

Alison Rodger, FAA FRSC FRACI
Professor
School of Natural Sciences
ARC Industrial Transformation Training Centre for Facilitated Advancement of
Australia's Bioactives (FAAB)
MQ Photonics Research Centre
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Biography

Alison Rodger has been at Macquarie University since 2017 after over 20 years at the University of Warwick. Her research focuses on developing and applying spectroscopic techniques to understand the structure and function of biomacromolecules and their assemblies. Her particular expertise is with spectroscopic biophysical methods particularly circular dichroism and linear dichroism in the UV, visible and infra red regions of the spectrum for use with nucleic acids, proteins, lipids, and carbohydrates. She has designed and applied new techniques to understand how biomolecules interact including micro-volume Couette capillary flow linear dichroism, rapid injection linear dichroism, fluorescence-detected linear dichroism, and Raman linear difference spectroscopy. She integrates the rigour of a quantum electrodynamic approach to spectroscopy with an understanding of the reality of generating data from instrumentation pushed to, or beyond, its limits to answer questions about biomolecular systems. She creates hybrid techniques using absorbance, fluorescence and scattering methodologies. This work is very multidisciplinary in character involving collaborations from medicine to mathematics. At Macquarie she runs an open access biophysical spectroscopy laboratory for collaborators and commercial users.

Alison received her BSc, PhD and DSc from Sydney University, her MA from Oxford, a DSc from Warwick, and her BA from Chester. She was a Beatrice Dale Fellow at Newnham College Cambridge for three years from 1985 while also an Overseas Scholar of the Royal Commission for the Exhibition of 1851. Alison then spent six years in Oxford as Unilever Fellow at St Catherine's College and Violette and Samuel Glasstone Fellow at St Hilda's. At that time, she set up the first Couette flow linear dichroism facilities in the UK and began her programme of analytical science method development for biomacromolecules.

At the University of Warwick Alison was the founding director of the Molecular Organisation and Assembly in Cells Doctoral Training Centre funded by the Engineering and Physical Sciences Research Council and also the head of the Department of Chemistry. She is passionate about supporting early career researchers, especially those working across disciplines and was a member of the Plotina EU network funded by Horizon2020 to facilitate the development of Gender Equality Plans in Research Performing Organisations. Alison enjoyed every minute of her 4 years on the Royal Society of Chemistry Council and values being an Emeritus Professor of the University of Warwick.

Alison has been recognised by her scientific community with her election to Fellowships of the Australian Academy of Science (2021) and the Royal Society of Chemistry (2000) and as an Honorary Member of British Biophysical Society (2019). She was nominated as a member of The Analytical Science Power List 2015: top 100 most influential people in the world of analytical science. She received a Science Teachers of NSW Dedicated Service Award (2019) and is a member of Barker College Council. Recently she has contributed to the wider community with her involvement as a Consultant to the European Science Foundation CASPER (Certification-Award System to Promote gender Equality in Research) project, as an Evaluator in Phase I for Chemical science for the Czech Academy of Sciences (CAS), as a SAGE Panel Member (2019), and as an Australian Research Council Engagement and Impact Assessment– Science and Technology Panel Member.

Employment

Honorary Professor

Professor
School of Natural Sciences
Macquarie University
20 Apr 2024 → present

ARC Industrial Transformation Training Centre for Facilitated Advancement of Australia's Bioactives (FAAB)

Macquarie University
13 Jul 2020 → present

MQ Photonics Research Centre

Macquarie University
6 Feb 2017 → present

Personal data

ACADEMIC QUALIFICATIONS

2015 BA (hons) (Theology for Ministry), Honours Class I, University of Chester
2013 DSc, University of Warwick
2003 DSc, University of Sydney
1988 MA, University of Oxford 1986 PhD, University of Sydney
1985 Diploma in Biblical studies, Moore College
1982 BSc (hons) (Mathematics and Chemistry), Honours Class I and University Medal for Theoretical Chemistry, University of Sydney

APPOINTMENTS

2016ff Principal Investigator on Horizon 2020 Network at University of Warwick
2015ff St. John's Nottingham College Council
2015–2020 Monash-Warwick Professor (Adjunct), Chemical Engineering, Monash University
2014–2016 Head of Department of Chemistry, University of Warwick
2013–2017 Royal Society of Chemistry Council
2011–2014 Director, Warwick Analytical Science Centre
2008, 2009 BNL Guest Appointment with the National Synchrotron Light Source
2008–2013 Eminent Scientist University of Western Sydney
2005, 2007 Visiting Professor, Stanford University, USA
2005f Professor of Biophysical Chemistry, Department of Chemistry, University of Warwick
2003–2014 Director Molecular Organisation and Assembly in Cells Doctoral Training Centre, University of Warwick
2003–2005 Reader, Department of Chemistry, University of Warwick
1998–2003 Senior Lecturer, Department of Chemistry, University of Warwick
1994–1998 Lecturer, Department of Chemistry, University of Warwick
1994, 1996 Visiting Professor, Stanford University, USA
1991–1994 Glasstone Fellow, University of Oxford and Inorganic Chemistry Fellow of St. Hilda's College
1992 Visiting Professor, Stanford University, USA
1987–1992 Copy-editor for Theoretica Chimica Acta (occasional)
1988–1991 Unilever Fellow, St. Catherine's College, Oxford
1985–1988 Beatrice Dale Research Fellow, Newnham College, Cambridge
1985–1988 Overseas Scholar of the Royal Commission for the Exhibition of 1851

MEMBERSHIP OF PROFESSIONAL BODIES

Fellow of the International Union of Pure and Applied Chemistry (2014)
Fellow of the Royal Society of Chemistry (2000)
Fellow of the Royal Australian Chemical Institute (1999)

RESEARCH INTERESTS: Solution phase biomacromolecule structure and function

1. Development of spectroscopic techniques, particularly linear and circular dichroisms and Raman methods, for the study of biomacromolecules.
2. Structure, function and intermolecular interactions of protein systems, including fibrous and membrane proteins.
3. Structure and function of DNA, DNA/ligand and DNA/protein systems.
4. Biophysics of bacterial cell division.

PUBLICATIONS SUMMARY

Nine books, sixteen refereed chapters, five theses, 199 refereed journal articles, five patents. (Web of Science H-index: 42; average citations per paper: 29)

RECOGNITION

Member of The Analytical Science Power List 2015: top 100 most influential people in the world of analytical science.
Royal Society of Chemistry Council 2013–2017