

Dr. Alex P. S. Brogan

Department of Chemistry
King's College London
London, UK, SE1 1DB

Curriculum Vitae

w: alexbrogan.co.uk
t: +44 7813 748137
e: alex.brogan@kcl.ac.uk

Summary

I am currently a Lecturer (*Assistant Professor*) in Chemistry at King's College London. My research generally covers a broad range of subjects such as proteins in non-aqueous environments, protein engineering, biomaterials, biophysical chemistry, chemical and synthetic biology, and biocatalysis. I have published in high impact journals including *Nature Chemistry*, *Nature Communications*, *JACS*, *Materials Horizons*, and *Chemical Science*. I am an expert in a vast range of analytical techniques and have published results from experiments performed on synchrotron light sources (SAXS, SRCD), neutron sources (SANS, EINS), and high-performance computing (MD simulations). I have been involved in funded projects totalling >£2.5M, including over 1400 hours of beam time at *Diamond Light Source* and *ISIS Neutron and Muon Source*. My work has been covered by popular media including *New Scientist* and on shows on *BBC Radio*. In 2021 I was named as one of 35 **Future Leader Fellows** by the *Foundation of Science and Technology*.

Publications: 17 (h-index: 10)

ORCID: 0000-0002-8361-6649

Patents: 1

Research Experience

Date	Position	Institute
2019 – Present	Lecturer in Chemistry	King's College London <i>Department of Chemistry</i>
2017 - 2018	Visiting Scientist	Massachusetts Institute of Technology <i>Koch Institute for Integrative Cancer Research</i>
2014 – 2019	Research Associate	Imperial College London <i>Department of Chemical Engineering</i>
2012 – 2014	Research Assistant	University of Bristol <i>School of Chemistry</i>

Qualifications

Date	Qualification	Institute
2008 – 2012	Ph.D. (<i>Chemistry</i>) Supervisor: Prof. S. Mann FRS Thesis title: "Solvent-free liquid proteins" Award date: 25/09/2012	University of Bristol
2004 – 2008	M.Sci. (<i>Chemistry</i>) Graduated with First Class Honours	University of Bristol

Funding

Date	Title	Funding Body	Role	Value
2019 – 2020	EP/S025456/1: Holistic integration of technology, design and policy for a greener plastic future	EPSRC	CoI	£1,002,952
2018	Investigating the structure of modular ionogels for catalysis, biocatalysis, and biosensing	ISIS Neutron and Muon Source	PI	£90,000
2017 – 2018	Stabilizing M13 Phage in Ionic Liquids as Scaffolds for Novel Ionogels	MISTI	PI	£24,838
2010 – 2019	Various applications totalling 1320 hours	Diamond Light Source	CoI	£1,650,000

Top 5 Publications

[A. P. S. Brogan](#), L. Bui-Le, and J. P. Hallett. "Non-aqueous homogenous biocatalytic conversion of polysaccharides in ionic liquids using chemically modified glucosidase". *Nat. Chem.*, 2018, **10**, 859-865. [Featured in *Nature's* "Green Chemistry" Collection, 2018]

[A. P. S. Brogan](#), and J. P. Hallett. "Solubilizing and Stabilizing Proteins in Anhydrous Ionic Liquids through Formation of Protein-Polymer Surfactant Nanoconstructs". *J. Am. Chem. Soc.*, 2016, **138**, 4494-4501.

[A. P. S. Brogan](#), R. B. Sessions, A. W. Perriman, and S. Mann. "Molecular Dynamics Simulations Reveal a Dielectric-Responsive Coronal Structure in Protein-Polymer Surfactant Hybrid Nanoconstructs". *J. Am. Chem. Soc.*, 2014, **136**, 16824-16831.

[A. P. S. Brogan](#), K. P. Sharma, A. W. Perriman, and S. Mann. "Enzyme activity in liquid lipase melts as a step towards solvent-free biology at 150 °C". *Nat. Commun.*, 2014, **5**, 5058.

A. W. Perriman, [A. P. S. Brogan](#), H. Cölfen, N. Tsoreas, G. R. Owen & S. Mann. "Reversible dioxygen binding in solvent-free liquid myoglobin", *Nat. Chem.*, 2010, **2**, 622-626.

Invited Presentations

"Extreme Biomaterials: Enhancing Proteins Through Surface Modification." *MA Biodesign Seminar, Central Saint Martins*, London (UK), 2020.

"Extreme Biomaterials: Enhancing Proteins Through Surface Modification." *King's College London Seminar*, London (UK), 2020.

"New Enzymes for Bioethanol Production: New Biotechnologies to Enhance Conversion of Biomass into Sugar." *Fuels for the Future 2019*, Berlin (Germany), 2019.

"Interfacing materials with biology for non-aqueous biocatalysis." *MIT Seminar*, Cambridge (MA, USA), 2016.

"Protein-polymer surfactant nanoconstructs for increased solubility and thermal stability in ionic liquids." *Imperial College Seminar*, London (UK), 2015.

"Functional Biomolecular Solvent-Free Liquids of proteins and enzymes." *UC Berkeley Seminar*, Berkeley (CA, USA), 2014.

Media Coverage

My work has been covered in the popular press by:

- *Chemistry World* (January 2021, July 2018, June 2010).
- *Chemical & Engineering News* (July 2018)
- *New Scientist* (August 2012).
- *BBC Radio 4* (Program: *Material World*, 5th of August 2010)

And I have been interviewed about my work on:

- *CT1* [Czech TV] (January 2019)
- *BBC Oxford Radio* (November 2018)
- *Various Podcasts* (*Faculti* – 2021, *The Know Show* – 2021, *Foundation for Science and Technology* – 2021)

Teaching Experience

Date	Course	Institute
2020 – <i>present</i>	Chemical Kinetics	King's College London <i>Department of Chemistry</i>
2019 – <i>present</i>	Spectroscopy for the Interrogation of Biomolecules	King's College London <i>Department of Chemistry</i>
2018 – 2019	Introduction to Vibrational Spectroscopy	Imperial College London <i>Department of Chemical Engineering</i>
2017 - 2018	Introduction to Spectroscopy <i>Lecture material</i>	Imperial College London <i>Department of Chemical Engineering</i>
2015 – 2016	Chemistry for Chemical Engineers <i>Tutorials</i>	Imperial College London <i>Department of Chemical Engineering</i>
2013 – 2014	Introduction to Chemistry <i>Tutorials</i>	University of Bristol <i>School of Chemistry</i>
2010 – 2011	Maths for Level 1 Chemists <i>Tutorials</i>	University of Bristol <i>School of Chemistry</i>
2009 - 2010	Level 1 Chemistry <i>Tutorials</i>	University of Bristol <i>School of Chemistry</i>

Supervision

	PhD Students	M-Level (PG & UG)
<i>Current</i>	3	1
<i>Graduated</i>	1	9

Leadership Roles

Date	Position	Institute
2021 – Present	Member of Research Committee	King's College London <i>Department of Chemistry</i>
2020 – Present	Member of Senior Management Group	King's College London <i>Department of Chemistry</i>
2020 – Present	Chair of Equality, Diversity, and Inclusion Committee	King's College London <i>Department of Chemistry</i>
2020 – Present	Member of Expert Board for Proposal Evaluations	National Science Centre, Poland
2019 – 2020	Member of Athena SWAN Committee	King's College London <i>Department of Chemistry</i>
2017 - 2018	Member of Research Committee	Imperial College London <i>Department of Chemical Engineering</i>
2017 – 2018	Member of Equality, Diversity and Culture Committee	Imperial College London <i>Department of Chemical Engineering</i>
2015 – 2019	Member of Postdoc Committee	Imperial College London <i>Department of Chemical Engineering</i>

Other

Peer Review

ACS Publications: ACS Applied Materials and Interfaces, ACS Central Science, ACS Omega, ACS Sustainable Chemistry & Engineering, Biomacromolecules, Chemical Reviews.

Chemistry Europe: ChemBioChem, Chemistry a European Journal, ChemPlusChem.

RSC Publishing: New Journal of Chemistry.

Springer Nature: Communications Materials, Nature Nanotechnology.

Other: Australian Journal of Chemistry, Biotechnology and Bioengineering, Journal of Visualized Experiments
National Science Center (Poland), Netherlands Organization for Scientific Research

Outreach

- "Llama Outbreak" at *Coutryard Festival 2017*, London, UK. Infectious disease simulation to teach festival goers about new biosensing platforms and the important of data tracking for monitoring and controlling outbreaks.
- "Inside Diamond" – Exhibitor at *Diamond Light Source* for World Science Day.
- Poster judge at Undergraduate Chemistry Research Conference at London Metropolitan University.

Professional Bodies

- I am currently a member of the Royal Society of Chemistry (MRSC), the American Chemical Society, and the Materials Research Society.