Curriculum Vitae Professor Dr Sir Richard Catlow

Name: **Sir Charles Richard Arthur Catlow**

Born: **24 April 1947**

Research Priorities: Computational Chemistry, Materials Chemistry, Catalysis, Crystallography

Richard Catlow is a British chemist. He employs the latest developments in computational technology, used in direct conjunction with experiments, especially employing synchrotron X-Ray and neutron scattering techniques, in his research. The aim is to model and predict the properties of complex materials at the atomic and molecular level and advance fundamental knowledge in the rapidly developing field of contemporary chemistry.

Academic and Professional Career

since 2015	Professor of Computational and Catalytic Chemistry, School of Chemistry, Cardiff University, Cardiff, UK
since 2014	Professorial Research Fellow, Chemistry Department, University College London, London, UK
2007 - 2014	Professor of Chemistry, University College London, London, UK
1989 - 2007	Wolfson Professor of Natural Philosophy, Royal Institution, London, UK
1985 - 1989	Professor of Physical Chemistry, Joint Appointment between University of Keele, Newcastle, UK and Daresbury Laboratory, Daresbury, UK
1976 - 1985	University Lecturer in Chemistry, University College London, London, UK
1975 - 1976	International Business Machines Corporation (IBM) Research Fellow, St John's College, University of Oxford, Oxford, UK
1973 - 1975	ICI Research Fellow, Theoretical Chemistry Department, University of Oxford, Oxford, UK

Functions in Scientific Societies and Committees

since 2017	Co-Chair, Inter-Academy Partnership (IAP) for Policy
since 2017	Vice-President, European Academies Science Advice Council (EASAC)
since 2016	Vice President, Royal Society, UK
2016 - 2021	Foreign Secretary, Royal Society, UK
2007 - 2014	Dean of Mathematical and Physical Sciences, University College London, London, UK
2002 - 2007	Head of Chemistry, University College London, London, UK
1998 - 2007	Director, Davy Faraday Laboratory, Royal Institution, London, UK
1985 - 1989	Leader, Diffraction Group, Daresbury Laboratory, Daresbury, UK

Project Coordination, Membership in Collaborative Projects

2013	Co-Founder, UK Catalysis Hub, UK
1994	Founder, High Performance Computing Consortium, UK Materials Chemistry, UK
1980	Co-Founder, Discussion Group on Polar Solids (subsequently, Solid State Group), Royal Society of Chemistry, UK

Honours and Awarded Memberships

2022	Honorary Doctorate, University of Bath, Bath, UK
2020	Faraday Lectureship Award, Royal Society of Chemistry, London, UK
since 2020	Member, German National Academy of Sciences Leopoldina, Germany
since 2017	Member, Learned Society of Wales, Cardiff, UK
since 2013	Member, Academia Europaea
2017	Honorary Fellow, Cuban Chemical Society, Cuba
2011	Honorary Member, Chemical Research Society of India (CRSI), India
2006	Fellow, The World Academy of Science (TWAS)
since 2004	Fellow, Royal Society, UK
1996	Honorary Member, Materials Research Society of India, India
1995	Fellow, Institute of Physics, London, UK
1990	Fellow, Royal Society of Chemistry, London, UK

Research Priorities

Richard Catlow is a British chemist. He employs the latest developments in computational technology, used in direct conjunction with experiments, especially employing synchrotron X-Ray and neutron scattering techniques, in his research. The aim is to model and predict the properties of complex materials at the atomic and molecular level and advance the fundamental knowledge in the rapidly developing field of contemporary chemistry.

His research develops and applies computational modeling in conjunction with experiments as powerful and predictive tools in solid-state and surface science. He explores a wide range of materials and applications, including oxide, sulphide, silicate, and molecular materials, with strong emphasis on applications in energy and catalytic technologies. Current priorities include: Modelling the structures and energetics of disordered materials, especially those used in energy storage devices and as transparent conducting oxides; modelling and predicting the structures of crystals, surfaces, and nano-particles; understanding the structures and mechanisms of catalytic processes at the molecular level using a combination of computational modeling with synchrotron and neutron based spectroscopy, with a strong emphasis on oxide and microporous catalytic systems as well as modelling the properties of photo-active oxides.

Richard Catlow's research includes extensive technique as well as application. Current development projects relating to computational modelling include the derivation of interatomic potential models of inorganic materials and of quantum mechanical/molecular mechanical techniques for accurate predictions of the properties of localized states in solids. His group at University College London also develops software for implementation on high-performance computing platforms. The team lead by professor Catlow develops in operando techniques for synchrotron and neutron scattering studies of catalytic processes on the Harwell Science and Innovation Campus in the UK.

His work is also of direct relevance to areas of key societal and economic importance, including materials for renewable energy and environmentally friendly catalytic technologies, and has always had strong interactions with the industrial sector. Computational modelling of materials is now used widely and routinely in chemicals industry.