney, C.E. Curley, J. Sweeney, M. Griffin, R.K. Porter, E. Hill, L. Katz]
- Rooney, Mary**, 'The contribution of myostatin (MSTN) and additional modifying genetic loci to race distance aptitude in thoroughbred horses racing in different geographic regions', *Equine Veterinary Journal*, 51, 5 (2019), 625-633 [E.W. Hill, B.A. McGivney, M.F. Rooney, L.M. Katz, A. Parnell, D.E. MacHugh]
- 'Prolonged oral coenzyme Q10- $\beta$ -cyclodextrin supplementation increases skeletal muscle complex I+III activity in young thoroughbreds', *Journal of Applied Animal Nutrition*, 8, 1 (2020), 11-20 [M.F. Rooney, C.E. Curley, J. Sweeney, M. Griffin, R.K. Porter, E. Hill, L. Katz]
- Zisterer, Daniela**, 'Spiroindoline-capped selective HDAC6 inhibitors: design, 2 synthesis, structural analysis, and biological evaluation', *ACS Medicinal Chemistry Letters* (2020), <http://hdl.handle.net/2262/93724> [A. Prasanth Saraswati, D. Zisterer, S. Butini, D.W. Christianson, G. Campiani]
- 'Synthesis and biological evaluation of 1-(diarylmethyl)-1H-1,2,4-triazoles and 1-(diarylmethyl)-1H-imidazoles as a novel class of anti-mitotic agent for activity in breast cancer', *Pharmaceuticals*, 14, 2 (2021), 169, [G. Ana, D.M. Zisterer, E. Flavia Pimentel, D. Coutinho Endringer, M.J. Meegan]

## IMMUNOLOGY

- Bowie, Andrew**, 'Immunometabolism pathways as the basis for innovative anti-viral strategies (INITIATE): a Marie Skłodowska-Curie innovative training network', *Virus Research*, 287, 198094 (2020), <http://hdl.handle.net/2262/95401> [B. van den Hoogen, A. Bowie, R. Fouchier, J. Hiscott]
- 'PYHIN1 regulates pro-inflammatory cytokine induction rather than innate immune DNA sensing in airway epithelial cells', *Journal of Biological Chemistry*, 295, 14 (2020), 4438-4450 [D. Massa, M. Baran, J.A. Bengoechea, A.G. Bowie, D.R. Voelker]
- Dunne, Aisling**, 'Nano-particle mediated M2 macrophage polarization enhances bone formation and MSC osteogenesis in an IL-10 dependent manner', *Biomaterials*, 239 (2020), 119833, [O.R. Mahon, D.J. Kelly, A. Dunne]
- Fletcher, Jean**, 'Targeting bioenergetics prevents CD4 T cell-mediated activation of synovial fibroblasts in rheumatoid arthritis', *Rheumatology* (2020), <http://dx.doi.org/10.1093/rheumatology/kez682> [A. Petrasca, J.J. Phelan, S. Ansboro, D.J. Veale, U. Fearon, J.M. Fletcher]
- 'IL-17 in inflammatory skin diseases psoriasis and hidradenitis suppurativa', *Clinical and Experimental Immunology*, 201, 2 (2020), 121-134 [J.M. Fletcher, B. Moran, A. Petrasca, C.M. Smith]
- 'Dimethyl fumarate modulates the Treg-Th17 cell axis in patients with psoriasis', *The British Journal of Dermatology* (2020), <http://dx.doi.org/10.1111/bjd.19229> [J. Sulaimani, D. Cluxton, J. Clowry (...), B. Kirby, J.M. Fletcher]
- Lavelle, Edward**, '*Mycobacterium tuberculosis* limits host glycolysis and IL-1 $\beta$  by restriction of PFK-M via microRNA-21', *Cell Reports*, 30, 1 (2020), 124-136.e4 [E.E. Hackett, H. Charles-Messance, S.M. O'Leary (...), E.C. Lavelle *et al.*]
- 'Caspase-11 mediated cell death contributes to the pathogenesis of imiquimod-induced psoriasis', *Journal of Investigative Dermatology* (2019), 2389-2393 [S. Kenealy, J. Manils, M. Raverdeau (...), E.C. Lavelle, E.M. Creagh]
- 'Caspase-11 promotes allergic airway inflammation', *Nature Communications* (2020), <http://hdl.handle.net/2262/93508> [Z. Zaslona, E. Flis, M.M. Wilk (...), E.C. Lavelle *et al.*]
- 'Type I IFN signalling is required for cationic adjuvant formulation (CAF)01-induced cellular immunity and mucosal priming', *Vaccine*, 38, 3 (2020), 635-643 [C.P. McEntee, H.B.T. Moran, N. Muñoz-Wolf (...), F. Follmann, E.C. Lavelle]

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

- 'Pristine graphene induces innate immune training', *Nanoscale*, 12, 20 (2020), 11192-11200 [F. Lebre, J.B. Boland, P. Gouveia (...), J. Coleman, E.C. Lavelle]
- 'Technological approaches for improving vaccination compliance and coverage', *Vaccines*, 8, 2 (2020), E304, [C. Lemoine, A. Thakur, D. Krajišnik (...), E.C. Lavelle *et al.*]
- 'Prevention and treatment of covid-19 disease by controlled modulation of innate immunity', *European Journal of Immunology* (2020), <http://hdl.handle.net/2262/95451> [V. Schijns, E.C. Lavelle]
- 'Exposure to diesel exhaust particles increases susceptibility to invasive pneumococcal disease', *The Journal of Allergy and Clinical Immunology*, 145, 4 (2020), 1272-1284.e6 [R.K. Shears, L.C. Jacques, G. Naylor (...), E.C. Lavelle *et al.*]
- 'Modulation of immune responses using adjuvants to facilitate therapeutic vaccination', *Immunological Reviews* (2020), <http://hdl.handle.net/2262/95453> [V. Schijns, A. Fernández-Tejada, Z. Barjaktarovic (...), D. Christensen, E.C. Lavelle]
- 'UCP3 reciprocally controls CD4+ Th17 and Treg cell differentiation', *PLoS ONE*, 15, 11 (2020), e02, [E.B. O'Connor, N. Muñoz-Wolf, G. Leon (...), E.C. Lavelle *et al.*]
- 'Editorial: Challenges in vaccinology', *Frontiers in Immunology*, 11, 632537 (2020), <http://hdl.handle.net/2262/95452> [E.C. Lavelle, R. Carsetti, W.F. Pickl, U. Wiedermann]
- 'Mycobacterial para-hydroxybenzoic acid-derivatives (pHBADs) and related structures induce macrophage innate memory', *ACS Chemical Biology*, 15, 9 (2020), 2415-2421 [M. Lundahl, D.M. Lynch, D. Barnes (...), E.C. Lavelle, E.M. Scanlan]
- Mills, Kingston**, 'Caspase-11 promotes allergic airway inflammation', *Nature Communications* (2020), <http://hdl.handle.net/2262/93508> [Z. Zasloná, K. Mills, E.C. Lavelle, M. Wygrecka, E.M. Creagh, L. O'Neill]
- 'Nano-particle mediated M2 macrophage polarization enhances bone formation and MSC osteogenesis in an IL-10 dependent manner', *Biomaterials*, 239 (2020), 119833, [O.R. Mahon, K. Mills, D.J. Kelly, A. Dunne]
- 'A population of proinflammatory T cells coexpresses  $\alpha\beta$  and  $\gamma\delta$  T cell receptors in mice and humans', *Journal of Experimental Medicine*, 217, 5 (2020), <http://hdl.handle.net/2262/94573> [S.C. Edwards, R.M. McLoughlin, K. Mills]
- 'Pharmacological activation of pyruvate kinase M2 inhibits CD4+ T cell pathogenicity and suppresses autoimmunity', *Cell Metabolism*, 31, 2 (2020), 391-405.e8 [S. Angiari, M.C. Runtsch, K. Mills, L. O'Neill]
- 'Interleukin-17A serves a priming role in autoimmunity by recruiting IL-1 $\beta$ -producing myeloid cells that promote pathogenic T cells', *Immunity*, 52, 2 (2020), 342-356.e6 [A.M. McGinley, N. Djouder, K. Mills]
- 'The microbiota and immune-mediated diseases: opportunities for therapeutic intervention', *European Journal of Immunology*, 50, 3 (2020), 326-337 [G. Fitzgibbon, K. Mills]
- 'Exercise-induced re-programming of age-related metabolic changes in microglia is accompanied by a reduction in senescent cells', *Brain, Behavior, and Immunity*, 87 (2020), 413-428 [V. Mela, B.C. Mota, M. Milner, A. McGinley, K. Mills, M.A. Lynch]
- 'Overcoming waning immunity in pertussis vaccines: workshop of the national institute of allergy and infectious diseases', *Journal of Immunology*, 205, 4 (2020), 877-882 [FH. Damron, M. Barbier, P. Dubey, K.M. Edwards, X-X. Gu, N.P. Klein, K. Lu, K. Mills]
- 'UCP3 reciprocally controls CD4+ Th17 and Treg cell differentiation', *PLoS ONE*, 15, 11 (2020), e02, [E.B. O'Connor, N. Muñoz-Wolf, G. Leon, E.C. Lavelle, K. Mills, P.T. Walsh, R.K. Porter]
- 'Highlights of the 12th international *Bordetella* symposium', *Clinical Infectious Diseases: an Official Publication of the Infectious Diseases Society of America*, 71, 9 (2020), 2521-2526 [C. Locht, K. Mills, M.E. Rodriguez, F. Mascart]

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

- 'Next-generation pertussis vaccines based on the induction of protective T cells in the respiratory tract', *Vaccines*, 8, 4 (2020), 1-28 [C.N. Chasaide, K. Mills]
- 'IL-33-stimulated murine mast cells polarize alternatively activated macrophages, which suppress T cells that mediate experimental autoimmune encephalomyelitis', *Journal of Immunology*, 205, 7 (2020), 1909-1919 [C.M. Finlay, K.T. Cunningham, B. Doyle, K. Mills]
- 'Author correction: A guiding map for inflammation (Nature Immunology, (2017), 18, 8, (826-831), 10.1038/ni.3790)', *Nature Immunology*, 22, 2 (2021), 254, [M.G. Netea, K. Mills, K.L. Nowak, L. O'Neill, C.A. Dinarello]
- Moran, Barry**, 'Differential regulation of human Treg and Th17 cells by fatty acid synthesis and glycolysis', *Frontiers in Immunology*, 10 (2019), 115, [D. Cluxton, A. Petrasca, B. Moran, J.M. Fletcher]
- 'Low density granulocytes in ANCA vasculitis are heterogenous and hypo-responsive to anti-myeloperoxidase antibodies', *Frontiers in Immunology*, 10, 2603 (2019), <http://hdl.handle.net/2262/91156> [A. Ui Mhaonaigh, A.M. Coughlan, A. Dwivedi, J. Hartnett, J. Cabral, B. Moran, M.A. Little]
- 'Enrichment of polyfunctional IL-17 producing T cells in paradoxical psoriasis skin lesions', *The Journal of Investigative Dermatology* (2019), <http://dx.doi.org/10.1016/j.jid.2019.10.010> [B. Moran, C. Gallagher, A.M. Tobin, J.M. Fletcher]
- 'A population of proinflammatory T cells coexpresses  $\alpha\beta$  and  $\gamma\delta$  T cell receptors in mice and humans', *Journal of Experimental Medicine*, 217, 5 (2020), <http://hdl.handle.net/2262/94573> [S.C. Edwards, C.E. Sutton, B. Moran, P.G. Thomas, R.M. McLoughlin, K. Mills]
- 'IL-17 in inflammatory skin diseases psoriasis and hidradenitis suppurativa', *Clinical and Experimental Immunology*, 201, 2 (2020), 121-134 [J.M. Fletcher, B. Moran, A. Petrasca, C.M. Smith]
- 'The *Trypanosoma brucei* KIFC1 kinesin ensures the fast antibody clearance required for parasite infectivity', *iScience*, 23, 9 (2020), 101476 [L. Lecordier, B. Moran, D. Pérez-Morga, D.P. Nolan, E. Pays]
- 'Extracellular vesicles report on the MET status of their cells of origin regardless of the method used for their isolation', *Scientific Reports*, 10, 1 (2020), 19020 [Z. Useckaite, A. Mukhopadhyay, B. Moran, L. O'Driscoll]
- 'Dimethyl fumarate modulates the Treg-Th17 cell axis in patients with psoriasis', *The British Journal of Dermatology* (2020), <http://dx.doi.org/10.1111/bjd.19229> [J. Sulaimani, D. Cluxton, J. Clowry (...), B. Moran *et al.*]
- 'Pathogenic, glycolytic PD-1+ B cells accumulate in the hypoxic RA joint', *JCI Insight*, 5, 21 (2020), <http://dx.doi.org/10.1172/jci.insight.139032> [A. Floudas, N. Neto, V. Marzaioli (...), B. Moran *et al.*]

## School of Chemistry

- Baker, Robert**, 'Modeling of nuclear waste forms: state-of-the-art and perspectives', *MRS Advances*, 5 (2020), 213-222 [P.M. Kowalski, S. Lange, G. Deissmann (...), R. Baker *et al.*]
- Boland, John**, 'Nonlinear ion drift-diffusion memristance description of TiO<sub>2</sub> RRAM devices', *Nanoscale Advances* (2020), 1-11 [S. Alialy, K. Esteki, M. Ferreira, J.J. Boland, C. Gomes da Rocha]
- 'The resistance of Cu nanowire-nanowire junctions and electro-optical modeling of Cu nanowire networks', *Applied Physical Letters*, 116 (2020), 251902 [H.G. Manning, P.F. Flowers, M.A. Cruz (...), B.J. Wiley, J.J. Boland]
- 'Microplastic release from the degradation of polypropylene feeding bottles during infant formula preparation', *Nature Food*, 1 (2020), 746-751 [D. Li, Y. Shi, L. Yang, L. Xiao, D.K. Kehoe, Y.K. Gun'ko, J.J. Boland, J.J. Wang]



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

- 'Emulating synaptic response in n- and p-channel MoS<sub>2</sub> transistors by utilizing charge trapping dynamics', *Scientific Reports*, 10, 1 (2020), 12178 [S. Bhattacharjee, R. Wigchering, H.G. Manning, J.J. Boland, P.K. Hurley]
- Colavita, Paula**, 'Untangling cooperative effects of pyridinic and graphitic nitrogen sites at metal-free N-doped carbon electrocatalysts for the oxygen reduction reaction', *Small*, 15 (2019), 1902081, [J.A. Behan, E. Mates-Torres, S.N. Stamatini (...), M. García-Melchor, P. Colavita]
- 'Understanding the carbon-bio interface: influence of surface chemistry and buffer composition on the adsorption of phospholipid liposomes at carbon surfaces', *ACS Applied Bio Materials*, 3, 2 (2020), 997-1007 [J.M. Vasconcelos, F. Zen, M.D. Angione, R.J. Cullen, M.J. Santos-Martinez, P.E. Colavita]
- 'Bioinspired electro-permeable glycans on carbon: fouling control for sensing in complex matrices', *Carbon* (2020), 519-526 [J.A. Behan, J. Myles, A. Iannaci, E. Whelan, E.M. Scanlan, P.E. Colavita]
- 'Reactive plasma N-doping of amorphous carbon electrodes: decoupling disorder and chemical effects on capacitive and electrocatalytic performance', *Frontiers in Chemistry*, 8 (2020), <http://hdl.handle.net/2262/95309> [M.K. Hoque, J.A. Behan, J. Creel, J.G. Lunney, T.S. Perova, P.E. Colavita]
- 'Tailored glycosylated anode surfaces: addressing the exoelectrogen bacterial community via functional layers for microbial fuel cell applications', *Bioelectrochemistry*, 136 (2020), 107621, [A. Iannaci, A. Myles, T. Flinois, J.A. Behan, F. Barrière, E.M. Scanlan, P.E. Colavita]
- 'Porous carbon microparticles as vehicles for the intracellular delivery of molecules', *Frontiers in Chemistry*, 8 (2020), 576175, [L.M. Magno, D.T. Hinds, P. Duffy, R.B. Yadav, A.D. Ward, S.W. Botchway, P.E. Colavita, S.J. Quinn]
- Florea, Larisa**, '3D printed sugar-sensing hydrogels', *Macromolecular Rapid Communications* (2020), <http://hdl.handle.net/2262/92311> [D. Bruen, C. Delaney, J. Chung, K. Ruberu, G.G. Wallace, D. Diamond, L. Florea]
- 'Silicon microcantilever sensors to detect the reversible conformational change of a molecular switch, spiropyan', *Sensors*, 20, 3 (2020), <http://hdl.handle.net/2262/92314> [C. Grogan, G. Amarandei, S. Lawless, F. Pedreschi, F. Lyng, F. Benito-Lopez, R. Raiteri, L. Florea]
- 'Direct laser writing of four-dimensional structural color microactuators using a photonic photoresist', *ACS Nano* (2020), <http://hdl.handle.net/2262/92983> [M. del Pozo, C. Delaney, C.W.M. Bastiaansen, D. Diamond, A.P.H.J. Schenning, L. Florea]
- 'Direct laser writing to generate molds for polymer nanopillar replication', *ACS Applied Polymer Materials* (2020), <http://hdl.handle.net/2262/92984> [C. Delaney, N. Geoghegan, H. Ibrahim, M.T. O'Loughlin, B.J. Rodriguez, L. Florea, S.M. Kelleher]
- 'Two-photon polymerization of masters for polymeric nanopillar replication', *24th International conference on miniaturized systems for chemistry and life sciences, MicroTAS 2020* (2020), 368-369 [N. Geoghegan, C. Delaney, L. Florea, M. O'Loughlin, S.M. Kelleher]
- 'Four-dimensional photonic micro-actuators for microfluidics applications', *24th International conference on miniaturized systems for chemistry and life sciences, MicroTAS 2020* (2020), 346-347 [M. del Pozo, C. Delaney, C.W.M. Bastiaansen, D. Diamond, A.P.H.J. Schenning, L. Florea]
- 'Magnetic movement under the spotlight', *Science Robotics*, 5, 49 (2020), <http://dx.doi.org/10.1126/scirobotics.abf1503> [L. Florea]
- García Melchor, Max**, 'Selective high-temperature CO<sub>2</sub> electrolysis enabled by oxidized carbon intermediates', *Nature Energy* (2019), <http://hdl.handle.net/2262/93685> [T.L. Skafte, Z. Guan, M.L. Machala (...), M. García-Melchor *et al.*]
- 'Universal scaling relations for the rational design of molecular water oxidation catalysts with near-zero overpotential', *Nature Communications* (2019), <http://hdl.handle.net/2262/95491> [M. Craig, G.O. Coulter, E.T. Dolan, J. Soriano-López, E. Mates-Torres, W. Schmitt, M. García-Melchor]

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

- 'Effect of chiral ligand concentration and binding mode on chiroptical activity of CdSe/CdS quantum dots', *ACS Nano*, 13 (2019), 13560-13572 [V. Kuznetsova, E. Mates-Torres, N. Prochukhan (...), M. García-Melchor, Y. Gun'ko]
- 'Insights into the O<sub>2</sub> restitution mechanism on CuO/CeO<sub>2</sub> catalysts: a key step towards high selectivity in the preferential CO oxidation', *ACS Catalysis*, 10 (2020), 6532-6545 [A. Davó-Quiñero, E. Bailón-García, S. López-Rodríguez (...), M. García-Melchor *et al.*]
- 'Cobalt-catalyzed ammonia borane dehydrogenation: mechanistic insight and isolation of a cobalt hydride-amidoborane complex', *Organometallics*, 39 (2020), 2917-2927 [J.W. Nugent, M. García-Melchor, A.R. Fout]
- Gounko, Iouri*, 'Effect of chiral ligand concentration and binding mode on chiroptical activity of CdSe/CdS quantum dots', *ACS Nano*, 13 (2019), 13560-13572 [V. Kuznetsova, E. Mates-Torres, N. Prochukhan (...), M. García-Melchor, Y. Gun'ko]
- 'One dimensional AuAg nanostructures as anodic catalysts in ethylene glycol oxidation', *Nanomaterials*, 10, 719 (2020), 15 [Y. Gun'ko, D. Kehoe, L. Romeral, R. Lundy, M.E.G. Lyons, M.A. Morris]
- 'Microplastic release from the degradation of polypropylene feeding bottles during infant formula preparation', *Nature Food*, 1 (2020), 746-751 [D. Li, Y. Shi, L. Yang, L. Xiao, D.K. Kehoe, Y.K. Gun'ko, J.J. Boland, J.J. Wang]
- 'FRET-based analysis of AgInS<sub>2</sub>/ZnAgInS/ZnS quantum dot recombination dynamics', *Nanomaterials*, 10, 12 (2020), 2455 [M. Miropoltsev, V. Kuznetsova, A. Tkach (...), Y. Gun'ko, A. Baranov]
- 'Lab-on-microsphere-FRET-based multiplex sensor platform', *Nanomaterials*, 11, 1 (2021), 109 [V. Kuznetsova, V. Osipova, A. Tkach (...), A. Baranov, Y. Gun'ko]
- 'Ligand-induced chirality and optical activity in semiconductor nanocrystals: theory and applications', *Nanophotonics*, 10, 2 (2020), 797-824 [V. Kuznetsova, Y. Gromova, M. Martínez-Carmona, F. Purcell-Milton, E. Ushakova, S. Cherevko, V. Maslov, Y. Gun'ko]
- 'Photophysics of titania nanoparticle/quantum dot hybrid structures', *Optics and Spectroscopy*, 128, 8 (2020), 1256-1261 [E.P. Kolesova, F.M. Safin, V.G. Maslov, A. Dubavik, Y. Gun'ko, A.O. Orlova]
- 'Amino-functionalized mesoporous silica nanoparticle-encapsulated octahedral organoruthenium complex as an efficient platform for combatting cancer', *Inorganic Chemistry*, 59, 14 (2020), 10275-10284 [M. Martínez-Carmona, Q.P. Ho, J. Morand (...), M. Vallet-Regí, Maria, Y.K. Gun'ko]
- 'Investigation of magnetic circular dichroism spectra of semiconductor quantum rods and quantum dot-in-rods', *Nanomaterials*, 10, 6 (2020), 1059 [F. Safin, V. Maslov, Y. Gromova, I. Korsakov, E. Kolesova, A. Dubavik, S. Cherevko, Y.K. Gun'ko]
- 'Recent progress and future prospects in development of advanced materials for nanofiltration', *Materials Today Communications*, 23 (2020), 100888 [N. García Doménech, F. Purcell-Milton, Y.K. Gun'ko]
- 'Ligand-assisted formation of graphene/quantum dot monolayers with improved morphological and electrical properties', *Nanomaterials*, 10, 4 (2020), 723 [A.P. Litvin, A.A. Babaev, P.S. Parfenov (...), Y.K. Gun'ko *et al.*]
- 'Photocatalytic properties of hybrid structures based on titania nanoparticles and semiconductor quantum dots', *Optical and Quantum Electronics*, 52, 3 (2020), <http://dx.doi.org/10.1007/s11082-020-2253-6> [A. Makovetskaya, E. Kolesova, V. Maslov, A. Dubavik, Y. Gun'ko, A. Orlova]
- 'Preparation and characterisation of metallorganic precursors derived iron oxides on porous silicon layers', *Materials Science Forum*, 995 (2020), 63-68 [S. Balakrishnan, Y.K. Gun'ko, G.F. Swiegers, T.S. Perova]



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

Gunnlaugsson, Thorfinnur, 'Aggregation induced emission (AIE) active 4-amino-1,8-naphthalimide-Tröger's base for the selective sensing of chemical explosives in competitive aqueous media', *Chemical Communications* (2020), 2562-2565 [J.M. Delente, D. Umadevi, S. Shanmugaraju, O. Kotova, G.W. Watson, T. Gunnlaugsson]

"Turn-on" fluorescence sensing of volatile organic compounds using a 4-amino-1,8-naphthalimide Tröger's base functionalised triazine organic polymer', *Chemical Communications*, 55, 81 (2019), 12140-12143 [S. Shanmugaraju, D. Umadevi, L.M. González-Barcia, J.M. Delente, K. Byrne, W. Schmitt, G.W. Watson, T. Gunnlaugsson]

'Fluorescent supramolecular hierarchical self-assemblies from glycosylated 4-amino- and 4-bromo-1,8-naphthalimides', *Organic and Biomolecular Chemistry* (2020), 3475-3480 [E. Calatrava-Pérez, S. Acherman, L. Stricker (...), T. Gunnlaugsson, E.M. Scanlan]

'Hyper-crosslinked 4-amino-1,8-naphthalimide Tröger's base containing pyridinium covalent organic polymer (COP) for discriminative fluorescent sensing of chemical explosives', *Supramolecular Chemistry*, 32, 9 (2020), 508-517 [J.M. Delente, D. Umadevi, K. Byrne, W. Schmitt, G.W. Watson, T. Gunnlaugsson, S. Shanmugaraju]

'Highlights of the development and application of luminescent lanthanide based coordination polymers, MOFs and functional nanomaterials', *Dalton Transactions*, 50, 3 (2021), 770-784 [T. Gorai, W. Schmitt, T. Gunnlaugsson]

'Caught in the loop: binding of the  $[\text{Ru}(\text{phen})_2(\text{dppz})]^{2+}$  light-switch compound to quadruplex DNA in solution informed by time-resolved infrared spectroscopy', *Chemistry - a European Journal*, 26, 71 (2020), 17103-17109 [S.J. Devereux, F.E. Poynton, F.R. Baptista (...), T. Gunnlaugsson *et al.*]

'Functionalisation of gold nanoparticles with ruthenium(ii) polypyridyl complexes for their application in cellular imaging', *Dalton Transactions*, 49, 40 (2020), 14158-14168 [S. Estalayo-Adrián, G.J. McManus, H.L. Dalton, A.J. Savyasachi, J.M. Kelly, T. Gunnlaugsson]

'Understanding the factors controlling the photo-oxidation of natural DNA by enantiomerically pure intercalating ruthenium polypyridyl complexes through TA/TRIR studies with polydeoxynucleotides and mixed sequence oligodeoxynucleotides', *Chemical Science*, 11, 32 (2020), 8600-8609 [P.M. Keane, K. O'Sullivan, F.E. Poynton (...), T. Gunnlaugsson *et al.*]

'Self-assembled Ln(III) cyclen-based micelles and AuNPs conjugates as candidates for luminescent and magnetic resonance imaging (MRI) agents', *Supramolecular Chemistry*, 32, 6 (2020), 373-382 [J.K. Molloy, A.M. Nonat, J.E. O'Brien, D.F. Brougham, T. Gunnlaugsson]

'Balancing connectivity with function in silver(i) networks of pyridyltriazole (tzpa) ligands results in the formation of a metallogel', *Dalton Transactions*, 49, 22 (2020), 7364-7372 [I.N. Hegarty, H.L. Dalton, A.D. Lynes, B. Haffner, M.E. Mobius, C.S. Hawes, T. Gunnlaugsson]

'Water-soluble amphiphilic ruthenium(ii) polypyridyl complexes as potential light-activated therapeutic agents', *Chemical Communications*, 56, 65 (2020), 9332-9335 [S. Estalayo-Adrián, S. Blasco, S.A. Bright, G.J. McManus, G. Orellana, D.C. Williams, J.M. Kelly, T. Gunnlaugsson]

'Synthesis, characterization, and biological profiling of ruthenium(II)-based 4-nitro- and 4-amino-1,8-naphthalimide conjugates', *Inorganic Chemistry*, 59, 15 (2020), 10874-10893 [R.B.P. Elmes, G.J. Ryan, M.L. Erby (...), S.J. Quinn, T. Gunnlaugsson]

'4-amino-1,8-naphthalimide based fluorescent photoinduced electron transfer (PET) pH sensors as liposomal cellular imaging agents: the effect of substituent patterns on PET directional quenching', *Frontiers of Chemical Science and Engineering*, 14, 1 (2020), 61-75 [M. Martínez-Calvo, S.A. Bright, E.B. Veale, A.F. Henwood, D.C. Williams, T. Gunnlaugsson]

'Formation of enantiomerically pure luminescent triple-stranded dimetallic europium helicates and their corresponding hierarchical self-assembly formation in protic polar solutions', *Inorganic Chemistry*, 59, 5 (2020), 2646-2650 [D.E. Barry, J.A. Kitchen, K. Pandurangan, A.J. Savyasachi, R.D. Peacock, T. Gunnlaugsson]

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

- 'Unexpected linkage isomerism in chiral tetranuclear bis-tridentate (1,2,3-triazol-4-yl)-picolinamide (tzpa) grids', *Chemical Communications*, 55, 64 (2019), 9523-9526 [I.N. Hegarty, H.L. Dalton, A.F. Henwood, C.S. Hawes, T. Gunnlaugsson]
- Kelly, John*, 'Caught in the loop: binding of the  $[\text{Ru}(\text{phen})_2(\text{dppz})]^{2+}$  light-switch compound to quadruplex DNA in solution informed by time-resolved infrared spectroscopy', *Chemistry - a European Journal*, 26 (2020), 17103-17109 [S.J. Devereux, F.E. Poynton, F.R. Baptista (...), J.M. Kelly, S.J. Quinn]
- 'A conceptual change in crystallisation mechanisms of oxide materials from solutions in closed systems', *Scientific Reports*, 10 (2020), 18414, [S.C. Padmanabhan, T.W. Collins, S.C. Pillai, D.E. McCormack, J.M. Kelly, J.D. Holmes, M.A. Morris]
- 'Understanding the factors controlling the photooxidation of natural DNA by enantiomerically pure intercalating ruthenium polypyridyl complexes through TA/TRIR studies with polydeoxynucleotides and mixed sequence oligodeoxynucleotides', *Chemical Science*, 11 (2020), 8600-8609 [P.M. Keane, K. O'Sullivan, F.E. Poynton (...), S.J. Quinn, J.M. Kelly]
- 'Water-soluble amphiphilic ruthenium(II) polypyridyl complexes as potential light-activated therapeutic agents', *Chemical Communications*, 56 (2020), 9332-9335 [S. Estalayo-Adrian, S. Blasco, S.A. Bright, G.J. McManus, G. Orellana, D.C. Williams, J.M. Kelly, T. Gunnlaugsson]
- Lyons, Michael*, 'One dimensional AuAg nanostructures as anodic catalysts in ethylene glycol oxidation', *Nanomaterials*, 10, 719 (2020), 15 [Y. Gun'ko, D. Kehoe, L. Romeral, R. Lundy, M.E.G. Lyons, M.A. Morris]
- 'Energy storage: an old dog with new tricks', *Current Opinion in Electrochemistry*, 21 (2020), A1-A5 [M.E.G. Lyons, K. Ozoemena]
- 'Transport and kinetics in electrocatalytic thin film biosensors: bounded diffusion with Michaelis Menten kinetics incorporating general inhibition effects', *International Journal of Electrochemical Science*, 15 (2020), 6060-6090 [M.E.G. Lyons]
- 'Electrochemistry: a grand old lady with a distinguished past and an exciting future', *Journal of Solid State Electrochemistry*, 24 (2020), 2131-2132 [M.E.G. Lyons]
- 'Understanding the kinetics of catalysed reactions in microheterogeneous thin film electrodes', *Journal of Electroanalytical Chemistry*, 872 (2020), 114278 [M.E.G. Lyons]
- 'Transport and kinetics in electrocatalytic thin film biosensors: bounded diffusion with non Michaelis Menten reaction kinetics', *Journal of Solid State Electrochemistry*, 24 (2020), 2751-2761 [M.E.G. Lyons]
- 'A kinetic model for amperometric immobilised enzymes at planar, cylindrical and spherical electrodes: the Akbar-Ganji method', *Journal of Electroanalytical Chemistry*, 880 (2021), 114921 [L. Rajendran, B. Manimegalai, M.E.G. Lyons]
- McDonald, Aidan*, 'High-valent  $d^7 \text{Ni}^{\text{III}}$  versus  $d^8 \text{Cu}^{\text{III}}$  oxidants in PCET', *Inorganic Chemistry* (2019), <http://hdl.handle.net/2262/93853> [D. Unjaroen, R. Gericke, M. Lovisari (...), E.R. Farquhar, A.R. McDonald]
- 'Hydrogen atom transfer oxidation by a gold-hydroxide complex', *Inorganic Chemistry* (2020), <http://hdl.handle.net/2262/93854> [M. Lovisari, A.R. McDonald]
- 'Phenol oxidation by a nickel(III)-fluoride complex: exploring the influence of the proton accepting ligand in PCET oxidation', *Chemistry - a European Journal* (2020), <http://hdl.handle.net/2262/93856> [P. Mondal, A.R. McDonald]
- 'Oxo-free hydrocarbon oxidation by an iron(III)-isoporphyrin complex', *Inorganic Chemistry* (2020), <http://hdl.handle.net/2262/93852> [R. Gericke, L.M. Doyle, E.R. Farquhar, A.R. McDonald]
- 'Fast hydrocarbon oxidation by a high-valent nickel-fluoride complex', *Angewandte Chemie International Edition* (2020), <http://hdl.handle.net/2262/93855> [P. Mondal, M. Lovisari, B. Twamley, A.R. McDonald]

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

- McGouran, Joanna, 'Probing enzymatic activity - a radical approach', *Chemical Sciences*, 11 (2020), 2967-2972 [N.C. Taylor, G. Hessman, H.B. Kramer, J.F. McGouran]
- Morris, Michael, 'Optimization and control of large block copolymer self-assembly via precision solvent vapor annealing', *Macromolecules* (2021), <http://hdl.handle.net/2262/94809> [A. Selkirk, N. Prochukhan, R. Lundy (...), M. Morris, P. Mokarian-Tabari]
- Nicolosi, Valeria, 'Quantifying the trade-off between absolute capacity and rate performance in battery electrodes', *Advanced Energy Materials*, 9, 1901359 (2019), 1-10 [S-H. Park, R. Tian, J. Coelho, V. Nicolosi, J.N. Coleman]
- 'Liquid phase exfoliation of MoO<sub>2</sub> nanosheets for lithium ion battery applications', *Nanoscale Advances*, 1, 4 (2019), 1560-1570 [J.B. Boland, A. Harvey, R. Tian (...), V. Nicolosi *et al.*]
- 'Self-assembly of atomically thin chiral copper heterostructures templated by black phosphorus', *Advanced Functional Materials*, 29, 37 (2019), <http://hdl.handle.net/2262/91535> [H.C. Nerl, A. Pokle, L. Jones (...), C.S. Cucinotta, V. Nicolosi]
- 'The rationale and emergence of electroconductive biomaterial scaffolds in cardiac tissue engineering', *APL Bioeng*, 3, 4 (2019), 041501 [M. Solazzo, F.J. O'Brien, V. Nicolosi, M.G. Monaghan]
- 'Nano-particle mediated M2 macrophage polarization enhances bone formation and MSC osteogenesis in an IL-10 dependent manner', *Biomaterials*, 239 (2020), 119833, [O.R. Mahon, D.C. Brow, T. Gonzalez-Fernandez (...), V. Nicolosi *et al.*]
- 'Using chronoamperometry to rapidly measure and quantitatively analyse rate-performance in battery electrodes', *Journal of Power Sources*, 468, 228220 (2020), <http://hdl.handle.net/2262/93610> [R. Tian, P.J. King, J. Coelho (...), V. Nicolosi *et al.*]
- 'Quantifying the effect of electronic conductivity on the rate performance of nanocomposite battery electrodes', *ACS Applied Energy Materials*, 3, 3 (2020), 2966-2974 [R. Tian, N. Alcalá, S.J.K. O'Neill (...), V. Nicolosi *et al.*]
- 'Production of quasi-2d platelets of non-layered iron pyrite (FeS<sub>2</sub>) by liquid-phase exfoliation for high performance battery electrodes', *ACS Nano* (2020), <http://hdl.handle.net/2262/93605> [H. Kaur, R. Tian, A. Roy (...), V. Nicolosi, J.N. Coleman]
- 'Quantifying the dependence of battery rate performance on electrode thickness', *ACS Applied Energy Materials*, 3, 10 (2020), 10154-10163 [D.V. Horvath, J. Coelho, R. Tian, V. Nicolosi, J.N. Coleman]
- 'Extra lithium-ion storage capacity enabled by liquid-phase exfoliated indium selenide nanosheets conductive network', *Energy and Environmental Science*, 13, 7 (2020), 2124-2133 [C.J. Zhang, M. Liang, S-H. Park (...), J.N. Coleman, V. Nicolosi]
- 'Liquid exfoliated SnP<sub>3</sub> nanosheets for very high areal capacity lithium-ion batteries', *Advanced Energy Materials* (2021), <http://hdl.handle.net/2262/95214> [R. Tian, A. Griffin, M. McCrystall (...), V. Nicolosi *et al.*]
- 'Investigation of process by-products during the selective laser melting of Ti<sub>6</sub>Al<sub>4</sub>V powder', *Additive Manufacturing*, 36, 101514 (2020), <http://hdl.handle.net/2262/94557> [S. Keaveney, A. Shmeliov, V. Nicolosi, D.P. Dowling]
- 'Layered double hydroxide as a potent non-viral vector for nucleic acid delivery using gene-activated scaffolds for tissue regeneration applications', *Pharmaceutics*, 12, 12 (2020), 1-24 [L.S. Costard, D.C. Kelly, R.N. Power (...), V. Nicolosi *et al.*]
- 'Improving stability of organometallic-halide perovskite solar cells using exfoliation two-dimensional molybdenum chalcogenides', *NPJ 2D Materials and Applications*, 4, 1 (2020), <http://hdl.handle.net/2262/94555> [M. Liang, A. Ali, A. Belaidi (...), F. El-Mellouhi, V. Nicolosi]
- '3D MXene architectures for efficient energy storage and conversion', *Advanced Functional Materials*, 30, 47 (2020), <http://dx.doi.org/10.1002/adfm.202000842> [K. Li, M. Liang, H. Wang (...), V. Nicolosi, Y. Xu]

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

- 'All-pseudocapacitive asymmetric MXene-carbon-conducting polymer supercapacitors', *Nano Energy*, 75, 104971 (2020), <http://dx.doi.org/10.1016/j.nanoen.2020.104971> [K. Li, X. Wang, X. Wang, M. Liang, V. Nicolosi, Y. Xu, Y. Gogotsi]
- 'An outlook on printed microsupercapacitors: technology status, remaining challenges, and opportunities', *Current Opinion in Electrochemistry*, 21 (2020), 69-75 [J. Coelho, M.P. Kremer, S. Pinilla, V. Nicolosi]
- 'Two-photon absorption in monolayer MXenes', *Advanced Optical Materials*, 8, 9 (2020), <http://hdl.handle.net/2262/95624> [G. Wang, D. Bennett, C. Zhang (...), V. Nicolosi, W.J. Blau]
- 'Mechanism of stress relaxation and phase transformation in additively manufactured Ti<sub>6</sub>Al<sub>4</sub>V via in-situ high temperature XRD and TEM analyses', *Acta Materialia*, 188 (2020), 720-732 [F.R. Kaschel, R.K. Vijayaraghavan, A. Shmeliov (...), V. Nicolosi, M. Celikin]
- '0D-1D hybrid silicon nanocomposite as lithium-ion batteries anodes', *Nanomaterials*, 10, 3 (2020), <http://hdl.handle.net/2262/94554> [S. Pinilla, S-H. Park, K. Fontanez, F. Márquez, V. Nicolosi, C. Morant]
- 'Advanced materials of printed wearables for physiological parameter monitoring', *Materials Today*, 32 (2020), 147-177 [S.P. Sreenilayam, I.U. Ahad, V. Nicolosi, V. Acinas Garzon, D. Brabazon]
- 'Sonochemical edge functionalisation of molybdenum disulfide', *Nanoscale*, 11, 33 (2019), 15550-15560 [A. Amorim Graf, M.J. Large, S.P. Ogilvie (...), V. Nicolosi *et al.*]
- 'Multifunctional Ti<sub>3</sub>C<sub>2</sub>T<sub>x</sub>MXene composite hydrogels with strain sensitivity toward absorption-dominated electromagnetic-interference shielding', *ACS Nano* (2021), <http://dx.doi.org/10.1021/acsnano.0c08830> [Y. Zhu, J. Liu, T. Guo, J.J. Wang, X. Tang, V. Nicolosi]
- 'Mxene materials based printed flexible devices for healthcare, biomedical and energy storage applications', *Materials Today* (2021), <http://hdl.handle.net/2262/95607> [S.P. Sreenilayam, I. Ul Ahad, V. Nicolosi, D. Brabazon]
- 'Correction: Stamping of flexible, coplanar micro-supercapacitors using MXene inks (Advanced Functional Materials, (2018), 28, (1705506), 10.1002/adfm.201705506)', *Advanced Functional Materials*, 31, 3 (2021), <http://dx.doi.org/10.1002/adfm.202008795> [C. Zhang, M.P. Kremer, A. Seral-Ascaso (...), Y. Gogotsi, V. Nicolosi]
- 'Transition metal nitrides for electrochemical energy applications', *Chemical Society Reviews*, 50, 2 (2021), 1354-1390 [H. Wang, J. Li, K. Li (...), V. Nicolosi *et al.*]
- O'Donoghue, John**, 'Stories from the lab: development and feedback from an online education and public engagement activity with schools', *Journal of Chemical Education*, 97 (2020), 3271-3277 [J. O'Donoghue]
- Rozas, Isabel**, 'Dual-binding conjugates of diaromatic guanidines and porphyrins for recognition of G-quadruplexes', *Organic and Biomolecular Chemistry* (2020), <http://hdl.handle.net/2262/95406> [J. Grover, C. Trujillo, M. Saad (...), M.O. Senge, I. Rozas]
- Scanlan, Eoin**, 'A hydroxamic-acid-containing nucleoside inhibits DNA repair nuclease SNM1A', *Organic and Biomolecular Chemistry*, 17, 35 (2019), 8094-8105 [W. Doherty, E-M. Durr, H.T. Baddock (...), E.M. Scanlan, J.F. McGouran]
- 'Structures of lipoprotein signal peptidase II from *Staphylococcus aureus* complexed with antibiotics globomycin and myxovirescin', *Nature Communications*, 11, 1 (2020), 140 [S. Olatunji, X. Yu, J. Bailey (...), E.M. Scanlan *et al.*]
- 'Fluorescent supramolecular hierarchical self-assemblies from glycosylated 4-amino- and 4-bromo-1,8-naphthalimides', *Organic and Biomolecular Chemistry* (2020), 3475-3480 [E. Calatrava-Pérez, S. Acherman, L. Stricker (...), T. Gunnlaugsson, E.M. Scanlan]
- 'Bioinspired electro-permeable glycans on carbon: fouling control for sensing in complex matrices', *Carbon* (2020), 519-526 [J.A. Behan, J. Myles, A. Iannaci, E. Whelan, E.M. Scanlan, P.E. Colavita]

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

- 'A hydroxamic-acid-containing nucleoside inhibits DNA repair nuclease SNM1A', *Organic and Biomolecular Chemistry* (2019), 8094-8105 [W. Doherty, E.M. Dürr, H. Baddock (...), E. Scanlan, J. McGouran]
- 'Mycobacterial para-hydroxybenzoic acid-derivatives (pHBADs) and related structures induce macrophage innate memory', *ACS Chemical Biology*, 15, 9 (2020), 2415-2421 [M. Lundahl, D.M. Lynch, D. Barnes (...), E.C. Lavelle, E.M. Scanlan]
- 'Applications of thiol-ene chemistry for peptide science', *Frontiers in Chemistry*, 8, 583272 (2020), <http://dx.doi.org/10.3389/fchem.2020.583272> [M.D. Nolan, E.M. Scanlan]
- 'Thiyl radicals: versatile reactive intermediates for cyclization of unsaturated substrates', *Molecules*, 25, 13 (2020), <http://dx.doi.org/10.3390/molecules25133094> [D.M. Lynch, E.M. Scanlan]
- '5-exo versus 6-endo thiyl-radical cyclizations in organic synthesis', *Helvetica Chimica Acta*, 102, 11 (2019), <http://dx.doi.org/10.1002/hlca.201900162> [R. McCourt, E.M. Scanlan]
- Schmitt, Wolfgang**, 'A highly augmented, (12,3)-connected Zr-MOF containing hydrated coordination sites for the catalytic transformation of gaseous CO<sub>2</sub> to cyclic carbonates', *Dalton Transactions* (2019), <http://dx.doi.org/10.1039/c9dt02117e> [G. Jin, D.o Sensharma, N. Zhu, S. Vaesen, W. Schmitt]
- 'Flexible metal-organic frameworks for light-switchable CO<sub>2</sub> sorption using an auxiliary ligand strategy', *Inorganic Chemistry*, 58, 15 (2019), 9766-9772 [D. Sensharma, N. Zhu, S. Tandon, S. Vaesen, G.W. Watson, W. Schmitt]
- 'Universal scaling relations for the rational design of molecular water oxidation catalysts with near-zero overpotential', *Nature Communications* (2019), <http://hdl.handle.net/2262/95491> [M. Craig, G.O. Coulter, E.T. Dolan, J. Soriano-López, E. Mates-Torres, W. Schmitt, M. García-Melchor]
- "Turn-on" fluorescence sensing of volatile organic compounds using a 4-amino-1,8-naphthalimide Träger's base functionalised triazine organic polymer', *Chemical Communications*, 55, 81 (2019), 12140-12143 [Shanmugaraju, S., Umadevi, D., González-Barcia, L.M., Delente, J.M., Byrne, K., Schmitt, W., Watson, G.W., Gunnaugsson, T.]
- 'Fluorescent supramolecular hierarchical self-assemblies from glycosylated 4-amino- and 4-bromo-1,8-naphthalimides', *Organic and Biomolecular Chemistry* (2020), 3475-3480 [E. Calatrava-Pérez, S. Acherman, L. Stricker (...), W. Schmitt *et al.*]
- 'Node-dependent photoinduced electron transfer in third-generation 2D MOFs containing Earth-abundant metal ions', *Inorganic Chemistry*, 59, 23 (2020), 46406-46415 [F.W. Steuber, J.J. Gough, E. Whelan, L. Burtnyak, A.L. Bradley, W. Schmitt]
- 'Altering the nature of coupling by changing the oxidation state in a {Mn<sub>6</sub>} cage', *Dalton Transactions*, 49 (2020), 8086-8095 [S. Tandon, M. Venkatesan, W. Schmitt, G.W. Watson]
- 'Hyper-crosslinked 4-amino-1,8-naphthalimide Träger's base containing pyridinium covalent organic polymer (COP) for discriminative fluorescent sensing of chemical explosives', *Supramolecular Chemistry*, 32, 9 (2020), 508-517 [J.M. Delente, D. Umadevi, K. Byrne, W. Schmitt, G.W. Watson, T. Gunnaugsson, S. Shanmugaraju]
- 'A cubane-type manganese complex with H<sub>2</sub>O oxidation capabilities', *Sustainable Energy and Fuels*, 4, 9 (2020), 4464-4468 [S. Tandon, J. Soriano-López, A.C. Kathalikkattil (...), G.W. Watson, W. Schmitt]
- 'Mixed donor, phenanthroline photoactive MOFs with favourable CO<sub>2</sub> selectivity', *Chemical Communications*, 56, 87 (2020), 13377-13380 [C.J. Setter, M.B. Price, L. Conte (...), W. Schmitt *et al.*]
- 'Bioinspired water oxidation using a Mn-Oxo cluster stabilized by non-innocent organic tyrosine Y161 and plastoquinone mimics', *ACS Sustainable Chemistry and Engineering*, 8, 36 (2020), 13648-13659 [J. Soriano-López, R. Elliott, A.C. Kathalikkattil, A.M. Ako, M. Mulahtmetović, M. Venkatesan, W. Schmitt]

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

- Senge, Mathias, 'Dual-binding conjugates of diaromatic guanidines and porphyrins for recognition of G-quadruplexes', *Organic and Biomolecular Chemistry* (2020), <http://hdl.handle.net/2262/95406> [J. Grover, C. Trujillo, M. Saad (...), M.O. Senge, I. Rozas]
- 'Investigation of the reactivity of 1-azido-3-iodobicyclo[1.1.1]pentane under 'click' reaction conditions', *Journal of Organic Chemistry*, 86, 1 (2021), 1238-1245 [E. Sitte, B. Twamley, N. Grover, M.O. Senge]
- 'Elucidating atropisomerism in nonplanar porphyrins with tunable supramolecular complexes', *Chemistry - a European Journal*, 27, 1 (2021), 331-339 [K. Norvaiša, J.E. O'Brien, D.J. Gibbons, M.O. Senge]
- 'Nucleophilic aromatic substitution ( $S_NAr$ ) and related reactions of porphyrinoids: mechanistic and regiochemical aspects', *European Journal of Organic Chemistry*, 2021, 1 (2021), 7-42 [H.C. Sample, M.O. Senge]
- 'The shape of porphyrins', *Coordination Chemistry Reviews*, 431, 213760 (2021), <http://hdl.handle.net/2262/95310> [C.J. Kingsbury, M.O. Senge]
- 'Synthesis, characterization, and crystal structure analysis of Zn(II) and Cd(II) coordination compounds containing 4-((pyridin-4-ylmethylene)amino)phenol Schiff-base ligand', *Journal of Molecular Structure*, 1221, 128846 (2020), <http://hdl.handle.net/2262/95403> [T. Hajjashrafi, S. Salehi, M. Kubicki, K.J. Flanagan, M.O. Senge]
- 'Synthetic advances in the C-H activation of rigid scaffold molecules', *Synthesis (Germany)*, 52, 22 (2020), 3295-3325 [N. Grover, M.O. Senge]
- 'Graphene oxide functionalized with cationic porphyrins as materials for the photodegradation of rhodamine B', *Journal of Physical Chemistry C*, 124, 29 (2020), 15769-15780 [D. Larowska, J.M. O'Brien, M.O. Senge, G. Burdzinski, B. Marciniak, A. Lewandowska-Andralojc]
- 'Synthesis and spectral properties of gem-dimethyl chlorin photosensitizers', *ChemPhotoChem*, 4, 8 (2020), 601-611 [Z. Melissari, H.C. Sample, B. Twamley, R.M. Williams, M.O. Senge]
- 'Influence of meso-linker attachment on the formation of core- $\pi$  interactions in urea-functionalized porphyrins', *Zeitschrift für Naturforschung-Section B Journal of Chemical Sciences*, 75, 8 (2020), 755-764 [K.J. Flanagan, A.A. Ryan, B. Twamley, M.O. Senge]
- 'Synthesis and structure of meso-substituted dibenzihomoporphyrins', *European Journal of Organic Chemistry*, 2020, 41 (2020), 6489-6496 [N. Grover, G. Emandi, B. Twamley, B. Khurana, V. Sol, M.O. Senge]
- 'Ligand-targeted delivery of photosensitizers for cancer treatment', *Molecules*, 25, 22 (2020), <http://hdl.handle.net/2262/95322> [P.P. Gierlich, A.I. Mata, C. Donohoe, R.M.M. Brito, M.O. Senge, L.C. Gomes-da-Silva]
- 'Porphyrins as colorimetric and photometric biosensors in modern bioanalytical systems', *ChemBioChem*, 21, 13 (2020), 1779 [K. Norvaiša, M. Kielmann, M.O. Senge]
- 'Exploring the relationship between structure and activity in BODIPYs designed for antimicrobial phototherapy', *Organic and Biomolecular Chemistry*, 18, 13 (2020), 2416-2431 [B.F. Hohfeld, B. Gitter, K.J. Flanagan, C.J. Kingsbury, N. Kulak, M.O. Senge, A. Wiehe]
- 'Towards triptycene functionalization and triptycene-linked porphyrin arrays', *Beilstein Journal of Organic Chemistry*, 16 (2020), 763-777 [G.M. Locke, K.J. Flanagan, M.O. Senge]
- 'Short-chained anthracene strapped porphyrins and their endoperoxides', *European Journal of Organic Chemistry*, 2020, 18 (2020), 2735-2744 [S. Callaghan, K.J. Flanagan, J.E. O'Brien, M.O. Senge]
- 'Targeted synthesis of regioisomerically pure dodecasubstituted type i porphyrins through the exploitation of peri-interactions', *Journal of Organic Chemistry*, 85, 11 (2020), 7603-7610 [M. Kielmann, K.J. Flanagan, M.O. Senge]
- 'Weak interactions and conformational changes in core-protonated a2- and ax-type porphyrin dications', *Molecules*, 25, 14 (2020), <http://hdl.handle.net/2262/95402> [C.J. Kingsbury, K.J. Flanagan, H-G. Eckhardt, M. Kielmann, M.O. Senge]



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

- 'Porphyrins as colorimetric and photometric biosensors in modern bioanalytical systems', *ChemBioChem*, 21, 13 (2020), 1793-1807 [K. Norvaiša, M. Kielmann, M.O. Senge]
- 'Structural, photophysical, and photobiological studies on BODIPY-anthracene dyads', *ChemPhotoChem* (2020), <http://dx.doi.org/10.1002/cptc.202000191> [S. Callaghan, B.E. Vindstad, K.J. Flanagan, T.B. Melø, M. Lindgren, K. Grenstad, O.A. Gederaas, M.O. Senge]
- 'Synthesis, crystal structure, and ADME prediction studies of novel imidazopyrimidines as antibacterial and cytotoxic agents', *Archiv der Pharmazie*, 353, 3 (2020), <http://hdl.handle.net/2262/95320> [H.T. Abdel-Mohsen, A. Abood, K.J. Flanagan, A. Meindl, M.O. Senge, H.I. El Diwani]
- 'Bridging and conformational control of porphyrin units through non-traditional rigid scaffolds', *Chemistry - a European Journal*, 26, 11 (2020), 2405-2416 [N. Grover, G.M. Locke, K.J. Flanagan, M.H.R. Beh, A. Thompson, M.O. Senge]
- 'Targeting receptor tyrosine kinase VEGFR-2 in hepatocellular cancer: rational design, synthesis and biological evaluation of 1,2-disubstituted benzimidazoles', *Molecules*, 25, 4 (2020), <http://hdl.handle.net/2262/95325> [H.T. Abdel-Mohsen, M.A. Abdullaziz, A.M. El Kerdawy (...), H.I. El Diwani, M.O. Senge]
- 'Crystal structures of 2,3,7,8,12,13,17,18-octabromo-5,10,15,20-tetrakis(pentafluorophenyl) porphyrin as the chloroform monosolvate and tetrahydrofuran monosolvate', *Acta Crystallographica Section E: Crystallographic Communications*, 76 (2020), 214-220 [C.J. Kingsbury, K.J. Flanagan, M. Kielmann, B. Twamley, M.O. Senge]
- 'An insight into non-covalent interactions on the bicyclo[1.1.1]pentane scaffold', *European Journal of Organic Chemistry* (2020), <http://dx.doi.org/10.1002/ejoc.202001564> [N. Grover, K.J. Flanagan, C. Trujillo, C.J. Kingsbury, M.O. Senge]
- 'The red color of life transformed - synthetic advances and emerging applications of protoporphyrin ix in chemical biology', *European Journal of Organic Chemistry* (2020), <http://hdl.handle.net/2262/95396> [E. Sitte, M.O. Senge]
- Southern, John**, 'The eukaryotic tRNA-guanine transglycosylase enzyme inserts queuine into tRNA via a sequential bi-bi mechanism', *Chemical Communications*, 56 (2020), 3915-3918 [M.A. Alqasem, C. Fergus, J.M. Southern, S.J. Connon, V.P. Kelly]
- Watson, Graeme**, 'Altering the nature of coupling by changing the oxidation state in a {Mn<sub>6</sub>} cage', *Dalton Transactions*, 49 (2020), 8086-8095 [S. Tandon, M. Venkatesan, W. Schmitt, G.W. Watson]
- 'Computationally driven discovery of layered quinary oxychalcogenides: potential p-type transparent conductors?', *Matter*, 3, 3 (2020), 759-781 [B.A.D. Williamson, G.J. Limburn, G.W. Watson, G. Hyett, D.O. Scanlon]
- 'Hyper-crosslinked 4-amino-1,8-naphthalimide Tröger's base containing pyridinium covalent organic polymer (COP) for discriminative fluorescent sensing of chemical explosives', *Supramolecular Chemistry*, 32, 9 (2020), 508-517 [J.M. Delente, D. Umadevi, K. Byrne, W. Schmitt, G.W. Watson, T. Gunnlaugsson, S. Shanmugaraju]
- 'A cubane-type manganese complex with H<sub>2</sub>O oxidation capabilities', *Sustainable Energy and Fuels*, 4, 9 (2020), 4464-4468 [S. Tandon, J. Soriano-López, A.C. Kathalikkattil (...), G.W. Watson, W. Schmitt]
- Zhu, Nian-Yong**, 'A highly augmented, (12,3)-connected Zr-MOF containing hydrated coordination sites for the catalytic transformation of gaseous CO<sub>2</sub> to cyclic carbonates', *Dalton Transactions* (2019), <http://dx.doi.org/10.1039/c9dt02117e> [G. Jin, D. Sensharma, N. Zhu, S. Vaesen, W. Schmitt]

**Recent publications – Faculty of Science, Technology, Engineering and Mathematics**  
**School of Computer Science and Statistics**

COMPUTER SCIENCE

- Arnedillo-Sanchez, Inmaculada**, 'Designing digital activities to screen locomotor skills in developing children', *Addressing global challenges and quality education. EC-TEL 2020. Lecture notes in computer science*, vol 12315, eds C. Alario-Hoyos, M. Rodríguez-Triana, M. Scheffel, I. Arnedillo-Sánchez, S. Dennerlein, Springer, Cham (2020), 416-420 [B. Bossavit, I. Arnedillo-Sánchez]
- 'Addressing global challenges and quality education. 15th European conference on technology enhanced learning, EC-TEL 2020', *Lecture notes in computer science*, September 14-18, Heidelberg, Germany, eds C. Alario-Hoyos, M. Jesús Rodríguez-Triana, M. Scheffel, I. Arnedillo-Sánchez, S. Maximilian Dennerlein, Springer, 123152020, 1-486
- 'Model-driven development of augmented reality-based editors for domain specific languages', *Interaction Design and Architecture(s) Journal - IxDandA*, 45 (2020), 246-263 [I. Ruiz-Rube, R. Baena Pérez, J. Miguel Mota, I. Arnedillo-Sánchez]
- 'MISTRuST: accoMmodatlon Short Term Rental Scanning Tool', *16th international conference on web information systems and technologies*, eds M. Marchiori, F. Domínguez Mayo, J. Filipes, WEBIST (2020), 170-177 [I. Ruiz-Rube, I. Arnedillo-Sánchez, A. Balderas]
- Brady, Michael**, 'Tabloidization versus credibility: short term gain for long term pain', *CHI-the ACM conference on human factors in computing systems*, Honolulu, Hawaii, USA, (2020), <http://hdl.handle.net/2262/92759> [B. Spillane, I. Hoe, M. Brady, V. Wade, S. Lawless]
- Campbell, Nick**, 'Analysing patterns of right brain-hemisphere activity prior to speech articulation for identification of system-directed speech', *Speech Communication*, 18, 25 (2019), 1, [F. Haider, H. Akira, C. Vogel, N. Campbell, S. Luz]
- Conlan, Owen**, 'Digital narrative conventions in heritage trail mobile apps', *New Review of Hypermedia and Multimedia*, 25, 1-2 (2019), 1-30 [N. Basaraba, O. Conlan, J. Edmond, P. Arnds]
- 'Explaining disclosure decisions over personal data', *CEUR workshop proceedings*, 2456 (2019), 41-44 [R. Gachpaz Hamed, H.J. Pandit, D. O'Sullivan, O. Conlan]
- 'A user modeling shared challenge proposal', *Lecture Notes in Computer Science (including subseries lecture notes in artificial intelligence and lecture notes in bioinformatics)*, 11696 LNCS (2019), 171-177 [O. Conlan, K. Fraser, L. Kelly, B. Yousuf]
- 'Towards a multi-modal methodology for user-centred evaluation of adaptive systems', *ACM UMAP 2019-adjunct publication of the 27th conference on user modeling, adaptation and personalization* (2019), 219-220 [A. Nussbaumer, C.M. Steiner, O. Conlan]
- 'Automatic transformation of a video using multimodal information for an engaging exploration experience', *Applied Sciences*, 10, 9 (2020), 3056 [F.A. Salim, F. Haider, S. Luz, O. Conlan]
- 'Generation and evaluation of personalised push-notifications', *Adjunct publication of the 27th conference on user modeling, adaptation and personalization, moving boundaries in translation studies* (2019), 223-224 [K. Fraser, B. Yousuf, O. Conlan]
- 'A user modeling shared challenge proposal', *International conference of the cross-language evaluation forum for European languages, moving boundaries in translation studies* (2019), 171-177 [O. Conlan, K. Fraser, L. Kelly, B. Yousuf]
- 'A reinforcement learning and synthetic data approach to mobile notification management', *Proceedings of the 17th international conference on advances in mobile computing and multimedia, moving boundaries in translation studies* (2019), 155-164 [R. Sutton, K. Fraser, O. Conlan]

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

**Debruyne, Christophe**, 'Facilitating data curation: a solution developed in the toxicology domain', *IEEE 14th international conference on semantic computing, ICSC 2020*, San Diego, CA, USA, (2020), 315-320 [C. Debruyne, J. Riggio, E. Gustafson, D. O'Sullivan, M. Vinken, T. Vanhaecke, O. De Troyer]

'Just-in-time' generation of datasets by considering structured representations of given consent for GDPR compliance', *Knowledge and Information Systems* (2020), 3615-3640 [C. Debruyne, H.J. Pandit, D. Lewis, D. O'Sullivan]

**Dingliana, John**, 'Transfer function refinement for exploring volume data', *Contemporary topics in computer graphics and games : selected papers from the Eurasia graphics conference series*, eds V. Isler, H. Gurcay, H. Kemal Suher, G. Catak, Peter Lang (2020), 359-380 [S. Luo, J. Dingliana]

'Enlighten MeMe: importance of brightness and shadow for character emotion and appeal', *ACM Transactions on Graphics*, 39, 3 (2020), <http://dx.doi.org/10.1145/3383195> [P. Wisessing, K. Zibrek, D.W. Cunningham, J. Dingliana, R. McDonnell]

'Colored cast shadows for improved visibility in optical see-through AR', *SIGGRAPH Asia 2020 Posters*. SA (2020), <http://dx.doi.org/10.1145/3415264.3425442> [C.W. Ooi, J. Dingliana]

**Doherty, Gavin**, 'Understanding client support strategies to improve clinical outcomes in an online mental health intervention', *ACM conference on human factors in computing systems (CHI 2020)* (2020), <https://dl.acm.org/doi/abs/10.1145/3313831.3376341> [P. Chikersal, D. Belgrave, G. Doherty, A. Enrique, J.E. Palacios, D. Richards, A. Thieme]

'Security and privacy of mHealth applications: a scoping review', *IEEE Access*, 8 (2020), <https://doi.org/10.1109/ACCESS.2020.2999934> [L. Nurgalieva, D. O'Callaghan, G. Doherty]

'Technology acceptance in mHealth: a scoping review of definitions, models and measurement', *Journal of Medical Internet Research*, 22, 7 (2020), <https://doi.org/10.2196/17256> [C. Nadal, C.Sas, G. Doherty]

'Mental wellbeing: future agenda drawing from design, HCI and big data', *Companion publication of the 2020 ACM designing interactive systems conference (DIS' 20 Companion)*, Netherlands (2020), <https://doi.org/10.1145/3393914.3395920> [C. Sas, K. Höök, G. Doherty, P. Sanchez, T. Leufkens, J. Westerink]

'A machine learning approach to understanding patterns of engagement with internet-delivered mental health interventions', *JAMA Network Open*, 3, 7 (2020), <http://dx.doi.org/10.1001/jamanetworkopen.2020.1079> [I. Chien, A. Enrique, J. Palacios (...), G. Doherty, D. Belgrave]

'The design of ecological momentary assessment technologies', *Interacting with Computers*, 32, 3 (2020), 257-278 [K. Doherty, A. Balaskas, G. Doherty]

'Machine learning in mental health: a systematic review of the HCI literature to support the development of effective and implementable ML systems', *ACM Transactions on Computer-Human Interaction*, 27, 5 (2020), 1-53 [A. Thieme, D. Belgrave, G. Doherty]

'Integration of a smartwatch within an internet-delivered intervention for depression: protocol for a feasibility randomized controlled trial on acceptance', *Contemporary Clinical Trials*, 103, April (2021), <https://doi.org/10.1016/j.cct.2021.106323> [C. Nadal, C. Earley, A. Enrique, N. Viganò, C. Sas, D. Richards, G. Doherty]

**Donnelly, Alexis**, 'Facing the urgency of therapies for progressive MS - a progressive MS alliance proposal', *Nature Reviews Neurology*, 17, 3 (2021), 185-192 to [D. Fernando, A. Donnelly, R. Hohlfeld, C. Lubetzki, S. Kohlihaas, L. Leocani, O. Ciccarelli]

**Dusparic, Ivana**, 'Shared autonomous mobility-on-demand: learning-based approach and its performance in the presence of traffic congestion', *IEEE Intelligent Transportation Systems Magazine* (2020), <http://hdl.handle.net/2262/94312> [M. Gueriau, F. Cugurullo, R.A. Acheampong, I. Dusparic]

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

- 'The transition to autonomous cars, the redesign of cities and the future of urban sustainability', *Urban Geography* (2020), <https://doi.org/10.1080/02723638.2020.1746096> [F. Cugurullo, R. Acheampong, M. Gueriau, I. Dusparic]
- Haahr, Mads**, 'Procedural puzzle generation: a survey', *IEEE Transactions on Games*, 12, 1 (2020), 21-40 [B. De Kegel, M. Haahr]
- 'Learning binary search trees through serious games', *First international computer programming education conference (ICPEC 2020)*, eds R. Queiros, F. Portela, M. Pinto, A. Simones, ESMAD, Vila do Conde, Portugal, ACM (2020), 22:1-22:7 [A. Rojas-Salazar, P. Ramirez-Alfaro, M. Haahr]
- Hederman, Lucy**, 'Understanding user engagement in information and communications technology for development: an exploratory study', *HCI international 2020 - late breaking papers: user experience design and case studies. HCII 2020. Lecture Notes in Computer Science*, vol 12423, eds C. Stephanidis, A. Marcus, E. Rosenzweig, P.L.P. Rau, A. Moallem, M. Rauterberg, Springer (2020), [https://doi.org/10.1007/978-3-030-60114-0\\_46](https://doi.org/10.1007/978-3-030-60114-0_46) [T. Ikwunne, L. Hederman, P.J. Wall]
- Huggard, Meriel**, 'Reconfigurable context reactive blended networking and communication courses', *ACM SIGCOMMEDU Workshop* (2020), 1-4 [C. McGoldrick, M. Huggard]
- Iosifidis, Georgios**, 'Elastic FemtoCaching: scale, cache, and route', *IEEE Transactions on Wireless Communications* (2021), <http://dx.doi.org/10.1109/TWC.2021.3056503> [J. Kwak, G. Paschos, G. Iosifidis]
- 'Cooperative edge computing of data analytics for the internet of things', *IEEE Transactions on Cognitive Communications and Networking*, 6, 4 (2020), 1166-1179 [A. Galanopoulos, T. Salonidis, G. Iosifidis]
- 'Cache optimization models and algorithms', *Foundations and Trends in Communications and Information Theory*, 16, 3-4 (2020), 156-345 [G. Paschos, G. Iosifidis, G. Caire]
- 'Collaboration of network operators and cloud providers in software-controlled networks', *IEEE Network*, 34, 5 (2020), 98-105 [J. Kwak, L.B. Le, G. Iosifidis, K. Lee, D.I. Kim]
- 'Network interventions for managing the covid-19 pandemic and sustaining economy', *Proceedings of the National Academy of Sciences of the United States of America*, 117, 48 (2020), 30285-30294 [A. Nishi, G. Dewey, A. Endo (...), G. Iosifidis et al.]
- 'Multicast optimization for video delivery in multi-RAT networks', *IEEE Transactions on Communications*, 68, 8 (2020), 4973-4985 [P. Basaras, G. Iosifidis, S. Kucera, H. Claussen]
- 'On the efficiency of sharing economy networks', *IEEE Transactions on Network Science and Engineering*, 7, 3 (2020), 1094-1110 [L. Georgiadis, G. Iosifidis, L. Tassiulas]
- 'Pricing for collaboration between online apps and offline venues', *IEEE Transactions on Mobile Computing*, 19, 6 (2020), 1420-1433 [H. Yu, G. Iosifidis, B. Shou, J. Huang]
- 'Online convex optimization for caching networks', *IEEE/ACM Transactions on Networking*, 28, 2 (2020), 625-638 [G.S. Paschos, A. Destounis, G. Iosifidis]
- 'Optimal deployment framework for multi-cloud virtualized radio access networks', *IEEE Transactions on Wireless Communications* (2020), <http://dx.doi.org/10.1109/TWC.2020.3040791> [F.W. Murti, J.A. Ayala-Romero, A. Garcia-Saavedra, X. Costa-Perez, G. Iosifidis]
- 'Assortative mixing and resource inequality enhance collective welfare in sharing networks', *Proceedings of the National Academy of Sciences of the United States of America*, 116, 45 (2019), 22442-22444 [H. Shirado, G. Iosifidis, N.A. Christakis]
- 'Joint deployment and pricing of next-generation WiFi networks', *IEEE Transactions on Communications*, 67, 9 (2019), 6193-6205 [K. Poularakis, G. Iosifidis, L. Tassiulas]
- Koutsombogera, Maria**, 'Acoustic features in dialogue dominate accurate personality trait classification', *2020 IEEE International Conference on Human-Machine Systems (ICHMS)*, Rome, Italy (2020), 1-3 [M. Koutsombogera, P. Sarthy, C. Vogel]

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

- 'A heuristic method for automatic gaze detection in constrained multi-modal dialogue corpora', *11th IEEE international conference on cognitive infocommunications*, Mariehamn, Finland, IEEE (2020), 55-60 [L. McLaren, M. Koutsombogera, C. Vogel]
- 'Gaze, dominance and dialogue role in the MULTISIMO corpus', *11th IEEE international conference on cognitive infocommunications*, Mariehamn, Finland (2020), 83-88 [L. McLaren, M. Koutsombogera, C. Vogel]
- 'Aspects of methodology for interaction analysis', *11th IEEE international conference on cognitive infocommunications*, Mariehamn, Finland, IEEE (2020), 141-146 [C. Vogel, M. Koutsombogera, A. Esposito]
- 'Synchrony in human-bonobo dialog', *11th IEEE international conference on cognitive infocommunications*, Mariehamn, Finland, IEEE (2020), 399-404 [C. Vogel, M. Koutsombogera, J. Reverdy, A. Esposito]
- Lacey, Gerard**, 'Using artificial intelligence in infection prevention', *Current Treatment Options in Infectious Diseases* (2020), <https://doi.org/10.1007/s40506-020-00216-7> [F. Fitzpatrick, A. Doherty, G. Lacey]
- 'Recognising actions for instructional training using pose information: a comparative evaluation', *14th international joint conference on computer vision, imaging and computer graphics theory and applications*, Prague, Czech Republic (2019), <http://hdl.handle.net/2262/92985> [S. Bruton, G. Lacey]
- Leith, Douglas**, 'Coronavirus contact tracing', *ACM SIGCOMM Computer Communication Review*, 50, 4 (2020), 66-74 [D.J. Leith, S. Farrell]
- 'Quick and plenty: achieving low delay and high rate in 802.11ac edge networks', *Computer Networks*, 187 (2021), 107820 [H. Hassani, F. Gringoli, D.J. Leith]
- 'Measurement-based evaluation of Google/Apple exposure notification API for proximity detection in a light-rail tram', *PLoS ONE*, 15, 9 (2020), e0239943 [D.J. Leith, S. Farrell]
- Lewis, David**, "'Just-in-time' generation of datasets by considering structured representations of given consent for GDPR compliance", *Knowledge and Information Systems* (2020), 3615-3640 [C. Debruyne, H.J. Pandit, D. Lewis, D. O'Sullivan]
- 'A rights-based approach to trustworthy AI in social media', *Social Media + Society*, 6, 3 (2020), <http://hdl.handle.net/2262/95722> [D. Lewis, J. Moorkens]
- 'Global challenges in the standardization of ethics for trustworthy AI', *Journal of ICT Standardization*, 8, 2 (2020), 123-150 [D. Lewis, L. Hogan, D. Filip, P.J. Wall]
- Manzke, Michael**, 'An analysis of region clustered BVH volume rendering on GPU', *Computer Graphics Forum*, 38, 8 (2019), 13-21 [D. Ganter, M. Manzke]
- 'Synthesising light field volume visualisations using image warping in real-time', *Communications in computer and information science, VISIGRAPP 2019*, eds A. Cláudio A. *et al.*, Prague, Springer international publishing (2020), 30-47 [S. Martin, S. Bruton, D. Ganter, M. Manzke]
- 'Fast approximate light field volume rendering: using volume data to improve light field synthesis via convolutional neural networks', *Communications in computer and information science, VISIGRAPP 2019*, eds A. Cláudio A. *et al.*, Prague, Springer International Publishing (2020), 338-361 [S. Bruton, D. Ganter, M. Manzke]
- McDonnell, Rachel**, 'Perception of virtual characters', *SIGGRAPH Courses*, Los Angeles, ACM (2019), 21.1-21.17 [E. Zell, K. Zibrek, R. McDonnell]
- 'Enlighten MeMe: importance of brightness and shadow for character emotion and appeal', *ACM Transactions on Graphics*, 39, 3 (2020), <http://dx.doi.org/10.1145/3383195> [P. Wisessing, K. Zibrek, D.W. Cunningham, J. Dingliana, R. McDonnell]
- McGoldrick, Ciaran**, 'Reconfigurable context reactive blended networking and communication courses', *ACM SIGCOMMEDU workshop* (2020), 1-4 [C. McGoldrick, M. Huggard]

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

- Moreau, Erwan**, 'An evaluation method for diachronic word sense induction', *Findings of the association for computational linguistics: EMNLP 2020*, association for computational linguistics (2020), 3171-3180 [A. Alsulaimani, E. Moreau, C. Vogel]
- O'Dwyer, Neill**, 'Mixed reality and volumetric video in cultural heritage: expert opinions on augmented and virtual reality', *Human-Computer Interaction International*, Copenhagen, Denmark, Springer (2020), 195-214 [N. O'Dwyer, G.W.Young, N. Johnson, E. Zerman, A. Smolic]
- Digital scenography: 30 years of experimentation and innovation in performance and interactive media*, 1, UK, Bloomsbury (2021), 1-224 [N. O'Dwyer]
- O'Mahony, Donal**, 'A real-time transactive energy system for pervasive DERs', *IEEE transactive energy systems conference 2020 (TESC2020)*, Virtual (2020), 1-5 [R. Gupta, D. O'Mahony]
- O'Sullivan, Declan**, 'Facilitating data curation: a solution developed in the toxicology domain', *IEEE 14th international conference on semantic computing, ICSC 2020*, San Diego, CA, USA, (2020), 315-320 [C. Debruyne, J. Riggio, E. Gustafson, D. O'Sullivan, M. Vinken, T. Vanhaecke, O. De Troyer]
- 'Just-in-time' generation of datasets by considering structured representations of given consent for GDPR compliance', *Knowledge and Information Systems* (2020), 3615-3640 [C. Debruyne, H.J. Pandit, D. Lewis, D. O'Sullivan]
- 'Semantic schema mapping for interoperable data-exchange', *Fifteenth international workshop on ontology matching, ISWC* (2020), 1-11 [H.J. Pandit, D. Graux, F. Orlandi, A. Crotti Jr., D. O'Sullivan, D. Lewis]
- 'Visually exploring SPARQL endpoints with murmuration', *EKAW 2020* (2020), 1-5 [C. Debruyne, D. O'Sullivan]
- 'The semantic combining for exploration of environmental and disease data dashboard for clinician researchers', *VOILA at 19th International Semantic Web Conference (ISWC 2020)*, CEUR-WS (2020), 73-85 [A. Navarro-Gallinad, A. Meehan, D. O'Sullivan]
- 'Towards a vocabulary for mapping quality assessment', *The fifteenth international workshop on ontology matching collocated with the 19th International Semantic Web Conference ISWC-2020* (2020), 1-2 [A. Randles, A. Crotti Jr., D. O'Sullivan]
- 'A framework for assessing and refining the quality of R2RML mappings', *22nd international conference on Information Integration and Web-based Applications and Services (iiWAS2020)*, ACM (2020), 347-352 [A. Randles, A. Crotti Jr., D. O'Sullivan]
- 'Multi-class imbalance in text classification: a feature engineering approach to detect cyberbullying in Twitter', *Informatics*, 7, 4 (2020), 1-22 [B.A. Talpur, D. O'Sullivan]
- 'Cyberbullying severity detection: a machine learning approach', *ePLoS ONE* (2020), 1-19 [B.A. Talpur, D. O'Sullivan]
- Ruffini, Marco**, 'A silicon photonic switching platform for flexible converged centralized-radio access networking', *Journal of Lightwave Technology* (2020), 1-8 [C. Browning, Q. Cheng, N.C. Abrams, M. Ruffini, L. Yuan Dai, L.P. Barry, K. Bergman]
- 'Sharing distributed and heterogeneous resources toward end-to-end 5G networks: a comprehensive survey and a taxonomy', *IEEE Communications Surveys and Tutorials* (2020), 1-38 [N. Slamnik-Krijestorac, H. Kremó, M. Ruffini, J.M. Marquez-Barja]
- 'Virtualised EAST-WEST PON architecture supporting low-latency communication for mobile functional-split based on multi-access edge computing', *Journal of Optical Communications and Networking*, 12, 10 (2020), 109-119 [S. Das, F. Slyne, A. Kaszubowska, M. Ruffini]
- 'Joint dynamic bandwidth and queue management for upstream SLA-oriented QoS in multi-tenant, multi-service PONs', *Optical Network Design and Modeling conference (ONDM)* (2020), 1-3 [F. Slyne, M. Ruffini.]



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

- 'Evolution of access network sharing towards software based passive optical network: can virtual OLTs run at full line rate?', *Optical Network Design and Modeling conference (ONDM)* (2020), 1-3 [M. Ruffini, D. Coyle, J. Singh, R. Sexton, B. Ryan, R. Giller, M. O'Hanlon, F. Slyne]
- 'Cost analysis of rural roll-out using long reach PON: trading off upfront cost under uncertainty of user take-up rate', *Journal of Optical Communications and Networking*, 13, 5 (2021), 69-84 [C. Zukowsky, A. Mukhopadhyay, D.B. Payne, M, Ruffini]
- Savage, Timothy**, 'Virtual worlds: a new environment for constructionist learning', *Computers in Human Behavior*, 99 (2019), 396-414 [C. Girvan, T. Savage]
- 'Challenge-based learning in higher education: an exploratory literature review', *Teaching in Higher Education* (2020), 1-23 [S. Gallagher, T. Savage]
- Shevlin, Fergal**, 'Speckle reduction within nanosecond-order pulse widths for flash lidar applications', *Laser display and lighting conference*, Yokohama, Japan (2020), 2 [F. Shevlin]
- Smolic, Aljosa**, 'Autonomous tracking for volumetric video sequences', *Winter Conference on Applications of Computer Vision (WACV 2021)*, Waikoloa, United States (2021), <http://hdl.handle.net/2262/94749> [M. Moynihan, S. Ruano, R. Pagés, A. Smolic]
- 'Foreground color prediction through inverse compositing', *Winter Conference on Applications of Computer Vision (WACV 2021)*, Waikoloa, United States (2021), 1610-1619 [S. Lutz, A. Smolic]
- 'Mixed reality and volumetric video in cultural heritage: expert opinions on augmented and virtual reality', *Human-computer interaction international*, Copenhagen, Denmark, Springer (2020), 195-214 [N. O'Dwyer, G.W. Young, N. Johnson, E. Zerman, A. Smolic]
- 'Quality assessment for omnidirectional video: a spatio-temporal distortion modeling approach', *IEEE Transactions on Multimedia* (2020), 1-1 [P. Gao, P. Zhang, A. Smolic]
- 'Bridging the blue', *The art exhibit at ICIDS 2019 art book: The expression of emotion in humans and technology*, eds R. Brown, B. Salisbury, Pittsburgh, Carnegie Mellon University, Pittsburgh, ETC Press, 2020, (2020), 15-27 [L.G. Arielle, A. Smolic]
- 'A benchmark for 3D reconstruction from aerial imagery in an urban environment', *VISAPP 2021 -16th international joint conference on computer vision, imaging and computer graphics theory and applications* (2021), <http://hdl.handle.net/2262/95091> [S. Ruano, A. Smolic]
- 'Image decomposition using geometric region colour unmixing', *CVMP '20: European conference on visual media production virtual event United Kingdom*, December, 2020 Association for Computing Machinery, New York, United States, 2020, ISBN: 978-1-4503-8198-7. (2020), 1-10 [M. Grogan, A. Smolic]
- 'Towards audio-visual saliency prediction for omnidirectional video with spatial audio', *2020 IEEE international conference on Visual Communications and Image Processing (VCIP) China, 2020*, China (2020), <http://hdl.handle.net/2262/95242> [F.-Y. Chao, C. Ozcinar, L. Zhang, W. Hamidouche, O. Deforges, A. Smolic]
- 'A case study on the use of volumetric video in augmented reality for cultural heritage', *Proceedings of the 11th Nordic Conference on Human-Computer Interaction (NordiCHI '20)*, Association for Computing Machinery (ACM), Tallinn, Estonia, ISBN: 978-1-4503-7579-5 (2020), <http://hdl.handle.net/2262/95238> [E. Zerman, N. O'Dwyer, G.W. Young, A. Smolic]
- 'A spatio-angular binary descriptor for fast light field inter view matching', *2020 the International Conference on Image Processing (IEEE ICIP 2020)*, (2020), <http://hdl.handle.net/2262/95237> [M. Alain, A. Smolic]
- 'Self-supervised light field view synthesis using cycle consistency', *IEEE 22nd international workshop on Multimedia Signal Processing (MMSP 2020)*, (2020), <http://hdl.handle.net/2262/95274> [Y. Chen, M. Alain, A. Smolic]

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

- 'Delivery of omnidirectional video using saliency prediction and optimal bitrate allocation', *Springer Signal, Image and Video Processing* (2020), <http://hdl.handle.net/2262/95651> [C. Ozcinar, N. Imamoglu, W. Wang, A. Smolic]
- 'A study on visual perception of light field content', *Irish Machine Vision and Image Processing conference (IMVIP)*, (2020), <http://hdl.handle.net/2262/95668> [A. Gill, E. Zerman, C. Ozcinar, A. Smolic]
- 'Sub-pixel back-projection network for lightweight single image super-resolution', *The 2020 Irish Machine Vision and Image Processing conference (IMVIP 2020)*, IT Sligo, Sligo (2020), <http://hdl.handle.net/2262/95671> [S. Banerjee C. Ozcinar, A. Rana A. Smolic, M. Manzke]
- 'A study of efficient light field subsampling and reconstruction strategies', *Irish Machine Vision and Image Processing conference (IMVIP 2020)* (2020), <http://hdl.handle.net/2262/95672> [Y. Chen, M. Alain, A. Smolic]
- 'A pilot study on video color transfer: a survey of user-type opinions', *14th international conference on interfaces and human computer interaction*, Zagreb, (2020), <http://hdl.handle.net/2262/95673> [M. Grogan, E. Zerman, G.W. Young, A. Smolic]
- 'Model augmented reality curriculum', *ITICSE-WGR '20: proceedings of the working group reports on Innovation and Technology in Computer Science Education association for computing machinery*, New York, United States, Trondheim Norway, 2020, ISBN: 978-1-4503-8293-9., (2020), <http://hdl.handle.net/2262/95674> [M. Fominykh, F. Wild, R. Klamma (...), M. Preda, A. Smolic]
- 'CatNet: class incremental 3D convnets for lifelong egocentric gesture recognition', *Conference on Computer Vision and Pattern Recognition (CVPR 2020)*, (2020), <http://hdl.handle.net/2262/95670> [Z. Wang, Q. She, T. Chalasani, A. Smolic]
- 'Textured mesh vs coloured point cloud: a subjective study for volumetric video compression', *Twelfth international conference on quality of multimedia experience (QoMEX)*, Athlone, Ireland (2020), <http://hdl.handle.net/2262/95669> [E. Zerman, C. Ozcinar, P. Gao, A. Smolic]
- 'Visual attention-aware quality estimation framework for omnidirectional video using spherical voronoi diagram', *Springer Quality and User Experience*, (2020), <http://hdl.handle.net/2262/95666> [S. Croci, C. Ozcinar, E. Zerman, S. Knorr, J. Cabrera, A. Smolic]
- 'A self-regulating spatio-temporal filter for volumetric video point clouds', *Computer vision, imaging and computer graphics theory and applications*, eds A. Cláudio *et al.*, Prague, Czech Republic, Springer International Publishing, (2020), 391-408 [M. Moynihan, R. Pagés, A. Smolic]
- Tangney, Brendan**, 'CodePlus' - measuring short-term efficacy in a non-formal, all-female CS outreach programme', *ACM Transactions on Computer Education*, 20, 4 (2020), 18 [G. Lawlor, P. Byrne, B. Tangney]
- 'ETAS: An instrument for measuring attitudes toward learning English with technology', *Technology, Pedagogy and Education*, 29, 4 (2020), 445-461 [S. Kearney, S. Gallagher, B. Tangney]
- 'Developing twenty-first-century skills in out-of-school education: the Bridge21 transition year programme', *Technology, Pedagogy and Education* (2020), <https://doi.org/10.1080/1475939X.2020.1835709> [K. Sullivan, A. Bray, B. Tangney]
- Tewari, Hitesh**, 'Blockchain research beyond cryptocurrencies', *IEEE Communications Standards Magazine*, 3, 4 (2019), 21-25 [H. Tewari]
- 'A distributed blockchain-based broker for efficient resource provisioning in 5G networks', *International Wireless Communications and Mobile Computing conference (IWCMC)*, Cyprus (2020), 1485-1490 [M. Togou, T. Bi, K. Dev, K. McDonnell, A. Milenovic, H. Tewari, G. Muntean]
- 'DBNS: A Distributed Blockchain-enabled Network Slicing framework for 5G networks', *IEEE Communications Magazine* (2020), 90-96 [M. Togou, T. Bi, K. Dev, K. McDonnell, A. Milenovic, H. Tewari, G. Muntean]

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

- 'Framework for a decentralized web', *International Telecommunication Networks and Application conference (ITNAC)*, Melbourne, Australia (2020), 1-7 [R. Singh, A. Donegan, H. Tewari]
- 'Demystifying the role of zk-SNARKs in Zcash', *IEEE conference on applications, information and network security*, Malaysia (2020), 12-19 [A. Banerjee, M. Clear, H. Tewari]
- Vogel, Carl, 'Nouns and verbs in professional reporting of extreme events', *10th IEEE international conference on Cognitive Infocommunications (CogInfoCom)*, Naples, Italy (2019), 253-258 [A. Karampela, C. Vogel]
- 'Linguistic and behaviour interaction analysis within cognitive infocommunications', *10th IEEE international conference on Cognitive Infocommunications (CogInfoCom)*, Naples, Italy (2019), 47-52 [C. Vogel, A. Esposito]
- 'Advancing and validating models of cognitive architecture', *10th IEEE international conference on Cognitive Infocommunications (CogInfoCom)*, Naples, Italy (2019), 61-66 [C. Vogel, A. Esposito]
- 'EEGs as potential predictors of virtual agents' acceptance', *10th IEEE international conference on Cognitive Infocommunications (CogInfoCom)*, Naples, Italy (2019), 433-438 [B. Tolgay, S. Dell'Orco, M.N. Maldonato, C. Vogel, L. Trojano, A. Esposito]
- 'Interaction analysis and cognitive infocommunications', *Infocommunications Journal*, 12, 1 (2020), 2-9 [C. Vogel, A. Esposito]
- 'Seniors' appreciation of humanoid robots', *Neural approaches to dynamics of signal exchanges*, eds A. Esposito, M. Faundez-Zanuy, F. Carlo Morabito, E. Pasero, Singapore, Springer (2019), 331-345 [A. Esposito, M. Cuciniello, T. Amorese (...), C. Vogel et al.]
- 'Ethical issues in assistive ambient living technologies for ageing well', *Multimedia Tools and Applications* (2020), <http://doi.org/10.1007/s11042-020-09313-7> [F. Panico, G. Cordasco, C. Vogel, L. Trojano, A. Esposito]
- 'Linguistic evidence of ageing in the Pratchett canon', *Progresses in artificial intelligence and neural systems*, eds A. Esposito, M. Faundez-Zanuy, F.C. Morabito, E. Pasero, Singapore, Springer (2021), 531-541 [C. Vogel]
- 'Acoustic features in dialogue dominate accurate personality trait classification', *2020 IEEE International Conference on Human-Machine Systems (ICHMS)*, Rome, Italy (2020), 1-3 [M. Koutsombogera, P. Sarthy, C. Vogel]
- 'A heuristic method for automatic gaze detection in constrained multi-modal dialogue corpora', *11th IEEE international conference on cognitive infocommunications*, Mariehamn, Finland, (2020), 55-60 [L. McLaren, M. Koutsombogera, C. Vogel]
- 'Gaze, dominance and dialogue role in the MULTISIMO corpus', *11th IEEE international conference on cognitive infocommunications*, Mariehamn, Finland (2020), 83-88 [L. McLaren, M. Koutsombogera, C. Vogel]
- 'Aspects of methodology for interaction analysis', *11th IEEE international conference on cognitive infocommunications*, Mariehamn, Finland, IEEE (2020), 141-146 [C. Vogel, M. Koutsombogera, A. Esposito]
- 'Synchrony in human-bonobo dialog', *11th IEEE international conference on cognitive infocommunications*, Mariehamn, Finland, (2020), 399-404 [C. Vogel, M. Koutsombogera, J. Reverdy, A. Esposito]
- 'Is it dish washer safe? Automatically answering "yes/no" questions using customer reviews', *2019 conference of the North American chapter of the association for computational linguistics: student research workshop*, Minneapolis, Minnesota (2019), 1-6 [D. Dzendsik, C. Vogel, J. Foster]
- 'Q. Can knowledge graphs be used to answer Boolean questions? A. It's complicated!', *First workshop on insights from negative results in NLP*, Association for computational linguistics (2020), 6-14 [D. Dzendsik, C. Vogel, J. Foster]

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

- 'An evaluation method for diachronic word sense induction', *Findings of the Association for Computational Linguistics: EMNLP 2020*, (2020), 3171-3180 [A. Alsulaimani, E. Moreau, C. Vogel]
- 'Gender effects in mobile application development', *2020 IEEE international conference on human-machine systems*, Rome, Italy (2020), 1-6 [M. Ribeiro Lopes, C. Vogel]
- 'Behavioral sentiment analysis of depressive states', *11th IEEE international conference on cognitive infocommunications*, Mariehamn, Finland, (2020), 209-214 [A. Esposito, G. Raimo, M. Maldonato, C. Vogel, M. Conson, G. Cordasco]
- 'Map task deviation scores: a reconstruction', *11th IEEE international conference on cognitive infocommunications*, Mariehamn, Finland (2020), 349-354 [J. Reverdy, H. Akira, C. Vogel]
- 'Frontal left alpha activity as an indicator of willingness to interact with virtual agents: a pilot study', *11th IEEE international conference on cognitive Infocommunications*, Mariehamn, Finland (2020), 185-190 [B. Tolgay, M. Maldonato, C. Vogel, G. Cordasco, L. Trojano, A. Esposito]
- 'Taking offence', *11th IEEE international Conference on Cognitive Infocommunications (CogInfoCom2020)*, Mariehamn, Finland, (2020), 147-154 [C. Vogel]
- 'MSO with tests and reducts', *14th international conference on finite-state methods and natural language*, Association for Computational Linguistics, Dresden, Germany, (2019), 27-36 [T. Fernando, D. Woods, C. Vogel]
- Wade, Vincent**, 'Crowded house: an analysis of how the virtual learning environment Moodle is built via bug tracker participants', *Interactive Learning Environments* (2019), <https://doi.org/10.1080/10.1080/10.494820.2019.1678488> [E. Costello, K. Johnston, V. Wade]
- 'Tabloidization versus credibility: short term gain for long term pain', *CHI - the ACM conference on human factors in computing systems*, Honolulu, Hawaii, USA, (2020), <http://hdl.handle.net/2262/92759> [B. Spillane, I. Hoe, M. Brady, V. Wade, S. Lawless]
- 'Issues relating to trust in care agents for the elderly', *Conversational User Interfaces*, Dublin Ireland, ACM (2019), 1-3 [B. Spillane, E. Gilmartin, C. Saam, V. Wade]
- 'Pilot data collection survey and analytical techniques for persuasion engineering systems', *DiGo-Dialog for Good - workshop on speech and language technology serving society*, Stockholm, Sweden (2019), <http://hdl.handle.net/2262/92450> [A. Braca, B. Spillane, V. Wade, P. Dondio]
- 'ADELE: evaluating and benchmarking an artificial conversational care agent', *CHI 2020 workshop-conversational agents for health and wellbeing*, Honolulu, Hawaii, USA (2020), 5 [B. Spillane, Brendan, C. Saam, E. Gilmartin, B.R. Cowan, V. Wade]
- Waldron, John**, 'Calibration and analysis of source code similarity measures for verilog hardware description language projects', *51st ACM technical symposium on computer science education*, Portland, Oregon (2020), 420-426 [J.F. Power, J.T. Waldron]
- Young, Gareth**, 'Mixed reality and volumetric video in cultural heritage: expert opinions on augmented and virtual reality', *Human-Computer Interaction International*, Copenhagen, Denmark, Springer (2020), 195-214 [N. O'Dwyer, G.W. Young, N. Johnson, E. Zerman, A. Smolic]
- Zerman, Emin**, 'Mixed reality and volumetric video in cultural heritage: expert opinions on augmented and virtual reality', *Human-Computer Interaction International*, Copenhagen, Denmark, Springer (2020), 195-214 [N. O'Dwyer, G.W. Young, N. Johnson, E. Zerman, A. Smolic]
- 'Immersive imaging technologies: from capture to display', *Proceedings of the 28th ACM international conference on multimedia*, 4787-4788, 2020. (2020), <http://hdl.handle.net/2262/95510> [M. Alain, E. Zerman, C. Ozcinar]

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

### Research students

[Navarro Gallinad, Albert](#), 'The semantic combining for exploration of environmental and disease data dashboard for clinician researchers', *Proceedings of the fifth international workshop on visualization and interaction for ontologies and linked data (VOILA 2020)*, eds V. Ivanova, P. Lambrix, C. Pesquita, V. Wiens, Athens, Greece, CEUR Workshop Proceedings (2020), 73-85 [A. Navarro-Gallinad]

[Sullivan, Kevin](#), 'Creating infographics based on the Bridge21 model for team-based and technology-mediated learning', *Journal of Information Technology Education: Innovations in Practice*, 18 (2019), 87-111 [P. Nuhoglu-Kibar, K. Sullivan, B. Akkoyunlu]

### STATISTICS

[Brophy, Caroline](#), 'The introduction of soybean in an organic crop rotation in the nemoral zone: the impact on subsequent spring wheat productivity', *Zemdirbyste*, 106, 4 (2019), 321-328 [M. Toleikiene, C. Brophy, A. Arlauskienė, J. Rasmussen, V. Gecaite, Z. Kadziuliene]

[Dahyot, Rozenn](#), 'Bonseyes AI pipeline - bringing AI to you. End-to-end integration of data, algorithms and deployment tools', *ACM Transactions on Internet of Thing* (2020), 26, [M. de Prado, J. Su, R. Saeed (...), R. Dahyot, N. Pazos]

'Mini-batch VLAD for visual place retrieval', *ISSC 2019, 30th Irish signals and systems conference* (2019), 8904931 [R. Aljuaidi, J. Su, R. Dahyot]

'Object geolocation from crowdsourced street level imagery', *European conference on machine learning and principles and practice of knowledge discovery in databases*, (2019), 79-83 [V.A. Krylov, R. Dahyot]

'L2 divergence for robust colour transfer', *Computer Vision and Image Understanding*, 181 (2019), 39-49 [M. Grogan, R. Dahyot]

[Georgiadis, Athanasios](#), 'Regularity, continuity and approximation of isotropic Gaussian random fields on compact two-point homogeneous spaces', *Stochastic Processes and Their Applications*, 130, 8 (2020), 4873-4891 [G. Cleanthous, A.G. Georgiadis, A. Lang, E. Porcu]

'Mixed-norm  $\alpha$ -modulation spaces', *Transactions of AMS*, 373, 5 (2020), 3323-3356 [G. Cleanthous, A.G. Georgiadis]

'Kernel and wavelet density estimators on manifolds or more general metric spaces', *Bernoulli*, 26, 3 (2020), 1832-1862 [G. Cleanthous, A.G. Georgiadis, G. Kerkycharian, P. Petrushev, D. Picard]

[Wilson, Simon](#), 'Progress in the discovery of extant and fossil Bryozoans', *Marine Ecology Progress Series*, 635 (2020), 71-79 [M. Pag'es, P. Bock, D. Gordon, C. Linares, B. Hereu, S.P. Wilson and M. Costello]

'Foreward to the special issue on games and decisions in reliability and risk', *Applied Stochastic Models in Business and Industry*, 35, 3 (2019), <http://dx.doi.org/10.1002/asmb.2461> [A. Pievatalo, D. Rios Insua, S.P. Wilson]

[Wyse, Jason](#), 'Supersizing athletes' risks increasing visceral fat and not muscle mass; a study of across season changes in body composition in professional rugby', *Journal of the American College of Cardiology*, 75, 11 (2020), 1611-1611 [C. McHugh, K. Hind, D. Davey, J. Wyse, F. Wilson]

'Athlete concussion history recall is underestimated: a validation study of selfreported concussion history among current professional rugby union players', *Brain Injury* (2020), <http://dx.doi.org/10.1080/02699052.2020.1858160> [J. Cunningham, S. Broglio, J. Wyse, C. McHugh, G. Farrel, K. Denvir, F. Wilson]

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

CIVIL, STRUCTURAL AND ENVIRONMENTAL ENGINEERING

- Broderick, Brian**, 'Awareness of health impacts of NO<sub>2</sub> and, potential responses to diesel vehicle bans and proposals to cease their production', *Annual meeting of the transportation research board*, Washington D.C. (2019), 12 [M. O'Mahony, B. Broderick, M. Hennessy, J. Gallagher]
- 'DDBD assessment of steel CBFs using full scale shake table tests with realistic connections', *Journal of Constructional Steel Research*, 154 (2019), 14-26 [S. Salawdeh, T. Ryan, B.M. Broderick, J. Goggins]
- 'Experimental cyclic performance of cold-formed steel bolted moment resisting frames', *Engineering Structures*, 181 (2019), 1-14 [D.P. McCrum, J. Simon, M. Grimes, B.M. Broderick, J.B.P. Lim, A.M. Wrzesien]
- 'Hybrid seismic testing of cold-formed steel moment-resisting frames', *Proceedings of the Institution of Civil Engineers: Structures and Buildings*, 173, 2 (2020), 88-98 [D.P. McCrum, J. Simon, M. Grimes, B.M. Broderick, A. Wrzesien, J.B.P. Lim]
- 'Influence of mean period of ground motion on inelastic drift demands in CBFs designed to Eurocode 8', *Engineering Structures*, 182 (2019), 172-184 [J. Hickey, B. Broderick]
- 'Loss impact factors for lifetime seismic loss assessment of steel concentrically braced frames designed to EC8', *Journal of Structural Integrity and Maintenance*, 4, 3 (2019), 110-122 [J. Hickey, B. Broderick]
- 'Acute incidence of disease at elevated levels of fine particulate matter (PM2.5) in Dublin, Ireland', *Age and Ageing*, 48, 3 (2019), iii17-iii65 [C. Byrne, K. Bennett, A. Hickey, P. Kavanagh, B. Broderick, M. O'Mahony, D. Williams]
- 'Methods for predicting peak inelastic drift and acceleration response of concentrically braced frame structures', *OpenSEES days Eurasia 2019*, eds A. Usmani, G. Monti, M.A. Orabi, Hong Kong (2019), 222-229 [J. Hickey, B. Broderick]
- 'A model updating algorithm for hybrid simulation leading to improved OpenSEES modelling accuracy for CBF structures', *OpenSEES days Eurasia 2019*, eds A. Usmani, G. Monti, M.A. Orabi, Hong Kong (2019), 61-68 [B. Broderick, J. Hickey, T. Ryan]
- Caulfield, Brian**, 'Appraising an incentive only approach encourage a sustainable reduction in private car trips in Dublin, Ireland', *International Journal of Sustainable Transportation*, 15 (2020), 1-12 [P. Carroll, B. Caulfield, A. Ahern]
- 'Examining public acceptance of autonomous mobility', *Travel Behaviour and Society*, 21 (2020), 235-246 [A. Rezaei, B. Caulfield]
- 'Examining transport needs in the global south using a screening framework', *Journal of Transport Geography*, 88 (2020), 102845 [R. Benevenuto, B. Caulfield]
- 'Simulating a transition to autonomous mobility', *Simulation Modelling Practice and Theory*, 106 (2021), 102175, [A. Rezaei, B. Caulfield]
- 'Micromobility and public transport integration: the current state of knowledge', *Transportation Research Part D: Transport and Environment*, 89 (2020), 102628 [G. Oeschger, P. Carroll, B. Caulfield]
- 'Identifying hotspots of transport disadvantage and car dependency in rural Ireland', *Transport Policy*, 101 (2021), 46-56 [P. Carroll, R. Benevenuto, B. Caulfield]
- 'Usage patterns and preferences of car sharing: a case study of Dublin', *Case Studies on Transport Policy* (2021), [B. Caulfield, J. Keohe]
- 'Using floating bike data to determine cyclist exposure to poor air quality', *Journal of Transport and Health*, 20 (2021), 101008 [I. Smith, B. Caulfield, S. Dey]
- Fitzgerald, Breffni**, 'An assessment of the potential for co-located offshore wind and wave farms in Ireland', *Energy* (2020), <http://hdl.handle.net/2262/92191> [B. Fitzgerald]



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

- 'Tuned mass-damper-inerter (TMDI) for suppressing edgewise vibrations of wind turbine blades', *Engineering Structures*, 221 (2020), <http://hdl.handle.net/2262/93055> [B. Fitzgerald]
- 'A comparison of soil structure interaction models for dynamic analysis of offshore wind turbines', *The science of making torque from wind (TORQUE 2020)*, Delft, the Netherlands (2020), <http://hdl.handle.net/2262/93560> [B. Fitzgerald]
- Ghosh, Bidisha**, 'Applications of virtual data in subsea inspections', *Journal of Marine Science and Engineering*, 8, 5 (2020), <http://dx.doi.org/10.3390/JMSE8050328> [M. O'Byrne, B. Ghosh, F. Schoefs, V. Pakrashi]
- 'Estimating environmental exposure of cyclists in Cork using limited sensing capabilities', *Proceedings of the Institution of Civil Engineers-Urban Design and Planning* (2020), 1-31 [M. Galvin, B. Lenihan, E. Popovici, R. Doorley, V. Pakrashi, B. Ghosh]
- 'Mapping vegetation communities inside wetlands using Sentinel-2 imagery in Ireland', *International Journal of Applied Earth Observation and Geoinformation*, 88 (2020), 102083 [S. Bhatnagar, L. Gill, S. Regan, O. Naughton, P. Johnston, S. Waldren, B. Ghosh]
- 'Designing cycle networks to maximize health, environmental, and travel time impacts: an optimization-based approach', *International Journal of Sustainable Transportation*, 14, 5 (2020), 361-374 [R. Doorley, V. Pakrashi, W.Y. Szeto, B. Ghosh]
- 'Alternative approach to traffic state analysis on Indian roads using image processing', *Proceedings of the Institution of Civil Engineers-Transport*, 172, 6 (2019), 336-346 [S.K. Reddy, B. Ram, M. O'Byrne, L. Vanajakshi, B. Ghosh]
- Gill, Laurence**, 'Source apportionment of on-site domestic wastewater contamination impacts on springs in rural karst catchments', *Geophysical Research Abstracts, EGU general assembly*, Vienna, Austria (2019), 5387-5387 [L. Vucinic, D. O'Connell, D. Dubber, K-H. Knorr, P. Coxon, L. Gill]
- 'Using 3-dimensional soil sensor networks to trace biomat growth in soil treatment units', *Geophysical Research Abstracts, EGU general assembly*, Vienna, Austria (2019), 15320-15320 [J. Knappe, C. Somlai, A.C. Fowler, L.W. Gill]
- 'Ecohydrological impacts of subsidence and groundwater drainage in an Atlantic raised bog', *Water Resources Research*, 55, 7 (2019), 6153-6168 [S. Regan, R. Flynn, L. Gill, O. Naughton, P. Johnston]
- 'Spatial and temporal variation of CO<sub>2</sub> and CH<sub>4</sub> emissions from a septic tank soakaway', *Science of the Total Environment*, 679 (2019), 185-195 [C. Somlai, J. Knappe, L.W. Gill]
- 'Modelling groundwater flooding in a lowland karst catchment', *Journal of Hydrology*, 580 (2020), 124361 [P. Morrissey, T. McCormack, O. Naughton, P.M. Johnston, L.W. Gill]
- 'A modified wash-off function for stormwater suspended solids modelling', *Journal of Hydrology*, 584 (2020), 124672 [D. Morgan, P. Johnston, K. Osei, L. Gill]
- 'Mapping vegetation communities inside wetlands using Sentinel-2 imagery in Ireland', *International Journal of Applied Earth Observations and Geoinformation*, 88 (2020), 10283 [S. Bhatnagar, L.W. Gill, S. Regan, O. Naughton, P.M. Johnston, S. Waldren, B. Ghosh]
- 'Engineered silver nanoparticle (Ag-NP) behaviour in domestic on-site wastewater treatment plants and in sewage sludge amended-soils', *Science of the Total Environment*, 722 (2020), 137794 [V. Bolaños-Benítez, F. McDermott, L. Gill, J. Knappe]
- 'INCEPTION HORIZON - a celebration of subterranean karst cave systems', Museum Building, Trinity College Dublin, Trinity College Dublin and iCRAG (2020), [L.W. Gill]
- 'A new sensitive method for the simultaneous chromatographic separation and tandem mass spectrometry detection of anticoccidials, including highly polar compounds, in environmental waters', *Journal of Chromatography A*, 1618 (2020), 460857, [D. Mooney, C. Coxon, K.G. Richards, L.W. Gill, P-E. Mellander, M. Danaher]

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

- 'The impact of on-site wastewater effluent on rural karstified aquifers', *EGU general assembly*, Vienna, Austria (2020), <https://doi.org/10.5194/egusphere-egu2020-5113> [L. Vucinic, D. O'Connell, D. Dubber, P. Behan, Q. Crowley, C. Coxon, L. Gill]
- 'Ecosystem services provided by groundwater dependent wetlands (turloughs) in karst areas', *EGU general assembly*, Vienna, Austria (2020), <https://doi.org/10.5194/egusphere-egu2020-19485> [F. Delle Grazie, L.W. Gill, O. Naughton]
- 'Investigating hydrological and biogeochemical controls on Irish alkaline fen habitats', *EGU general assembly*, Vienna, Austria (2020), <https://doi.org/10.5194/egusphere-egu2020-19765> [E. Bijkerk, S. Bhatnagar, C. Coxon, P. Johnston, S. Regan, S. Waldren, L. Gill]
- 'Using wavelet coherence to characterize surface water infiltration into a low-lying karst aquifer', *Groundwater*, 59, 1 (2021), 71-79 [P. Schuler, E. Cantoni, L. Duran, P. Johnston, L.W. Gill]
- 'The influence of pre-treatment on biomat development in soil treatment units', *Journal of Contaminant Hydrology*, 232 (2020), 103654, [J. Knappe, C. Somlai, A.C. Fowler, L.W. Gill]
- 'GEO-CWB: GIS-based algorithms for parametrising the responses of catchment dynamic water balance regarding climate and land use changes', *Hydrology*, 7, 3 (2020), 39 [S.S. Gharbia, L.W. Gill, P.M. Johnston, F. Pilla]
- 'An investigation of anticoccidial veterinary drugs as emerging organic contaminants in groundwater', *Science of the Total Environment*, 746 (2020), 141116 [D. Mooney, K.G. Richards, M. Danaher, J. Grant, L. Gill, P-E. Mellander, C.E. Coxon]
- 'Speciation of phosphorus from suspended sediment studied by bulk and micro-XANES', *Soil Systems*, 4 (2020), 51, [Q. Zhang, M. Wieler, D. O'Connell, L. Gill, X. Xiao, Y. Hu]
- 'Application of microcosm experiments for quantifying lateral flow and evapotranspiration on recovering bog ecotypes', *Hydrological Processes* (2020), <https://doi.org/10.1002/hyp.13872> [M. Swenson, S. Regan, L.W. Gill]
- 'Drone image segmentation using machine and deep learning for mapping Irish bog vegetation communities', *Remote Sensing*, 12 (2020), 2602, [S. Bhatnagar, L.W. Gill, B. Ghosh]
- 'Quantifying and numerically representing recharge and flow components in a karstified carbonate aquifer', *Water Resources Research*, 56 (2020), e2020WR027717 [P. Schuler, L. Duran, P.M. Johnston, L.W. Gill]
- 'The impact of domestic wastewater treatment systems on private water wells: an assessment of contamination fingerprinting techniques', *Environmental Pollution*, 268 (2021), 115687 [C. Fennell, L. Gill, D. O'Connell, D. Dubber, P. Behan, M. Danaher, B. Misstear]
- 'An analysis of the spatio-temporal occurrence of anthelmintic veterinary drug residues in groundwater', *Science of the Total Environment*, 769 (2021), 144804 [D. Mooney, K.G. Richards, M. Danaher, J. Grant, L. Gill, P-E. Mellander, C.E. Coxon]
- 'An evaluation of semi-distributed-pipe-network and distributed-finite-difference models to simulate karst systems', *Hydrogeology Journal*, 27 (2021), 259-279 [L.W. Gill, P. Schuler, L. Duran, P.M. Johnston, P. Morrissey]
- 'A nested drone-satellite approach to monitoring the ecological conditions of wetlands', *ISPRS Journal of Photogrammetry and Remote Sensing*, 174 (2021), 151-165 [S. Bhatnagar, L.W. Gill, S. Regan, S. Waldren, B. Ghosh]
- 'Variation in fluvial suspended sediment phosphorus fractions in small agricultural streams - relations to water quality and streambed sediment', *Journal of Environmental Quality* (2021), <https://doi.org/10.1002/jeq2.20210> [S. Sandström, M.N. Futter, D.W. O'Connell, E.E. Lannergård, J. Rakovic, K. Kyllmar, L.W. Gill, F. Djodjic]
- 'Modeling spring flow of an Irish karst catchment using Modflow-USG with CLN', *Journal of Hydrology*, 597 (2021), 125971, [L. Duran, L.W. Gill]
- Grey, Thomas, 'Nursing home design and covid-19: balancing infection control, quality of life, and resilience', *Journal of the American Medical Directors Association*, 21, 11 (2020), 1519-1524 [D.C. Anderson, T. Grey, S. Kennelly, D. O'Neill]

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

Igoe, David, 'A comparison of soil structure interaction models for dynamic analysis of offshore wind turbines', *The science of making torque from wind (TORQUE 2020)*, Delft, the Netherlands (2020), <http://hdl.handle.net/2262/93560> [B. Fitzgerald]

McNabola, Aonghus, 'Estimating regional potential for micro-hydropower energy recovery in irrigation networks on a large geographical scale', *Renewable Energy*, 155 (2020), 396-406 [M. Crespo Chacon, J.A. Rodriguez Diaz, J. Garcia Morillo, A. McNabola]

*New challenges in water systems*, Switzerland, MDPI (2020), 1-200 [H.M. Ramos, A. Carravetta, A. McNabola]

'Evaluation of the design and performance of a micro hydropower plant in a pressurized irrigation network: real world application at farm-level in southern Spain', *Renewable Energy*, 169 (2021), 1106-1120 [M. Crespo Chacon, J.A. Rodriguez Diaz, J. Garcia Morillo, A. McNabola]

'The potential impacts of different traffic management strategies on air pollution and public health for a more sustainable city: a modelling case study from Dublin, Ireland', *Sustainable Cities and Society* (2020), <https://doi.org/10.1016/j.scs.2020.102229> [J. Tang, B.M. Misstear, A. McNabola]

'Energy recovery potential in industrial and municipal wastewater networks using microhydropower in Spain', *Water. Special Issue: Integrated Management of Water Systems: Energy Recovery, Pressure Control, and Smart Solutions*, 13, 691 (2021), 1-14 [A. Merida Garcia, J.A. Rodriguez Diaz, J. Garcia Morillo, A. McNabola]

*Environmental hydraulics research*, Print edition of special issue, Switzerland, MDPI (2021), 1-270 [H.M. Ramos, A. Carravetta, A. McNabola, K. Adeyeye]

Misstear, Bruce, 'An assessment of contamination fingerprinting techniques for determining the impact of domestic wastewater treatment systems on private well supplies', *Environmental Pollution*, 268 (2020), [doi.org/10.1016/j.envpol.2020.115687](https://doi.org/10.1016/j.envpol.2020.115687) [C. Fennell, B.D.R. Misstear, D. O'Connell, D. Dubber, P. Behan, M. Danaher, M. Moloney, L.W. Gill]

'An introduction to the Irish aquifer properties manual', *Characterisation and management of groundwater in limestones*, Tullamore, Ireland (2020), 1.11-1.19 [C. Kelly, N. Hunter Williams, B.D.R. Misstear]

'The potential impacts of different traffic management strategies on air pollution and public health for a more sustainable city: a modelling case study from Dublin, Ireland', *Sustainable Cities and Society* (2020), <https://doi.org/10.1016/j.scs.2020.102229> [J. Tang, B.M. Misstear, A. McNabola]

O'Dwyer, Dermot, 'The development in the design of beams from 1820-1860', *Iron, steel and buildings: studies in the history of construction. Proceedings of the seventh conference of the construction history society*, eds J.W.P. Campbell et al., Queens College, Cambridge University, Construction History Society (2020), 73-82 [D. O'Dwyer]

'Dublin-Belfast main line 1837-1857', *Papers from the second international early main line railways conference, early main line railways 2*, ed M. Chrimes, York, UK (2019), 1-10 [R. Cox, D. O'Dwyer]

O'Kelly, Brendan, 'Discussion: use of fall cones to determine Atterberg limits: a review', *Géotechnique*, 70, 7 (2020), 652-654 [B.C. O'Kelly, P.J. Vardanega, S.K. Haigh, K.V. Bicalho, J-M. Fleureau, Y-J. Cui]

'Discussion of 'The flow index of clays and its relationship with some basic geotechnical properties' eds G. Spagnoli, M. Feinendegen, L. Di Matteo, D.A. Rubinos', *Geotechnical Testing Journal*, 44, 1 (2021), 216-219 [A. Soltani, B.C. O'Kelly]

'Improving internal erosion resistance of silty sand using additives', *Dams and Reservoirs*, 30, 1 (2020), 29-41 [S.M.A. Zomorodian, S. Moghispor, B.C. O'Kelly, S.S. Babaei]

'Cyclic swell-shrink behaviour of an expansive soil treated with a sulfonated oil', *Proceedings of the Institution of Civil Engineers - Ground Improvement* (2021), 14 [A. Soltani, R. Raeesi, B.C. O'Kelly]

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

- 'Overtopping erosion of model earthen dams analysed using digital image-processing method', *Proceedings of the Institution of Civil Engineers - Water Management*, 173, 6 (2020), 304-316 [S.M.A. Zomorodian, M.J.A. Noghab, M. Zolghadr, B.C. O'Kelly]
- 'Specific gravity of solids relationship with ignition loss for peaty soils', *Geotechnical Research*, 7, 3 (2020), 134-145 [W. Li, B.C. O'Kelly, M. Yang, K. Fang, X. Li, H. Li]
- 'Environmental geotechnics: challenges and opportunities in the post-covid-19 world', *Environmental Geotechnics* (2021), 21 [C.S. Tang, E.K. Paleologos, C. Vitone (...), B.C. O'Kelly *et al.*]
- 'Stabilization of sand with colloidal nano-silica hydrosols', *Applied Sciences*, 10, 15 (2020), 24 (5192) [S. Ghadr, A. Assadi-Langroudi, C. Hung, B.C. O'Kelly, H. Bahadori, T. Ghodsi]
- 'Compressibility behaviour and properties of peaty soils from Dian-Chi lake area, China', *Engineering Geology*, 277, 105778 (2020), 1-12 [W. Li, B.C. O'Kelly, M. Yang, K. Fang]
- 'Municipal solid waste management under covid-19: challenges and recommendations', *Environmental Geotechnics* (2021), 16 [M.D. Vaverková, E.K. Paleologos, A. Dominijanni (...), B.C. O'Kelly *et al.*]
- 'Discussion: a novel formula for the prediction of swelling pressure of compacted expansive soils', *Géotechnique Letters*, 10, 4 (2020), 1-4 [H. Elsaïdy, W.M. Yan, M.J. Pender, A. Soltani, B.C. O'Kelly]
- 'Improved geotechnical behavior of an expansive soil amended with tire-derived aggregates having different gradations', *Minerals*, 10, 10 (2020), 20 [A. Soltani, A. Taheri, A. Deng, B.C. O'Kelly]
- 'Review and critical examination of fine-grained soil classification systems based on plasticity', *Applied Clay Science*, 200, 105955 (2021), 13 [J.M. Moreno-Maroto J. Alonso-Azcárate, B.C. O'Kelly]
- 'NovADEC: Novel Approach for Determination of the Elemental Content of organic matter', *International journal of Environmental Analytical Chemistry* (2021), 16 [A. Mohammad, B.C. O'Kelly, D.N. Singh]
- 'Discussion: 'determining the plasticity properties of high plastic clays: a new empirical approach', C. Öser, *Arabian journal of geosciences* (2020) 13, 11, 394', *Arabian Journal of Geosciences* (2021), 5 [B.C. O'Kelly, A. Soltani]
- 'Use of fall-cone flow index for soil classification: a new plasticity chart', *Géotechnique* (2021), 8 [P.J. Vardanega, S.K. Haigh, B.C. O'Kelly]
- 'Liquefaction resistance of silty sand with ground rubber additive', *International Journal of Geomechanics (ASCE)* (2021), 16 [S. Ghadr, A. Samadzadeh, H. Bahadori, B.C. O'Kelly, A. Assadi-Langroudi]
- O'Mahony, Margaret**, 'Dealing with latency effects in travel time prediction on motorways', *Transportation Engineering*, 2 (2020), 100009 1-100009 8 [D. Laoide-Kemp, M. O'Mahony]
- 'Local NO<sub>2</sub> concentrations and asthma among over-50s in Ireland: a microdata analysis', *International Journal of Epidemiology*, 49, 6 (2020), 1899-1908 [P. Carthy, A. Ó Domhnaill, M. O'Mahony (...), O. Naughton, S. Lyons]
- 'Short-term air pollution as a risk for stroke admission: a time-series analysis', *Cerebrovascular Diseases, clinical research in stroke*, 49 (2020), 404-411 [C.P. Byrne, K.E. Bennett, A. Hickey, P. Kavanagh, B. Broderick, M. O'Mahony, D.J. Williams]
- Pavia, Sara**, 'Potential of a low-calcium fly ash (FA) for the production of alkali-activated materials', *Civil Engineering Research in Ireland (CERI) conference*, Cork Institute of Technology (2020), <http://hdl.handle.net/2262/92968> [O. Alelweet, S. Pavia]
- 'A study of the parameters that determine the reactivity of sugarcane bagasse ashes (SCBA) for use as a binder in construction', *SN Applied Sciences*, 2, 1515 (2020), <http://hdl.handle.net/2262/94128> [R. Lima Figueiredo, S. Pavia]

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

- 'Energy performance, environmental impact and cost of a range of insulation materials', *Renewable and Sustainable Energy Reviews*, 140, 110752 (2021), <http://hdl.handle.net/2262/94926> [T. Dickson, S. Pavia]
- West, Roger**, 'A technique for early-age strength determination and enhancement of zero slump concrete for hollowcore slab', *Concrete and Building Materials*, 256, 119321 (2020), 16 [C. Korde, M. Cruickshank, R.P. West]
- 'Structural shear performance of insulated precast concrete sandwich panels with steel plate connectors', *Engineering Structures*, 215, 110691 (2020), 10 [O. Kinnane, R.P. West, R. O'Hegarty]
- 'Composite behaviour of wide sandwich panels with high performance concrete thin wythes with and without thermomass shear connectors', *Civil Engineering Research in Ireland (CERI20)*, Cork (2020), 125-130 [J. Lipczynska, R.P. West, M. Grimes, D. Niall, O. Kinnane, R. O'Hegarty]
- 'Characterization and performance enhancement of cement-based thermoelectric materials', *Civil Engineering Research in Ireland (CERI20)*, Cork (2020), 342-347 [R. Jani, N. Holmes, R.P. West (...), J. Kohanoff, H. Yin]
- 'Modelling the thermal behaviour of a precast PCM enhanced concrete cladding panel', *Civil Engineering Research in Ireland (CERI20)*, Cork (2020), 143-149 [D. Niall, R.P. West, O. Kinnane, R. O'Hegarty]
- 'Impact of occupancy patterns on the indoor environment of A-rated buildings', *Civil Engineering Research in Ireland (CERI20)*, Cork (2020), 348-353 [N. Saini, P. Shiel, R.P. West, R. Kerrigan, I. Pyburn]
- 'Examining large student cohorts - a question of questions', *Civil Engineering Research in Ireland (CERI20)*, Cork (2020), 406-411 [R.P. West, M.A. Wride]
- 'Teaching engineering materials through experiential learning', *Civil Engineering Research in Ireland (CERI20)*, Cork (2020), 412-417 [R.P. West, D. Taylor, M. Burke, M. Grimes]
- 'BIM research in Irish academic institutions 2015-2020', *Civil Engineering Research in Ireland (CERI20)*, Cork (2020), 733-739 [R.P. West, A. Hore, B. McAuley]
- 'The Irish construction industry's state of readiness for a BIM mandate', *Civil Engineering Research in Ireland (CERI20)*, Cork (2020), 758-763 [B. McAuley, R.P. West, A. Hore]
- 'St. Mary and St. Anne Cathedral Cork - an optimum heating solution for heritage buildings?', *Civil Engineering Research in Ireland (CERI20)*, Cork (2020), 389-394 [C. Shiell, R.P. West]
- 'Development of thin precast sandwich panels: challenges and outcomes', *Construction and Building Materials*, 12098 (2020), 26 [R. O'Hegarty, O. Kinnane, M. Grimes, J. Newell, M. Clifford, R.P. West]
- 'Cathedrals in Ireland - the same but different', *Advances in Cultural Heritage Studies* (2020), 185-200 [C. Shiell, R.P. West]
- 'Hollowcore slabs with alternative cementitious materials in winter conditions', *Magazine of Concrete Research* (2020), 1-11 [C. Korde, M. Cruickshank, R.P. West]

### Research student

- Glenn, Aaron Crommer**, 'The viability of organic dyes in luminescent down-shifting layers for the enhancement of Si solar cell efficiency', *Materials science forum, international conference on energy engineering and smart materials*, Trinity College Dublin (2020), <https://doi.org/10.4028/www.scientific.net/MSF.995>

### ELECTRONIC AND ELECTRICAL ENGINEERING

- Bates, Enda**, 'Samuel Beckett's play in digital culture: technologies of influence', *Influencing Beckett/Beckett Influencing*, eds A. Rákóczy, M. Hori Tanaka, N.E. Johnson, Budapest and Paris, L'Harmattan / Károli Gáspár University of the Reformed Church in Hungary (2020), 145-157 [N. Johnson, N. O'Dwyer, E. Bates]

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

- Coffey, William**, 'Dipole-dipole and exchange interaction effects on the magnetization relaxation of two macrospins: compared', *Journal of Magnetism and Magnetic Materials*, 507 (2020), 166814-1-166814-8 [Y.P. Kalmykov, S.V. Titov, D.J. Byrne, W.T. Coffey, M. Zarifakis, M.H. Al Bayyari]
- 'Comparison of coupled nonlinear oscillator models for the transient response of power generating stations connected to low inertia systems', *IEEE Transactions on Power Systems*, 35, 1 (2020), 795-802 [M. Zarifakis, D.J. Byrne, W.T. Coffey, Y.P. Kalmykov, S.V. Titov, S.J. Carrig]
- 'Anomalous diffusion of a dipole interacting with its surroundings', *Journal of Chemical Physics*, 152, 11 (2020), 114101-1-114101-11 [Y.P. Kalmykov, S.V. Titov, W.T. Coffey, M. Zarifakis, W. J. Dowling, A.S. Titov]
- 'Theory of anomalous dielectric relaxation', *Journal of Physics: conference series*, 1322 (2019), 012037-1-012037-4 [D.J. Byrne, W.T. Coffey, Yu. P. Kalmykov, S.V. Titov]
- 'Generalization to anomalous diffusion of Budó's treatment of polar molecules containing interacting rotating groups', *Journal of Chemical Physics*, 153 (2020), 044128-1-044128-8 [S.V. Titov, W.T. Coffey, M. Zarifakis, Y.P. Kalmykov, M.H. Al Bayyari, W.J. Dowling]
- 'Anomalous diffusion of molecules with rotating polar groups: the joint role played by inertia and dipole coupling in microwave and far-infrared absorption', *Physical Review E*, 102, 5 (2020), 052130-1-052130-11 [S.V. Titov, W.T. Coffey, W.J. Dowling, M. Zarifakis, Y.P. Kalmykov, A.S. Titov]
- Thermal fluctuations and relaxation processes in nanomagnets*, Singapore, World Scientific (2020), 1-684 [W.T. Coffey, Y.P. Kalmykov, S.V. Titov]
- Dowling, William**, 'Anomalous diffusion of a dipole interacting with its surroundings', *Journal of Chemical Physics*, 152, 11 (2020), 114101-1-114101-11 [Y.P. Kalmykov, S.V. Titov, W.T. Coffey, M. Zarifakis, W.J. Dowling, A.S. Titov]
- 'Generalization to anomalous diffusion of Budó's treatment of polar molecules containing interacting rotating groups', *Journal of Chemical Physics*, 153 (2020), 044128-1-044128-8 [S.V. Titov, W.T. Coffey, M. Zarifakis, Y.P. Kalmykov, M.H. Al Bayyari, W.J. Dowling]
- 'Anomalous diffusion of molecules with rotating polar groups: the joint role played by inertia and dipole coupling in microwave and far-infrared absorption', *Physical Review E*, 102, 5 (2020), 052130-1-052130-11 [S.V. Titov, W.T. Coffey, W.J. Dowling, M. Zarifakis, Y.P. Kalmykov, A.S. Titov]
- Eadie, Jimmy**, 'One (') Silence (From) John Cage', Re-vision performing arts festival, Ireland (2020), [J. Eadie]
- 'The light gleams an instant', New media festival - wake up memorial, new media festival, Cologne, Germany (2020), [J. Eadie]
- 'The light gleams an instant', 21st century music practice, research network, Bloomsbury Academic Press (2020), [J. Eadie]
- 'Mille plateaux', Re-vision performing arts festival, Ireland (2020), [J. Eadie]
- 'Cascando', Galway international arts festival (2020), [J. Eadie]
- 'What is the word', Cinéma Les 3 Luxembourg, centre culturel Irlandais, Paris (2020), [J. Eadie]
- 'What is the word', Belfast international arts festival at Strand Arts Centre, Cork midsummer festival, Poetry Ireland, (2020), [J. Eadie]
- 'What is the word', Irish Film Institute, Poetry Ireland, Trinity Centre for Beckett Studies, Dublin theatre festival (2020), [J. Eadie]
- 'Cascando', Forum Freies Theater (FFT) Düsseldorf, Germany (2020), [J. Eadie]
- 'Ice pulse echo', Los Angeles, USA, contemporary irish arts center Los Angeles (2020), [J. Eadie]
- 'Ice pulse echo', medium.com (2020), [J. Eadie]
- '100', Ireland, Raidió Teilifís Éireann (2021), [J. Eadie]



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

**Fannin, Paul**, 'The electrical conductivity of giniite  $\text{Fe}_5(\text{PO}_4)_4(\text{OH})_3 \cdot 2\text{H}_2\text{O}$  materials', *TIM 19 physics conference*, West University of Timisoara, Romania, (2019), AIP Publishing [S. Brindusolu, P. Sfirloaga, P. Viazan, P.C. Fannin, I. Malaescu, C.N. Marin]

**Harte, Naomi**, 'How to teach DNNs to pay attention to the visual modality in speech recognition', *IEEE/ACM Transactions on Audio Speech and Language Processing*, 28 (2020), 1052-1064 [G. Sterpu, C. Saam, N. Harte]

'Estimation of a priori signal-to-noise ratio using neurograms for speech enhancement', *The Journal of the Acoustical Society of America*, 147, 6 (2020), 3830-3848 [W.A. Jassim, N. Harte]

**King, Justin**, 'Machine learning-based broadband GaN HEMT behavioral model applied to class-J power amplifier design', *International Journal of Microwave and Wireless Technologies* (2020), 1-9 [J. Cai, J. King, S. Chen, M. Wu, J. Su, J. Wang]

'A modified poly-harmonic distortion model based on the canonical piecewise linear functions for GaN HEMTs', *IEEE Access*, 8 (2020), 181420-181431 [J. Cai, J. Liu, B. Pan, X. Du, J. King]

'A combined broadband model for GaN HEMTs in admittance domain based on canonical piecewise linear functions', *IEEE Transactions on Microwave Theory and Techniques*, 68, 12 (2020), 5042-5054 [J. Cai, J.B. King, C. Yu, S. Chen, Q. Xie, L. Sun]

'Energy and charge conservation for FET models', *2020 15th European Microwave Integrated Circuits conference (EuMIC)*, Utrecht (2021), 173-176 [C. Wilson, M. Schmidt-Szalowski, J.B. King]

'Machine learning technique based extremely broadband small-signal behavioral model for InP DHBTs', *International Journal of RF and Microwave Computer-Aided Engineering*, 30, 7 (2020), e22235 [J. Cai, J. Liu, J. King, L. Sun]

'Large-signal behavioral model for radio frequency power transistors based on modified canonical sectionwise piecewise-linear functions', *International Journal of Numerical Modelling: Electronic Networks, Devices and Fields*, 33, 6 (2020), e2767 [J. Cai, J. King, J. Liu, J. Wang, L. Sun]

'Behavioral model of RF PAs including load mismatch effects based on canonical section-wise piecewise-linear function', *IEEE Access*, 8 (2020), 9469-9479 [J. Cai, J.B. King]

'Behavioral model for RF power transistors based on canonical section-wise piecewise linear functions', *IEEE Transactions on Microwave Theory and Techniques*, 68, 4 (2020), 1409-1422 [J. Cai, J. Liu, J. Su, L. Sun, S. Chen, J. Xia, J.B. King]

'"The more you did, the more it made sense": problem-based learning to improve early evidence-based practice in an undergraduate physiotherapy professional programme', *Physiotherapy Research International*, 24, 3 (2019), e1774 [O. Lennon, D. Phelan, D. Wallace, J. King, T. Barrett]

**Kokaram, Anil**, 'Anatomy transformed', *Journal of Anatomy*, 234, 5 (2019), 577-582 [T.C. Lee, Z. Molnar, A. Stein, M. O'Dea, A. Kokaram, C.K. Simms]

**Marchetti, Nicola**, 'Agent-based modelling for distributed decision support in an IoT network', *IEEE Internet of Things Journal* (2020), <http://dx.doi.org/10.1109/JIOT.2020.2976802> [M. Butt, I. Dey, M. Dzaferagic, M. Murphy, N. Kaminski, N. Marchetti]

'Improving in-network computing in IoT through degeneracy', *IEEE Systems Journal* (2020), <http://dx.doi.org/10.1109/JSYST.2020.2976873> [M. Dzaferagic, N. McBride, R. Thomas, I. Macaluso, N. Marchetti]

'On maximizing information reliability in wireless powered cooperative networks', *Elsevier Physical Communication* (2020), <http://dx.doi.org/10.1016/j.phycom.2020.101060> [M. Butt, G. Naurzybayev, N. Marchetti]

'Optimized caching and spectrum partitioning for D2D enabled cellular systems with clustered devices', *IEEE Transactions on Communications* (2020), <http://dx.doi.org/10.1109/TCOMM.2020.2983015> [R. Amer, H. Elsayy, M. Butt, E. Jorswieck, M. Bennis, N. Marchetti]

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

'Application of flexible numerology to blockage mitigation in 5G-mmWave networks', *IEEE Global Communications conference (GLOBECOM)* (2019), <http://dx.doi.org/10.1109/GLOBECOM38437.2019.9013208> [F. Firyaguna, J. Kibilda, N. Marchetti]

'Indoor millimeter-wave systems: design and performance evaluation', *Proceedings of the IEEE* (2020), <http://dx.doi.org/10.1109/JPROC.2020.2989189> [J. Kibilda, A. MacKenzie, M. Abdel-Rahman (...), N. Marchetti *et al.*]

'Advanced dynamic spectrum 5G mobile networks employing licensed shared access', *IEEE Communications Magazine* (2020), <http://dx.doi.org/10.1109/MCOM.001.1900742> [G. Papageorgiou, K. Voulgaris, K. Ntougias (...), N. Marchetti *et al.*]

'Minimizing the signaling overhead and latency based on users' mobility patterns', *IEEE Systems Journal* (2020), <http://dx.doi.org/10.1109/JSYST.2020.3011898> [M. Dzaferagic, N. Marchetti, I. Macaluso]

'Experimental analysis of wideband spectrum sensing networks using massive MIMO testbed', *IEEE Transactions on Communications* (2020), <http://dx.doi.org/10.1109/TCOMM.2020.2998544> [I. Dey, P. Rossi, M. Butt, N. Marchetti]

'Performance analysis and optimization of cache-assisted comp for clustered D2D networks', *IEEE Transactions on Mobile Computing* (2020), <http://dx.doi.org/10.1109/TMC.2020.3020552> [R. Amer, H. ElSawy, J. Kibilda, M. Butt, N. Marchetti]

'On provisioning slices and overbooking resources in service tailored networks of the future', *IEEE/ACM Transactions on Networking* (2020), <http://dx.doi.org/10.1109/TNET.2020.3004443> [C. Sexton, N. Marchetti, L. DaSilva]

'Reconfigurable filtering of neuro-spike communications using synthetically engineered logic circuits', *Frontiers in Computational Neuroscience* (2020), <http://dx.doi.org/10.3389/fncom.2020.556628> [G. Adonias, H. Siljak, M. Barros, N. Marchetti, M. White, S. Balasubramaniam]

'Space-time spreading aided distributed MIMO-WSNs', *IEEE Communication Letters* (2020), <http://dx.doi.org/10.1109/LCOMM.2020.3046231> [I. Dey, H. Joshi, N. Marchetti]

'Spectral domain spline graph filter bank', *IEEE Signal Processing Letters* (2021), <http://dx.doi.org/10.1109/LSP.2021.3059203> [A. Miraki, H. Saeedi-Sourck, N. Marchetti, A. Farhang]

'Blind channel estimation for massive MIMO: a deep learning assisted approach', *IEEE International Conference on Communications (ICC)*, eds IEEE (2020), <http://dx.doi.org/10.1109/ICC40277.2020.9149291> [P. Sabeti, A. Farhang, I. Macaluso, N. Marchetti, L. Doyle]

'Performance analysis of mobile cellular-connected drones under practical antenna configurations', *IEEE International Conference on Communications (ICC)*, eds IEEE (2020), <http://dx.doi.org/10.1109/ICC40277.2020.9148841> [R. Amer, W. Saad, B. Galkin, N. Marchetti]

**McDonnell, Maura**, 'Digital alchemy', SeenSound livestream - sound and image: aesthetics and practices (2020), [M. McDonnell]

'Visual *dérive*', Seeing sound symposium, Bath Spa University, UK (2020), [M. McDonnell]

**Perova, Tatiana**, 'Investigation of AgInS<sub>2</sub>/ZnS quantum dots by magnetic circular dichroism spectroscopy', *Materials*, 12, 21 (2019), 3616/1-3616/12, <http://dx.doi.org/10.3390/ma12213616> [Y. Gromova, A. Sokolova, D. Kurshanov (...), T. Perova *et al.*]

'Reactive plasma N-doping of amorphous carbon electrodes: decoupling disorder and chemical effects on capacitive and electrocatalytic performance', *Frontiers in Chemistry*, 8 (2020), <http://hdl.handle.net/2262/95309> [M.K. Hoque, J.A. Behan, J. Creel, J.G. Lunney, T.S. Perova, P.E. Colavita]

'Enhanced FTIR spectroscopy of biological liquid samples confined between Ge hemispherical ATR element and Al coated glass substrate', *Biomedical Journal of Scientific and Technical Research*, 24, 3 (2020), 18227, [A. Gunko, Y.K. Gun'ko, T.S. Perova]

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

- 'Accounting for the local field when determining the dielectric loss spectra of metals in the region of the frequencies of volume, surface, and localized plasmon oscillations', *Materials*, 13, 3 (2020), 631/1-631/15 [T.S. Perova, I.I. Shaganov, K. Berwick]
- 'Preparation and characterisation of metalloorganic precursors derived iron oxides on porous silicon layers', *Materials science forum, ICSMEE+ICEESM*, ed T.S. Perova, Dublin, Trans Tech Publications Ltd., Switzerland (2020), 63-68 [S. Balakrishnan, Y.K. Gun'ko, G.F. Swiegers, T.S. Perova]
- Quinn, Anthony**, 'Bayesian transfer learning between Student-t filters', *Elsevier Signal Processing Journal*, 175, 107624 (2020), 1-36 [M. Papez, A. Quinn]
- 'Bayesian filtering for states uniformly distributed on a parallelotopic support', *19th IEEE International Symposium on Signal Processing and Information Technology (ISSPIT)*, eds IEEE, Ajman, UAE (2019), 1-6 [L. Pavelková, L. Jirsa, A. Quinn]
- 'Bayesian transfer learning between Gaussian process regression tasks', *19th IEEE International Symposium on Signal Processing and Information Technology (ISSPIT)*, eds IEEE, Ajman, UAE (2019), 1-6 [M. Papez, A. Quinn]
- 'Robust Bayesian transfer learning between Kalman filters', *29th IEEE Int. workshop on Machine Learning for Signal Processing (MLSP)*, eds IEEE, Pittsburg, US (2019), 1-6 [M. Papez, A. Quinn]
- 'Knowledge transfer in a pair of uniformly modelled Bayesian filters', *Proc. 16th International Conference on Informatics in Control, automation and robotics (ICINCO)*, Prague, Czechia (2019), 1-8 [L. Jirsa, L. Pavelková, A. Quinn]
- Shanker, Shreejith**, 'DeCoRIC: Decentralized Connected Resilient IoT Clustering', *International Conference on Computer Communications and Networks (ICCCN)*, USA (2020), <http://hdl.handle.net/2262/93744> [N. Shivaraman, S. Ramanathan, S. Shanker, A. Easwaran, S. Steinhorst]
- 'An adaptive energy detection scheme with real-time noise variance estimation', *Circuits, Systems, and Signal Processing* (2019), 1-25 [L.K. Mathew, S. Shanker, A.P. Vinod, A.S. Madhukumar]
- 'A power-efficient spectrum-sensing scheme using 1-bit quantizer and modified filter banks', *IEEE Transactions on Very Large Scale Integration (VLSI) Systems*, 28, 9 (2020), 2074-2078 [L.K. Mathew, S. Shanker, A.P. Vinod, A.S. Madhukumar]
- 'Blockchain, what time is it? Trustless datetime synchronization for IoT', *International Conference on Omni-layer Intelligent Systems (COINS)*, Barcelona, Spain (2020), <http://hdl.handle.net/2262/93745> [E. Regnath, N. Shivaraman, S. Shreejith, A. Easwaran, S. Steinhorst]
- Siljak, Harun**, 'A topology inference method of cortical neuron networks based on network tomography and the internet of bio-nano things', *IEEE Networking Letters*, 1, 4 (2019), 142-145 [M. Barros, H. Siljak, A. Ekky, N. Marchetti]
- 'Distributed antenna selection for massive MIMO using reversing petri nets', *IEEE Wireless Communications Letters*, 8, 5 (2019), 1427-1430 [H. Siljak, K. Psara, A. Philippou]
- 'Controlling reversibility in reversing petri nets with application to wireless communications', *International conference on reversible computation* (2019), 238-245 [A. Philippou, K. Psara, H. Siljak]
- 'Reversible hardware for acoustic communications', *IEEE Communications Magazine*, 58, 1 (2020), 55-61 [H. Siljak, J. de Rosny, M. Fink]
- 'Simulating dystopian worlds: a sci-fi agent-based modeling anthology' (2019), [A. Gillreath-Brown, J. Lim, H. Siljak]

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

Vij, Jagdish, 'Design and electro-optic investigations of de Vries chiral smectic liquid crystals for exhibiting broad temperature ranges of SmA\* and SmC\* phases and fast electro-optic switching', *Journal of Materials Chemistry C*, 8 (2020), 4859-4868 [V. Swaminathan, V.P. Panov, A. Panov, D. Rodriguez-Lojo, P.J. Stevenson, E. Gorecka, J.K. Vij]

'Stereochemical rules govern the soft self-assembly of achiral compounds: understanding the heliconical liquid-crystalline phases of bent-core mesogens', *Chemistry - a European Journal* (2020), 4714-4733 [A. Lehmann, M. Alaasar, M. Poppe (...), J.K. Vij, C. Tschierske]

'Thermochromic luminescence in dual-dye-doped liquid crystal mixture induced by varying the energy transfer rate', *Dyes and Pigments*, 180 (2020), 108450-1-108450-6 [J.-M. Choi, T.-Z. Shen, J.K. Vij, J.H. Lee, J.-K. Song]

### MECHANICAL, MANUFACTURING AND BIOMEDICAL ENGINEERING

Ahearne, Mark, 'Effect of substrate topography on the regulation of human corneal stromal cells', *Colloids and Surfaces. B, Biointerfaces*, 190 (2020), 110971 [P. Bhattacharjee, B.L. Cavanagh, M. Ahearne]

'Designing scaffolds for corneal regeneration', *Advanced Functional Materials* (2020), <http://hdl.handle.net/2262/92930> [M. Ahearne, J. Fernandez-Perez, S. Masterton, P.W. Madden, P. Bhattacharjee]

'Influence of micropatterned substrates on keratocyte phenotype', *Scientific Reports*, 10, 1 (2020), <http://hdl.handle.net/2262/92928> [P. Bhattacharjee, B.L. Cavanagh, M. Ahearne]

'Engineering a corneal stromal equivalent using a novel multilayered fabrication assembly technique', *Tissue Engineering. Part A* (2020), <http://hdl.handle.net/2262/92958> [J. Fernández-Pérez, P.W. Madden, M. Ahearne]

'Significance of crosslinking approaches in the development of next generation hydrogels for corneal tissue engineering', *Pharmaceutics*, 13, 3 (2021), 913, [P. Bhattacharjee, M. Ahearne]

Bennett, Gareth, 'Aeroacoustics research in Europe: The CEAS-ASC report on 2019 highlights', *Journal of Sound and Vibration*, 484 (2020), 115540 [R. Camussi, G.J. Bennett]

'Air curtain flow control for aerodynamic noise reduction', *Fundamentals of high lift for future civil aircraft*, eds R. Radespiel, R. Semaan, DLR, Braunschweig, Germany, Springer Nature (2020), 279-295 [G.J. Bennett, K. Zhao]

'SeMSA: a compact super absorber optimised for broadband, low-frequency noise attenuation', *Scientific Reports (Nature)*, 10 (2020), <http://hdl.handle.net/2262/93886> [A. McKay, I. Davis, J. Killeen, G.J. Bennett]

Buckley, Conor, 'Injectable disc-derived ECM hydrogel functionalised with chondroitin sulfate for intervertebral disc regeneration', *Acta Biomaterialia*, 117 (2020), 142-155 [C. Borrelli, C.T. Buckley]

'Synergistic effects of acidic pH and pro-inflammatory cytokines IL-1 $\beta$  and TNF- $\alpha$  for cell-based intervertebral disc regeneration', *Applied Sciences*, 10, 24 (2020), 9009 [C. Borrelli, C.T. Buckley]

'Priming as a strategy to overcome detrimental pH effects on cells for intervertebral disc regeneration', *European Cells and Materials*, 41 (2021), 153-169 [J. Gansau, C.T. Buckley]

'Investigating the physiological relevance of ex vivo disc organ culture nutrient microenvironments using in silico modeling and experimental validation', *JOR Spine* (2021), <http://hdl.handle.net/2262/95633> [E.E. McDonnell, C.T. Buckley]

Gibbons, Michael, 'Evaporating hydrophilic and superhydrophobic droplets in electric fields', *International Journal of Heat and Mass Transfer*, 164 (2021), 120539 [M.J. Gibbons, A.I. Garivalis, S. O'Shaughnessy, P. Di Marco, A.J. Robinson]

'Analysis of a wide range of commercial exterior wood coatings', *Coatings*, 10, 11 (2020), 1013 [M.J. Gibbons, S. Nikafshar, T. Saravi, K. Ohno, S. Chandra, M. Nejad]

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

- 'Thermal spray deposition of aluminum and zinc coatings on thermoplastics', *Surface and Coatings Technology*, 399 (2020), 126114 [S. Devaraj, B. Anand, M. Gibbons, A. McDonald, S. Chandra]
- 'Heat flux distribution beneath evaporating hydrophilic and superhydrophobic droplets', *International Journal of Heat and Mass Transfer*, 148 (2020), 119093 [M.J. Gibbons, P. Di Marco, A.J. Robinson]
- 'A novel ultra-large flat plate heat pipe manufactured by thermal spray', *Applied Thermal Engineering*, 171 (2020), 115030 [C. Feng, M.J. Gibbons, M. Marengo, S. Chandra]
- 'Fabrication of composite heat sinks consisting of a thin metallic skin and a polymer core using wire-arc spraying', *Journal of Thermal Spray Technology*, 28, 5 (2019), 974-985 [C. Feng, M. Gibbons, S. Chandra]
- Hoey, David**, 'Human bone marrow stem/stromal cell osteogenesis is regulated via mechanically activated osteocyte-derived extracellular vesicles', *Stem Cells Translational Medicine* (2020), [K.F. Eichholz, I. Woods, M. Riffault (...), L. O'Driscoll, D.A. Hoey]
- 'Utilizing osteocyte derived factors to enhance cell viability and osteogenic matrix deposition within IPN hydrogels', *Materials*, 13, 7 (2020), <http://hdl.handle.net/2262/94930> [L. Parmentier, M. Riffault, D.A. Hoey]
- 'Development of a new bone-mimetic surface treatment platform: nanoneedle hydroxyapatite (nnHA) coating', *Advanced Healthcare Materials* (2020), 2001102 [K.F. Eichholz, S. Von Euw, R. Burdis, D.J. Kelly, D.A. Hoey]
- 'Mechanically stimulated osteocytes promote the proliferation and migration of breast cancer cells via a potential CXCL1/2 mechanism', *Biochemical and Biophysical Research Communications*, 534 (2021), 14-20 [A. Dwivedi, P.A. Kiely, D.A. Hoey]
- 'Loss of adenylyl cyclase 6 in leptin receptor-expressing stromal cells attenuates loading-induced endosteal bone formation', *JBMR Plus* (2020), <http://hdl.handle.net/2262/94931> [M. Riffault, G.P. Johnson, M.M. Owen, B. Javaheri, A.A. Pitsillides, D.A. Hoey]
- Kelly, Daniel**, 'Osteoarthritis-associated basic calcium phosphate crystals alter immune cell metabolism', *Osteoarthritis and Cartilage*, 28, 5 (2020), 603-612 [O.R. Mahon, D.J. Kelly, G.M. McCarthy, A. Dunne]
- 'Nano-particle mediated M2 macrophage polarization enhances bone formation and MSC osteogenesis in an IL-10 dependent manner', *Biomaterials*, 239 (2020), 119833, [O.R. Mahon, D.C. Brow, T. Gonzalez-Fernandez (...), D.J. Kelly, A. Dunne]
- 'Reinforcing interpenetrating network hydrogels with 3D printed polymer networks to engineer cartilage mimetic composites', *Biofabrication*, 12, 3 (2020), 1, [R. Schipani, S. Scheurer, R. Florentin, S.E. Critchley, D.J. Kelly]
- 'Development of a new bone-mimetic surface treatment platform: nanoneedle hydroxyapatite (nnHA) coating', *Advanced Healthcare Materials* (2020), 2001102 [K.F. Eichholz, S. Von Euw, R. Burdis, D.J. Kelly, D.A. Hoey]
- 'Improving the intercellular uptake and osteogenic potency of calcium phosphate via nanocomplexation with the RALA peptide', *Nanomaterials*, 10, 12 (2020), 1-16 [M. O'Doherty, E.J. Mulholland, P. Chambers (...), D.J. Kelly *et al.*]
- 'The identification of articular cartilage and growth plate extracellular matrix-specific proteins supportive of either osteogenesis or stable chondrogenesis of stem cells', *Biochemical and Biophysical Research Communications*, 528, 2 (2020), 285-291 [P.J. Diaz-Payno, D.C. Browe, G.M. Cunniffe, D.J. Kelly]
- 'Solid-state phase transformation and self-assembly of amorphous nanoparticles into higher-order mineral structures', *Journal of the American Chemical Society*, 142, 29 (2020), 12811-12825 [S. Von Euw, T. Azais, V. Manichev (...), D.J. Kelly, P.G. Falkowski]

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

- 'Development and characterization of carbohydrate-based thermosensitive hydrogels for cartilage tissue engineering', *European Polymer Journal*, 129, 109637 (2020), <http://dx.doi.org/10.1016/j.eurpolymj.2020.109637> [C.B. Westin, M.H.T. Nagahara, M.C. Decarli, D.J. Kelly, Á.M. Moraes]
- 'A developmental engineering-based approach to bone repair: endochondral priming enhances vascularization and new bone formation in a critical size defect', *Frontiers in Bioengineering and Biotechnology*, 8, 230 (2020), <http://hdl.handle.net/2262/94799> [F.E. Freeman, M. Brennan, D.C. Browe, A. Renaud, J. De Lima, D.J. Kelly, L.M. McNamara, P. Layrolle]
- '3D bioprinting spatiotemporally defined patterns of growth factors to tightly control tissue regeneration', *Science Advances*, 6, 33 (2020), <http://hdl.handle.net/2262/94803> [F.E. Freeman, P. Pitacco, L.H.A. van Dommelen, J. Nulty, D.C. Browe, J.-Y. Shin, E. Alsberg, D.J. Kelly]
- 'The development of natural polymer scaffold-based therapeutics for osteochondral repair', *Biochemical Society Transactions*, 48, 4 (2020), 1433-1445 [M. Lemoine, S.M. Casey, J.M. O'Byrne, D.J. Kelly, F.J. O'Brien]
- 'Development of collagen-poly(caprolactone)-based core-shell scaffolds supplemented with proteoglycans and glycosaminoglycans for ligament repair', *Materials Science and Engineering C*, 111657 (2020), <http://dx.doi.org/10.1016/j.msec.2020.111657> [P.J. Gouveia, T. Hodgkinson, I. Amado (...), D.J. Kelly, F.J. O'Brien]
- 'Spatial presentation of tissue-specific extracellular matrix components along electrospun scaffolds for tissue engineering the bone-ligament interface', *ACS Biomaterials Science and Engineering*, 6, 9 (2020), 5145-5161 [D. Olvera, B.N. Sathy, D.J. Kelly]
- 'Hydroxyapatite particle shape and size influence MSC osteogenesis by directing the macrophage phenotype in collagen-hydroxyapatite scaffolds', *ACS Applied Bio Materials*, 3, 11 (2020), 7562-7574 [R. Sridharan, K.J. Genoud, D.J. Kelly, F.J. O'Brien]
- '3D printing of fibre-reinforced cartilaginous templates for the regeneration of osteochondral defects', *Acta Biomaterialia*, 113 (2020), 130-143 [S. Critchley, E.J. Sheehy, G. Cunniffe (...), P.A.J. Brama, D.J. Kelly]
- Kelly, Kevin**, 'Proposing a performance framework for innovation measurement: an exploratory case-based research', *International Journal of Productivity and Performance Management* (2021), <http://hdl.handle.net/2262/95240> [V. Nappi, K. Kelly]
- Kennedy, John**, 'Design of a Kelvin cell acoustic metamaterial', *Journal of Sound and Vibration*, 472, 115167 (2020), <http://hdl.handle.net/2262/92757> [H.J. Rice, J. Kennedy, P. Göransson, L. Dowling, D. Trimble]
- Lally, Caitriona**, 'Assessment of mechanical indicators of carotid plaque vulnerability: geometrical curvature metric, plaque stresses and damage in tissue fibres', *Journal of the Mechanical Behavior of Biomedical Materials*, 103 (2020), <http://dx.doi.org/10.1016/j.jmbbm.2019.103573> [M. Ghasemi, D.R. Nolan, C. Lally]
- 'Resident multipotent vascular stem cells exhibit amplitude dependent strain avoidance similar to that of vascular smooth muscle cells', *Biochemical and Biophysical Research Communications*, 521, 3 (2020), 762-768 [P.S. Mathieu, E. Fitzpatrick, M. Di Luca, P.A. Cahill, C. Lally]
- 'Bovine pericardium of high fibre dispersion has high fatigue life and increased collagen content; potentially an untapped source of heart valve leaflet tissue', *Annals of Biomedical Engineering* (2020), <http://hdl.handle.net/2262/95138> [A. Whelan, E. Williams, D. Nolan, B. Murphy, P. Gunning, D. O'Reilly, C. Lally]
- 'Diffusion tensor imaging and arterial tissue: establishing the influence of arterial tissue microstructure on fractional anisotropy, mean diffusivity and tractography', *Scientific Reports* (2021), <http://hdl.handle.net/2262/95200> [B. Tornifoglio, A.J. Stone, R.D. Johnston, S.S. Shahid, C. Kerskens, C. Lally]



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

**Lupoi, Rocco**, 'Modeling of erosion response of cold-sprayed In718-Ni composite coating using full factorial design', *Coatings*, 10, 4 (2020), 1-17 [E. Verna, R. Biagi, M. Kazasidis, M. Galetto, E. Bemporad, R. Lupoi]

'Tribological properties of Al/diamond composites produced by cold spray additive manufacturing', *Additive Manufacturing*, 36 (2020), 101434 [C. Chen, Y. Xie, X. Yan (...), R. Lupoi *et al.*]

'Applications of laser in cold spray', *Laser cladding of metals*, eds P. Cavaliere, Springer (2020), 395-427 [N. Fan, X. Xie, C. Huang, R. Lupoi, S. Yin]

'Unravelling the deposition mechanism of brittle particles in metal matrix composites fabricated via cold spray additive manufacturing', *Scripta Materialia*, 194 (2021), 113614 [S. Yin, M. Hassani, Q. Xie, R. Lupoi]

'Microstructure and cavitation erosion performance of nickel-inconel 718 composite coatings produced with cold spray', *Surface and Coatings Technology*, 382 (2020), 125195 [M. Kazasidis, S. Yin, J. Cassidy, T. Volkov-Husovic, M. Vlahovic, S. Martinovic, E. Kyriakopoulou, R. Lupoi]

'Mechanical reliability modification of metal matrix composite coatings by adding Al particles via cold spray technology', *Surfaces and Interfaces*, 20 (2020), 100515 [C-H. Ng, S. Yin, R. Lupoi, J. Nicholls]

'The role of particles flow characteristics in the performance of cold spray nozzles', *CIRP Annals-Manufacturing Technology*, 69, 1 (2020), 189-192 [R. Lupoi, M. Meyer, W. Wits, S. Yin]

'Microscopic visualization of cell-cold sprayed bio-coating interfaces: an intermediate layer formed during the culturing mediates the behaviors of the cells', *Applied Surface Science*, 529 (2020), 147132 [Y. Liu, W. Hou, R. Lupoi, S. Yin, J. Huang, H. Li]

'A new strategy for strengthening additively manufactured cold spray deposits through inprocess densification', *Additive Manufacturing* (2020), 101626 [N. Fan, J. Cizek, C. Huang, X. Xie, Z. Chlup, R. Jenkins, R. Lupoi, S. Yin]

'Correlation between flattening ratio and wear performance of cold sprayed metal matrix composite coatings', *Materials Letters*, 283 (2021), 128773 [C-H. Ng, S. Yin, R. Lupoi, J. Nicholls]

'A detailed analysis on the microstructure and compressive properties of selective laser melted Ti<sub>6</sub>Al<sub>4</sub>V lattice structures', *Materials and Design*, 198 (2020), 109292 [J. Ge, X. Yan, Y. Lei, M. Ahmed, P. O'Reilly, C. Zhang, R. Lupoi, S. Yin]

'Solid-state cold spraying of FeCoCrNiMn high-entropy alloy: an insight into microstructure evolution and oxidation behavior at 700-900°C', *Journal of Materials Science and Technology*, 68 (2021), 172-183 [Y. Xu, W. Li, L. Qu, X. Yang, B. Song, R. Lupoi, S. Yin]

'Cold spraying of IN 718-Ni composite coatings: microstructure characterization and tribological performance', *Materials Science Forum*, 1016 (2021), 840-845 [R. Biagi, E. Verna, M. Kazasidis, E. Bemporad, M. Galetto, S. Yin, R. Lupoi]

**McGinn, Conor**, 'Why do robots need a head? The role of social interfaces on service robot', *International Journal of Social Robotics* (2019), <https://doi.org/10.1007/s12369-019-00564-5> [C. McGinn]

'Meet Stevie: a socially assistive robot developed through application of a design-thinking approach', *Journal of Intelligent and Robotic Systems, Special Issue on Special Issue on Elderly Care Robotics Technology and Ethics* (2019), <https://doi.org/10.1007/s10846-019-01051-9> [C. McGinn, M.F. Cullinan, M. Otubela, K. Kelly]

**Monaghan, Michael**, 'SARM1 deficiency promotes rod and cone photoreceptor cell survival in a model of retinal degeneration', *Life Science Alliance*, 3, 5 (2020), <http://hdl.handle.net/2262/95319> [E. Ozaki, L. Gibbons, N.G.B. Neto (...), M. Monaghan *et al.*]

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

- Murphy, Bruce**, 'Bovine pericardium of high fibre dispersion has high fatigue life and increased collagen content; potentially an untapped source of heart valve leaflet tissue', *Annals of Biomedical Engineering* (2020), <http://hdl.handle.net/2262/95138> [A. Whelan, E. Williams, D. Nolan, B. Murphy, P. Gunning, D. O'Reilly, C. Lally]
- Pakdel, Amir**, 'Two-dimensional transition metal carbides and nitrides (MXenes): synthesis, properties, and electrochemical energy storage applications', *Energy and Environmental Materials* (2020), <https://doi-org.elib.tcd.ie/10.1002/eem.2.12058> [C. Zhang, Y. Ma, X. Zhang, S. Abdolhosseinzadeh, H. Sheng, W. Lan, A. Pakdel, J. Heier, F. Nüesch]
- 'Extra lithium-ion storage capacity enabled by liquid-phase exfoliated indium selenide nanosheets conductive network', *Energy and Environmental Science* (2020), <https://doi.org/10.1039/d0ee01052a> [C.J. Zhang, M. Liang, S-H. Park (...), A. Pakdel *et al.*]
- 'Review - Towards the two-dimensional hexagonal boron nitride (2D h-BN) electrochemical sensing platforms', *Journal of the Electrochemical Society* (2020), <http://hdl.handle.net/2262/95713> [S. Angizi, M. Khalaj, S. Ali Ahmad Alem, A. Pakdel, M. Willander, A. Hatamie, A. Simchi]
- 'Organic Electrochemical Transistors (OECTs) toward flexible and wearable bioelectronics', *Molecules*, 25, 22 (2020), 5288 [A. Marquez Villarroel, N. McEvoy, A. Pakdel]
- Persoons, Tim**, 'The application of evolutionary algorithms in multi-objective design and optimization of air cooled heatsinks', *Journal of Thermal Science and Engineering Applications*, 12, 2 (2020), 021003 [Y.O. Abdelsalam, S. Alimohammadi, T. Persoons]
- 'Characterisation and modelling of small diameter heat pipes for low power applications', *14th Int Conf Heat Transfer, Fluid Mechanics and Thermodynamics (HEFAT)*, Enniskerry, Ireland (2019), 431-436 [A. Clarke, K. Smith, J. Cornett, M. Dunham, B. Chen, T. Persoons]
- 'Experimental validation of lift and drag forces on an asymmetrical hydrofoil for seafloor anchoring applications', *Journal of Ocean and Climate: Science, Technology and Impacts*, 9 (2019), 175931311881197 [G. Byrne, T. Persoons, W. Kingston]
- 'Application of gaseous laser-induced fluorescence in low-temperature convective heat transfer research', *Experiments in Fluids*, 61, 5 (2020), <http://dx.doi.org/10.1007/s00348-020-02959-x> [E. Fanning, T. Donnelly, J.G. Lunney, D.B. Murray, T. Persoons]
- 'Microscale heat transfer modulation for server CPU cooling using deformable structures', *14th Int Conf Heat Transfer, Fluid Mechanics and Thermodynamics (HEFAT)*, Enniskerry, Ireland (2019), 431-436 [E. Oude Essink, J. McEvoy, S. Alimohammadi, T. Persoons]
- 'Droplet boiling on a superheated liquid infused surface', *14th Int Conf Heat Transfer, Fluid Mechanics and Thermodynamics (HEFAT)*, Enniskerry, Ireland (2019), 431-436 [P. Sullivan, V. Kumar, T. Persoons, R. Enright]
- Reilly, Richard**, 'Current source density approaches improve spatial resolution in event related potential analysis in people with Parkinson's disease', *Clinical Neurophysiology*, 130, 10 (2019), 1998-1999 [C. Fearon, J.S. Butler, S.M. Waechter, I. Killane, R.B. Reilly, T. Lynch]
- 'Temporal discrimination threshold and blink reflex recovery cycle in cervical dystonia - two sides of the same coin?', *Parkinsonism and Related Disorders*, 68 (2019), 4-7 [J. Junker, T. Paulus, V. Brandt (...), R.B. Reilly *et al.*]
- 'Revision cochlear implantation: the Irish experience', *Cochlear Implants International*, 20, 6 (2019), 281-287 [C. Wijaya, C. Simões-Franklin, F. Glynn, P. Walshe, R. Reilly, L. Viani]
- 'Cognitive performance in midlife type 2 diabetes: results from the ENBIND study', *Diabetic Medicine* (2020), <http://dx.doi.org/10.1111/dme.14412> [A. Dyer, L. McKenna, G. Gamage (...), R. Reilly *et al.*]
- Rice, Henry**, 'Design of a Kelvin cell acoustic metamaterial', *Journal of Sound and Vibration*, 472, 115167 (2020), <http://hdl.handle.net/2262/92757> [H.J. Rice, J. Kennedy, P. Göransson, L. Dowling, D. Trimble]

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

- 'Twist, tilt and stretch: from isometric Kelvin cells to anisotropic cellular materials', *Materials Design*, 193 (2020)108855(2020), 1-15 [H. Mao, R. Rumpfer, M. Gaborit, P. Göransson, J. Kennedy, D. O'Connor, D. Trimble, H. Rice]
- 'The influence of additive manufacturing processes on the performance of a periodic acoustic metamaterial', *International Journal of Polymer Science*, July (2019), 1-11 [J. Kennedy, L. Flanagan, L. Dowling, G.J. Bennett, H. Rice, D. Trimble]
- Simms, Ciaran**, 'Characteristics of cyclist collisions in Ireland: analysis of a self-reported survey', *Accident Analysis and Prevention*, 151, 105948 (2021), <http://hdl.handle.net/2262/95579> [K. Gildea, C. Simms]
- 'Kinematics and dynamics of pedestrian head ground contact: a cadaver study', *Safety Science*, 127, 104684 (2020), <http://dx.doi.org/10.1016/j.ssci.2020.104684> [S. Shang, C. Masson, D. Teeling, M. Py, Q. Ferrand, P.-J. Arnoux, C. Simms]
- 'New observations from real-world vehicle-pedestrian collisions in reducing ground related injury by controlling vehicle braking', *International Journal of Crashworthiness* (2020), <http://dx.doi.org/10.1080/13588265.2020.1827848> [T. Zou, Q. Liu, A. Zha, C. Simms, T. Chen]
- 'Reliability and measurement error of multi-segment trunk kinematics and kinetics during cerebral palsy gait', *Medical Engineering and Physics*, 75 (2020), 53-58 [D. Kiernan, C.K. Simms]
- 'Pedestrian gaits observed from actual pedestrian-vehicle collisions', *International Journal of Crashworthiness* (2020), <http://dx.doi.org/10.1080/13588265.2020.1769455> [T. Zou, A. Zha, Q. Liu, C. Simms]
- 'The predictive capacity of the MADYMO ellipsoid pedestrian model for pedestrian ground contact kinematics and injury evaluation', *Accident Analysis and Prevention*, 149, 105803 (2021), <http://hdl.handle.net/2262/95580> [S. Shang, C. Masson, M. Llari, M. Py, Q. Ferrand, P.-J. Arnoux, C. Simms]
- 'An inverse model of the mechanical response of passive skeletal muscle: implications for microstructure', *Journal of Biomechanics*, 99, 109483 (2020), <http://dx.doi.org/10.1016/j.jbiomech.2019.109483> [T. Valentin, C. Simms]
- Taylor, David**, 'Through-life engineering: inspirations from nature', *Procedia Manufacturing*, 16 (2019), 163-170 [D. Taylor]
- 'Repair of microdamage caused by cyclic loading in insect cuticle', *Journal of Experimental Zoology Part A.*, 333 (2019), 20-28 [M. O'Neill, D. Taylor]
- Trimble, Daniel**, 'Design of a Kelvin cell acoustic metamaterial', *Journal of Sound and Vibration*, 472, 115167 (2020), <http://hdl.handle.net/2262/92757> [H.J. Rice, J. Kennedy, P. Göransson, L. Dowling, D. Trimble]
- Yin, Shuo**, 'Mechanical reliability modification of metal matrix composite coatings by adding Al particles via cold spray technology', *Surfaces and Interfaces* (2020), 100515 [C.-H. Ng, S. Yin, R. Lupoi, J. Nicholls]
- 'Effect of Mo on tribological behaviors of atmospheric plasma sprayed Al<sub>2</sub>O<sub>3</sub>-13%TiO<sub>2</sub>/Mo coatings under boundary lubrication condition', *Ceramics International*, 46, 10 (2020), 15066-05075 [C. Zhang, B. Huang, J. Xu, W. Cao, G. Sun, J. Xiao, S. Yin]
- 'Effect of heat treatment on the corrosion resistance behavior of selective laser melted Ti<sub>6</sub>Al<sub>4</sub>V ELI', *Surface and Coatings Technology*, 396 (2020), 125955 [X. Yan, C. Shi, T. Liu (...), S. Yin et al.]
- 'Microstructure and mechanical properties of pure copper manufactured by selective laser melting', *Materials Science and Engineering A*, 789 (2020), 139615 [X. Yan, C. Chang, D. Dong, S. Gao, W. Ma, M. Liu, H. Liao, S. Yin]

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

- 'Microscopic visualization of cell-cold sprayed bio-coating interfaces: an intermediate layer formed during the culturing mediates the behaviors of the cells', *Applied Surface Science*, 529 (2020), 147132 [Y. Liu, W. Hou, R. Lupoi, S. Yin, J. Huang, H. Li]
- 'The role of particles flow characteristics in the performance of cold spray nozzles', *CIRP Annals*, 69 (2020), 189-192 [R. Lupoi, M. Meyer, S. Yin]
- 'Tribological properties of Al/diamond composites produced by cold spray additive manufacturing', *Additive Manufacturing*, 36 (2020), 101434 [C. Chen, Y. Xie, X. Yan (...), H. Liao, S. Yin]
- 'Solid-state cold spraying of FeCoCrNiMn high-entropy alloy: an insight into microstructure evolution and oxidation behavior at 700-900°C', *Journal of Materials Science and Technology*, 68 (2021), 172-183 [Y. Xu, W. Li, L. Qu, X. Yang, B. Song, R. Lupoi, S. Yin]
- 'Correlation between flattening ratio and wear performance of cold sprayed metal matrix composite coatings', *Materials Letters*, 283 (2021), 128773 [C-H. Ng, S. Yin, R. Lupoi, J. Nicholls]
- 'Achieving simultaneously improved tensile strength and ductility of a nano-TiB<sub>2</sub>/AlSi10mg composite produced by cold spray additive manufacturing', *Composites Part B: Engineering*, 202 (2020), 108404 [X. Xie, C. Chen, Z. Chen, W. Wang, S. Yin, G. Ji, H. Liao]
- 'Microstructural features and compressive properties of SLM Ti<sub>6</sub>Al<sub>4</sub>V lattice structures', *Surface and Coatings Technology*, 403 (2020), 126419 [J. Ge, J. Huang, Y. Lei, P. O'Reilly, M. Ahmed, C. Zhang, X. Yan, S. Yin]
- 'Unravelling the deposition mechanism of brittle particles in metal matrix composites fabricated via cold spray additive manufacturing', *Scripta Materialia*, 194C (2021), 113614 [S. Yin, M. Hassani, Q. Xie, R. Lupoi]
- 'A detailed analysis on the microstructure and compressive properties of selective laser melted Ti<sub>6</sub>Al<sub>4</sub>V lattice structures', *Materials and Design*, 198 (2021), 109292 [J. Ge, X. Yan, Y. Lei, M. Ahmed, P. O'Reilly, C. Zhang, R. Lupoi, S. Yin]
- 'Laser additive manufacturing of single-crystal superalloy component: from solidification mechanism to grain structure control', *Laser cladding of metals*, eds P. Cavaliere, Springer (2021), 137-159 [C. Chen, J. Wang, H. Liao, Z. Ren, S. Yin]
- 'Applications of laser in cold spray', *Laser cladding of metals*, eds P. Cavaliere, Springer (2021), 395-427 [N. Fan, X. Xie, C. Huang, R. Lupoi, S. Yin]
- 'A new strategy for strengthening additively manufactured cold spray deposits through in-process densification', *Additive Manufacturing*, 36 (2020), 101626 [N. Fan, J. Cizek, C. Huang, X. Xie, Z. Chlup, R. Jenkins, R. Lupoi, S. Yin]
- 'Formation conditions of vortex-like intermixing interfaces in cold spray', *Materials and Design*, 200 (2021), 109444 [S. Yin, J. Cizek, J. Cupera (...), W. Li, R. Lupoi]
- 'Wear behaviors of 5 wt. % SiO<sub>2</sub>-Ni<sub>60</sub> coatings deposited by atmospheric plasma spraying under dry and water-lubrication sliding conditions', *Wear*, 470-471 (2021), 203621 [C. Zhang, J. Xu, G. Sun, X. Wei, J. Xiao, G. Zhang, S. Yin]
- 'Current research status on cold sprayed amorphous alloy coatings: a review', *Coatings*, 11 (2021), 206 [Q. Wang, P. Han, S. Yin (...), X. Mao, Y. Han]

### Research student

- Borrelli, Chiara*, 'Synergistic effects of acidic pH and pro-inflammatory cytokines IL-1 $\beta$  and TNF- $\alpha$  for cell-based intervertebral disc regeneration', *Applied Sciences* (2020), <http://hdl.handle.net/2262/94647> [C. Borrelli, C.T. Buckley]

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

GENETICS

**Bracken, Adrian**, 'Structural basis for PRC2 engagement with chromatin', *Current Opinion in Structural Biology*, 67 (2021), 135-144 [E. Glancy, C. Ciferri, A.P. Bracken]

**Campbell, Matthew**, 'Advanced late-onset retinitis pigmentosa with dominant-acting D477G RPE65 mutation is responsive to oral synthetic retinoid therapy', *BMJ Open Ophthalmology*, 5, 1 (2020), <http://hdl.handle.net/2262/95318> [P.F. Kenna, M.M. Humphries, A-S. Kiang (...), M. Campbell *et al.*]

**Farrar, Gwyneth**, 'Properties and therapeutic implications of an enigmatic D477G RPE65 variant associated with autosomal dominant retinitis pigmentosa', *Genes*, 11, 12 (2020), 1-21 [A-S. Kiang, P.F. Kenna, M.M. Humphries (...), G.J. Farrar, P. Humphries]

'Novel 199 base pair NEFH promoter drives expression in retinal ganglion cells', *Scientific Reports*, 10, 1 (2020), <http://hdl.handle.net/2262/95314> [S. Millington-Ward, N. Chadderton, M. Berkeley (...), A. Palfi, G.J. Farrar]

'Optimized OPA1 isoforms 1 and 7 provide therapeutic benefit in models of mitochondrial dysfunction', *Frontiers in Neuroscience*, 14, 571479 (2020), <http://dx.doi.org/10.3389/fnins.2020.571479> [D.M. Maloney, N. Chadderton, S. Millington-Ward (...), P. Kenna, G.J. Farrar]

'AAV-delivered *Tulp1* supplementation therapy targeting photoreceptors provides minimal benefit in *Tulp1*<sup>-/-</sup> retinas', *Frontiers in Neuroscience*, 14, 891 (2020), <http://hdl.handle.net/2262/95316> [A. Palfi, A. Yesmambetov, S. Millington-Ward (...), N. Chadderton, G.J. Farrar]

'Non-photoreceptor expression of *Tulp1* may contribute to extensive retinal degeneration in *Tulp1*<sup>-/-</sup> mice', *Frontiers in Neuroscience*, 14, 656 (2020), <http://hdl.handle.net/2262/95317> [A. Palfi, A. Yesmambetov, P. Humphries, K. Hokamp, G.J. Farrar]

'Advanced late-onset retinitis pigmentosa with dominant-acting D477G RPE65 mutation is responsive to oral synthetic retinoid therapy', *BMJ Open Ophthalmology*, 5, 1 (2020), <http://hdl.handle.net/2262/95318> [P.F. Kenna, M.M. Humphries, A-S. Kiang (...), G.J. Farrar *et al.*]

'Findings from a genotyping study of over 1000 people with inherited retinal disorders in Ireland', *Genes*, 11, 1 (2020), <http://dx.doi.org/10.3390/genes11010105> [L. Whelan, A. Dockery, N. Wynne (...), P.F. Kenna, G.J. Farrar]

'Modeling and rescue of RP2 retinitis pigmentosa using iPSC-derived retinal organoids', *Stem Cell Reports*, 15, 1 (2020), 67-79 [A. Lane, K. Jovanovic, C. Shortall (...), G.J. Farrar *et al.*]

'Resolving the dark matter of ABCA4 for 1054 Stargardt disease probands through integrated genomics and transcriptomics', *Genetics in Medicine*, 22, 7 (2020), 1235-1246 [M. Khan, S.S. Cornelis, G.J. Farrar, F.P.M. Cremers]

'A FBN1 variant manifesting as non-syndromic ectopia lentis with retinal detachment: clinical and genetic characteristics', *Eye*, 34, 4 (2020), 690-694 [K.A.J. Stephenson, A. Dockery, M. O'Keefe, A. Green, G.J. Farrar, D.J. Keegan]

'Retinal bioenergetics: new insights for therapeutics', *Advances in Experimental Medicine and Biology*, 1185 (2019), 275-279 [D.M. Maloney, N. Chadderton, A. Palfi, S. Millington-Ward, G.J. Farrar]

'A novel FLVCR1 variant implicated in retinitis pigmentosa', *Advances in Experimental Medicine and Biology*, 1185 (2019), 203-207 [A. Dockery, M. Carrigan, N. Wynne, K. Stephenson, D. Keegan, P.F. Kenna, G.J. Farrar]

**Humphries, Marian**, 'Properties and therapeutic implications of an enigmatic D477G RPE65 variant associated with autosomal dominant retinitis pigmentosa', *Genes*, 11, 12 (2020), 1-21 [A-S. Kiang, P.F. Kenna, M.M. Humphries (...), G.J. Farrar, P. Humphries]

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

**Humphries, Peter**, 'Dysregulated claudin-5 cycling in the inner retina causes retinal pigment epithelial cell atrophy', *JCI Insight*, 4, 15 (2019), 130273, [N. Hudson, P. Humphries, S.L. Doyle, M. Campbell]

'SARM1 deficiency promotes rod and cone photoreceptor cell survival in a model of retinal degeneration', *Life Science Alliance*, 3, 5 (2020), <http://hdl.handle.net/2262/95319> [E. Ozaki, L. Gibbons, A.M. Bowie, S.L. Doyle]

'Novel 199 base pair NEFH promoter drives expression in retinal ganglion cells', *Scientific Reports*, 10, 1 (2020), <http://hdl.handle.net/2262/95314> [S. Millington-Ward, N. Chadderton, M. Berkeley (...), P. Humphries *et al.*]

'Properties and therapeutic implications of an enigmatic D477G RPE65 variant associated with autosomal dominant retinitis pigmentosa', *Genes*, 11, 12 (2020), 1-21 [A-S. Kiang, P.F. Kenna, M.M. Humphries, E. Ozaki, R.K. Koenekoop, M. Campbell, G.J. Farrar, P. Humphries]

'Optimized OPA1 isoforms 1 and 7 provide therapeutic benefit in models of mitochondrial dysfunction', *Frontiers in Neuroscience*, 14, 571479 (2020), <http://dx.doi.org/10.3389/fnins.2020.571479> [D.M. Maloney, N. Chadderton, S. Millington-Ward (...), P. Humphries *et al.*]

'AAV-delivered *Tulp1* supplementation therapy targeting photoreceptors provides minimal benefit in *Tulp1*<sup>-/-</sup> retinas', *Frontiers in Neuroscience*, 14, 891 (2020), <http://hdl.handle.net/2262/95316> [A. Palfi, A. Yesmambetov, S. Millington-Ward, C. Shortall, P. Humphries, P.F. Kenna, N. Chadderton, G.J. Farrar]

'Non-photoreceptor expression of *Tulp1* may contribute to extensive retinal degeneration in *Tulp1*<sup>-/-</sup> mice', *Frontiers in Neuroscience*, 14, 656 (2020), <http://hdl.handle.net/2262/95317> [A. Palfi, A. Yesmambetov, P. Humphries, K. Hokamp, G.J. Farrar]

'Advanced late-onset retinitis pigmentosa with dominant-acting D477G RPE65 mutation is responsive to oral synthetic retinoid therapy', *BMJ Open Ophthalmology*, 5, 1 (2020), <http://hdl.handle.net/2262/95318> [P.F. Kenna, M.M. Humphries, A-S. Kiang (...), R. Koenekoop, P. Humphries]

'Findings from a genotyping study of over 1000 people with inherited retinal disorders in Ireland', *Genes*, 11, 1 (2020), <http://dx.doi.org/10.3390/genes11010105> [L. Whelan, A. Dockery, N. Wynne (...), P. Humphries *et al.*]

**McLaughlin, Russell**, 'Characteristic Increases in EEG connectivity correlate with changes of structural MRI in amyotrophic lateral sclerosis', *Cereb Cortex*, 29, 1 (2019), 27-41 [B. Nasseroleslami, S. Dukic, M. Broderick (...), R. McLaughlin *et al.*]

**McLysaght, Aoife**, 'Synteny-based analyses indicate that sequence divergence is not the main source of orphan genes', *eLife*, 9 (2020), <http://dx.doi.org/10.7554/elife.53500> [N. Vakirlis, A. McLysaght]

**Mitchell, Kevin**, 'Insufficient evidence for 'autism-specific' genes', *American Journal of Human Genetics*, 106, 5 (2020), 587-595 [S.M. Myers, K.J. Mitchell, H.Y. Zoghbi, C.L. Martin, D.H. Ledbetter]

## MICROBIOLOGY

**Bond, Ursula**, 'Fermentation innovation through complex hybridization of wild and domesticated yeasts', *Nat Ecol Evol*, 11 (2019), 1576-1586 [Q.K. Langdon, D. Peris, E.P. Baker (...), U. Bond *et al.*]

**Dorman, Charles**, 'Genetics in microbiology - introduction', *Microbiology Today*, 47, 1 (2020), 44-45 [C.J. Dorman]

'Bacterial gene regulatory networks and hierarchies', *Current Opinion in Microbiology*, 55 (2020), iii-v [C.J. Dorman, J. Geoghegan]



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

- 'Network rewiring: physiological consequences of reciprocally exchanging the physical locations and growth-phase-dependent expression patterns of the *Salmonella* FIS and DPS genes', *mBio*, 11, 5 (2020), e02128-20 [M.M. Bogue, A. Mogre, M.C. Beckett, N.R. Thomson, C.J. Dorman]
- 'Human health and ocean pollution', *Annals of Global Health*, 86, 1 (2020), 1-64 [P. Landrigan, J. Stegeman, C.J. Dorman, P. Rampa]
- 'Regulatory hierarchies controlling virulence gene expression in *Shigella flexneri* and *Vibrio cholerae*', *Regulation of gene expression in enteropathogenic bacteria*, Vol II, eds D. Zhou, S. Wang, X. Shen, Lausanne, Switzerland, Frontiers (2021), 382-402 [M.J. Dorman, C.J. Dorman]
- 'Consequences of producing DNA gyrase from a synthetic gyrBA operon in *Salmonella enterica* serovar Typhimurium', *Molecular Microbiology* (2021), <http://hdl.handle.net/2262/94977> [G. Pozdeev, A. Mogre, C.J. Dorman]
- Geoghegan, Joan**, 'Bacterial gene regulatory networks and hierarchies', *Current Opinion in Microbiology*, 55 (2020), iii-v [C.J. Dorman, J. Geoghegan]
- '*Staphylococcus aureus* binds to the N-terminal region of corneodesmosin to adhere to the stratum corneum in atopic dermatitis', *Proceedings of the National Academy of Sciences of the United States of America*, 118, 1 (2021), e2014444118 [A.M. Towell, C. Feuillie, P. Vitry (...), A.D. Irvine, J.A. Geoghegan]

## School of Mathematics

- Fry, Michael**, 'Nonperturbative path integral quantization of the electroweak model: the Maxwell integration', *Physical Review D*, 101, 3 (2020), 033010-1-033010-14 [M.P. Fry]
- Karageorgis, Paschalis**, 'Positive solutions for quasilinear elliptic inequalities and systems with nonlocal terms', *Journal of Differential Equations*, 268, 10 (2020), 6033-6066 [M. Ghergu, P. Karageorgis, G. Singh]
- Manschot, Jan**, 'Effective gravitational couplings of four-dimensional  $N = 2$  supersymmetric gauge theories', *JHEP*, 2020, 06 (2020), 150, [J. Manschot, G.W. Moore, X. Zhang]
- 'S-duality and refined BPS indices', *Communications in Mathematical Physics*, 380, 2 (2020), 755-810 [S. Alexandrov, J. Manschot, B. Pioline]
- Oldham, Elizabeth**, *Science and mathematics education for 21st century citizens: Challenges and ways forward*, Hauppauge, NY, Nova Science Publishers (2020), i-xxvii, 1-407 [L. Leite, E. Oldham, A.S. Afonso, F. Viseu, L. Dourado, M.H. Martinho]
- 'Introduction - teaching and learning science and mathematics in the 21st century: challenges and aspirations', *Science and mathematics education for 21st century citizens: challenges and ways forward*, eds L. Leite, E. Oldham, A.S. Afonso, F. Viseu, L. Dourado, M.H. Martinho, Hauppauge, NY, Nova Science Publishers (2020), xv-xxvii [E. Oldham, E. Price]
- 'Investigating prospective science and mathematics teachers' meanings for and representations of functions: an international study', *ATEE annual conference 2019: teacher education in a changing global context*, eds L. Shagrir, D. Parmigiani, Bath Spa, England, ATEE (2020), 80-102 [E. Oldham, M.H. Martinho, F. Viseu, R. Doggen, E. Price, L. Leite]
- 'Investigating prospective mathematics teachers' meanings for and representations of functions: a study of pre-service teachers and of students of mathematics in an Irish university', *ATEE annual conference 2019: Teacher education in a changing global context*, eds L. Shagrir, D. Davide Parmigiani, Bath Spa, England, ATEE (2020), 38-61 [E. Oldham, M. Prendergast]
- 'Reforming junior cycle: lessons from project maths', *Curriculum change within policy and practice: reforming second-level education in Ireland*, eds D. Murchan, K. Johnston, Cham, Switzerland, Palgrave Macmillan (2021), 125-142 [C. Byrne, M. Prendergast, E. Oldham]
- Zaitsev, Dmitri**, 'A geometric approach to Catlin's boundary systems', *Annales de l'Institut Fourier*, 69, 6 (2020), 2635-2679 [D. Zaitsev]

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

'A new invariant equation for umbilical points on real hypersurfaces in  $C_2$  and applications', *Communications in Analysis and Geometry*, 27, 7 (2019), 1549-1582 [P. Ebenfelt, D. Zaitsev]

'Open Access eXchange (OAeX): an economic model and platform for fundraising open scholarship services', *Insights the UKSG journal*, 33 (2020), <http://dx.doi.org/10.1629/uksg.500> [J. Hyland, A. Kouker, D. Zaitsev]

## School of Natural Sciences

### BOTANY

**Harper, Carla**, 'Morphological diversity of fungal reproductive units in the lower Devonian rhynie and windyfield cherts, Scotland: a new species of the genus *Windipila*', *PalZ*, 94 (2020), 619-632 [M. Krings, C.J. Harper]

'A Permian nurse log and evidence for facilitation in high-latitude *Glossopteris* forests', *Lethaia*, 54, 1 (2020), 96-105 [A.-L. Decombeix, T. Durieux, C.J. Harper, R. Serbet, E.L. Taylor]

'*Archaeosporites rhyniensis* gen. et sp. nov. (Glomeromycota, Archaeosporaceae), from the lower Devonian rhynie chert - a fungal lineage morphologically unchanged from more than 400 million years', *Annals of Botany*, 126, 5 (2020), 915-928 [C.J. Harper, C. Walker, A.B. Schwendemann, H. Kerp, M. Krings]

'The early Devonian fungus *Mycokidstonia sphaerialoides* from the rhynie chert is a member of the Ambisporaceae (Glomeromycota, Archaeosporales), not an ascomycete', *Review of Palaeobotany and Palynology*, 287 (2021), 104384 [C. Walker, C.J. Harper, M. Brundrett, M. Krings]

'*Rhizophydites matryoshkae* gen. et sp. nov. (fossil Chytridiomycota) on spores of the early land plant *Horneophyton lignieri* from the lower Devonian rhynie chert', *International Journal of Plant Sciences*, 182, 2 (2021), 109-122 [M. Krings, S. Serbet, C.J. Harper]

**Hodkinson, Trevor**, 'Global gene flow releases invasive plants from environmental constraints on genetic diversity', *Proceedings of the National Academy of Sciences*, 117, 8 (2020), 4218-4227 [A.L. Smith, T.R. Hodkinson, Y.M. Buckley]

'Phylogenetics of taxus using the internal transcribed spacers of nuclear ribosomal DNA and plastid trnL-F regions', *Horticulturae*, 6 (2020), 19, [P. Coughlan, J.C. Carolan, I.L.I. Hook, L. Kilmartin, T.R. Hodkinson]

'*Viola umphangensis* (Violaceae), a new species from Thailand', *Nordic Journal of Botany*, 38 (2020), 1-4 [S. Nansai, P. Srisanga, T.R. Hodkinson, C. Suwanphakdee]

'Synergy between fungal endophytes improves fruit production in strawberry cultivar', *Emergent Life Sciences Research*, 5, 1 (2019), 29-41 [B.R. Murphy, E. Soldi, M.J. Jadwiszczak, T.R. Hodkinson]

'Fungal endophytes for grass based bioremediation: an endophytic consortium isolated from *Agrostis stolonifera* stimulates the growth of *Festuca arundinacea* in lead contaminated soil', *Journal of Fungi*, 6, 4 (2020), 254, [E. Soldi, C. Casey, B.R. Murphy, T.R. Hodkinson]

'Persistence, yield, and silage quality of *Festulolium* cultivars over a consecutive five-year period under a mild Atlantic climate', *Biologia Plantarum*, 64 (2020), 856-864 [N. Curran, D. Grogan, D. Milbourne (...), T.R. Hodkinson, S. Barth]

'Genome biology of the paleotetraploid perennial biomass crop *Miscanthus*', *Nature Communications*, 11, 5442 (2020), 1-11 [T. Mitros, T.R. Hodkinson, S.P. Moose, K. Swaminathan, D.S. Rokhsar]

'A synopsis of Thai *Piper* (Piperaceae)', *Thai Forest Bulletin (Botany)*, 48, 2 (2020), 145-183 [C. Suwanphakdee, D.A. Simpson, T.R. Hodkinson, P. Chantaranonthai]

**Kavanagh, Mark**, 'Low concentrations of fertilizer and herbicide alter plant growth and interactions with flower-visiting insects', *Agriculture, Ecosystems and Environment*, 304 (2020), 107141 [L. Russo, Y.M. Buckley, H. Hamilton, M. Kavanagh, J.C. Stout]

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

**McElwain, Jennifer**, 'A novel hypothesis for the role of photosynthetic physiology in shaping macroevolutionary patterns', *Plant Physiology*, 181, 3 (2019), 1148-1162 [C. Yiotis, J.C. McElwain]

'Consistent relationship between field-measured stomatal conductance and theoretical maximum stomatal conductance in C3 woody angiosperms in four major biomes', *International Journal of Plant Sciences*, 181, 1 (2020), 142-154 [M. Murray, W.K. Soh, C. Yiotis, R.A. Spicer, T. Lawson, J.C. McElwain]

'Variability of water supply affected shoot biomass and root depth distribution of four temperate grassland species in monocultures and mixtures', *Journal of Plant Ecology*, 13, 5 (2020), 554-562 [E. Haughey, J.C. McElwain, J.A. Finn]

'A process-based ecosystem model (Paleo-BGC) to simulate the dynamic response of Late Carboniferous plants to elevated O<sub>2</sub> and aridification', *American Journal of Science*, 320, 7 (2020), 547-598 [J.D. White, I.P. Montañez, J.P. Wilson, C.J. Poulsen, J. McElwain, W.J. Mattheaus]

'Carboniferous plant physiology breaks the mold', *New Phytologist*, 227, 3 (2020), 667-679 [J.P. Wilson, J.D. White, I.P. Montañez, W.A. DiMichele, J.C. McElwain, C.J. Poulsen, M.T. Hren]

'An inter-comparison study of three stomatal-proxy methods for CO<sub>2</sub> reconstruction applied to early Jurassic ginkgoales plants', *Palaeogeography, Palaeoclimatology, Palaeoecology*, 542 (2020), 109547 [N. Zhou, Y. Wang, L. Ya (...), N. Lu, J.C. McElwain]

**Parnell, John**, *Flora of Thailand 14(4)*, Bangkok, The Forest Herbarium, Department of National Parks, Wildlife and Plant Conservation (2020), 511-699+LXXIIp [H. Balslev, K. Chayamarit, M. Newman (...), D.J. Middleton, M. Kato]

'Vitaceae', *Flora of Thailand 14(4)*, eds H. Balslev, K. Chayamarit, M. Newman (...), J. Parnell *et al.*, Bangkok, The Forest Herbarium, Department of National Parks, Wildlife and Plant Conservation (2020), 588-669 [A. Trias-Blasi, J.A.N. Parnell, P. Pongponggrueng, P. Kochaiphai]

'*Scleropyrum brevistachyum* (Santalaceae), a new species from Papua New Guinea', *Kew bulletin*, 75 (2020), 45 [J. Macklin, J.A.N. Parnell]

'Leguminosae - Papilionoideae', *Flora of Thailand 4(3.2)*, eds H. Balslev, K. Chayamarit, M. Newman (...), J. Parnell *et al.*, Bangkok, The Forest Herbarium, Department of National Parks, Wildlife and Plant Conservation (2020), 373-487+XLVIII [H. Balslev, P. Chantaranonthai]

'Towards a floristic inventory of Bat Xat nature reserve, Vietnam: thirteen new national records of vascular plants', *Wulfenia*, 27 (2020), 233-250 [B.H. Quang, T.T. Bach, S. Eum (...), J.A.N. Parnell *et al.*]

'Chromosome numbers of one hundred vascular plant species from Ireland', *Irish Naturalists' Journal*, 37, 2 (2021), 156-162 [R.J. Gornall, J.P. Bailey, R.E. Dempsey, J.A.N. Parnell]

*Thai Forest Bulletin*, eds R. Pooma, T. Utteridge, D. Simpson (...), J.A.N. Parnell *et al.*, 48, 1 (2020), 1-85

**Stout, Jane**, 'A critical analysis of the potential for EU common agricultural policy measures to support wild pollinators on farmland', *Journal of Applied Ecology*, 57 (2020), 681-694 [L.J. Cole, D. Kleijn, L.V. Dicks, J.C. Stout, R. Zemeckis, J. Scheper]

'Local-scale tree and shrub diversity improves pollination services to shea trees in tropical west African parklands', *Journal of Applied Ecology* (2020), <http://hdl.handle.net/2262/92684> [A. Delaney, A. Dembele, I. Nombé (...), C. Tayleur, J.C. Stout]

'Assessment of semi-natural habitats and landscape features on Irish farmland: new insights to inform EU common agricultural policy implementation', *Ambio* (2021), <https://doi.org/10.1007/s13280-020-01344-6> [R. Rotchés-Ribalta, S. Ruas, K.D. Ahmed, M. Gormally, J. Moran, J. Stout, B. White, D. Ó hUallacháin]

'Plant protection product residues in plant pollen and nectar: a review of current knowledge', *Environmental Research* (2020), 109873 [E. Zioga, R. Kelly, B. White, J.C. Stout]

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

- 'Low concentrations of fertilizer and herbicide alter plant growth and interactions with flower-visiting insects', *Agriculture, Ecosystems and Environment*, 304 (2020), 107141 [L. Russo, Y.M. Buckley, H. Hamilton, M. Kavanagh, J.C. Stout]
- 'Linear habitats across a range of farming intensities contribute differently to dipteran abundance and diversity', *Insect Conservation and Diversity* (2020), <http://hdl.handle.net/2262/94129> [K.S.D Ahmed, A. Volpato, M.F. Day (...) J.C. Stout *et al.*]
- Waldren, Stephen**, 'Mapping vegetation communities inside wetlands using Sentinel-2 imagery in Ireland', *International Journal of Applied Earth Observations and Geoinformation*, 88 (2020), 10283 [S. Bhatnagar, L.W. Gill, S. Regan, O. Naughton, P.M. Johnston, S. Waldren, B. Ghosh]
- 'Above- to below-ground vegetation biomass ratio in temperate north-east Atlantic salt-marshes increases strongly with soil nitrogen gradient', *Ecosystems*, 23 (2020), 648-661 [M.R. Penk, P.M. Perrin, S. Waldren]
- 'Nutrients in saltmarsh soils are weakly related to those in adjacent coastal waters', *Estuaries and Coasts*, 42 (2019), 675-687 [M.R. Penk, R. Wilkes, P.M. Perrin, S. Waldren]
- 'Plant diversity and community composition in temperate northeast Atlantic salt marshes are linked to nutrient concentrations', *Applied Vegetation Science*, 23 (2020), 3-13 [M.R. Penk, P.M. Perrin, R. Kelly, F. O'Neill, S. Waldren]
- 'Vegetation richness and rarity in habitats of European conservation value in Ireland', *Ecological Indicators*, 117 (2020), [doi.org/10.1016/j.ecolind.2020](https://doi.org/10.1016/j.ecolind.2020) [P.M. Perrin, S. Waldren]
- GEOGRAPHY
- Carmody, Pdraig**, 'Economic-geographic theory from the south: African experience in the global economy', *Geoforum*, 115 (2020), 60-63 [P. Carmody]
- 'A green economy transition in south Africa? The case of atlantis greentech special economic zone', *Journal of Modern African Studies*, 58, 2 (2020), 189-211 [R. Grant, P. Carmody, J. Murphy]
- Cugurullo, Federico**, 'Shared autonomous mobility-on-demand: learning-based approach and its performance in the presence of traffic congestion', *IEEE Intelligent Transportation Systems Magazine* (2020), <http://hdl.handle.net/2262/94312> [M. Gueriau, F. Cugurullo, R.A. Acheampong, I. Dusparic]
- 'The transition to autonomous cars, the redesign of cities and the future of urban sustainability', *Urban Geography* (2020), <https://doi.org/10.1080/02723638.2020.1746096> [F. Cugurullo, R. Acheampong, M. Gueriau, I. Dusparic]
- 'Urban artificial intelligence: from automation to autonomy in the smart city', *Frontiers in Sustainable Cities*, 2 (2020), 1-14 [F. Cugurullo]
- 'The sustainability of artificial intelligence: an urbanistic viewpoint from the lens of smart and sustainable cities', *Sustainability*, 12, 20 (2020), 8548, [Y. Tan, F. Cugurullo]
- Davies, Anna**, 'Public participation, engagement, and climate change adaptation: a review of the research literature', *WIREs Climate Change*, 11 (2020), <http://dx.doi.org/10.1002/wcc.645> [S. Hügel, A.R. Davies]
- Edwards, Robin**, 'Final deglaciation of the Malin Sea through meltwater release and calving events', *Scottish Journal of Geology*, 56, 2 (2020), 117-133 [S. Tarlati, S. Benetti, S.L. Callard (...), R. Edwards *et al.*]
- Moeller, Iris**, 'Resistance of salt marsh substrates to near-instantaneous hydrodynamic forcing', *Earth Surface Processes and Landforms* (2020), <http://dx.doi.org/10.1002/esp.4912> [H. Brooks, I. Moller, S. Carr (...), T. Spencer, K. Roysel]
- 'Field observation of saltmarsh-edge morphology and associated vegetation characteristics in an open-coast tidal flat', *Journal of Coastal Research*, 95, sp1 (2020), 412-416 [L. Chen, Z. Zhou, F. Xu, I. Moller, C. Zhang]

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

- 'Understanding spatio-temporal barrier dynamics through the use of multiple shoreline proxies', *Geomorphology* (2020), <https://doi.org/10.1016/j.geomorph.2020.107058> [J.A. Pollard, T. Spencer, S.M. Brooks, E.K. Christie, I. Möller]
- O'Callaghan, Cian, 'Struggles over property in the 'post-political' era: notes on the political from Rome and Dublin', *Environment and Planning C: Politics and Space* (2020), <http://dx.doi.org/10.1177/2399654419870812> [C. Di Feliciantonio, C. O'Callaghan]
- 'Streamers (Spotify)', *How to Run a City Like a Company and Other Fables*, eds G.M. Kitchin, S. Mattern, J. Shaw, Oxford, Meatspace Press (2019), 955-1034 [C. O'Callaghan]
- Sokol, Martin, 'New financial geographies of Asia', *Regional Studies*, 54, 2 (2020), 143-148 [K.P.Y. Lai, F. Pan, M. Sokol, D. Wójcik]
- 'Winners and losers in coronavirus times: financialisation, financial chains and emerging economic geographies of the covid-19 pandemic', *Tijdschrift voor Economische en Sociale Geografie*, 111, 3 (2020), 401-415 [M. Sokol, L. Pataccini]

### Research student

- Nic Lochlainn, Grainne Maedhbh, 'Networked geographies of digital contention in post-financial crisis Ireland', *Tijdschrift voor Economische en Sociale Geografie (Journal of Economic and Social Geography)* (2019), <http://hdl.handle.net/2262/93883> [M. Nic Lochlainn]

### GEOLOGY

- Chew, David, 'LA-ICP-MS imaging in the geosciences and its applications to geochronology', *Chemical Geology*, 559 (2021), 119917 [D. Chew, K. Drost, J.H. Marsh, J.A. Petrus]
- 'Pre-orogenic upper crustal softening by lower greenschist facies metamorphic reactions in granites of the central Pyrenees', *Journal of Metamorphic Geology*, 38, 2 (2020), 183-204 [L. Airaghi, N. Bellahsen, B. Dubacq, D. Chew, C. Rosenberg, E. Janots, M. Waldner, V. Magnin]
- 'Temperate rainforests near the South Pole during peak Cretaceous warmth', *Nature*, 580, 7801 (2020), 81-86 [J.P. Klages, U. Salzmann, T. Bickert, D. Chew, M. Scheinert]
- 'Diffusion and fluid interaction in ironogay pegmatite (Madagascar): evidence from in-situ <sup>40</sup>Ar/<sup>39</sup>Ar dating of gem-quality alkali feldspar and U Pb dating of protogenetic apatite inclusions', *Chemical Geology*, 556 (2020), 119841 [D.V. Popov, R.A. Spikings and S. Scaillet]
- 'The clastic record of a Wilson cycle: evidence from detrital apatite petrochronology of the Grampian-Taconic fore-arc', *Earth and Planetary Science Letters*, 552 (2020), 116588 [G.J. O'Sullivan, D.M. Chew]
- 'U-Pb zircon geochronology of the Ediacaran volcano - sedimentary succession of the NE Saghro inlier (anti-atlas, Morocco): chronostratigraphic correlation on the northwestern margin of Gondwana', *Gondwana Research*, 87 (2020), 263-277 [Z. Yajjoui, B. Karaoui, D. Chew, C. Breitkreuz, A. Mahmoudij]
- 'Laser ablation inductively coupled plasma mass spectrometry (LA-ICP-MS) U-Pb carbonate geochronology: strategies, progress, and limitations', *Geochronology*, 2, 1 (2020), 33-61 [N.M.W. Roberts, K. Drost, M.S.A. Horstwood, D.J. Condon, D. Chew, J.K. Lee]
- 'Characterisation and geodynamic setting of the 1 Ga granitoids of the Karagwe-Ankole belt (KAB), Rwanda', *Precambrian Research*, 356 (2021), <http://dx.doi.org/10.1016/j.precamres.2021.106124> [S. De Clercq, D. Chew, G. O'Sullivan, T. De Putter, J. De Grave, S. Dewaele]
- 'Tracing proto-Rheic - Qaidam ocean vestiges into the western Tatra mountains and implications for the Palaeozoic palaeogeography of central Europe', *Gondwana Research*, 91 (2021), 188-204 [J. Burda, U. Klotzli, J. Majka, D. Chew, Q-L. Li, Y. Liu, A. Gaweda, M. Wiedenbeck]
- 'All mixed up: Pb isotopic constraints on the transit of sands through the Mississippi-Missouri river drainage basin, North America', *Bulletin of the Geological Society of America*, 131, 9-10 (2019), 1501-1518 [A. Blowick, P. Houghton, S. Tyrrell, J. Holbrook, D. Chew, P. Shannon]

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

- Crowley, Quentin**, 'The impact of on-site wastewater effluent on rural karstified aquifers', *EGU2020: sharing geoscience online, EGU general assembly 2020* (2020), <http://hdl.handle.net/2262/91933> [L. Vucinic, D. O'Connell, D. Dubber, P. Behan, Q. Crowley, C. Coxon, L. Gill]
- 'Detrital zircon provenance of Triassic sandstone of the Algarve Basin (SW Iberia): evidence of Gondwanan-and Laurussian-type sources of sediment', *Geological Magazine* (2020), <https://doi.org/10.1017/S0016756820000370> [C. Gama, M. Pereira, Q. Crowley, I. Dias da Silva, J. Silva]
- 'Detrital Zircon U-Pb LA-ICPMS ages from the Kolhan group, Singhbhum craton, eastern India: implications for terminal Mesoproterozoic paleogeography between Columbia and Rodinia along the central Indian tectonic zone', *Geological Journal*, 56, 1 (2021), 60-78 [J. Mukhopadhyay, Q. Crowley, B. Ghosh, G. Ghosh, K. Heron]
- 'Application of airborne radiometric surveys for large-scale geogenic radon potential classification', *Journal of the European Radon Association* (2020), <http://hdl.handle.net/2262/93561> [J. Elío, Q. Crowley, R. Scanlon, J. Hodgson, S. Long, M. Cooper, V. Gallagher]
- 'Geogenic radon potential mapping using geospatial analysis of multiple radon-related variables: a case study from southeastern Ireland', *EGU general assembly conference abstracts, EGU* (2020), 4884 [M. Mousavi, Q. Crowley]
- Ferreira Louro Silva, Ricardo**, 'Sedimentary organic matter and early Toarcian environmental changes in the Lusitanian basin (Portugal)', *Palaeogeography, Palaeoclimatology, Palaeoecology*, 554 (2020), <http://dx.doi.org/10.1016/j.palaeo.2020.109781> [B. Rodrigues, L.V. Duarte, R.L. Silva, J.G. Mendonca Filho]
- 'Total organic carbon and pyrolysis analysis of the lower Cretaceous in Compton bay and Atherfield, Isle of Wight (England)', *Proceedings of the Geologists' Association*, 131, 1 (2020), 51-59 [R.L. Silva, G.D. Wach, S.P. Hesselbo, D.E. O'Connor.]
- 'Late Pliensbachian - early Toarcian palaeoenvironmental dynamics and the Pliensbachian-Toarcian event in the middle atlas basin (Morocco)', *International Journal of Coal Geology*, 217 (2020), <http://dx.doi.org/10.1016/j.coal.2019.103339> [B. Rodrigues, R.L. Silva, J.G.M. Filho, D. Sadki, J.O. Mendonca, L.V. Duarte]
- 'Oceanic organic carbon as a possible first-order control on the carbon cycle during the Bathonian-Callovian', *Global and Planetary Change*, 184 (2020), <http://dx.doi.org/10.1016/j.gloplacha.2019.103058> [R.L. Silva, L.V. Duarte, G.D. Wach, N. Morrison, T. Campbell]
- 'Sedimentary organic matter and-13CKerogen variation on the southern Iberian palaeomargin (Betic Cordillera, SE Spain) during the latest Pliensbachian - early Toarcian', *Palaeogeography, Palaeoclimatology, Palaeoecology*, 534 (2019), <http://dx.doi.org/10.1016/j.palaeo.2019.109342> [B. Rodrigues, R.L. Silva, M. Reolid, J.G. Mendonca Filho, L.V. Duarte]
- 'Kerogen assemblages and -13CKerogen of the uppermost Pliensbachian - lower Toarcian succession of the Asturian Basin (northern Spain)', *International Journal of Coal Geology*, 229 (2020), <http://dx.doi.org/10.1016/j.coal.2020.103573> [B. Rodrigues, R.L. Silva, J.G. Mendonca Filho, M.J. Comas-Rengifo, A. Goy, L.V. Duarte]
- Graham, John**, 'The structure and stratigraphical relations of the Lough Nafooy group, South Mayo', *Irish Journal of Earth Sciences*, 37 (2019), 1-18 [J.R. Graham]
- 'A reliable age for the Louisburgh Clare Island succession and its significance in the stabilisation of the Laurentian margin in Ireland', *Irish Journal of Earth Sciences*, 38 (2020), 5-14 [J.R. Graham, N.R. Riggs, B. McConnell]
- Ruhl, Micha**, 'Comments on - Paleosalinity determination in ancient epicontinental seas: a case study of the T-OAE in the Cleveland basin (UK) M.N. Ramirez, T.J. Algeo', *Earth-Science Reviews*, 208 (2020), <http://dx.doi.org/10.1016/j.earscirev.2020.103290> [S.P. Hesselbo, C.T.S. Little, M. Ruhl, N. Thibault, C.V. Ullmann]



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

- 'The Cyclostratigraphy Intercomparison Project (CIP): consistency, merits and pitfalls', *Earth-Science Reviews*, 199 (2019), <http://dx.doi.org/10.1016/j.earscirev.2019.102965> [M. Sinnesael, D. De Vleeschouwer, C. Zeeden (...), M. Ruhl *et al.*]
- 'Controls on the Cd-isotope composition of upper Cretaceous (Cenomanian-Turonian) organic-rich mudrocks from south Texas (Eagle Ford group)', *Geochimica et Cosmochimica Acta*, 287 (2020), 251-262 [T.C. Sweere, A.J. Dickson, H.C. Jenkyns (...), M. Ruhl *et al.*]
- 'Sedimentology and carbon isotope stratigraphy of the Rhaetian Hochalm section (Late Triassic, Austria)', *Global and Planetary Change*, 191 (2020), <http://dx.doi.org/10.1016/j.gloplacha.2020.103210> [M. Rizzi, N. Thibault, C.V. Ullmann (...), M. Ruhl *et al.*]
- 'Mercury anomalies and carbon isotope excursions in the western Tethyan Cs-vár section support the link between CAMP volcanism and the end-Triassic extinction', *Global and Planetary Change*, 194 (2020), <http://dx.doi.org/10.1016/j.gloplacha.2020.103291> [E.B. Kovács, M. Ruhl, A. Demény (...), Z. Vallner, J. Pálffy]
- 'On the onset of Central Atlantic Magmatic Province (CAMP) volcanism and environmental and carbon-cycle change at the Triassic-Jurassic transition (Neuquén basin, Argentina)', *Earth-Science Reviews*, 208 (2020), <http://dx.doi.org/10.1016/j.earscirev.2020.103229> [M. Ruhl, S.P. Hesselbo, A. Al-Suwaidi (...), T.A. Mather, A.C. Riccardi]
- 'Orbital pacing and secular evolution of the Early Jurassic carbon cycle', *Proceedings of the National Academy of Sciences of the United States of America*, 117, 8 (2020), 3974-3982 [M.S. Storm, S.P. Hesselbo, H.C. Jenkyns (...), M. Ruhl *et al.*]
- 'Palaeovegetation and palaeoclimate changes across the Triassic-Jurassic transition in the Sichuan basin, China', *Palaeogeography, Palaeoclimatology, Palaeoecology*, 556 (2020), <http://dx.doi.org/10.1016/j.palaeo.2020.109891> [L. Li, Y. Wang, W.M. Kürschner, M. Ruhl, V. Vajda]
- Sevastopulo, George**, 'Homology of posterior interlay plates in crinoids: a review and new perspectives from phylogenetic, the fossil record and development', *Palaeontology* (2020), 1-21 [W.I. Ausich, D.F. Wright, S.R. Cole, G.D. Sevastopulo]
- Tomlinson, Emma**, 'Chemical zoning and open system processes in the Laacher See magmatic system', *Contributions to Mineralogy and Petrology*, 175, 3 (2020), <http://hdl.handle.net/2262/92710> [E.L. Tomlinson, V.C. Smith, M.A. Menzies]
- 'Microanalysis of Cl, Br and I in apatite, scapolite and silicate glass by LA-ICP-MS', *Chemical Geology*, 557 (2020), 119854, [J.T. Caulfield, E.L. Tomlinson, D.M. Chew, M.A.W. Marks, C.A. McKenna, T. Ubide, V.C. Smith]
- 'Tracking halogen recycling and volatile loss in kimberlite magmatism from Grenland: evidence from combined F-Cl-Br and  $\delta^{37}\text{Cl}$  systematics', *Lithos* (2021), <http://hdl.handle.net/2262/94717> [B.C. Hoare, E.L. Tomlinson, J.D. Barnes, S. Tappe, M.A.W. Marks, T. Epp, J. Caulfield, T. Riegler]
- Wyse Jackson, Patrick**, 'Obituary: Gordon Leslie Herries Davies (1932-2019)', *Archives of Natural History*, 47, 1 (2020), 190-201 [H. Torrens, P.N. Wyse Jackson]
- 'In memorium: Françoise Bigey (1941-2019)', *IBA Bulletin*, 16, 1 (2020), 12-14 [J.-L. d'Hondt, P.N. Wyse Jackson]
- 'An appreciation: Charles Hepworth Holland (1923-2019), founding editor of the Irish Journal of Earth Sciences', *Irish Journal of Earth Sciences*, 38 (2020), 1-4 [P.N. Wyse Jackson, M.A. Parkes, J. Murray]
- 'Charles Hepworth Holland 1923-2019', *Palaeontology Newsletter*, 104 (2020), 81-83 [G.D. Sevastopulo, P.N. Wyse Jackson]
- 'Gordon Leslie Herries Davies (1932-2019): honorary senior member (2003) [Ireland]', *International commission on the history of geological sciences INHIGEO annual record*, 52 (2020), 58-60 [H. Torrens, P.N. Wyse Jackson]

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

'Adrian John Bancroft (1958-2020): an appreciation', *IBA Bulletin*, 16, 2 (2020), 14-16 [P.N. Wyse Jackson]

'Connemara marble, Galway, Ireland: a global heritage stone resource proposal', *Geological society of London Special Publications*, 486 (2020), 251-268 [P.N. Wyse Jackson, L. Caulfield, M. Feely, A. Joyce jr., M.A. Parkes]

### ZOOLOGY

**Buckley, Yvonne**, 'Global gene flow releases invasive plants from environmental constraints on genetic diversity', *Proceedings of the National Academy of Sciences*, 117, 8 (2020), 4218-4227 [A.L. Smith, T.R. Hodkinson, A. Wingler, Y.M. Buckley]

'Low concentrations of fertilizer and herbicide alter plant growth and interactions with flower-visiting insects', *Agriculture, Ecosystems and Environment*, 304 (2020), 107141 [L. Russo, Y.M. Buckley, H. Hamilton, M. Kavanagh, J.C. Stout]

'Dominant native and non-native graminoids differ in key leaf traits irrespective of nutrient availability', *Global Ecology and Biogeography*, 29, 7 (2020), 1126-1138 [A.A.D. Broadbent, J. Finn, J.M. McGree (...), Y.M. Buckley *et al.*]

'Predicting the ecosystem-wide impacts of eradication with limited information using a qualitative modelling approach', *Ecological Modelling*, 430 (2020), 109122 [Y. Han, N.P. Kristensen, Y.M. Buckley, D.J. Maple, J. West, E. McDonald-Madden]

**Donohue, Ian**, 'Infection with behaviour-manipulating parasites enhances bioturbation by key aquatic detritivores', *Parasitology*, 146, 12 (2019), 1528-1531 [M.A. Williams, I. Donohue, J. Picard, F. O'Keefe, C.V. Holland]

'Coping with multiple enemies: pairwise interactions do not predict evolutionary change in complex multitrophic communities', *Oikos*, 128 (2019), 1588-1599 [D. McClean, V-P. Friman, A. Finn, L.I. Salzberg, I. Donohue]

'Advancing our understanding of ecological stability', *Ecology Letters*, 22 (2019), 1349-1356 [S. Kéfi, V. Dominguez-Garcia, I. Donohue, C. Fontaine, E. Thébault, V. Dakos]

'Measuring resilience is essential to understand it', *Nature Sustainability*, 2 (2019), 895-897 [S.L. Pimm, I. Donohue, J.M. Montoya, M. Loreau]

'The predictability of ecological stability in a noisy world', *Nature Ecology and Evolution*, 3 (2019), 251-259 [Q. Yang, M.S. Fowler, A.L. Jackson, I. Donohue]

'Going beyond gross domestic product as an indicator to bring coherence to the sustainable development goals', *Journal of Cleaner Production*, 248 (2020), 119232 [L. Coscieme, L.F. Mortensen, S. Anderson, J. Ward, I. Donohue, P.C. Sutton]

'Integrating the underlying structure of stochasticity into community ecology', *Ecology*, 101 (2020), e02922 [L.G. Shoemaker, L.L. Sullivan, I. Donohue (...), Q. Yang, K.C. Abbott]

**Holland, Celia**, 'Invasive freshwater fish act as a sink for a parasite of native brown trout *Salmo trutta*', *Biological Invasions*, 22 (2020), 2235-2250 [P. Tierney, J.M. Caffrey, S. Vogel, S.M. Matthews, E. Costantini, C.V. Holland]

**Jackson, Andrew**, 'Vegetated habitats trophically support early development stages of a marine migrant fish in a coastal lagoon', *Estuaries and Coasts*, 43, 2 (2020), 424-437 [C. Andolina, P. Franzoi, A.L. Jackson, A. Mazzola, S. Vizzini]

'Niche-related processes in island intertidal communities inferred from stable isotopes data', *Ecological Indicators*, 104 (2019), 648-658 [R. Andrades, A.L. Jackson, R.M. Macieira, J.A. Reis-Filho, A.F. Bernardino, J-C. Joyeux, T. Giarrizzo]

'Stable isotopes are quantitative indicators of trophic niche', *Ecology Letters*, 22, 11 (2019), 1990-1992 [H.H. Marshall, R. Inger, A.L. Jackson, R.A. McDonald, F.J. Thompson, M.A. Cant]

'The predictability of ecological stability in a noisy world', *Nature Ecology and Evolution*, 3, 2 (2019), 251-259 [Q. Yang, M.S. Fowler, A.L. Jackson, I. Donohue]

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

O'Connor, Nessa, 'Sustainable harvesting of the ecosystem engineer *Corallina officinalis* for biomaterials', *Frontiers in Marine Science*, 6 (2019), 285, [C.L. Magill, C.A.M. Maggs, M.P. Johnson, N.E. O'Connor]

'Can an invasive species compensate for the loss of a declining native species? Functional similarity of native and introduced oysters', *Marine Environmental Research*, 153 (2020), 104793, [N. Zwerschke, L. Eagling, D. Roberts, N.E. O'Connor]

'Edge effects are not linked to key ecological processes in a fragmented biogenic reef', *Estuaries and Coasts*, 43 (2020), 708-721 [C. Bertolini, W.I. Montgomery, N.E. O'Connor]

Payne, Nicholas, 'Fish body sizes change with temperature but not all species shrink with warming', *Nature Ecology and Evolution*, 4, 6 (2020), 809-814 [A. Audzijonyte, S.A. Richards, R.D. Stuart-Smith, G. Pecl, G.J. Edgar, N.S. Barrett, N. Payne, J.L. Blanchard]

'Scalloped hammerhead sharks swim on their side with diel shifts in roll magnitude and periodicity', *Animal Biotelemetry*, 8, 1 (2020), <http://dx.doi.org/10.1186/s40317-020-00196-x> [M. Royer, K. Maloney, C. Meyer, E. Cardona, N. Payne, K. Whittingham, G. Silva, C. Blandino, K. Holland]

Puy, Javier, 'Competition-induced transgenerational plasticity influences competitive interactions and leaf decomposition of offspring', *New Phytologist*, 229, 6 (2021), 3497-3507 [J. Puy, F. de Bello, N.G. Medina, V. Latzel, C.P. Carmona]

'Ecological differentiation of *Carex* species coexisting in a wet meadow: comparison of pot and field experiments', *Acta Oecologica*, 110 (2021), <http://dx.doi.org/10.1016/j.actao.2020.103692> [K. Tammara, J. Kosnar, A.F. Abbas (...), J. Puy, J. Leps]

'Diversity of parental environments increases phenotypic variation in *Arabidopsis* populations more than genetic diversity but similarly affects productivity', *Annals of Botany* (2020), <http://dx.doi.org/10.1093/aob/mcaa100> [J. Puy, C.P. Carmona, H. Dvořáková, V. Latzel, F. de Bello]

'Colonization resistance and establishment success along gradients of functional and phylogenetic diversity in experimental plant communities', *Journal of Ecology*, 107, 5 (2019), 2090-2104 [T. Galland, G. Adeux, H. Dvořáková (...), J. Puy *et al.*]

White, Hannah, 'Quantifying large-scale ecosystem stability with remote sensing data', *Remote Sensing in Ecology and Conservation*, 6, 3 (2020), 354-365 [H.J. White, W. Gaul, D. Sadykova (...), N. Pettorelli, A. Ziłszczy]

'Towards ecological science for all by all', *Journal of Applied Ecology*, 58, 2 (2021), 206-213 [I. Thornhill, J.H.C. Cornelissen, J.M. McPherson, S. MacBride-Stewart, Z. Mohamad, H.J. White, Y.F. Wiersma]

'Data quantity is more important than its spatial bias for predictive species distribution modelling', *PeerJ*, 8 (2020), <http://dx.doi.org/10.7717/peerj.10411> [W. Gaul, D. Sadykova, H.J. White, L. Leon-Sanchez, P. Caplat, M.C. Emmerson, J.M. Yearsley]

'What have biological records ever done for us? A systematic scoping review', *Frontiers of Biogeography*, 12, 4 (2020), 1-13 [W. Gaul, D. Sadykova, E. Roark, H.J. White L. Leon-Sanchez, P. Caplat, J.M. Yearsley]

'Species-area relationships in continuous vegetation: evidence from Palaeartic grasslands', *Journal of Biogeography*, 47, 1 (2020), 72-86 [J. Dengler, T.J. Matthews, H. White, M. Winkler, I. Biurrun]

'The ZtvelB gene is required for vegetative growth and sporulation in the wheat pathogen *Zymoseptoria tritici*', *Frontiers in Microbiology*, 10 (2019), <http://dx.doi.org/10.3389/fmicb.2019.02210> [A.M.M. Tiley, H.J. White, G.D. Foster, A.M. Bailey]

'Land cover drives large scale productivity-diversity relationships in Irish vascular plants', *PeerJ*, 2019, 5 (2019), <http://dx.doi.org/10.7717/peerj.7035> [H.J. White, W. Gaul, D. Sadykova, L. Leon-Sanchez, P. Caplat, M.C. Emmerson, J.M. Yearsley]

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

TRINITY CENTRE FOR THE ENVIRONMENT

- Collier, Marcus**, 'Nature-based solutions for urban climate change adaptation: linking the science, policy, and practice community for evidence-based decision-making', *Bioscience*, 69, 6 (2019), 455-466 [N. Frantzeskaki, T. McPhearson, M.J. Collier (...), C. Oke, L. Pintér]
- 'Examining the policy needs for implementing nature-based solutions in cities: findings from city-wide transdisciplinary experiences in Glasgow (UK), Genk (Belgium) and Poznan (Poland)', *Land Use Policy*, e104668 (2020), 0-0 [N. Frantzeskaki, P. Vandergert, S. Connop, K. Schipper, K. Zwierchowska, M.J. Collier, M. Lodder]
- 'Nature-based solutions and interventions in cities', *Physical activity in natural settings: green and blue exercise*, eds A.A. Donnelly, T.E. MacIntyre, London, Routledge (2019), 335-348 [T.E. MacIntyre, C. Gidlow, M. Nieuwenhuijsen, M. Baronian, M. Collier, S. Gritzka, G. Warrington]
- 'Identifying principles for the design of robust impact evaluation frameworks for nature-based solutions in cities', *Environmental Science and Policy*, 112 (2020), 107-116 [A. Dumitru, N. Frantzeskaki, M.J. Collier]
- 'ReNature: creating the first nature-based solutions compendium in the Mediterranean', *Research Ideas and Outcomes*, 6, e59646 (2020), 0-0 [A. Sapundzhieva, M.V. Balzan, J. Tomaskinova (...), M.J. Collier et al.]
- 'Building capacity for mainstreaming nature-based solutions into environmental policy and landscape planning', *Research Ideas and Outcomes*, 6, e58970 (2020), 0-0 [M.V. Balzan, J. Tomaskinova, M.J. Collier (...), P. Stoev, A. Sapundzhieva]
- 'Capacity-building and networking events for nature-based solutions and re-naturing in Malta', *Research Ideas and Outcomes*, 6, e60893 (2020), 0-0 [J. Tomaskinova, L. Dicks, M.J. Collier (...), A. Sapundzhieva, M.V. Balzan]
- 'Priority knowledge needs for implementing nature-based solutions in the Mediterranean islands', *Environmental Science and Policy*, 116 (2021), 56-68 [M. Grace, M. Balzan, M.J. Collier (...), A. Zammit, L.V. Dicks]
- 'The case for mainstreaming nature-based solutions into integrated catchment management in Ireland', *Biology and Environment: Proceedings of the Royal Irish Academy*, 102B, 2 (2020), 107-113 [M.J. Collier, M. Bourke]
- 'Ground flora of field boundary dry stone walls in the Burren, Ireland', *British and Irish Botany*, 2, 4 (2020), 352-376 [L. Hollingsworth, M.J. Collier]
- 'Innovating with nature: from nature-based solutions to nature-based enterprises', *Sustainability*, 13, 3 (2021), 1263 [E.D. Kooijman, S. McQuaid, M-L. Rhodes, M.J. Collier, F. Pilla]
- Coxon, Catherine**, 'A new sensitive method for the simultaneous chromatographic separation and tandem mass spectrometry detection of anticoccidials, including highly polar compounds, in environmental waters', *Journal of Chromatography A*, 1618 (2020), 460857, [D. Mooney, C. Coxon, K.G. Richards, L.W. Gill, P-E. Mellander, M. Danaher]
- 'An investigation of anticoccidial veterinary drugs as emerging organic contaminants in groundwater', *Science of the Total Environment*, 746 (2020), 141116 [D. Mooney, K.G. Richards, M. Danaher, J. Grant, L. Gill, P-E. Mellander, C.E. Coxon]
- 'An analysis of the spatio-temporal occurrence of anthelmintic veterinary drug residues in groundwater', *Science of the Total Environment*, 769 (2021), 144804 [D. Mooney, K.G. Richards, M. Danaher, J. Grant, L. Gill, P-E. Mellander, C.E. Coxon]
- Crowley, Quentin**, 'Development of a geogenic radon hazard index-concept, history, experiences', *International Journal of Environmental Research and Public Health*, 17, 11 (2020), <http://hdl.handle.net/2262/92754> [P. Bossew, G. Cinelli, G. Ciotoli (...), G. Crowley et al.]
- 'Using geogenic radon potential to assess designation of radon priority areas in Ireland', EGU general assembly conference abstracts, EGU (2020), 4672 [M. Hughes, Q. Crowley]

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

**Gray, Nicholas**, *Fixed-film reactors in wastewater treatment*, First, Singapore, World Scientific Publishing (2020), 1-300 [N.F. Gray]

**Piggott, Jeremy**, 'Multiple stressors in Australia and New Zealand: key stressors and interactions', *multiple stressors in river ecosystems*, eds S. Sabater, A. Elozegi, R. Ludwig, Elsevier (2019), 221-233 [C.D. Matthaei, J.J. Piggott]

'Anthropogenic stressors affect fungal more than bacterial communities in decaying leaf litter: a stream mesocosm experiment', *Science of the Total Environment*, 716 (2020), 135053 [N.P.D. Juvigny-Khenafou, Y. Zhang, J.J. Piggott, D. Atkinson, C.D. Matthaei, S.A. Van Bael, N. Wu]

'Multiple-stressor effects of dicyandiamide (DCD) and agricultural stressors on trait-based responses of stream benthic algal communities', *Science of the Total Environment*, 693 (2019), 133305 [R.K. Salis, A. Bruder, J.J. Piggott, T.C. Summerfield, C.D. Matthaei]

'Towards a unified study of multiple stressors: divisions and common goals across research disciplines', *Proceedings. Biological Sciences*, 287, 1926 (2020), 20200421 [J.A. Orr, R.D. Vinebrooke, M.C. Jackson, K.J. Kroeker, R.L. Kordas, J.J. Piggott]

'Fine sediment and flow velocity impact bacterial community and functional profile more than nutrient enrichment', *Ecological Applications*, 31, 1 (2021), e02212 [N.P.D. Juvigny-Khenafou, J.J. Piggott, D. Atkinson, Y. Zhang, N. Wu, C.D. Matthaei]

'Impacts of multiple anthropogenic stressors on stream macroinvertebrate community composition and functional diversity', *Ecology and Evolution*, 11, 1 (2020), 133-152 [N.P.D. Juvigny-Khenafou, J.J. Piggott, D. Atkinson, Y. Zhang, S.J. Macaulay, N. Wu, C.D. Matthaei]

'Making waves. bridging theory and practice towards multiple stressor management in freshwater ecosystems', *Water Research* (2021), 116981 [B.M. Spears, D.S. Chapman, L. Carvalho, C.K. Feld, M. O Gessner, J.J. Piggott, S. Birk]

'Expanding ecological assessment by integrating microorganisms into routine freshwater biomonitoring', *Water Research*, 191 (2021), 116767 [M. Sagova-Mareckova, J.J. Piggott, J.C. Rusch, R. Salis, M. Zupancic, T. Stoeck]

'Imidacloprid dominates the combined toxicities of neonicotinoid mixtures to stream mayfly nymphs', *Science of the Total Environment*, 761 (2021), 143263 [S.J. Macaulay, K.J. Hageman, J.J. Piggott, C.D. Matthaei]

'Time-cumulative effects of neonicotinoid exposure, heatwaves and food limitation on stream mayfly nymphs: a multiple-stressor experiment', *Science of the Total Environment*, 754 (2021), 141941 [S.J. Macaulay, K.J. Hageman, J.J. Piggott, C.D. Matthaei]

**Waldren, Stephen**, 'Development of a scoring method to identify important areas of plant diversity in Ireland', *Journal for Nature Conservation*, 47 (2019), 1-11 [A. Walsh, C. Sullivan, S. Waldren, J. Finn]

### Research student

Ó **Marcaigh, Fionn**, 'Cryptic sexual dimorphism reveals differing selection pressures on continental islands', *Biotropica*, 53, 1 (2021), 121-129 [F. Ó Marcaigh, D.J. Kelly, K. Analuddin, A. Karya, N. Lawless, N.M. Marples]

'The avifauna of Ankobohobo wetland, a neglected important bird area in northwestern Madagascar', *Scopus: Journal of East African Ornithology*, 40, 2 (2020), 18-28 [F. Ó Marcaigh, J. Neaves, P. Long, T.E. Martin]

### School of Physics

**Bello, Frank**, 'Shaping and storing magnetic data using pulsed plasmonic nanoheating and spin-transfer torque', *ACS Photonics*, 6, 6 (2019), 1524-1532 [F. Bello, S. Sanvito, O. Hess, J.F. Donegan]

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

- 'Less is more: improved thermal stability and plasmonic response in Au films via the use of subnanometer Ti adhesion layers', *ACS Applied Materials and Interfaces*, 11, 7 (2019), 7607-7614 [W.M. Abbott, C.P. Murray, C. Zhong (...), F. Bello *et al.*]
- 'Tuning behaviour of slotted vernier widely tunable lasers', *Optics express*, 27, 12 (2019), 17122-17137 [M.J. Wallace, G. Jain, R. McKenna, F. Bello, J.F. Donegan]
- Blau, Werner**, 'Two-photon absorption in monolayer MXenes', *Advanced Optical Materials*, 8, 9 (2020), <http://hdl.handle.net/2262/95624> [G. Wang, D. Bennett, C. Zhang (...), V. Nicolosi, W.J. Blau]
- Bradley, Louise**, 'Influence of gold nano-bipyramid dimensions on strong coupling with excitons of monolayer MoS<sub>2</sub>', *ACS Appl. Mater. Interfaces*, 12, 41 (2020), 46406-46415 [J. Lawless, C. Hrelescu, C. Elliott, L. Peters, N. McEvoy, A.L. Bradley]
- 'Node-dependent photoinduced electron transfer in third-generation 2D MOFs containing Earth-abundant metal ions', *Inorganic Chemistry*, 59, 23 (2020), 46406-46415 [F.W. Steuber, J.J. Gough, E. Whelan, L. Burtnyak, A.L. Bradley, W. Schmitt]
- 'Constructive and destructive interference of Kerker-type scattering in an ultrathin silicon Huygens metasurface', *Physical Review Materials*, 4 (2020), 125202 [X. Zhang, J. Li, J.F. Donegan, A.L. Bradley]
- 'Structural, optical, and electrical properties of silver gratings prepared by nanoimprint lithography of nanoparticle ink', *Applied Surface Science*, 537 (2021), 147892 [F. McGrath, J. Qian, K. Gwynne (...), D.M. O'Carroll, A.L. Bradley]
- Caffrey, David**, 'Solution-based deposition of transparent Eu-doped titanium oxide thin films for potential security labeling and UV screening', *Nanomaterials*, 10, 6 (2020), 1-7 [A. Molkenova, L. Khamkhash, A. Zhussupbekova, K. Zhussupbekov, S. Sarsenov, I. Taniguchi, I.V. Shvets, T. Sh. Atabaev]
- 'Efficient resistive switching and spike rate dependent plasticity in a new CuCrO<sub>2</sub> memristor for plausible neuromorphic systems', *IEEE Transactions on Electron Devices*, 67, 8 (2020), 3451-3458 [P.K.R. Boppidi, B. Suresh, A. Zhussupbekova, P. Biswas, D. Mullarkey, P.M.P. Raj, I.V. Shvets, S. Kundu]
- 'Revealing electromigration on dielectrics and metals through the step-bunching instability', *Physical Review B*, 102, 3 (2020), <http://hdl.handle.net/2262/94692> [V. Usov, C.O. Coileain, A.N. Chaika (...), S. Stoyanov, I.V. Shvets]
- 'Atomic and electronic structure of a multidomain GeTe crystal', *ACS Nano* (2020), <http://hdl.handle.net/2262/94702> [A.S. Frolov, J. Sanchez-Barriga, C. Callaert (...), O. Rader, L.V. Yashina]
- 'Low-cost, high-performance spray pyrolysis-grown amorphous zinc tin oxide: the challenge of a complex growth process', *ACS Applied Materials and Interfaces*, 12, 41 (2020), 46892-46899 [A. Zhussupbekova, D. Caffrey, K. Zhussupbekov, C.M. Smith, I.V. Shvets, K. Fleischer]
- 'Deformation and fracture of crystalline tungsten and fabrication of composite STM probes', *Ultramicroscopy*, 218 (2020), <http://hdl.handle.net/2262/94738> [A.M. Ionov, S.V. Chekmazov, V. Usov, M. Nesterova, A.S. Aronin, V.N. Semenov, I.V. Shvets, S.I. Bozhko]
- Coey, John**, 'Magnetization dynamics of the compensated ferrimagnet Mn<sub>2</sub>Ru<sub>3</sub>Ga', *Physical Review B*, 100, 104438 (2019), 1-6 [G. Bonfiglio, K. Rode, K. Siewerska (...), J.M.D. Coey *et al.*]
- 'Dispersible SmCo<sub>5</sub> nanoparticles with huge coercivity', *Nanoscale*, 11 (2019), 16962-16966 [Y. Dong, T. Zhang, Z. Xi (...), J.M.D. Coey *et al.*]
- Coleman, Jonathan**, 'The effect of surfactant choice and concentration on the dimensions and yield of liquid phase exfoliated nanosheets', *Chemistry of Materials* (2020), <http://hdl.handle.net/2262/92312> [A. Griffin, K. Nisi, J. Pepper, A. Harvey, B.M. Szydłowska, J.N. Coleman, C. Backes]



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

'The rate performance of 2D material based battery electrodes may not be as good as is commonly believed', *ACS Nano* (2020), 1-32 [R. Tian, M. Breshears, D.V. Horvath, J.N. Coleman]

'Pristine graphene induces innate immune training.', *Nanoscale*, 12, 20 (2020), 11192-11200 [F. Lebre, J.B. Boland, P. Gouveia (...), J. Coleman, E.C. Lavelle]

'Using chronoamperometry to rapidly measure and quantitatively analyse rate-performance in battery electrodes', *Journal of Power Sources*, 468, 228220 (2020), <http://hdl.handle.net/2262/93610> [R. Tian, P.J. King, J. Coelho (...), C. O'Dwyer, J.N. Coleman]

'Effect of the gate volume on the performance of printed nanosheet network-based transistors', *ACS Applied Electronic Materials*, 2, 7 (2020), 2164-2170 [D. O'Suilleabhain, A.G. Kelly, R. Tian, C. Gabbett, D. Horvath, J.N. Coleman]

'Mechanochromic and thermochromic sensors based on graphene infused polymer opals', *Advanced Functional Materials*, 30, 31 (2020), <http://hdl.handle.net/2262/94578> [I. Jurewicz, A.A.K. King, R. Shanker (...), J.N. Coleman, A.B. Dalton]

'In vitro localisation and degradation of few-layer MoS<sub>2</sub> submicrometric plates in human macrophage-like cells: a label free Raman micro-spectroscopic study', *2D Materials*, 7, 2 (2020), <http://hdl.handle.net/2262/94575> [C. Moore, A. Harvey, J.N. Coleman, H.J. Byrne, J. McIntyre]

'Production and processing of graphene and related materials', *2D Materials*, 7, 2 (2020), <http://dx.doi.org/10.1088/2053-1583/ab1e0a> [C. Backes, A.M. Abdelkader, C. Alonso, A. Andrieux-Ledier, J. Coleman, A.C. Ferrari, M. Garcia-Hernandez]

'High performance Na-O<sub>2</sub> batteries and printed microsupercapacitors based on water-processable, biomolecule-assisted anodic graphene', *ACS Applied Materials and Interfaces*, 12, 1 (2020), 494-506 [J.M. Munuera, J.I. Paredes, M. Enterría (...), J.N. Coleman *et al.*]

'Liquid phase exfoliation of GeS nanosheets in ambient conditions for lithium ion battery applications', *2D Materials*, 7, 3 (2020), <http://hdl.handle.net/2262/93607> [J.B. Boland, R. Tian, A. Harvey (...), Y. Li, J.N. Coleman]

'Developing models to fit capacity-rate data in battery systems', *Current Opinion in Electrochemistry*, 21 (2020), 1-6 [J.N. Coleman, R. Tian]

'The rate performance of two-dimensional material-based battery electrodes may not be as good as commonly believed', *ACS Nano*, 14, 3 (2020), 3129-3140 [R. Tian, M. Breshears, D.V. Horvath, J.N. Coleman]

'Quantifying the effect of electronic conductivity on the rate performance of nanocomposite battery electrodes', *ACS Applied Energy Materials*, 3, 3 (2020), 2966-2974 [R. Tian, N. Alcalá, S.J.K. O'Neill (...), C. O'Dwyer, J.N. Coleman]

'Ferroelectric behavior in exfoliated 2D aurivillius oxide flakes of sub-unit cell thickness', *Advanced Electronic Materials*, 6, 3 (2020), <http://dx.doi.org/10.1002/aeml.201901264> [L. Keeney, R.J. Smith, M. Palizdar, M. Schmidt, A.J. Bell, J.N. Coleman, R.W. Whatmore]

'Electronic polarizability as the fundamental variable in the dielectric properties of two-dimensional materials', *Nano Letters*, 20, 2 (2020), 841-851 [T. Tian, D. Scullion, D. Hughes, L.H. Li, C.-J. Shih, J. Coleman, M. Chhowalla, E.J.G. Santos]

'Production of quasi-2D platelets of non-layered iron pyrite (FeS<sub>2</sub>) by liquid-phase exfoliation for high performance battery electrodes', *ACS Nano* (2020), <http://hdl.handle.net/2262/93605> [H. Kaur, R. Tian, A. Roy (...), V. Nicolosi, J.N. Coleman]

'All-printed dielectric capacitors from high permittivity, liquid-exfoliated BiOCl nanosheets', *ACS Applied Electronic Materials* (2020), <http://hdl.handle.net/2262/93612> [Y. Nalawade, J. Pepper, A. Harvey, A. Griffin, D. Caffrey, A.G. Kelly, J.N. Coleman]

'On the relationship between morphology and conductivity in nanosheet networks', *ACS Applied Materials and Interfaces* (2020), <http://hdl.handle.net/2262/93611> [S. Barwich, J. Medeiros de Araújo, A. Rafferty, C. Gomes da Rocha, M. Ferreira, J. Coleman]

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

- 'Label-free screening of biochemical changes in macrophage-like cells following MoS<sub>2</sub> exposure using Raman micro-spectroscopy', *Spectrochimica Acta-Part A: Molecular and Biomolecular Spectroscopy*, 246, 118916 (2021), <http://hdl.handle.net/2262/95312> [C. Moore, A. Harvey, J.N. Coleman, H.J. Byrne, J. McIntyre]
- 'High charge and discharge rate limitations in ordered macroporous Li-ion battery materials', *Journal of the Electrochemical Society*, 167, 14 (2020), <http://hdl.handle.net/2262/94577> [S. O'Hanlon, D. McNulty, R. Tian, J. Coleman, C. O'Dwyer]
- 'Quantifying the dependence of battery rate performance on electrode thickness', *ACS Applied Energy Materials*, 3, 10 (2020), 10154-10163 [D.V. Horvath, J. Coelho, R. Tian, V. Nicolosi, J.N. Coleman]
- 'Low cost, high performance ultrafiltration membranes from glass fiber-PTFE-graphene composites', *Scientific Reports*, 10, 1 (2020), <http://hdl.handle.net/2262/94576> [U. Khan, S. Bicca, C.S. Boland, J.N. Coleman]
- 'Extra lithium-ion storage capacity enabled by liquid-phase exfoliated indium selenide nanosheets conductive network', *Energy and Environmental Science*, 13, 7 (2020), 2124-2133 [C.J. Zhang, M. Liang, S-H. Park (...), J.N. Coleman, V. Nicolosi]
- 'Selective electrochemical production of hydrogen peroxide at zigzag edges of exfoliated molybdenum telluride nanoflakes', *National Science Review*, 7, 8 (2020), 1360-1366 [X. Zhao, Y. Wang, Y. Da (...), J.N. Coleman, Y. Li]
- 'Liquid exfoliated SnP<sub>3</sub> nanosheets for very high areal capacity lithium-ion batteries', *Advanced Energy Materials* (2021), <http://hdl.handle.net/2262/95214> [R. Tian, A. Griffin, M. McCrystall, J.N. Coleman]
- 'Tuning the photo-electrochemical performance of Ru<sup>II</sup>-sensitized two-dimensional MoS<sub>2</sub>', *Chemistry - a European Journal* (2021), <http://dx.doi.org/10.1002/chem.202002615> [X. Chen, A.M. Krajewska, C. McGuinness (...), J.N. Coleman, A.R. McDonald]
- 'On the relationship between morphology and conductivity in nanosheet networks', *Carbon* (2021), 306-319 [S. Barwich, J. Medeiros de Araújo, A. Rafferty (...), M.S. Ferreira, J.N. Coleman]
- Droghetti, Andrea**, 'Oxygen doping and polaron magnetic coupling in Alq<sub>3</sub> films', *Journal of Magnetism and Magnetic Materials*, 502 (2020), <http://dx.doi.org/10.1016/j.jmmm.2020.166578> [A. Droghetti]
- 'Enhanced thermopower in covalent graphite-molecule contacts', *Physical Chemistry Chemical Physics*, 22, 3 (2020), 1466-1474 [A. Droghetti, I. Rungger]
- Eastham, Paul**, 'Weyl points and exceptional rings with polaritons in bulk semiconductors', *Physical Review Research*, 2 (2020), 043268 [R.L. Mc Guinness, P.R. Eastham]
- Espey, Brian**, 'Perceptions of light pollution and its impacts: results of an Irish citizen science survey', *International Journal of Environmental Research and Public Health*, 17, 15 (2020), 5628-5634 [A. Coogan, M. Cleary-Gaffney, M. Finnegan, G. McMillan, A. Gonzalez, B. Espey]
- Gibson, Neale**, 'Is TiO emission present in the ultra-hot Jupiter WASP-33b? A reassessment using the improved ExoMol T OTO line list', *Astronomy and Astrophysics*, 645 (2021), <http://dx.doi.org/10.1051/0004-6361/202039135> [D.B. Serindag, S.K. Nugroho, P. Molliere, E.J.W. De Mooij, N.P. Gibson, I.A.G. Snellen]
- 'Ground-based transmission spectroscopy with FORS2: a featureless optical transmission spectrum and detection of H<sub>2</sub>O for the ultra-hot Jupiter WASP-103b', *Monthly Notices of the Royal Astronomical Society*, 497, 4 (2020), 5155-5170 [J. Wilson, N.P. Gibson, N. Nikolov (...), N.J. Mayne, D.K. Sing]
- 'Detection of Fe I emission in the dayside spectrum of WASP-33b', *Astrophysical Journal Letters*, 898, 2 (2020), <http://dx.doi.org/10.3847/2041-8213/aba4b6> [S.K. Nugroho, N.P. Gibson, E.J.W. De Mooij, M.K. Herman, C.A. Watson, H. Kawahara, S.R. Merritt]

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

- 'Searching for thermal inversion agents in the transmission spectrum of KELT-20b/MASCARA-2b: detection of neutral iron and ionised calcium H&K lines', *Monthly Notices of the Royal Astronomical Society*, 496, 1 (2020), 504-522 [S.K. Nugroho, N.P. Gibson, E.J.W. De Mooij, C.A. Watson, H. Kawahara, S. Merritt]
- 'Detection of Fe I in the atmosphere of the ultra-hot Jupiter WASP-121b, and a new likelihood-based approach for Doppler-resolved spectroscopy', *Monthly Notices of the Royal Astronomical Society*, 493, 2 (2020), 2215-2228 [N.P. Gibson, S. Merritt, S.K. Nugroho (...), C.A. Watson, J. Wilson]
- 'Non-detection of TiO and VO in the atmosphere of WASP-121b using high-resolution spectroscopy', *Astronomy and Astrophysics*, 636 (2020), <http://dx.doi.org/10.1051/0004-6361/201937409> [S.R. Merritt, N.P. Gibson, S.K. Nugroho (...), J.J. Spake, C.A. Watson]
- 'Detection of Na, K, and H<sub>2</sub>O in the hazy atmosphere of WASP-6b', *Monthly Notices of the Royal Astronomical Society*, 494, 4 (2020), 5449-5472 [A.L. Carter, N. Nikolov, D.K. Sing (...), N.P. Gibson, P.A. Wilson]
- 'A new window into planet formation and migration: refractory-to-volatile elemental ratios in ultra-hot Jupiters', *ArXiv E-prints* (2021), arXiv:2011.10626 [J.D. Lothringer, Z. Rustamkulov, D.K. Sing, N.P. Gibson, J. Wilson, K.C. Schlaufman]
- 'First detection of hydroxyl radical emission from an exoplanet atmosphere: high-dispersion characterization of WASP-33b using Subaru/IRD', *ArXiv E-prints* (2021), arXiv:2103.03094 [S.K. Nugroho, H. Kawahara, N.P. Gibson, M. Omiya, T. Serizawa, A. Ueda, S. Vievard]
- 'Doppler tomography as a tool for detecting exoplanet atmospheres', *Monthly Notices of the Royal Astronomical Society*, 490, 2 (2019), 1991-2006 [C.A. Watson, E.J.W. de Mooij, D. Steeghs, T.R. Marsh, M. Brogi, N.P. Gibson, S. Matthews]
- 'Storms or systematics the changing secondary eclipse depth of WASP-12b', *Monthly Notices of the Royal Astronomical Society*, 486, 2 (2019), 2397-2406 [M.J. Hooton, E.J.W. De Mooij, C.A. Watson, N.P. Gibson, F.J. Galindo-Guil, R. Clavero, S.R. Merritt]
- 'Time-resolved spectroscopy of dust and gas from extrasolar planetesimals orbiting WD 1145+017', *Monthly Notices of the Royal Astronomical Society*, 482, 1 (2019), 999-1006 [M. Karjalainen, E.J.W. de Mooij, R. Karjalainen, N.P. Gibson]
- 'Revisiting the potassium feature of WASP-31b at high resolution', *Monthly Notices of the Royal Astronomical Society*, 482, 1 (2019), 606-615 [N.P. Gibson, E.J.W. de Mooij, T.M. Evans, S. Merritt, N. Nikolov, D.K. Sing, C. Watson]
- Goold, John, 'Asymmetry in energy versus spin transport in certain interacting disordered systems', *Physical Review B: Condensed Matter and Materials*, 99, 9 (2019), 094435, [J.J. Mendoza-Arenas, M. Znidaric, V.K. Varma, J. Goold, S.R. Clark, A. Scardicchio]
- 'Role of coherence in the nonequilibrium thermodynamics of quantum systems', *Physical Review E: Statistical, Nonlinear and Soft Matter Physics*, 99, 4 (2019), 042105, [G. Francica, J. Goold, F. Plastina]
- 'Quantum work statistics and resource theories: bridging the gap through Rényi divergences', *Physical Review E: Statistical, Nonlinear and Soft Matter Physics*, 99, 5 (2019), 050101 [G. Guarneri, N.H.Y. Ng, K. Modi, J. Eisert, M. Paternostro, J. Goold]
- 'Nonreciprocal quantum transport at junctions of structured leads', *Physical Review E: Statistical, Nonlinear and Soft Matter Physics*, 99, 24 (2019), 245134-245143 [E. Mascarenhas, F. Damanet, S. Flannigan, L. Tagliacozzo, A.J. Daley, J. Goold, I. de Vega]
- 'Energy current rectification and mobility edges', *Physical Review Letters*, 123, 2 (2019), 020603-020609 [V. Balachandran, V and Clark, S R. and Goold, J and Poletti, D]
- 'Spin heat engine coupled to a harmonic-oscillator flywheel', *Physical Review Letters*, 123, 8 (2019), 080602-080608 [D. von Lindenfels, O. Grab, C.T. Schmiegelow (...), J. Goold et al.]
- 'Thermodynamic uncertainty relations from exchange fluctuation theorems', *Physical Review Letters*, 123, 9 (2019), 090604-090610 [A.M. Timpanaro, G. Guarneri, J. Goold, G.T. Landi]

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

- 'Thermodynamics of precision in quantum nonequilibrium steady states', *Physical Review Research*, 1, 3 (2019), 033021-033034 [G. Guarneri, G.T. Landi, S.R. Clark, J. Goold]
- 'Geometry and quantum thermodynamics', *Quantum*, 3 (2019), 28 [J. Goold]
- 'Quasiperiodic quantum heat engines with a mobility edge', *Physical Review Research*, 2, 1 (2020), 013093-013105 [C. Chiaracane, M.T. Mitchison, A. Purkayastha, G. Haack, J. Goold]
- 'Multipartite entanglement in the eigenstate thermalisation hypothesis', *Physical Review Letters*, 124, 4 (2020), 040605-040611 [M. Brenes, S. Pappalardi, J. Goold, A. Silva]
- 'Tunable phonon-induced steady state coherence in a double-quantum-dot charge qubit', *NPJ Quantum Information*, 6, 1 (2020), 1-7 [A. Purkayastha, G. Guarneri, M.T. Mitchison, R. Fillip, J. Goold]
- 'Logarithmic growth of local entropy and total correlations in many-body localized dynamics', *Quantum*, 4 (2020), 250, [F. Anza, F. Pietracaprina, J. Goold]
- Groh, Jose**, 'Can we detect aurora in exoplanets orbiting M dwarfs?', *MNRAS*, 488, 1 (2019), 633-644 [A.A. Vidotto, N. Feeney, J.H. Groh]
- 'Progenitors of early-time interacting supernovae', *MNRAS*, 496, 2 (2020), 1325-1342 [I. Boian, J.H. Groh]
- 'The impact of stars stripped in binaries on the integrated spectra of stellar populations', *AandA*, 629 (2019), A134 [Y. Gotberg, S.E. de Mink, J.H. Groh, C. Leitherer, C. Norman]
- 'On the Gaia DR2 distances for Galactic luminous blue variables', *MNRAS*, 488, 2 (2019), 1760-1778 [N. Smith, M. Aghakhanloo, J.W. Murphy, M.R. Drout, K.G. Stassun, J.H. Groh]
- 'Contribution from stars stripped in binaries to cosmic reionization of hydrogen and helium', *AandA*, 634 (2020), A134 [Y. Gotberg, S.E. de Mink, M. McQuinn, E. Zapartas, J. Groh, C. Norman]
- 'Inferring the parallax of Westerlund 1 from Gaia DR2', *MNRAS*, 492, 2 (2020), 2497-2509 [M. Aghakhanloo, J.W. Murphy, N. Smith (...), J.H. Groh *et al.*]
- 'CO, water, and tentative methanol in  $\eta$  carinae approaching periastron', *ApJL*, 892, 2 (2020), L23 [P.W. Morris, S.B. Charnley, M. Corcoran (...), J.H. Groh *et al.*]
- 'SNAPSHOT: Connections between internal and surface properties of massive stars', *MNRAS*, 495, 4 (2020), 4659-4680 [J. Farrell, J.H. Groh, G. Meynet, J.J. Eldridge, S. Ekstrom, C. Georgy]
- 'The uncertain masses of progenitors of core-collapse supernovae and direct-collapse black holes', *MNRAS*, 494, 1 (2020), L53-L58 [E.J. Farrell, J.H. Groh, G. Meynet, J.J. Eldridge]
- 'A massive nebula around the luminous blue variable star RMC 143 revealed by ALMA', *AandA*, 626 (2019), A126 [C. Agliozzo, A. Mehner, N.M. Phillips (...), J.H. Groh *et al.*]
- 'Grids of stellar models with rotation. IV. Models from 1.7 to 120 Msun at metallicity  $Z = 0.0004$ ', *AandA*, 627 (2019), A24 [J.H. Groh, S. Ekstrom, C. Georgy (...), I. Boian, E.J. Farrell]
- 'Massive stars in the young cluster VVV CL074', *AandA*, 627 (2019), A170 [F. Martins, A-N. Chené, J-C. Bouret, J. Borissova, J. Groh, S. Ramirez Alegria, D. Minniti]
- 'Impact of binary interaction on the evolution of blue supergiants. The flux-weighted gravity luminosity relationship and extragalactic distance determinations', *AandA*, 621 (2019), A22 [E.J. Farrell, J.H. Groh, G. Meynet (...), S. Ekstrom, S-C. Yoon]
- 'Diversity of supernovae and impostors shortly after explosion', *AandA*, 621 (2019), A109 [I. Boian, J.H. Groh]
- 'The disappearance of a massive star in the low metallicity galaxy PHL 293B', *MNRAS*, (2020), arXiv:2003.02242 [A. Allan, J. Groh, A. Mehner, N. Smith, I. Boian, E. Farrell]
- Hess, Ortwin**, 'Nanoscopy through a plasmonic nanolens', *Proceedings of the National Academy of Sciences*, 117, 5 (2020), 2275-2281 [M.J. Horton, O.S. Ojambati, R. Chikkaraddy (...), O. Hess, J.J. Baumberg]

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

- 'Tailoring the third-order nonlinear optical property of a hybrid semiconductor quantum dot-metal nanoparticle: from saturable to fano-enhanced absorption', *The Journal of Physical Chemistry Letters* (2019), 7594-7602 [X. Liu, N. Kongsuwan, X. Li, D. Zhao, Z. Wu, O. Hess, X. Zhang]
- 'Metasurfaces atop metamaterials: surface morphology induces linear dichroism in gyroid optical metamaterials', *Advanced Materials* (2019), 1803478 [J.A. Dolan, R. Dehmel, A. Demetriadou (...), O. Hess *et al.*]
- 'Active optical metamaterials', *Phenomena of Optical Metamaterials* (2019), 187-261 [T. Gric, O. Hess]
- 'Disorder in metamaterials', *Phenomena of Optical Metamaterials* (2019), 103-130 [T. Gric, O. Hess]
- 'Electromagnetics of metamaterials', *Phenomena of Optical Metamaterials* (2019), 41-73 [T. Gric, O. Hess]
- 'Metamaterial cloaking', *Phenomena of Optical Metamaterials* (2019), 175-186 [T. Gric, O. Hess]
- 'Slow and stopped light in metamaterials', *Phenomena of Optical Metamaterials* (2019), 155-173 [T. Gric, O. Hess]
- 'Surface plasmon polaritons at metamaterial interfaces', *Phenomena of Optical Metamaterials* (2019), 75-102 [T. Gric, O. Hess]
- 'Types of metamaterials', *Phenomena of Optical Metamaterials* (2019), 1-39 [T. Gric, O. Hess]
- Hutzler, Stefan**, 'A simple experimental system to illustrate the nonlinear properties of a linear chain under compression', *American Journal of Physics*, 88, 5 (2020), 347-352 [D. Weaire, A. Irannezhad, A. Mughal, S. Hutzler]
- 'Buckling of a linear chain of hard spheres in a harmonic confining potential: numerical and analytical results for low and high compression', *Physical Review E*, 102 (2020), 022905, [S. Hutzler, A. Mughal, J. Ryan-Purcell, A. Irannezhad, D. Weaire]
- 'The energy of fcc and hcp foams', *Soft Matter*, 16 (2020), 8262-8271 [S. Hutzler, F.F. Dunne, A.M. Kraynik, D. Weaire]
- 'Physical models of infant mortality: implications for defects in biological systems', *Journal of Biological Physics*, 46 (2020), 371-394 [A. Bois, E.M. Garcia-Roger, E. Hong (...), S. Hutzler *et al.*]
- 'Mortality: a physics perspective', *Physica A*, 566 (2021), 125660, [P. Richmond, B.M. Roehner, A. Irannezhad, S. Hutzler]
- 'Analysis of the foam-forming of non-woven lightweight fibrous materials using x-ray tomography', *SN Applied Sciences*, 3 (2021), 192, [S.R. Burke, M. Moebius, J. Ketoja, T. Hjelt, S. Hutzler]
- 'Variation of average coordination number with liquid fraction for two-dimensional foams with finite contact angle', *Philosophical Magazine* (2021), 1-13 [Z. Jing, C. Feng, S. Cox, S. Hutzler]
- Jones, Lewys**, 'Control of knock-on damage for 3D atomic scale quantification of nanostructures: making every electron count in scanning transmission electron microscopy', *Physical Review Letters*, 122, 6 (2019), 066101 [S. Van Aert, A. De Backer, L. Jones, G.T. Martinez, A. Béch e]
- 'Self-assembly of atomically thin chiral copper heterostructures templated by black phosphorus', *Advanced Functional Materials*, 29, 37 (2019), <http://hdl.handle.net/2262/91535> [H.C. Nerl, A. Pokle, L. Jones (...), C.S. Cucinotta, V. Nicolosi]
- 'Interstitial boron atoms in the palladium lattice of an industrial type of nanocatalyst: properties and structural modifications', *Journal of the American Chemical Society* (2019), 19616-19624 [T. Chen, I. Ellis, T.J.N. Hooper (...), L. Jones *et al.*]
- 'Targeted T1 magnetic resonance imaging contrast enhancement with extraordinarily small CoFe<sub>2</sub>O<sub>4</sub> nanoparticles', *ACS Applied Materials and Interfaces* (2019), 6724-6740 [D. Pich e, I. Tavernaro, J. Fleddermann (...), L. Jones *et al.*]

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

- 'Direct imaging of charge redistribution due to bonding at atomic resolution via electron ptychography', *ArXiv Preprint arXiv:1907.12974* (2019), <http://hdl.handle.net/2262/95405> [G.T. Martinez, T.C. Naginey, L. Jones (...), J.R. Yates, P.D. Nellist]
- 'Probing the dynamics of topologically protected charged ferroelectric domain walls with the electron beam at the atomic scale', *Microscopy and Microanalysis*, 26, S2 (2020), 3030-3032 [M. Conroy, K. Moore, E. O'Connell (...), M. Gregg, U Bangert]
- 'Comparison of ptychography vs. center-of-mass analysis of registered 4D-STEM series', *Microscopy and Microanalysis*, 26, S2 (2020), 1898-1900 [B. Haas, M. Schloz, A. Mittelberger (...), L. Jones *et al.*]
- 'Measuring dynamic structural changes of nanoparticles at the atomic scale using scanning transmission electron microscopy', *Physical Review Letters*, 124, 10 (2020), <http://dx.doi.org/10.1103/PhysRevLett.124.106105> [A. De Wael, A. De Backer, L. Jones, A. Varambhia, P.D. Nellist, S. Van Aert]
- 'Development of a practicable digital pulse read-out for dark-field STEM', *Microscopy and Microanalysis* (2020), <http://dx.doi.org/10.1017/S1431927620024721> [T. Mullarkey, C. Downing, L. Jones]
- 'Towards data-driven next-generation transmission electron microscopy', *Nature Materials* (2020), <http://dx.doi.org/10.1038/s41563-020-00833-z> [S. Spurgeon, C. Ophus, L. Jones (...), M. Murayama, M.L. Taheri]
- 'Targeted T<sub>1</sub> magnetic resonance imaging contrast enhancement with extraordinarily small CoFe<sub>2</sub>O<sub>4</sub> nanoparticles', *ACS Applied Materials and Interfaces*, 11, 7 (2019), 6724-6740 [D. Piché, I. Tavernaro, J. Fleddermann (...), L. Jones *et al.*]
- Lunney, James**, 'Application of gaseous laser-induced fluorescence in low-temperature convective heat transfer research', *Experiments in Fluids*, 61, 5 (2020), <http://dx.doi.org/10.1007/s00348-020-02959-x> [E. Fanning, T. Donnelly, J.G. Lunney, D.B. Murray, T. Persoons]
- 'Metal nanoparticle film deposition by femtosecond laser ablation at atmospheric pressure', *Nanomaterials*, 10 (2020), <http://hdl.handle.net/2262/95295> [T. Donnelly, G. O'Connell, J.G. Lunney]
- 'Reactive plasma N-doping of amorphous carbon electrodes: decoupling disorder and chemical effects on capacitive and electrocatalytic performance', *Frontiers in Chemistry*, 8 (2020), <http://hdl.handle.net/2262/95309> [M.K. Hoque, J.A. Behan, J. Creel, J.G. Lunney, T.S. Perova, P.E. Colavita]
- Maguire, Kate**, 'Tidal disruptions of white dwarfs: theoretical models and observational prospects', *Space Science Reviews*, 216, 3 (2020), <http://dx.doi.org/10.1007/s11214-020-00661-2> [K. Maguire, M. Eracleous, P.G. Jonker, M. MacLeod, S. Rosswog]
- 'Tidal disruptions of white dwarfs: theoretical models and observational prospects', *Space Science Reviews*, 216, 3 (2020), <http://dx.doi.org/10.1007/s11214-020-00661-2> [K. Maguire, M. Eracleous, P.G. Jonker, M. MacLeod, S. Rosswog]
- 'The rise and fall of an extraordinary Ca-rich transient: the discovery of ATLAS19dqr/SN 2019bkc', *Astronomy and Astrophysics*, 635 (2020), <http://dx.doi.org/10.1051/0004-6361/201936515> [S.J. Prentice, K. Maguire, C. Vogl, D.R. Young]
- 'Observations of the low-luminosity type Iax supernova 2019gsc: a fainter clone of SN 2008ha?', *Monthly Notices of the Royal Astronomical Society*, 496, 2 (2020), 1132-1143 [L. Tomasella, M. Stritzinger, S. Benetti (...), K. Maguire *et al.*]
- 'DES16C3cje: A low-luminosity, long-lived supernova', *Monthly Notices of the Royal Astronomical Society*, 496, 1 (2020), 95-110 [C.P. Gutiérrez, M. Sullivan, L. Martinez (...), K. Maguire *et al.*]
- 'Exploring the diversity of double detonation explosions for type Ia supernovae: effects of the post-explosion helium shell composition', *Monthly Notices of the Royal Astronomical Society* (2021), <http://dx.doi.org/10.1093/mnras/stab201> [M.R. Magee, K. Maguire, R. Kotak, S.A. Sim]



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

- 'SN 2018gix reveals that some SNe Ibc are SNe IILb exploding in dense circumstellar material', *Monthly Notices of the Royal Astronomical Society* (2020), <http://dx.doi.org/10.1093/mnras/staa2947> [S.J. Prentice, K. Maguire, I. Boian (...), S. Valenti, D.R. Young]
- 'An investigation of 56Ni shells as the source of early light curve bumps in type Ia supernovae', *Astronomy and Astrophysics*, 642 (2020), A189 [M.R. Magee, K. Maguire]
- 'Observational constraints on the optical and near-infrared emission from the neutron star-black hole binary merger candidate S190814bv', *Astronomy and Astrophysics*, 643 (2020), <http://dx.doi.org/10.1051/0004-6361/202037669> [K. Ackley, L. Amati, C. Barbieri (...), S-X. Yi, D.R. Young]
- 'The tidal disruption event at 2018hyz - I. Double-peaked emission lines and a flat Balmer decrement', *Monthly Notices of the Royal Astronomical Society*, 498, 3 (2020), 4119-4133 [P. Short, M. Nicholl, K. Maguire, C. McCully, T.E. Muller Bravo, F. Onori, J. Sollerman, D.R. Young]
- 'SN 2017ivv: two years of evolution of a transitional type II supernova', *Monthly Notices of the Royal Astronomical Society*, 499, 1 (2020), 974-992 [C.P. Gutierrez, A. Pastorello, A. Jerkstrand (...), K. Maguire *et al.*]
- 'PS15cey and PS17cke: prospective candidates from the Pan-STARRS search for kilonovae', *Monthly Notices of the Royal Astronomical Society*, 500, 3 (2021), 4213-4228 [O.R. McBrien, S.J. Smartt, M.E. Huber (...), K. Maguire *et al.*]
- 'SN 2019muj - a well-observed type Iax supernova that bridges the luminosity gap of the class', *Monthly Notices of the Royal Astronomical Society*, 501, 1 (2021), 1078-1099 [B. Barna, T. Szalai, S.W. Jha (...), K. Maguire *et al.*]
- McCloskey, David**, 'Comparison of metal adhesion layers for Au films in thermoplasmonic applications', *ACS Applied Materials and Interfaces*, 12, 11 (2020), 13503-13509 [D. McCloskey]
- McGuinness, Cormac**, 'Less is more: improved thermal stability and plasmonic response in Au films via the use of subnanometer Ti adhesion layers', *ACS Applied Materials and Interfaces*, 11, 7 (2019), 7607-7614 [W.M. Abbott, C.P. Murray, C. Zhong (...), C. McGuinness *et al.*]
- 'Comparison of metal adhesion layers for Au films in thermoplasmonic applications', *ACS Applied Materials and Interfaces*, 12, 11 (2020), 13503-13509 [D. McCloskey]
- 'Surface mediated synthesis of 2D covalent organic networks: 1,3,5-tris(4-bromophenyl)benzene on Au(111)', *Physica Status Solidi B-Basic Solid State Physics*, 256, 2, SI (2019), <http://dx.doi.org/10.1002/pssb.201800349> [C.M. Doyle, C. McGuinness, A.P. Lawless, A.B. Preobrajenski, N.A. Vinogradov, A.A. Cafolla]
- Moebius, Matthias**, 'Analysis of the foam-forming of non-woven lightweight fibrous materials using x-ray tomography', *SN Applied Sciences*, 3 (2021), 192, [S.R. Burke, M. Moebius, J. Ketoja, T. Hjelt, S. Hutzler]
- O'Regan, David**, 'The ONETEP linear-scaling density functional theory program', *Journal of Chemical Physics*, 152, 17 (2020), <http://dx.doi.org/10.1063/5.0004445> [J.C.A. Prentice, J. Aarons, J.C. Womack (...), D.D. O'Regan *et al.*]
- 'Neutral excitation density-functional theory: an efficient and variational first-principles method for simulating neutral excitations in molecules', *Scientific Reports*, 10, 1 (2020), 8947 [S. Roychoudhury, S. Sanvito, D.D. O'Regan]
- 'First-principles Hubbard U and Hund's J corrected approximate density functional theory predicts an accurate fundamental gap in rutile and anatase TiO<sub>2</sub>', *Physical Review B*, 101, 24 (2020), 245137, [O.K. Orhan, D.D. O'Regan]
- 'Reproducibility in G<sub>0</sub>W<sub>0</sub> calculations for solids', *Computer Physics Communications*, 255 (2020), 107242, [T. Rangel, M. Del Ben, D. Varsano (...), D.D. O'Regan *et al.*]

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

- 'Flexing piezoelectric diphenylalanine-plasmonic metal nanocomposites to increase SERS signal strength', *ACS Applied Materials and Interfaces*, 12, 43 (2020), 48874-48881 [S. Almomammed, A. Fularz, F. Zhang, D. Alvarez-Ruiz, F. Bello, D.D. O'Regan, B.J. Rodriguez, J.H. Rice]
- 'Calculation of the magnetostatic energy in spin density functional theory', *Journal of Undergraduate Reports in Physics*, 30, 1 (2020), 100005 [L. MacEnulty, D.D. O'Regan]
- 'Enhanced spin-orbit coupling in heavy metals via molecular coupling', *ACS Applied Materials and Interfaces*, 13, 4 (2021), 5228-5234 [S. Alotibi, B.J. Hickey, G. Teobaldi (...), D.D. O'Regan *et al.*]
- Patterson, Charles**, 'Excited states of molecular and crystalline acetylene: application of TDHF and BSE via density fitting methods', *60th Sanibel Meeting* (2020), 1-9 [C.H. Patterson]
- 'Density fitting in periodic systems: application to TDHF in diamond and oxides', *The Journal of Chemical Physics*, 153, 6 (2020), 064107 [C.H. Patterson]
- Richmond, Peter**, 'Infant mortality across species. A global probe of congenital abnormalities', *Physica A*, 535 (2019), 122308, [A. Bois, E. Garcia-Roger, E. Hong, S. Hutzler, A. Irannezhad, A. Mannioui, P. Richmond, B. Roehner, S. Tronche]
- 'Congenital anomalies from a physics perspective. The key role of "manufacturing" volatility', *Physica A*, 537 (2020), 122742, [A. Bois, E. Garcia-Roger, E. Hong, S. Hutzler, A. Irannezhad, A. Mannioui, P. Richmond, B. Roehner, S. Tronche]
- 'Physical models of infant mortality: implications for defects in biological systems', *Journal of Biological Physics*, 46 (2020), 371-394 [A. Bois, E.M. Garcia-Roger, E. Hong (...), P. Richmond *et al.*]
- 'Mortality: a physics perspective', *Physica A*, 566 (2021), 125660, [P. Richmond, B.M. Roehner, A. Irannezhad, S. Hutzler]
- Sanvito, Stefano**, 'Improving stability of organometallic-halide perovskite solar cells using exfoliation two-dimensional molybdenum chalcogenides', *NPJ 2D Materials and Applications*, 4, 1 (2020), <http://hdl.handle.net/2262/94555> [M. Liang, A. Ali, A. Belaidi (...), S. Sanvito *et al.*]
- 'Neutral excitation density-functional theory: an efficient and variational first-principles method for simulating neutral excitations in molecules', *Scientific Reports*, 10, 1 (2020), 8947 [S. Roychoudhury, S. Sanvito, D.D. O'Regan]
- 'Multiple spin-phonon relaxation pathways in a Kramer single-ion magnet', *The Journal of Chemical Physics*, 153, 17 (2020), 174113 [A. Lunghi, S. Sanvito]
- 'First-principles study of electromigration in the metallic liquid state of GeTe and Sb<sub>2</sub>Te<sub>3</sub> phase-change compounds', *The Journal of Physical Chemistry C*, 124, 17 (2020), 9599-9603 [M. Cobelli, M. Galante, S. Gabardi, S. Sanvito, M. Bernasconi]
- 'The limit of spin lifetime in solid-state electronic spins', *The Journal of Physical Chemistry Letters* (2020), <http://hdl.handle.net/2262/95790> [A. Lunghi, S. Sanvito]
- 'First-principles study of a Mn-doped In<sub>2</sub>Se<sub>3</sub> monolayer: coexistence of ferromagnetism and ferroelectricity with robust half-metallicity and enhanced polarization', *Physical Review B*, 102, 13 (2020), <http://dx.doi.org/10.1103/PhysRevB.102.134416> [C. Zhang, L. Zhang, C. Tang, S. Sanvito, B. Zhou, Z. Jiang, A. Du]
- 'Unveiling phonons in a molecular qubit with four-dimensional inelastic neutron scattering and density functional theory', *Nature Communications*, 11, 1 (2020), <http://hdl.handle.net/2262/95799> [E. Garlatti, L. Tesi, A. Lunghi (...), S. Sanvito *et al.*]
- 'The 2020 magnetism roadmap', *Journal of Physics D: Applied Physics*, 53, 45 (2020), <http://hdl.handle.net/2262/95800> [E.Y. Vedmedenko, R.K. Kawakami, D.D. Sheka (...), S. Sanvito *et al.*]

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

- 'Surfing multiple conformation-property landscapes via machine learning: designing single-ion magnetic anisotropy', *Journal of Physical Chemistry C*, 124, 10 (2020), 5802-5806 [A. Lunghi, S. Sanvito]
- 'Machine learning accelerated recovery of the cubic structure in mixed-cation perovskite thin films', *Chemistry of Materials*, 32, 7 (2020), 2998-3006 [A. Ali, H. Park, R. Mall, B. Aïssa, S. Sanvito, H. Bensmail, A. Belaidi, F. El-Mellouhi]
- 'Prediction of room-temperature ferromagnetism and large perpendicular magnetic anisotropy in a planar hypercoordinate FeB<sub>3</sub> monolayer', *Nanoscale Horizons*, 6, 1 (2021), 43-48 [C. Tang, K. Ostrikov, S. Sanvito, A. Du]
- 'Edge superconductivity in multilayer WT<sub>e2</sub> Josephson junction', *National Science Review*, 7, 9 (2020), 1468-1475 [C. Huang, A. Narayan, E. Zhang (...), S. sanvito, F. Xiu]
- 'Electric-controlled half-metallicity in magnetic van der Waals heterobilayer', *Journal of Materials Chemistry C*, 8, 21 (2020), 7034-7040 [C. Tang, L. Zhang, S. Sanvito, A. Du]
- 'Importance of structural deformation features in the prediction of hybrid perovskite bandgaps', *Computational Materials Science*, 184 (2020), <http://dx.doi.org/10.1016/j.commatsci.2020.109858> [H. Park, R. Mall, A. Ali, S. Sanvito, H. Bensmail, F. El-Mellouhi]
- 'Pushing the limits of atomistic simulations towards ultra-high temperature: a machine-learning force field for ZrB<sub>2</sub>: machine-learning towards ultra-high temperature simulation of ZrB<sub>2</sub>', *Acta Materialia*, 186 (2020), 467-474 [Y. Zhang, A. Lunghi, S. Sanvito]
- 'Theoretical investigation of the structural, elastic, electronic, and dielectric properties of alkali-metal-based bismuth ternary chalcogenide', *Physical Review Materials* (2020), <http://hdl.handle.net/2262/95802> [S. Kumar, A. Akande, F. El-Mellouhi, H. Park, S. Sanvito]
- 'Electric field modulation of magnetism in ferrimagnetic Heusler heterostructures', *Physical Review B* (2020), <http://dx.doi.org/10.1103/PhysRevB.101.134419> [Q. Sun, S. Kwon, M. Stamenova, S. Sanvito, N. Kioussis]
- 'Ferroelectric control of electron half-metallicity in A-type antiferromagnets and its application to nonvolatile memory devices', *Physical Review B* (2020), <http://dx.doi.org/10.1103/PhysRevB.102.245417> [P. Jiang, L. Kang, H. Hao, X. Zheng, Z. Zeng, S. Sanvito]
- 'Photovoltage from ferroelectric domain walls in BiFeO<sub>3</sub>', *Physical Review B* (2020), <http://hdl.handle.net/2262/95682> [S. Körbel, S. Sanvito]
- Shvets, Igor**, 'Characterising and control of ammonia emission in microbial fuel cells', *Chemical Engineering Journal*, 389 (2020), 124462 [D. Li, Y. Shi, F. Gao (...), I.V. Shvets, L. Xiao]
- Venkatesan, Munuswamy**, 'Altering the nature of coupling by changing the oxidation state in a {Mn<sub>6</sub>} cage', *Dalton Transactions*, 49 (2020), 8086-8095 [S. Tandon, M. Venkatesan, W. Schmitt, G.W. Watson]
- 'A cubane-type manganese complex with H<sub>2</sub>O oxidation capabilities', *Sustainable Energy and Fuels*, 4, 9 (2020), 4464-4468 [S. Tandon, J. Soriano-López, A.C. Kathalikkattil (...), M. Venkatesan *et al.*]
- 'Bioinspired water oxidation using a Mn-Oxo cluster stabilized by non-innocent organic tyrosine Y161 and plastoquinone mimics', *ACS Sustainable Chemistry and Engineering*, 8, 36 (2020), 13648-13659 [J. Soriano-López, R. Elliott, A.C. Kathalikkattil, A.M. Ako, M. Mulahmetović, M. Venkatesan, W. Schmitt]
- Vidotto, Aline**, 'Influence of the sun-like magnetic cycle on exoplanetary atmospheric escape', *MNRAS* (2020), <http://dx.doi.org/10.1093/mnras/staa1815> [G. Hazra, A.A. Vidotto, C.V. D'Angelo]
- 'Evolution of atmospheric escape in close-in giant planets and their associated Ly alpha and H alpha transit predictions', *MNRAS*, 490, 3 (2019), 3760-3771 [A. Allan, A.A. Vidotto]

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

- 'Planetary transits at radio wavelengths: secondary eclipses of hot jupiter extended atmospheres', *ApJ*, 895, 1 (2020), 62 [C.L. Selhorst, C.L. Barbosa, P.J. Simoes, A.A. Vidotto, A. Valio]
- 'Impact of space weather on climate and habitability of terrestrial-type exoplanets', *International Journal of Astrobiology*, 19, 2 (2020), 136-194 [V.S. Airapetian, R. Barnes, O. Cohen, A.A. Vidotto, M. Voytek, M.J. Way, G.P. Zank, Y. Yamashiki]
- 'Measuring stellar magnetic helicity density', *MNRAS*, 493, 1 (2020), 1003-1012 [K. Lund, M. Jardine, L.T. Lehmann (...), A.A. Vidotto *et al.*]
- 'MOVES III. Simultaneous x-ray and ultraviolet observations unveiling the variable environment of the hot Jupiter HD 189733b', *MNRAS*, 493, 1 (2020), 559-579 [V. Bourrier, P.J. Wheatley, A. Lecavelier des Etangs (...), M.M. Jardine, A.A. Vidotto]
- 'Circumstellar environment of 55 Cancri. The super-Earth 55 Cnc e as a primary target for star-planet interactions', *AandA*, 633 (2020), A48 [C.P. Folsom, D. O Fionnagain, L. Fossati, A.A. Vidotto, C. Moutou, P. Petit, D. Dragomir, J-F. Donati]
- 'Alfven-wave-driven magnetic rotator winds from low-mass stars. I. Rotation dependences of magnetic braking and mass-loss rate', *ApJ*, 896, 2 (2020), 123 [M. Shoda, T.K. Suzuki, S.P. Matt (...), A.A. Vidotto *et al.*]
- 'Radio eclipses of exoplanets by the winds of their host stars', *MNRAS*, 493, 1 (2020), 1492-1497 [R.D. Kavanagh, A.A. Vidotto]
- 'Global trends in winds of M dwarf stars', *MNRAS*, 494, 1 (2020), 1297-1307 [A.L. Mesquita, A.A. Vidotto]
- 'Stellar wind effects on the atmospheres of close-in giants: a possible reduction in escape instead of increased erosion', *MNRAS*, 494, 2 (2020), 2417-2428 [A.A. Vidotto, A. Cleary]
- 'Estimating magnetic filling factors from Zeeman-Doppler magnetograms', *ApJ*, 876, 2 (2019), 118 [V. See, S.P. Matt, C.P. Folsom (...), A.A. Vidotto *et al.*]
- 'MOVES - II. Tuning in to the radio environment of HD189733b', *MNRAS*, 485, 4 (2019), 4529-4538 [R.D. Kavanagh, A.A. Vidotto, D. O. Fionnagain (...), J. Llama, P.J. Wheatley]
- 'Can we detect aurora in exoplanets orbiting M dwarfs?', *MNRAS*, 488, 1 (2019), 633-644 [A.A. Vidotto, N. Feeney, J.H. Groh]
- 'The evolution of Earth's magnetosphere during the solar main sequence', *MNRAS*, 489, 4 (2019), 5784-5801 [S. Carolan, A.A. Vidotto, C. Loesch, P. Coogan]
- 'Do non-dipolar magnetic fields contribute to spin-down torques?', *ApJ*, 886, 2 (2019), 120 [V. See, S.P. Matt, A.J. Finley (...), A.A. Vidotto *et al.*]
- Weaire, Denis**, 'A simple experimental system to illustrate the nonlinear properties of a linear chain under compression', *American Journal of Physics*, 88, 5 (2020), 347-352 [D. Weaire, A. Irannezhad, A. Mughal, S. Hutzler]
- 'Buckling of a linear chain of hard spheres in a harmonic confining potential: numerical and analytical results for low and high compression', *Physical Review E*, 102 (2020), 022905, [S. Hutzler, A. Mughal, J. Ryan-Purcell, A. Irannezhad, D. Weaire]
- 'The energy of fcc and hcp foams', *Soft Matter*, 16 (2020), 8262-8271 [S. Hutzler, F.F. Dunne, A.M. Kraynik, D. Weaire]
- Zhang, Hongzhou**, 'Bacterially synthesized tellurium nanostructures for broadband ultrafast nonlinear optical applications', *Nature Communications*, 10, 1 (2019), <http://hdl.handle.net/2262/91322> [K. Wang, X. Zhang, I.M. Kislyakov (...), H. Zhang *et al.*]

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

### *Research students*

*Ainabayev, Ardak*, 'Tuning of oxygen vacancy-induced electrical conductivity in Ti-doped hematite films and its impact on photoelectrochemical water splitting', *Scientific Reports*, 10, 7463 (2020) (2020), 1-9 [P. Biswas, A. Ainabayev, A. Zhussupbekova, F. Jose, R. O'Connor, A. Kaisha, B. Walls, I.V. Shvets]

*Murtagh, Oisín*, 'Controlling the resistive switching hysteresis in VO<sub>2</sub> thin films via application of pulsed voltage', *Applied Physics Letters*, 117, 6 (2020), 063501 [O. Murtagh, B. Walls, I.V. Shvets]

*Zhussupbekova, Ainur*, 'Solution-based deposition of transparent Eu-doped titanium oxide thin films for potential security labeling and UV screening', *Nanomaterials*, 10, 6 (2020), 1-7 [A. Molkenova, L. Khamkhash, A. Zhussupbekova, K. Zhussupbekov, T. Sh. Atabaev]

'Electronic and structural characterisation of polycrystalline platinum disulfide thin films', *RSC Advances*, 10 (2020), 42001-42007 [K.h Zhussupbekov, C.P. Cullen, A. Zhussupbekova, I.V. Shvets, G.S. Duesberg, N. McEvoy, C. O Coileain]

'Imaging and identification of point defects in PtTe<sub>2</sub>', *NPJ 2D Materials and Applications*, 5, 14 (2021), <http://hdl.handle.net/2262/94763> [K. Zhussupbekov, I.V. Shvets, G.S. Duesberg, P.K. Hurley, F. Gity, C. Ó Coileáin, N. McEvoy]