

MIRIAM L. O'DUILL, DPHIL (OXON), MRSC

GSK Carbon Neutral Laboratories for Sustainable Chemistry, University of Nottingham, UK
<https://oduillgroup.com>; miriam.oduill@nottingham.ac.uk

EMPLOYMENT

Since 2025 Associate Professor of Organic Chemistry, University of Nottingham
2020–2025 Assistant Professor of Organic Chemistry, University of Nottingham
2018–2020 Lecturer in Organic Chemistry, University of Galway, Ireland
06–09/2018 Visiting Researcher with Prof. F.R. Wurm and Prof. K. Landfester,
Max Planck Institute for Polymer Research, Mainz, Germany
2016–2017 Postdoctoral Fellow (DAAD) with Prof. K.M. Engle, Scripps Research Institute, USA

QUALIFICATIONS

2022 Lvl3 Leadership & Management Certificate, Institute of Leadership and Management
2022 Fellowship of the Higher Education Academy (FHEA), AdvanceHE
2019 Postgraduate Certificate in Teaching and Learning in Higher Education (PgCERT)
2011–2016 D.Phil. in Organic Chemistry with Prof. V. Gouverneur FRS, University of Oxford
“Late-stage Fluorination and Perfluoroalkylation” (awarded on 07.12.2015)
2007–2011 M.Chem. (1st class honours), University of Oxford, Merton College
Languages German - native, English - native, French - B2, Spanish - A2

AWARDS AND FELLOWSHIPS

2026 ABSW Media Fellowship 2026: science communication fellowship
2024 Thieme Chemistry Journals Award
2023 and 2024 Royal Society Westminster Pairing Scheme: science policy fellowship (shortlisted)
2023 Nottingham Reward Scheme for organisation of the PGR research symposium
2022 Nottingham Reward Scheme recognising contributions to undergraduate admissions
2022 EPSRC New Investigator Award
2021 Nottingham Reward Scheme for contributions that had a significant and positive impact in ensuring the continued success of the University
2020 Nominated for University of Galway President's Awards for Teaching Excellence
2016 SOF Lightning Talk Competition prize
2016–2017 German Academic Exchange Service (DAAD) Postdoctoral Fellowship
2013 Eli Lilly Prize for Excellence in Organic Chemistry Research
2013 Syngenta Poster Prize, ESOC, Marseille, France
2009–2010 Postmaster Scholarship for excellence in exams, Merton College, Oxford
2008 Exhibition Scholarship for excellence in exams, Merton College, Oxford
2007–2009 Scholar of the German National Academic Foundation (Studienstiftung d. dt. Volkes)
2007 British Chamber of Commerce (BCCG) Foundation Award

RESEARCH SUMMARY

My research group develops new reagents and catalytic reactions that enable the synthesis of complex small organic molecules, such as pharmaceuticals and medical imaging agents, from simple, cheap feedstock chemicals. We have expertise in transition metal catalysis, isotopic labelling (fluorination, deuteration), and organic synthesis. Our current work focuses on the development of sustainable methodology by applying principles from transition metal catalysis to metal-free hypervalent iodine chemistry.

PUBLICATIONS (ORCID iD: orcid.org/0000-0002-8312-824X; corresponding author denoted by *)

Greener, A.; Argent, S. P.; Clarke, C.; O'Duill, M. L.* Structure and stability of phosphorus-iodonium ylids. *Beilstein J. Org. Chem.* **2024**, *20*, 2931–2939; DOI: 10.3762/bjoc.20.245.

Pre-print uploaded to *ChemRxiv* on Aug 30th, 2024 (DOI: 10.26434/chemrxiv-2024-4xgd6).

Das, S.; McIvor, C.; Greener, A.; Suwita, C.; Argent, S. P.; O'Duill, M. L.* Electrophilic 2,2-difluoroethylation of heteroatom nucleophiles via a hypervalent iodine strategy. *Angew. Chem. Int. Ed.* **2024**, *63*, e202410954; DOI 10.1002/anie.202410954; *Angew. Chem.* **2024**, *136*, e202410954; DOI 10.1002/ange.202410954. *The article appeared in: Hot Topic: Fluorine Chemistry.* Top 10 most accessed paper in 08/2024. Highlighted in *Synfacts* **2024**, *20*, 1203.

Pre-print uploaded to *ChemRxiv* on June 11th, 2024 (DOI: 10.26434/chemrxiv-2024-f3b5s).

Fitzgerald, L. S.; McNulty, R.; Greener, A.; O'Duill, M. L.* Programmable deuteration of indoles via reverse deuterium exchange. *J. Org. Chem.* **2023**, *88*, 10772–10776; DOI: 10.1021/acs.joc.3c00819. Available as a pre-print: *ChemRxiv* 2022, DOI 10.26434/chemrxiv-2022-s48dt. Selected compounds from this publication are commercially available through Key Organics.

Fitzgerald, L. S.; O'Duill, M. L.* A Guide to Directing Group Removal: 8-Aminoquinoline. *Chem. Eur. J.* **2021**, *27*, 8411–8436; DOI: 10.1002/chem.202100093.

Top downloaded manuscript in *Chem. Eur. J.* 2021.

Haider, T.; Suraeva, O.; O'Duill, M. L.; Mars, J.; Mezger, M.; Lieberwirth, I.; Wurm, F. R. Controlling the crystal structure of precisely spaced polyethylene-like polyphosphoesters. *Polym. Chem.* **2020**, *11*, 3404–3415; DOI: 10.1039/D0PY00272K.

O'Duill, M. L.; Engle, K. M. Protodepalladation as a Strategic Elementary Step in Catalysis. (Invited review) *Synthesis* **2018**, *50*, 4699–4714; DOI: 10.1055/s-0037-1611064.

Derosa, J.†; O'Duill, M. L.†; Holcomb, M.; Boulous, M. N.; Patman, R. L.; Wang, F.; Tran-Dubé, M.; McAlpine, I.; Engle, K. M. Copper-Catalyzed Chan–Lam Cyclopropylation of Phenols and Azaheterocycles. *J. Org. Chem.* **2018**, *83*, 3417–3425; DOI: 10.1021/acs.joc.7b03100. († authors contributed equally.) Selected as a Featured Article; highlighted in *Synfacts* 2018, *14*, 631.

O'Duill, M. L.; Matsuura, R.; Wang, Y.; Turnbull, J. L.; Gurak, J. A.; Gao, D.-W.; Lu, G.; Liu, P.; Engle, K. M. Tridentate Directing Groups Stabilize 6-Membered Palladacycles in Catalytic Alkene Hydrofunctionalization. *J. Am. Chem. Soc.* **2017**, *139*, 15576–15579; DOI: 10.1021/jacs.7b08383.

Derosa, J.; Cantu, A. L.; Boulous, M.; O'Duill, M. L.; Turnbull, J. L.; Liu, Z.; De La Torre, D.; Engle, K. M. Palladium(II)-catalyzed directed anti-Hydrochlorination of Unactivated Alkynes with HCl. *J. Am. Chem. Soc.* **2017**, *139*, 5183–5193; DOI: 10.1021/jacs.7b00892.

O'Duill, M.; Dubost, E.; Pfeifer, L.; Gouverneur, V. Cross-Coupling of [2-Aryl-1,1,2,2-tetrafluoroethyl]- (trimethyl)silanes with Aryl Halides. *Org. Lett.* **2015**, *17*, 3466–3469; DOI: 10.1021/acs.orglett.5b01510.

Yang, G.; O'Duill, M.; Gouverneur, V.; Krafft, M. P. Recruitment and Immobilization of a Fluorinated Biomarker Across an Interfacial Phospholipid Film using a Fluorocarbon Gas. *Angew. Chem. Int. Ed.* **2015**, *54*, 8402–8406; DOI: 10.1002/anie.201502677.

Mizuta, S.; Stenhagen, I. S. R.; O'Duill, M.; Wolstenhulme, J.; Kirjavainen, A. K.; Forsback, S. J.; Tredwell, M.; Sandford, G.; Moore, P. R.; Huiban, M.; Luthra, S. K.; Passchier, J.; Solin, O.; Gouverneur, V. Catalytic Decarboxylative Fluorination for the Synthesis of Tri- and Difluoromethyl Arenes. *Org. Lett.* **2013**, *15*, 2648–2651; DOI: 10.1021/ol4009377.

Mizuta, S.; Engle, K. M.; Verhoog, S.; Galicia-Lopez, O.; O'Duill, M.; Medebielle, M.; Wheelhouse, K.; Rassias, G.; Thompson, A.; Gouverneur, V. Trifluoromethylation of Alkylsilanes under Photoredox Catalysis. *Org. Lett.* **2013**, *15*, 1250–1253; DOI: 10.1021/ol400184t.

Mizuta, S.; Verhoog, S.; Engle, K. M.; Khotavivattana, T.; O'Duill, M.; Wheelhouse, K.; Rassias, G.; Médebielle, M.; Gouverneur, V. Catalytic Hydrotrifluoromethylation of Unactivated Alkenes. *J. Am. Chem. Soc.* **2013**, *135*, 2505–2508; DOI: 10.1021/ja401022x.

Funding

Leverhulme research project grant RPG-2024-411 (2025–2028), £273,244
 “Stability studies and rational design of hypervalent iodine alkylating agents”

BRC Impact Accelerator Interdisciplinary Pipeline Award (2024–2025), £32,550
 “Deuteration of bespoke medical imaging probes for clinical applications”

EPSRC/SFI CDT in Sustainable Chemistry research theme (2023–2027), £40,000 external funding obtained from AstraZeneca: “Disruptive Technologies for Late-Stage Functionalisation”,
 Col: **RSC Research Enablement grant** 83368 (2023–2024, PI: Helen Betts, Nottingham University Hospital), £9,800: “Accessing new PET Radiotracers by selective deuteration”

University of Nottingham Interdisciplinary Research Collaboration Fund follow-up funding (2023), £5,000: “Applying new chemistry to imaging and healthcare”

RSC Undergraduate Research Bursary U23-8445873263 (2023), £2,918
 “Sustainable catalysis for the synthesis of drug-like amines”

EPSRC New Investigator Award EP/W00934X/1 (2022–2025), £423,010
 “Alkyl(aryl)iodonium Reagents for Late-Stage Alkylation”
 Col: **NERC New Investigator Award** NE/X000524/1 (2022–2025, PI: Rabi Chhantyal Pun), £492,728
 “Direct Studies of Peroxy Radical Autoxidation Reactions”

Royal Society Research grant RGS\R2\212144 (2022–2023), £18,302
 “Reagents for late-stage functionalisation”,

University of Nottingham Interdisciplinary Research Collaboration Fund (2022), £9,392
 “Applying new chemistry to imaging and healthcare”,

University of Nottingham equipment grant (2021), £20,000.

SFI Frontiers for the Future programme RGS\R2\212144 (2020–2024; grant not started as funding not transferrable to UK), €306,276: “Alkylidonium Salts as Late-Stage Alkylating Agents”,

University of Galway College of Science Millennium Fund (2018), €4,750.

RSC Researcher Mobility Grant RM1602-7409 (2018), £3,000 awarded to carry out work as a visiting researcher at the MPI for Polymer Research, Mainz with Prof. F. R. Wurm
 “Crystallisation of Precision Polymers: Towards New Smart Materials”

Science Foundation of Ireland (SFI) PhD grant 17/RCPHD/3480 (2018–2023), €139,200
 “Deuterium-Labeling of Bioactive Molecules”

Scripps SoF Travel Award (2017), \$1,000 awarded to attend ACS National Meeting San Francisco

DAAD Postdoc-Programm Forschungsstipendien für promovierte Nachwuchswissenschaftler 57203515 (2016–2017), €64,682: “Anion Carceplexes as Novel Phase-Transfer Catalysts for Enantioselective Reactions of Unactivated Substrates”

INVITED LECTURES AND CONFERENCE PROCEEDINGS

CONFERENCES

21. SCI: A Celebration of Organic Chemistry, Macclesfield, 22.-23.09.2026
20. Pacificchem, Hawaii, USA, 15.-20.12.2025
19. Astra Zeneca Early Career Researcher Showcase, 19.11.2025
18. International Isotope Society UK annual symposium, Cambridge, UK, 14.11.2025
17. Gregynog Synthesis Workshop (chalk talk), 03/09/2025
16. International Conference on Hypervalent Iodine Chemistry, Tianjin, China, 25.-28.06.2025
15. New Starters in Synthesis and Catalysis, University College London, UK, 06.06.2025
14. Thieme Cheminar: Rising Stars in Organic Chemistry, online, 24.03.2025
13. Gregynog Synthesis Workshop (chalk talk), 28/08/2024

12. RSC Organic Division Regional Meeting Midlands, Keele University, UK, 11/04/2024
11. A Celebration of International Women's Day (career talk), University of Nottingham, 23/03/2023
10. Society of Chemical Industry Annual Review Meeting, London, UK, 07/12/2022
9. UK Catalysis Hub Winter Conference, Oxford, UK, 07/12/2021
8. New Frontiers in Synthetic Chemistry conference, online, 10/11/2021
7. DFG Jungchemikerforum Frühjahrssymposium (poster), online, 30/03/2021
6. UK Catalysis Hub Conference (EDI talk), online, 07/12/2020
5. EFMC International Symposium on Advances in Synthetic and Medicinal Chemistry, Athens, Greece, 05/09/2019
4. RSC Organic Division Regional Meeting, Queen's College Belfast, Northern Ireland, 02/05/2018
3. ACS National Meeting San Francisco, USA, 03/04/2017
2. Eli Lilly CASE day (poster), Erl Wood Manor, Windlesham, UK, 04/09/2014
1. RSC Fluorine and Carbohydrate Subject Group Meeting, Southampton, UK, 03/09/2013

RESEARCH SEMINARS

20. Cardiff University, UK, 20/01/2026
19. Scripps Research Institute, CA, 22/12/2025
18. Universitaet des Saarlandes, Saarbruecken, Germany, 04/11/2025
17. Nottingham Trent University, UK, 29/10/2025
16. University of Strathclyde, Scotland, 08/09/2025
15. Peking University, Beijing, China, 24/06/2025
14. Tsinghua University, Beijing, China, 22/06/2025
13. Institute of Chemistry, Chinese Academy of Sciences (ICCAS), Beijing, China, 22/06/2025
12. University of St Andrews, Scotland, 19/03/2025
11. University of Leicester, UK, 12/03/2025
10. University of Bristol, UK, 13/02/2025
9. University of Durham, UK, 15/01/2025
8. GSK Stevenage, UK, 09/08/2024
7. University College Dublin, Ireland, 22/02/2024
6. University of York, UK, 12/04/2023
5. University of Oxford, UK, Catalyst Graduate Chemistry Society Webinar Series, 09/07/2021
4. University of Nottingham (career talk), UK, 23/06/2021
3. University of Galway, Ireland, 01/11/2018
2. University of Birmingham, UK, 22/10/2018
1. University of Texas, El Paso, USA, 17/02/2017

COMMITTEES AND PROFESSIONAL MEMBERSHIPS

- RSC Heterocyclic and Synthesis Group Committee (since 2026)
- SCI Young Chemists Panel (organisation of events that connect academia, industry and government to accelerate innovation) (2023–2025)
- Fellow of the Higher Education Academy (FHEA) (Since 2022)
- Member of the Royal Society of Chemistry (MRSC) (since 2018)
- International Isotope Society (2021–2022)
- University committees Nottingham: GSK Carbon Neutral Laboratory safety officer (since 2025); School of Chemistry (SoC) Health and Safety Committee (since 2025); Organisation of SoC visiting speakers' seminar programme (since 2022); SoC undergraduate recruitment and admissions committee (since 2021); Design of taught postgraduate research degree MSc Chemistry (2024)
- University committees Galway: Academic Council (one of three governing bodies "setting the academic direction of the University"), School of Chemistry outreach committee, SoC workload committee, EDI committee

ACADEMIC AND PROFESSIONAL ACTIVITIES

- Current research group: 2 PDRAs, 6 PhD and 1 MRes students.
- Successfully graduated 6 postgraduate research students (3 PhD and 3 MRes students), who have gone on to careers in industry (FluoRok, Pharmaron, Teva Pharmaceuticals, Henkel) and postdocs (Krembil Brain Institute/University of Toronto); mentored 2 PDRAs (supported 1 in a successful MSCA fellowship application)
- Conference organisation: Grasmere Heterocyclic Symposium 2026; RSC Postdoctoral Symposium 2025; RSC Organic Division Midlands Regional Meeting 2025; SCI Highlights in catalysis, photo- & electrochemistry 2025; SCI YCP undergraduate research symposium and career fair 2025 and 2024; Symposium in memory of Elizabeth 'Nellie' Lee 2019
- Event organisation: Nottingham postgraduate research symposium 2023–2024, Elizabeth Lee Outreach Award 2019, student Athena Swan feedback pizza lunch event, Galway staff Christmas coffee morning
- Since 2018: Examiner of PhD theses (16 internal and 9 external) and MRes theses (6 internal)
- Since 2017: commercialisation of novel compounds through Key Organics and Merck
- Peer review of grants (DFG, EPSRC, RSC, SNF) and publications (Elsevier, Nature, RSC, Wiley)

SCIENCE COMMUNICATION AND CIVIC ENGAGEMENT

- ABSW Media Fellowship 2026: science communication fellowship
- Science Policy: Royal Society Westminster Pairing Scheme, 03/2024 and 03/2025 (successful application, but no parliamentarian was found for a successful pairing)
- Science Communication: UoN EDI blog Sweet success for female Nobel laureate 2023 [\[link\]](#); YouTube Periodic Table of Videos: Click Chemistry – Nobel Prize for Chemistry 2022 [\[link\]](#) (157k views, 264 comments), Thalidomide [\[link\]](#) (185k views, 379 comments); Public lectures (U3A West Bridgford public lecture, *Sustainable Chemistry*, 04/2024; Institute for Policy and Engagement Public Lecture, *Molecule Makers*, 05/2022)
- Organisation of science events: Nottingham Pint of Science festival 2022–2023; Galway Science and Technology Festival 2018–2019; Elizabeth Lee Outreach Award 2019; RSC Schools' Analyst Competition Galway 2018
- Volunteering roles: Scouts Association Nottingham District Adventure Team 2021–2024, Salter's Festival career panel for secondary school students 2023 and 2024, Science in the Park 2022, I'm a Scientist Get me out of here online STEM engagement activity for school students 2020, BT Young Scientist and Technology Exhibition Dublin 2020, Salerno Secondary School visit + synthesis of pigments 2018, AWIS STEM workshop for middle and high school girls 2016, AWIS San Diego Science Fair 2016, San Diego Maker Faire 2016, Scripps Research Institute Network for Women in Science PR officer 2016–2017

TEACHING EXPERIENCE**Curriculum Leadership**

| | |
|------------|--|
| 2026 | Design of a sustainable chemistry module (3 rd year undergraduate) |
| 2024–2025 | Design of a new taught Masters degree: MSc Sustainable Chemistry |
| 2024–2025 | School of Chemistry curriculum review |
| Since 2023 | Design and lead of an EPSRC/SFI CDT in Sustainable Chemistry research theme (collaboration with Astra Zeneca, UK, and UCD and BIORbic, Dublin, Ireland) |
| 2019–2020 | Head of 2nd year teaching labs; responsible for curriculum/experiment design, safety and timetabling |
| 2019–2020 | Designed and implemented two new optional 4th year undergraduate modules |
| 2018–2020 | Module coordinator of CH202: in charge of the module and associated teaching labs (content, examination, and smooth day-to-day running of teaching activities) |

Lectures and Workshops

Course handouts can be found at <https://oduillgroup.com/teaching/>

CSI Nottingham: laboratory skills consolidation workshop for 1st year undergraduate (UG) teaching labs (since 2025), University of Nottingham (UoN), ca. 210 students per year (p.a.), 3 h.

CH101 Chemistry: Introduction (2018–2020), core 1st year UG, University of Galway, ca. 350 students p.a., 15 lectures (25% of total module); assessment: 2h written exam.

CH202 Organic Chemistry: Properties and Reactivity of Alcohols (2018–2020), core 2nd year UG, Galway, 2018–2020; module coordinator (in charge of the module and associated teaching labs), ca. 200 students p.a., 10 lectures (33%); assessment: 2 h written exam, lab reports.

CHEM2010 Synthesis and Spectroscopy (since 2018), core 2nd year UG, UoN, ca. 200 students p.a., 11 lectures, 1 revision workshop (25% of total module); assessment: 3 h written exam.

CHEM2025 Synthesis and Spectroscopy (since 2018), degree apprenticeship programme, UoN; ca. 5 students p.a., 1 revision workshop.

CH311 Organic Chemistry: Heterocyclic Chemistry (2019–2020), core 3rd year UG, Galway, ca. 70 students p.a., 10 lectures (25%); assessment: 2 h written exam, essay, presentation.

CHEM3065 Organometallic Chemistry (since 2024), core 3rd year UG, Nottingham, ca. 150 students p.a., 11 lectures, 1 revision workshop (25%); assessment: 3h written exam.

CH4102 Introduction to Medical Imaging (2019–2020), optional 4th year UG, Galway, ca. 50 students p.a., 10 lectures (33%); curriculum design: designed and implemented this module; assessment: 2h written exam.

CH4104 Radicals, Polymers and Supramolecular Chemistry (2018–2020), core 4th year UG, Galway, ca. 50 students, 13 lectures (25%); assessment: 2h written exam.

CH4114 Current Topics in Medicinal Chemistry (2020), optional 4th year UG, Galway, 20 students, 6 lectures (25%), curriculum design: designed and implemented this module together with two colleagues; continuous assessment: presentations, peer assessment, group projects, oral exam.

CH506/5102 Core Skills for Chemistry Research: Polymer Chemistry and GPC (2019–2020), PhD and Masters students (PG), Galway, ca. 12 students p.a., 2 lectures (13%); assessment: class test.

Tutorials small-group teaching sessions of 6–8 students

Tutorial teaching across all 4 years of undergraduate studies (ca. 30–50 tutees, 10–28 contact hours); responsible for developing teaching material, marking homework, running tutorials, and providing personalised feedback.

Pastoral responsibilities for 24 personal tutees [total of 33 to date]: first point of contact for any questions and support.

Supervision

Supervision of postgraduate students (since 2018), Galway and Nottingham

My current research group consists of 2 PDRAs, 6 PhD and 1 MRes students. I previously mentored 2 PDRAs who have gone on to other fellowships (MSCA), and have successfully graduated 6 postgraduate research students (3 PhDs, 3 MRes) who have gone on to careers in industry (FluoRok, Teva Pharmaceuticals, Henkel) and further research (Krembil Brain Institute/University of Toronto).

1st year teaching laboratories (2019–2020), Galway, pre-lab information session and supervision of ca. 130 students p.a., 24 contact hours; assessment + marking: pre-lab questions and lab reports.

2nd year teaching laboratories (2019–2020), Galway, pre-lab information session and supervision of ca. 60–100 students p.a., 36 h; assessment + marking: lab reports.

CHEM3027 Chemistry Literature Project and Research Group Project (since 2020), Nottingham, supervision of 4 student-led BSc and MSci research group projects p.a.

Supervision of 3rd year MSci students on industrial placements (since 2020), Nottingham

Supervision of 4th year MSci project students (since 2018) Galway and Nottingham, 3 students p.a. carrying out a research project in my group