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Professional Experience

- Postdoctoral Researcher, Argonne National Laboratory, Illinois, Aug 2006 to Present
- Postdoctoral Researcher, University of California Davis Lawrence Berkeley National Laboratory, Mar 2003 to Jul 2006
- Doctoral Candidate, Chemistry, John Innes Centre, University of East Anglia, UK, Oct 1999 to Dec 2002
- Deputy Site Manager/Laboratory Manager/Laboratory Technician, Hays Process Chemicals, UK, Feb 1996 to Apr 1997
- Research Assistant, University of Essex, UK, Oct 1994 to Mar 1995
- Undergraduate Researcher, University of Essex, UK, 1993 to 1994

Current Research Experience

- Synthetic and Theoretical Design of Novel Catalysts for Direct Ethanol Fuel Cells
- In-situ x-ray spectroscopies studying the mechanism of catalyst degradation in fuel cells
- Electrochemical characterization of precious metal fuel cell catalysts
- Kinetic effects of impurities in fuel cell operation

Selected Publications

- M. C. Smith, S. Longhurst, J. E. Barclay, S. P. Cramer, S. C. Davies, D. L. Hughes, W.-W. Gu, and D. J. Evans (2001). Nickel(II) in an almost regular tetrahedral thiolate environment: a first generation synthetic analogue of the active site of nickel CO-dehydrogenase. *J. Chem. Soc., Dalton Trans.*, 1387-1388.
- M. C. Smith, S. C. Davies, D. L. Hughes, and D. J. Evans (2001). 1H-Pyrrole-2-carbothioamide. *Acta Crystallogr. Section C*, C57, 987-988.
- M. C. Smith, S. C. Davies, D. L. Hughes, and D. J. Evans (2001). Tetraethylammonium trichloro(triphenylphosphine)nickelate(II), *Acta Crystallogr. Section E*, E57, m509-m510.
- M. C. Smith, J. E. Barclay, S. P. Cramer, S. C. Davies, W.-W. Gu, D. L. Hughes, S. Longhurst, and D. J. Evans (2002). Nickel-iron-sulfur complexes: approaching analogues of the active sites of NiFe-hydrogenase and carbon monoxide dehydrogenase/acetyl-CoA synthase. *J. Chem. Soc., Dalton Trans.*, 2641-2647.
- S. C. Davies, M. C. Smith, D. L. Hughes, and D. J. Evans, (2002). μ -Ferrio-bis{carbonyl[μ -2,2',2''-nitriлотriethanethiolato(3-)-N,S,S',S'':S,S']iron(II)} benzene solvate. *Acta Crystallogr. Section E*, E58, m658-m660.

- W.-W. Gu, L. Jacquamet, D. S. Patil, H. Wang, D. J. Evans, M. C. Smith, M. Millar, S. Koch, D. M. Eichhorn, M. Latimer, and S. P. Cramer, (2003). Refinement of the nickel site structure in *Desulfovibrio gigas* hydrogenase using range-extended EXAFS spectroscopy. *J. Inorg. Biochem.*, 93, 41-51.
- M. C. Smith, J. E. Barclay, S. C. Davies, D. L. Hughes, and D. J. Evans, (2003). Targeting synthetic analogues of the metallo-sulfur active sites of nickel enzymes capable of important catalysis. *J. Chem. Soc., Dalton Trans.*, 4147 - 4151.
- S. C. Davies, M. C. Smith, D. L. Hughes, and D. J. Evans (2004). 1,2-Bis (diphenylthioarsinoyl) ethane. *Acta Crystallogr. Section E.*, E60, m771-m772.
- M. C. Smith, Y. Xiao, H. Wang, S. J. George, D. Coucouvanis, M. Koutmos, W. Sturhahn, E. E. Alp, J. Zhao, and S. P. Cramer (2005). Normal-Mode Analysis of FeCl_4^- and $\text{Fe}_2\text{S}_2\text{Cl}_4^{2-}$ via Vibrational Mössbauer, Resonance Raman, and FT-IR Spectroscopies. *Inorg. Chem.*, 44, 5562-5570.
- Y. Xiao, H. Wang, S. J. George, M. C. Smith, M. W. W. Adams, F. E. Jenney, Jr, W. Sturhahn, E. E. Alp, J. Zhao, Y. Yoda, A. Dey, E. I. Solomon, and S. P. Cramer, (2005). Normal Mode Analysis of *Pyrococcus furiosus* Rubredoxin via Nuclear Resonance Vibrational Spectroscopy (NRVS) and Resonance Raman Spectroscopy. *J. Am. Chem. Soc.*, 127, 14596-14606.
- Y. Xiao, K. Fisher, M. C. Smith, W. E. Newton, D. A. Case, S. J. George, H. Wang, W. Sturhahn, E. E. Alp, J. Zhao, Y. Yoda, and S. P. Cramer (2006). How Nitrogenase Shakes – Initial Information about P-cluster and FeMo-cofactor Normal Modes from Nuclear Resonance Vibrational Spectroscopy (NRVS). *J. Am. Chem. Soc.*, 128, 7608-7612.
- S. P. Cramer, Y. Xiao, H. Wang, Y. Guo, and M. C. Smith (2006). Nuclear Resonance Vibrational Spectroscopy (NRVS), SRPACS, and NFS of Fe-S Model Compounds, Fe-S Proteins, and Nitrogenase. *Hyperfine Interactions*, 170, 47-54.
- Y. Xiao, M. Tan, T. Ichiye, H. Wang, M. C. Smith, J. Meyer, W. Sturhahn, E. E. Alp, J. Zhao, Y. Yoda, and S. P. Cramer (2007). Dynamics of *Rhodobacter capsulatus* [2Fe-2S] Ferredoxin VI and *Aquifex Aeolicus* Ferredoxin 5 via Nuclear Resonance Vibrational Spectroscopy (NRVS) and Resonance Raman Spectroscopy. Submitted for publication in *Biochemistry*.
- M. C. Smith, H. Wang, A. Sironi, R. Della Pergola, D. A. Case, and S. P. Cramer (2007). Normal Modes of $[\text{Fe}_6\text{N}(\text{CO})_{15}]^{3-}$ via Nuclear Resonance Vibrational Spectroscopy (NRVS) – An Interstitial Nitrogen Complex with Relevance for Nitrogenase. Submitted for publication in *J. Am. Chem. Soc.*
- M. C. Smith, J. A. Gilbert, J. R. Mawdsley, S. Seifert, and D. J. Myers (2008). In-situ Small Angle X-ray Scattering Observation of Pt Catalyst Particle Growth During Potential Cycling. Submitted for publication in *J. Am. Chem. Soc.*
- M. C. Smith, A. J. Kropf, X. Wang, N. Kariuki, and D. J. Myers (2008). In-situ Fuel-Cell Pt Electrocatalyst Loss Observed via XANES During Potential Cycling. Draft completed for *Chem. Comm.*, in Departmental Review.

Selected Abstracts

- M. C. Smith, J. E. Barclay, S. Longhurst, and D. J. Evans (2000). Structural and functional models for the active site of NiFe-hydrogenase. Abstracts of IBDG Meeting, London, UK.
- J. E. Barclay, S. Longhurst, M. C. Smith, and D. J. Evans (2000). Synthetic

analogues of the active site of [NiFe] hydrogenase. Abstracts of 34th International Conference on Coordination Chemistry, Edinburgh, UK.

- J. E. Barclay, S. Davies, D. L. Hughes, S. Longhurst, M. C. Smith, and D. J. Evans (2000). Chemical analogues of the active site of NiFe-hydrogenase. Abstracts of 5th European Biological Inorganic Chemistry Conference, Toulouse, France.
- M. C. Smith, J. E. Barclay, S. C. Davies, D. L. Hughes, S. Longhurst, and D. J. Evans (2000). Chemical models of the active site of NiFe-hydrogenase. Abstracts of 6th International Conference on the Molecular Biology of Hydrogenases, Berlin, Germany.
- M. C. Smith, J. E. Barclay, S. C. Davies, D. L. Hughes, S. Longhurst, and D. J. Evans (2001). Towards green catalysts: lessons from nickel enzymes. Abstracts of Sustainable Approaches to Climate Change Symposium, Tyndall Centre for Climate Change, Norwich, UK.
- M. C. Smith, J. E. Barclay, S. Longhurst, and D. J. Evans (2001). Metal-sulfur complexes – analogues of the active sites of environmentally important enzymes. Abstracts of 6th Int. Symposium on Applied Bioinorganic Chemistry, Cardiff, UK.
- M. C. Smith, J. E. Barclay, S. Longhurst, and D. J. Evans (2001) Metal-sulfur complexes – analogues of the active sites of environmentally important enzymes. Abstracts of RSC Coordination Chemistry Discussion Group Meeting, York, UK.
- M. C. Smith (2002). Modelling the Active Site of Nickel-Iron Enzymes. Iron-Sulfur Proteins Discussion Group, London, UK.
- J. E. Barclay, S. Longhurst, M. C. Smith, and D. J. Evans (2002). Chemical routes to models of the active sites of nickel-iron enzymes. Abstracts of the XXXVth International Conference on Coordination Chemistry, Heidelberg, Germany.
- J. E. Barclay, S. C. Davies, S. Duff, D. L. Hughes, S. Longhurst, M. C. Smith, and D. J. Evans (2003). $[\text{Fe}(\text{NS}_3)\text{X}]^-$ (X = CO or NO) as a ligand to nickel: new molecules relevant to nickel metalloenzymes. Abstracts of Royal Society of Chemistry, Dalton Discussion 5, Ligand Design for Functional Complexes, Noordwijkerhout, The Netherlands.

Professional Affiliations

- American Chemical Society
- Royal Society of Chemistry
- Electrochemical Society

Education

- Ph.D. Chemistry, John Innes Centre, University of East Anglia, Norwich, UK, 2002
- B.Sc. Chemistry, University Of Essex, Colchester, UK, 1994