

Kieran Agg

Website — LinkedIn

Professional Summary

Creative and motivated researcher with interdisciplinary scientific experience in both academia and industry. Proven ability to develop and deliver technical solutions while balancing commercial and engineering considerations. Fast learner with strong problem-solving and organisational skills, and effective at communicating complex scientific ideas to diverse audiences. Passionate for translating scientific enquiry into impactful solutions that address real-world challenges.

Education

University of Oxford - PhD in Physical Chemistry 2021 - 2025

- Awarded a competitive Clarendon Scholarship by the University of Oxford to complete a doctoral degree investigating the physical chemistry of biological electrolyte solutions (biophysics/nanoscience/soft matter).
- This work resulted in a thesis titled "Surface Forces and Structure in Model Cytosol Solutions" (available at DOI: 10.5287/ora-zrpxjex6x).

University of Cambridge - MSci in Natural Sciences (Chemistry), First Class 2017 - 2021

- Ranked 7th in cohort and awarded various academic prizes.
- Specialised in Chemistry with broad, foundational training in Materials Science, Physics and Mathematics.

Research Experience

Doctoral Researcher - Department of Chemistry, University of Oxford October 2021 - Present

- Independently designed and performed fundamental research to investigate the molecular interactions and structures in confined, thin films of biomolecule-containing aqueous electrolytes.
- Co-authored multiple articles in high-impact journals and gave international conference presentations (e.g. 12th Liquid Matter Conference). I was also selected to present some of my work to MPs at an event in the UK Parliament.
- Techniques: surface forces measurements, neutron and X-ray scattering, processing/analysis/presentation of complex data sets (Python/MATLAB).
- *Research Associate since completion of PhD in September 2025.*

Research and Development Scientist - Accentus Medical Ltd. Summer 2020 & 2021

- Developed novel surface treatment technologies for implantable medical devices to reduce the incidence and severity of near-term post-operative infection, some of which are now in clinical use.
- R&D performed with consideration of commercial, regulatory and clinical requirements, collaborating cross-functionally with relevant personnel across the SME.
- Authored technical reports and contributed to IP landscaping for novel medical device technologies, including liaising directly with patent attorneys.

Research and Development Scientist - Immaterial Ltd. Summer 2019

- Performed R&D for this University of Cambridge spin-out, synthesising monolithic metal-organic frameworks (MOFs) for gas separation and storage in addition to assessing commercial viability.

Additional Experience

Departmental Tutor and Project Supervisor, University of Oxford 2023 - 2025

- Led Physical Chemistry classes for undergraduates.
- Supervised Master's research students, providing guidance on experimental design, lab work, and scientific writing.

Scientific Entrepreneurship Programme 2023 - 2024

- Completed a year-long Science Entrepreneurship programme at the University of Oxford, covering innovation, strategy, organisation and finance, with practical learning through Harvard Business School cases and simulations.
- Participated in a start-up project developing and pitching a novel medical device, including business plan creation and value proposition design.

President, Oxford University Triathlon Club

2023 - 2024

- Led a committee to help organise training and racing for the University of Oxford triathlon community of over 100 members.
- Overall responsibility for the annual budget and oversaw the organisation of club events, an overseas training camp and the establishment of the alumni engagement and fundraising programme.
- Built and sustained collaborative relationships with a range of internal and external stakeholders.

Publications

The following publications contain work described in the above PhD thesis:

- **K.J. Agg**, J.E. Hallett and S. Perkin; The influence of proline on surface interactions in aqueous solutions; *Biophys. J.*, 124 (23), 2025, 4096-4101. DOI: 10.1016/j.bpj.2025.09.043
- **K.J. Agg**, T.S. Groves, S. Miao, Y.K.C. Fung, O.L.G. Alderman, T.F. Headen, T.L. Hughes, G.N. Smith, T.G.A. Youngs, J.P. Tellam, Y. Chen, S. Perkin and J.E. Hallett; Specific ion effects enhance local structure in zwitterionic osmolyte solution; *Chem. Sci.*, 16 (16), 2025, 6770-6779. DOI: 10.1039/D5SC00286A
- J.E. Hallett, **K.J. Agg**, S. Perkin; Zwitterions fine-tune interactions in electrolyte solutions; *Proc. Natl. Acad. Sci. U.S.A.*, 120 (8), 2023, e2215585120. DOI: 10.1073/pnas.2215585120

Other publications containing work not included in the PhD thesis:

- D. Turculet, S. Miao, **K.J. Agg** and S. Perkin; Speciation and hydration forces in sodium carbonate/bicarbonate aqueous solutions nanoconfined between mica sheets; *in review*. DOI: 10.48550/arXiv.2512.03904
- T.S. Groves, **K.J. Agg**, S. Miao, T.F. Headen, T.G.A. Youngs, G.N. Smith, S. Perkin and J.E. Hallett; Lithium solvation and anion-dominated domain structure in water-in-salt electrolytes; *EES Batteries*, 1 (6), 2025, 1797-1808. DOI: 10.1039/D5EB00105F

Skills & Interests

Data analysis: Strong data analysis skills in Python and MATLAB.

Languages: English (native), French (CEFR B1 Level).

Interests: Triathlon (Oxford Half Blue), distance running, piano (diploma) and violin (Grade 8).