Dr Lucia M. Ferreira, PhD, FRSC

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RESEARCH STATEMENT

My research concerns the environmental fate of fluorinated organic compounds in freshwater systems, with an emphasis on transformation pathways that conventional monitoring programmes do not capture. The group combines high-resolution mass spectrometry, controlled mesocosm experiments and reactive-transport modelling to trace compounds from point of discharge through sediment and biota.

Over the past six years this work has produced the first field-validated degradation model for short-chain perfluoroalkyl acids in temperate river systems, a shared open dataset covering forty-one catchments, and analytical methods now adopted by three national monitoring agencies. Current funded projects extend the approach to estuarine mixing zones and to the risk posed by fluorinated pharmaceuticals in reclaimed irrigation water.

I supervise a group of nine — four doctoral researchers, two postdoctoral fellows and three technicians — and teach analytical and environmental chemistry across the undergraduate and taught-postgraduate programmes.

41	3,180	27	£4.6m	9
PEER-REVIEWED PAPERS	CITATIONS	H-INDEX	FUNDING AWARDED	RESEARCHERS SUPERVISED

ACADEMIC APPOINTMENTS

2021 — present
Associate Professor of Environmental Chemistry
Northmoor University, London, UK
Director of the Freshwater Contaminants Laboratory; deputy lead of the Water Futures research theme.

2017 — 2021
Senior Lecturer in Analytical Chemistry
Northmoor University, London, UK
Established the high-resolution mass spectrometry facility and its shared-access programme.

2014 — 2017
Lecturer in Chemistry
University of Ashcombe, Ashcombe, UK
Convenor of the MSc Environmental Analysis programme.

2011 — 2014
Postdoctoral Research Fellow
Institute for Water Research, ETH-adjacent consortium, Zurich, Switzerland
Marie Skłodowska-Curie individual fellowship on organofluorine sediment partitioning.

EDUCATION

2007 — 2011 **PhD, Analytical and Environmental Chemistry**
University of Coimbra, Coimbra, Portugal
Thesis: “Trace-level determination and transformation of perfluoroalkyl substances in river sediments” — advisor: Prof. Helena Marques.

2005 — 2007 **MSc, Chemistry (Analytical specialisation)**
University of Coimbra, Coimbra, Portugal
Thesis: “Solid-phase microextraction of halogenated aromatics from estuarine water” — advisor: Prof. Rui Salgado.

2001 — 2005 **Licenciatura, Chemistry**
University of Porto, Porto, Portugal

PUBLICATIONS

Numbering is continuous across all categories; the candidate’s name is underlined. Full text of every entry is deposited in the institutional repository under a CC-BY licence.

Peer-reviewed journal articles (selected)

[1] Ferreira, L. M., Okonkwo, B., & Sandhu, R. (2026). Field-validated degradation kinetics of short-chain perfluoroalkyl acids across forty-one temperate catchments. *Environmental Science & Technology*, 60(9), 4118—4131. Editor's Choice. Cited 34 times.

[2] Sandhu, R., Ferreira, L. M., & Trevelyan, A. (2025). Sediment—water partitioning of fluorinated pharmaceuticals under variable ionic strength. *Water Research*, 268, 122943. Cited 51 times.

[3] Ferreira, L. M., Nakamura, S., Okonkwo, B., & Marques, H. (2025). A reactive-transport framework for emerging contaminants in estuarine mixing zones. *Environmental Modelling & Software*, 183, 106012.

[4] Trevelyan, A., Ferreira, L. M., & Bell, C. R. (2024). Non-target screening reveals eleven previously unreported transformation products of 6:2 FTSA. *Analytical Chemistry*, 96(31), 12604—12615. Cited 88 times.

[5] Ferreira, L. M., & Marques, H. (2024). Rethinking limits of quantification for regulatory monitoring of organofluorines. *TrAC Trends in Analytical Chemistry*, 171, 117482. Invited review.

[6] Okonkwo, B., Bell, C. R., & Ferreira, L. M. (2023). Mesocosm evidence for biofilm-mediated defluorination in slow-flowing reaches. *Environmental Science: Processes & Impacts*, 25(6), 1042—1056. Cited 63 times.

[7] Ferreira, L. M., Sandhu, R., & Hollingworth, P. (2022). An open dataset of organofluorine occurrence in United Kingdom surface waters, 2016—2021. *Scientific Data*, 9, 341. Dataset downloaded 14,200 times.

[8] Nakamura, S., Ferreira, L. M., & Duval, M. (2021). Matrix effects in quantitative Orbitrap analysis of sub-nanogram organofluorines. *Journal of Chromatography A*, 1654, 462463.

[9] Ferreira, L. M., Duval, M., & Marques, H. (2019). Seasonal controls on organofluorine flux in a peat-dominated catchment. *Science of the Total Environment*, 694, 133612. Cited 119 times.

[10] Ferreira, L. M., & Hollingworth, P. (2017). Passive sampling as a proxy for time-integrated exposure in freshwater invertebrates. *Chemosphere*, 187, 320—329.

Book chapters

[11] Ferreira, L. M. (2025). Analytical strategies for emerging organofluorines. *Handbook of Freshwater Contaminant Science*, 2nd ed., ch. 11, pp. 287—334, Ashgrove Academic Press.

[12] Ferreira, L. M., & Marques, H. (2021). Sediment as an archive of industrial discharge. *Environmental Forensics in Practice*, ch. 6, pp. 141—178, Northgate Scientific.

Refereed conference papers

[13] Ferreira, L. M., Sandhu, R., & Okonkwo, B. (2026). Transferability of degradation models between temperate and Mediterranean catchments. *Proceedings of the International Conference on Emerging Contaminants (ICEC 2026)*, pp. 88—97. Best paper, analytical track.

[14] Bell, C. R., Ferreira, L. M., & Nakamura, S. (2024). Automated non-target workflows for routine regulatory screening. *Proceedings of the European Mass Spectrometry Conference*, pp. 214—221.

[15] Ferreira, L. M. (2022). Open data practice in contaminant monitoring: lessons from a five-year programme. *Proceedings of the Water Science Data Symposium*, pp. 33—41.

Preprints and manuscripts under review

[16] Ferreira, L. M., Okonkwo, B., Bell, C. R., & Sandhu, R. (2026). Estuarine attenuation of fluorinated pharmaceuticals: a two-year mesocosm study. *Under review, Environmental Science & Technology*, preprint EarthArXiv 10.31223/X5PQ1B.

[17] Sandhu, R., & Ferreira, L. M. (2026). Uncertainty propagation in catchment-scale contaminant budgets. *Under review, Water Research*.

RESEARCH FUNDING

G1	**Estuarine fate of fluorinated pharmaceuticals (ESTU-FATE)** Natural Environment Research Council · NE/Z004471/1 · 2025 — 2029 · Principal Investigator	**£1,840,000**
G2	**National open dataset for organofluorine occurrence** Environment Agency / Defra · EA-2023-0918 · 2023 — 2027 · Principal Investigator	**£920,000**
G3	**High-resolution mass spectrometry shared facility upgrade** Wolfson Infrastructure Fund · WIF-2022-0441 · 2022 — 2024 · Principal Investigator	**£640,000**
G4	**Biofilm-mediated defluorination in temperate rivers** Leverhulme Trust · RPG-2021-183 · 2021 — 2024 · Co-Investigator	**£498,000**
G5	**Passive sampling network for catchment monitoring** European Research Consortium for Water · ERCW-19-2207 · 2019 — 2022 · Work-package lead	**£412,000**
G6	**Marie Skłodowska-Curie Individual Fellowship** European Commission · MSCA-IF-2011-299104 · 2011 — 2014 · Fellow	**£286,000**

Total awarded as principal or co-investigator: £4,596,000. Figures are the value attributed to the host institution at award.

TEACHING

COURSE	LEVEL	INSTITUTION	TERMS	ENROLMENT
CHM2107 — Analytical Chemistry II	Undergraduate, year 2	Northmoor	12	180
CHM3311 — Environmental Chemistry	Undergraduate, year 3	Northmoor	9	95

COURSE	LEVEL	INSTITUTION	TERMS	ENROLMENT
CHM4402 — Advanced Mass Spectrometry	MSc	Northmoor	8	34
CHM4419 — Research Design and Data Practice	MSc	Northmoor	6	42
ENV5001 — Contaminant Fate Modelling	Doctoral training	Water Futures DTP	5	18
CHM2204 — Instrumental Methods (laboratory)	Undergraduate, year 2	Ashcombe	6	120

Research Supervision

2024 — present **Bisi Okonkwo — PhD**
Estuarine attenuation of fluorinated pharmaceuticals
In progress, year 2 — first paper published 2026.

2023 — present **Cara R. Bell — PhD**
Automated non-target screening workflows
In progress, year 3 — submitting thesis autumn 2026.

2022 — 2026 **Raj Sandhu — PhD**
Uncertainty in catchment contaminant budgets
Awarded 2026; now postdoctoral fellow, Northmoor.

2019 — 2023 **Sora Nakamura — PhD**
Matrix effects in trace organofluorine quantification
Awarded 2023; now analytical lead, national reference laboratory.

2018 — 2021 **Marie Duval — PhD**
Seasonal organofluorine flux in peat catchments
Awarded 2021; now lecturer, University of Ashcombe.

2016 — present **Twenty-two MSc dissertations — MSc**
Analytical and environmental chemistry projects
All completed; four led to co-authored publications.

INVITED TALKS & CONFERENCE PRESENTATIONS

June 2026 **What monitoring programmes still miss**
International Conference on Emerging Contaminants, Lisbon, Portugal
Plenary lecture

March 2026 **Open data as research infrastructure**
Royal Society of Chemistry Analytical Division Symposium, Manchester, UK
Invited talk

September 2025 **Modelling estuarine mixing zones**
SETAC Europe Annual Meeting, Copenhagen, Denmark
Contributed talk

May 2025 **Twelve years of organofluorine monitoring: what changed**
National Water Quality Forum, Edinburgh, UK
Keynote

November 2024 **Non-target screening for regulators**
European Mass Spectrometry Conference, Vienna, Austria
Invited talk

July 2023 **Biofilms and defluorination**
Gordon Research Conference on Environmental Sciences, Holderness, USA
Contributed talk and poster

April 2022 **Building a shared analytical facility**
UK Research Infrastructure Meeting, Birmingham, UK
Panel contribution

AWARDS & HONOURS

2026 **Analytical Science Medal**
Royal Society of Chemistry

2025 **Fellowship of the Royal Society of Chemistry (FRSC)**
Royal Society of Chemistry

2024 **Northmoor University Prize for Research Supervision**
Northmoor University

2022 **Open Research Award**
UK Reproducibility Network

2018 **Early Career Researcher Prize**
Society for Environmental Geochemistry

PROFESSIONAL SERVICE

- Associate Editor, Environmental Science: Processes & Impacts (2023 — present).
- Editorial board member, Journal of Environmental Monitoring Practice (2021 — present).
- Regular reviewer for Environmental Science & Technology, Water Research, Analytical Chemistry and Chemosphere; approximately 25 reviews a year.
- Panel member, Natural Environment Research Council discovery-science grants panel (2024 — present).
- Expert adviser to the national drinking-water inspectorate on organofluorine limit setting (2022 — present).
- Chair, Departmental Research Ethics Committee, Northmoor University (2021 — 2025).
- Scientific committee, International Conference on Emerging Contaminants (2023, 2025, 2026).
- Founder and coordinator of the Freshwater Data Commons, a shared repository used by eleven institutions.

TECHNICAL SKILLS & LANGUAGES

Analytical: LC-HRMS (Orbitrap, Q-TOF), GC-MS/MS, ion chromatography, passive sampling, non-target and suspect screening, method validation to ISO 17025

Computational: Python (pandas, scikit-learn), R, reactive-transport modelling (PHREEQC, custom solvers), MZmine, Bayesian uncertainty analysis, reproducible workflows with git and containers

Languages: Portuguese (native), English (fluent), Spanish (fluent), German (working knowledge)

REFEREES

Prof. Helena Marques
Professor of Analytical Chemistry
University of Coimbra
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Prof. Peter Hollingworth
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Northmoor University
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Dr Aline Trevelyan
Principal Scientist, Water Quality
National Environment Laboratory
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