



School of Chemistry News Summer 2023

Welcome to...

A warm welcome to Suman Debnath, who recently joined the Hooper Group as a Postdoctoral researcher from the University of Windsor, Canada.

Welcome to Peter Byrne, who joins the School as an Assistant Professor. Peter did his undergraduate degree here in the School and also did his PhD under the direction of Declan Gilheany. A very warm welcome back to Peter!

Many thanks to Aniello Palma who will take over the role of Chair of Research in the School. We wish him every success in this role.

We also welcome Grace Morgan to her new role as Chair of the School's Safety Committee. We wish her every success in this important role and thank Andrew Philips for all his hard work during his time as Safety Chair.

Farewell to...

The School says farewell to Mike Casey, who is retiring after 31 years of dedicated service to the School. Since joining UCD in 1992, Mike has made significant contributions to excellence in Teaching and Learning, and Research, as well as holding some senior Administrative roles in the School; notably as Head of School during the challenging times of the Covid pandemic. Mike's retirement was marked on August 24th with a wonderful lecture on his career highlights, 'Some Experience of Teaching Authentic Chemistry Skills'. Mike is a much-valued colleague and mentor, and he will be really missed in the School. We wish Mike the very best for a restful retirement and thank him for the valuable contributions he has made.



School news, events, and activities...

This summer, a group of 40 undergraduate students from the University of Hawaii, PennState University and the University of California visited UCD to participate in our 8-week Organic Chemistry Summer School. The programme was a great success in combining classes, labs and tutorials with plenty of time to explore Ireland on the weekends. Many thanks to all the dedicated staff in the School who worked so hard to make this a success. Thanks specifically to Marcus Baumann (coordinator), Deirdre Murphy (Administrator) and Ray Smith (Technical Officer). Thanks to the academic staff who delivered lectures: Paul Evans, Aniello Palma, Eoghan McGarrigle, Marina Rubini, Declan Gilheany and Marcus Baumann. A big thanks to the teaching assistants and tutors: Oisín Ellison, Saoirse Hassett, Laura Gallagher, David Barrett, Niamh Gurrin, Eoghan Courtney, Niamh O'Neill, Kacper Kluza, Oisín McCorry, Freya Martin, Ruairi Crawford, Adam Cruise.



Undergraduate students from the University of Hawaii, PennState University and the University of California

The School also hosted a group of 14 undergraduate students from the College of Chemistry & Life Sciences in Zhejiang Normal University. A huge team of staff and students came together to make this a real success! The students undertook modules in Physical, Organic and Inorganic Chemistry delivered by Prof Xiangming Zhu, Prof Robert Johnson, Prof Tony Keene and Prof Andrew Phillips. A special thanks to Deirdre Murphy (Administrator) and Technical Officers Colin Evesson and Paddy Waldron for all their hard work in making this Summer School such a success. Thanks to the Tutors, Olivia Breen, Zoe Beato, Shekemi Denuga and Dominik Duleba; thanks to the Demonstrators Noheem Kadiri, Viktorija Mikaite, Zoe Beato, Allan Finlay, Robert Redmond Emer Farrell, Pallavi Dutta, Donal Whelan, Shane O'Neill for supporting this School and to Dr Adrià Martínez Aviñó for his valuable contribution. Many congratulations to Xiangming for coordinating this Summer School.



Congratulations to the 10 PhD students and 1 MSc Research student who were conferred with their Chemistry Degrees in June. We wish them the very best for the future!



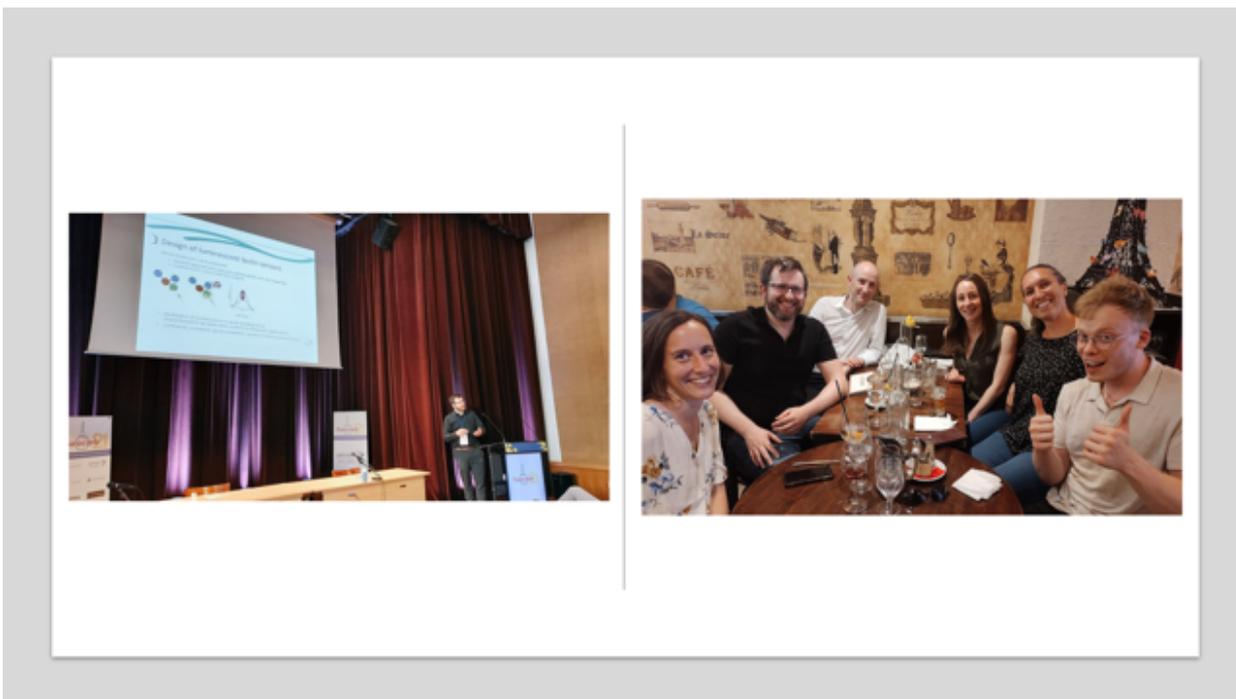
UCD Chem Soc Sports Day 2023 Recap 🏆

On July 28th, UCD Chem Soc hosted an exciting Sports Day, involving fun, camaraderie, and a touch of good healthy competition! We had rounders, 5-a-side, 3-legged, potatoes and spatula, wheelbarrow and the much-loved relay race! After three hours down on the hockey pitches, the red team took home the trophy! The event was held in support of the Irish Cancer Society. A special thanks to everyone for coming and supporting. This was the last event of this year's committee and we look forward to welcoming the new incoming committee for 2023/2024! The School of Chemistry would like to thank the outgoing committee for their really valuable contribution to a positive and inclusive culture in the School and we look forward to working with the new committee members.



Research talks & presentations...

Joe Byrne and Eoghan McGarrigle both gave talks at the European Carbohydrate Symposium (Eurocarb21) in Paris in July. It was a large meeting with many leading carbohydrate chemistry researchers in attendance, including several UCD Chemistry alumni! Zoe Beato (Zhu group) and Louis-Antoine Barel (Oscarson group) presented posters at this event.



Joe presenting his research (left) and past and present UCD researchers enjoying some refreshments at the European Carbohydrate Symposium (Eurocarb21)

Congratulations to Eva, Raphaël and Daniel (Sullivan group) who presented their work at EuropaCat XV in Prague this August. Eva's poster was on 'Plasmonic Photocatalysts for Sustainable Artificial Photosynthesis', Raphaël's on 'Supported bimetallic (Ni/Cu) nanoparticles catalysts for the thermal hydrogenolysis of lignin model compounds' and Daniel's poster highlighted work on 'Non-Thermal-Plasma assisted degradation of PFOA'.

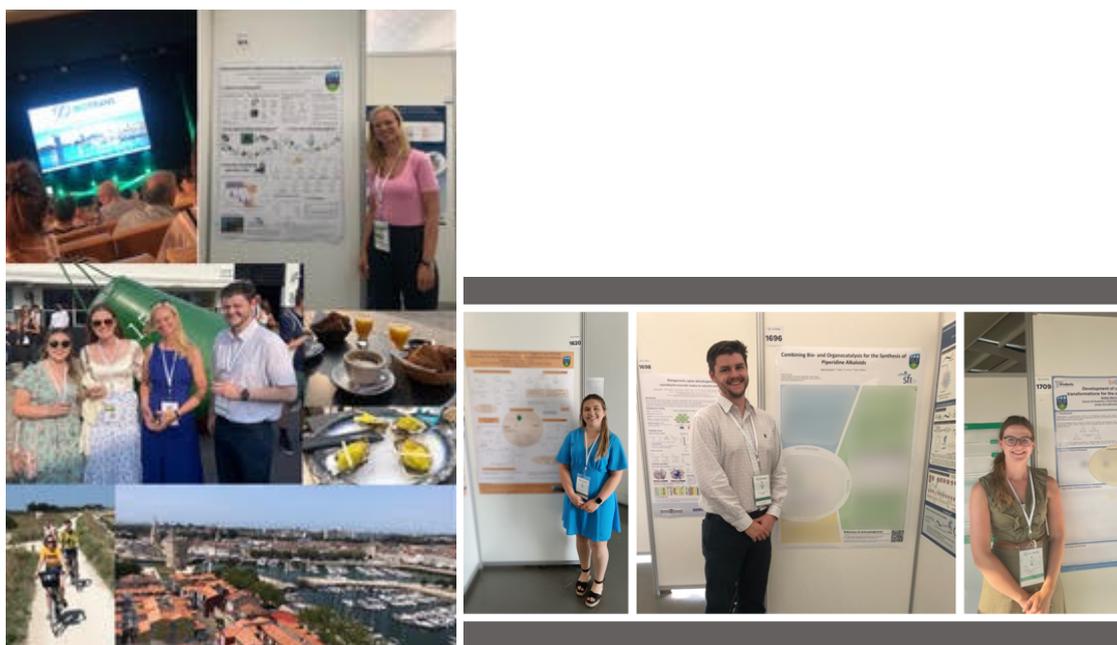


Sullivan Group enjoying EuropaCat 2023

Members from the O'Reilly and Baumann Group, gave research talks at the Nordic-Irish Process Chemistry Forum, hosted by Almac in Belfast. The forum provided an exceptional platform to foster new collaborations and had a diverse range of topics in the fields of flow chemistry, biocatalysis, and organocatalysis.



In June, the O'Reilly Group travelled to La Rochelle in France to attend BioTrans 2023, the 16th International Symposium on Biocatalysis and Biotransformations. The event brought together new and established researchers in the field of biocatalysis to share their findings, and encourage new collaborations. BioTrans 2023 comprised a week-long series of engaging talks and the opportunity to present the group's recent findings via poster presentations. The trip also gave the time to explore the seaside town of La Rochelle and meet fellow researchers during the conference dinner and other post-conference activities.



Pictures of the O'Reilly Group members Marianne, Aoife, Adam and Amber presenting at Biotrans, and enjoying La Rochelle.

Recent publications from the School...

Congratulations to Zoe Beato from the Zhu research group on developing a new highly stereoselective procedure for the synthesis of superarmed thioglycoside donors, in her paper "Synthesis of superarmed thioglycoside donors via ring-opening of orthoesters", Zoe Beato, Xiangming Zhu, Synlett 2023. [Thieme E-Journals - Synlett / Abstract \(thieme-connect.com\)](#)

The latest article from the Byrne Group featured on the Front Cover of *ChemComm* in July, and featured in the collections "Chemosensors and Molecular Logic" and "Chemical Communications HOT Articles 2023". K. Wojtczak, E. Zahorska, I. J. Murphy, F. Koppel, G. Cooke, A. Titz, J. P. Byrne*, "Switch-on luminescent sensing of unlabelled bacterial lectin by terbium(iii) glycoconjugate systems", *Chemical Communications*, 2023, 59, 8384; [10.1039/D3CC02300A](#); Front Cover: [10.1039/D3CC90223D](#). Congratulations to all involved!

Congratulations to Hans Eckhardt, who recently collaborated with colleagues in the School of Biosystems and Food Engineering/Conway Institute and published their collaborative work on the mechanism of lactose assimilation. Li, Y., Miros, S., Kiani, H. *et al.* Mechanism of lactose assimilation in microalgae for the bioremediation of dairy processing side-streams and co-production of valuable food products. *J Appl Phycol* 35, 1649–1661 (2023). <https://doi.org/10.1007/s10811-023-03002-2>.

A study on exploiting three photochemical flow processes for the synthesis of benzyne and their precursors was recently published by the Baumann group in *Advanced Synthesis and Catalysis* - Well done, Jorge! "Modular Photochemical Flow Synthesis of Structurally Diverse Benzyne and Triazine Precursors" Jorge García-Lacuna, Marcus Baumann, *Adv. Synth. Catal.* 2023, 365, 2628-2635. [Modular Photochemical Flow Synthesis of Structurally Diverse Benzyne and Triazine Precursors \(wiley.com\)](#)

A second publication from the Baumann group reports on the success of a new collaboration with Prof. Maguire and her team at UCC for the photochemical conversion of aryldiazoacetates into dihydrobenzofurans. "Flow photolysis of aryldiazoacetates leading to dihydrobenzofurans via intramolecular C–H insertion" Katie S. O'Callaghan, Denis Lynch, Marcus Baumann, Stuart G. Collins, Anita R. Maguire *Org. Biomol. Chem.*, 2023, 21, 4770-4780. [d3ob00541k 4770..4780 ++ \(rsc.org\)](#)

Congratulations to colleagues from the School on the publication of two articles relating to PFAS destruction:

Jhimli Paul Guin; James A. Sullivan; Jimmy Muldoon; K.R. Thampi "[Visible light induced degradation of perfluorooctanoic acid using iodine deficient bismuth oxyiodide photocatalyst](#)" *Journal of Hazardous Materials* and; "[Enhanced removal of perfluorooctanoic acid with sequential photocatalysis and fungal treatment](#)" *Environmental Science and Pollution Research*. Mohd Faheem Khan; Jhimli Paul Guin; Ravindranathan K. Thampi; James A. Sullivan; Cormac D. Murphy.

Congratulations to Dr Marianne Haarr on her recent News & Views in Nature Catalysis. Elaine O'Reilly, Marianne B. Haarr, "Hijacking a P450 for Ketone Synthesis", *Nature Catalysis*, 2023, 6, 561-562.

Awards, funding, and recognition...

Many Congratulation to Professor Susan Quinn, who is the recipient of the 2023 Eva Philbin Lecture Award. This is wonderful and well-deserved recognition of her Group's excellence in research. The award will be presented to Susan at the ICI Congress in QUB in October.

Congrats to Dr Kirill Nikitin whose application *Non-aqueous Generation of Soluble Phosphate Fertiliser from Solid Agricultural Biowaste for Sustainable Agrifood Systems* under the Future Food Systems Challenge of the National Challenge Fund has been approved for funding by SFI over a period of 18 months. This project emanates from Dr Nikitin's and Prof Gilheany's long-standing interest in phosphate recycling as phosphorus minerals are depleting rapidly leading, in the near future, to global food crisis. A solution to this challenge will warrant sustainable existence of the humanity into the future. A PDRA position pertaining to this project well be available soon, keep an eye out!

Congratulations to Celine from the Rubini Group and Dr Bhargava Reddy from the McGarrigle Group, who won poster prizes at the 74th ICI Chemistry Colloquium and to Clara from the Quinn Group on winning the award for best oral presentation (pictures below).



The Baumann group recently teamed up with Prof. Rice (Physics) and Prof. Sofianos (Chemical and Bioprocess Engineering) for a STEM Challenge award for their project entitled "Green technology to address persistent environmental contaminants". This project will develop and apply new materials and continuous processes for the controlled photochemical degradation of environmental contaminants based on fluorinated moieties.

New Doctor in the house!!

Congratulations to Dr Benjamin Owen (Guiry group), Dr Dorottya Krizsan (Quinn group) and Dr Danielle Winning (Brougham group) on successfully defending their thesis this summer. We wish all three every success in their futures. Thanks to all the internal and external examiners involved.

