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# Joseph Alexander Wright

## Employment history

### Current position

- 2008–           ★ PDRA – University of East Anglia  
Supervisor Prof. C. J. Pickett  
Studies on [Fe]- and [FeFe]-hydrogenase active sites mimics  
Synthesis of novel ligands and model compounds  
Mechanistic studies using stopped-flow UV and IR spectroscopies

### Previous positions

- 2007–2008       ★ Senior Demonstrator – University of East Anglia  
Teaching degree level chemistry: tutorials and laboratory classes  
Preparation of M. Chem. third year practical course in organic chemistry
- 2005–2008       ★ PDRA – University of East Anglia  
Supervisor Prof. M. Bochmann  
Use of zirconium phosphonates as heterogeneous catalyst supports  
Synthesis of novel ligand systems for early transition metals
- 2003–2004       ★ PDRA – University of Southampton  
Supervisor Dr A. A. Danopoulos  
Synthesis of novel N-heterocyclic carbene complexes  
Catalytic testing on novel systems

## Academic history

- 1999–2002       ★ Ph.D. – University of Cambridge  
Supervisor Dr J. B. Spencer  
Studies on the mechanisms of late transition-metal-catalysed reactions  
Development of a novel protective-group strategy for alcohols  
Thesis title: *Control of Regioselectivity: Oxidation and Deprotection*
- 1995–1999       ★ M.Chem. University of Leicester  
First class degree – Four year study
- 1995             ★ A levels  
• Chemistry:   A grade   • Physics:       A grade  
• Maths:       A grade   • Further maths: A grade

## Teaching experience

<b>Lectures</b>	Two-part course on X-ray crystallography Introductory talk 'Skills for new researchers'
<b>Tutorials</b>	Significant experience of giving both organic and inorganic tutorials Advanced tutorials on crystal symmetry
<b>Supervision</b>	Directly supervised several final year project students Planning project aims and direction for Ph.D. students Leadership role in laboratory environment
<b>Assessment</b>	Oral and written assessment of M.Chem. practical classes Final-year project student presentation marking Development of a series of model answers for practical course
<b>Skills transfer</b>	Training students in the use of X-ray diffraction Lead a successful series of 'LaTeX for Beginners' courses

## Skills

<b>NMR</b>	Hands on experience with Bruker systems Use of a range of multi-nuclear and variable-temperature methods
<b>FT-IR</b>	Analysis of time-resolved spectra from ReactIR and Bruker Vertex systems
<b>X-Ray diffraction</b>	Data collection with both Bruker-Nonius and Oxford Diffraction instruments Structure solution using SHELX-97 Data analysis using MERCURY and PLATON
<b>Computing</b>	Advanced document preparation in both Word and LaTeX Web site management, including on-line conference registration Programming in (La)TeX, (X)HTML and PHP Windows and Unix administration

## Additional information

<b>Professional bodies</b>	American Chemical Society British Crystallography Association Royal Society of Chemistry
<b>Membership</b>	Co-ordination Chemistry Discussion Group 2011 committee LaTeX3 Project TeX Users Group UK TeX Users' Group (Secretary)

## List of Publications

- (45) *Paramagnetic Bridging Hydrides of Relevance to Catalytic Hydrogen Evolution at Metallo-sulfur Centers*, A. Jablonskytė, J. A. Wright, S. A. Fairhurst, J. N. T. Peck, S. K. Ibrahim, V. S. Oganessian, and C. J. Pickett, *J. Am. Chem. Soc.*, in press.
- (44) *The role of CN and CO ligands in the vibrational relaxation dynamics of model compounds of the [FeFe]-hydrogenase enzyme*, S. Kaziannis, J. A. Wright, M. Candelaresi, R. Kania, G. M. Greetham, A. W. Parker, C. J. Pickett and N. T. Hunt *Phys. Chem. Chem. Phys.*, 2011, **13**, 10295–10305.
- (43) *The hafnium-mediated NH activation of an amido-borane*, E. A. Jacobs, A.-M. Fuller, S. J. Lancaster and J. A. Wright, *Chem. Commun.*, 2011, **47**, 5870–5872.
- (42) *Density Functional Calculations on Protonation of the [FeFe]-Hydrogenase Model Complex  $Fe_2(\mu\text{-pdt})(CO)_4(PMe_3)_2$  and Subsequent Isomerization Pathways*, C. Liu, J. N. T. Peck, J. A. Wright, C. J. Pickett and M. B. Hall, *Eur. J. Inorg. Chem.*, 2011, 1080–1093.
- (41) *[FeFe]-Hydrogenase models: unexpected variation in protonation rate between dithiolate bridge analogues*, A. Jablonskytė, J. A. Wright and C. J. Pickett, *Eur. J. Inorg. Chem.*, 2011, 1033–1037.
- (40) *Femtosecond to Microsecond Photochemistry of a [FeFe]hydrogenase Enzyme Model Compound*, S. Kaziannis, S. Santabarbara, J. A. Wright, G. M. Greetham, M. Towrie, A. W. Parker, C. J. Pickett and N. T. Hunt, *J. Phys. Chem. B*, 2010, **114**, 15370–15379.
- (39) *The mixed diol-dithiol 2,2-bis(sulfanylmethyl)propane-1,3-diol: characterization of key intermediates on a new synthetic pathway*, T. R. Simmons, C. J. Pickett and J. A. Wright, *Acta Cryst. C*, 2011, **67**, 01–05.
- (38) *Protonation of [FeFe]-hydrogenase sub-site analogues: revealing mechanism using FTIR stopped-flow techniques*, J. A. Wright, L. Webster, A. Jablonskytė, P. M. Woi, S. Ibrahim and C. J. Pickett, *Faraday Discuss.*, 2011, **148**, 359–371.
- (37) *The Third Hydrogenase: More Natural Organometallics*, J. A. Wright, P. J. Turrell and C. J. Pickett, *Organometallics*, 2010, **49**, 6146–6156.
- (36) *The Third Hydrogenase: A Ferracyclic Carbamoyl with Close Structural Analogy to the Active Site of Hmd*, P. J. Turrell, J. A. Wright, J. N. T. Peck, V. Oganessian and C. J. Pickett, *Angew. Chem. Int. Ed.*, 2010, **49**, 7508–7511.
- (35) *Determination of the Photolysis Products of [FeFe]Hydrogenase Enzyme Model Systems using Ultrafast Multidimensional Infrared Spectroscopy*, A. I. Stewart, J. A. Wright, G. M. Greetham, S. Kaziannis, S. Santabarbara, M. Towrie, A. W. Parker, C. J. Pickett and N. T. Hunt, *Inorg. Chem.*, 2010, **49**, 9563–9573.
- (34) *1-[2-(2,6-Diisopropylanilino)-1-naphthyl]isoquinoline*, R. H. Howard, N. Theobald, M. Bochmann, J. A. Wright, *Acta Cryst. C*, 2010, **66**, 0310–0312.
- (33) *Mechanistic aspects of the protonation of [FeFe]-hydrogenase subsite analogues*, A. Jablonskytė, J. A. Wright and C. J. Pickett, *Dalton Trans.*, 2010, **39**, 3026–3034.
- (32) *2-(Diphenylphosphinoylmethyl)pyrrole-2-(diphenylphosphinomethyl)pyrrole (0.43/0.57) and tetrachlorido-(5-diphenylphosphinomethyl-2H-pyrrole- $\kappa^2$ N,P)titanium(IV)*, L. M. Broomfield, M. Bochmann and J. A. Wright, *Acta Cryst. C*, 2010, m79–m82.
- (31) *Synthesis of neutral and zwitterionic phosphinomethylpyrrolato complexes of nickel*, L. M. Broomfield, D. Boschert, J. A. Wright, D. L. Hughes and M. Bochmann, *J. Organomet. Chem.*, 2009, **694**, 4084–4089.
- (30) *Synthesis and structures of complexes with axially chiral isoquinolinyl-naphtholate ligands*, R. H. Howard, C. Alonso-Moreno, L. M. Broomfield, D. L. Hughes, J. A. Wright, M. Bochmann, *Dalton Trans.*, 2009, **38**, 8667–8682.

- (29) *Synthesis, structure and ethylene polymerisation behaviour of vanadium(IV and V) complexes bearing chelating aryloxides*, D. Homden, C. Redshaw, L. Warford, D. L. Hughes, J. A. Wright, S. H. Dale and M. R. J. Elsegood, *Dalton Trans.*, 2009, **38**, 890–8910.
- (28) *Vanadium-based imido-alkoxide pro-catalysts bearing bisphenolate ligands for ethylene and epsilon-caprolactone polymerisation*, A. Arbaoui, C. Redshaw, D. Homden, J. A. Wright and M. R. J. Elsegood, *Dalton Trans.*, 2009, **38**, 8911–8922.
- (27) *Synthesis, structures and reactivity of 2-phosphorylmethyl-1H-pyrrolato complexes of titanium, yttrium and zinc*, L. M. Broomfield, J. A. Wright and M. Bochmann, *Dalton Trans.*, 2009, **38**, 8269–8279.
- (26) *Protonation of a subsite analogue of [FeFe]-hydrogenase: mechanism of a deceptively simple reaction revealed by time-resolved IR spectroscopy*, J. A. Wright and C. J. Pickett, *Chem. Commun.*, **45**, 5719–5721.
- (25) *New structural motifs in chromium(III) calix[4 and 6]arene chemistry*, C. Redshaw, D. Homden, D. L. Hughes, J. A. Wright and M. R. J. Elsegood, *Dalton Trans.*, **38**, 1231–1242.
- (24)  *$\alpha$ -Zirconium phosphonates: versatile supports for N-heterocyclic carbenes*, S. Chessa, N. J. Clayden, M. Bochmann and J. A. Wright, *Chem. Commun.*, 2009, **45**, 797–799.
- (23) *“Pincer” Pyridine-Dicarbene-Iridium Complexes: Facile C–H Activation and Unexpected  $\eta^2$ -Imidazol-2-ylidene Coordination*, J. A. Wright, A. A. Danopoulos, W. B. Motherwell, R. J. Carroll, S. Ellwood, J. Saßmannshausen, *Angew. Chem. Int. Ed.*, 2008, **47**, 9765–9767.
- (22) *Structural Characterization of a Cationic Zirconocene Dimethylaniline Complex and Related Catalytically Relevant Species*, P. A. Wilson, J. A. Wright, V. S. Oganessian, S. J. Lancaster and M. Bochman, *Organometallics*, 2008, **27**, 6371–6374.
- (21) *Ligand Mobility and Solution Structures of the Metallocenium Ion Pairs  $[\text{Me}_2\text{C}(\text{Cp})(\text{fluorenyl})\text{MCH}_2\text{SiMe}_3^+ \cdots \text{X}^-]$  ( $\text{M} = \text{Zr}, \text{Hf}$ ;  $\text{X} = \text{MeB}(\text{C}_6\text{F}_5)_3, \text{B}(\text{C}_6\text{F}_5)_4$ )*, C. Alonso-Moreno, S. J. Lancaster, J. A. Wright, D. L. Hughes, C. Zuccaccia, A. Correa, A. Macchioni, L. Cavallo and M. Bochmann, *Organometallics*, 2008, **27**, 5474–5487.
- (20) *Early Transition Metal Complexes Bearing a C-Capped Tris(phenolate) Ligand Incorporating a Pendant Imine Arm: Synthesis, Structure, and Ethylene Polymerization Behavior*, D. Homden, C. Redshaw, J. A. Wright, D. L. Hughes and M. R. J. Elsegood, *Inorg. Chem.*, 2008, **47**, 5799–5814.
- (19) *Synthesis and structures of new binuclear zinc alkyl, aryl and aryloxo complexes*, Y. Sarazin, J. A. Wright, D. A. J. Harding, E. Martin, T. J. Woodman, D. L. Hughes and M. Bochmann, *J. Organomet. Chem.*, 2008, **693**, 1494–1501.
- (18) *Mixed-ligand iminopyrrolato-salicylaldiminato group 4 metal complexes: Optimising catalyst structure for ethylene/propylene copolymerisations*, L. M. Broomfield, Y. Sarazin, J. A. Wright, D. L. Hughes, W. Clegg, R. W. Harrington and M. Bochmann, *J. Organomet. Chem.*, 2007, **692**, 4603–4611.
- (17) *The Synthesis, Structure and Reactivity of  $\text{B}(\text{C}_6\text{F}_5)_3$ -Stabilised Amide ( $\text{M}-\text{NH}_2$ ) Complexes of the Group 4 Metals*, A. J. Mountford, W. Clegg, S. J. Coles, R. W. Harrington, P. N. Horton, S. M. Humphrey, M. B. Hursthouse, J. A. Wright and S. J. Lancaster, *Chem. Eur. J.*, 2007, **13**, 4535–4547.
- (16) *Redetermination of catena-poly[[sodium(I)-tri- $\mu$ -dimethylformamide- $\kappa^6\text{O}:\text{O}$ ] iodide] at 140 K*, S. Chessa and J. A. Wright, *Acta Cryst. C*, 2007, **63**, m787–m789.
- (15) *Mono(arene) Complexes of Thallium(I) Supported by a Weakly Coordinating Anion*, Y. Sarazin, N. Kaltsoyannis, J. A. Wright, M. Bochmann, *Organometallics*, 2007, **26**, 1811–1815.
- (14) *Thallium(I) Sandwich, Multidecker, and Ether Complexes Stabilized by Weakly-Coordinating Anions: A Spectroscopic, Structural, and Theoretical Investigation*, Y. Sarazin, D. L. Hughes, N. Kaltsoyannis, J. A. Wright and M. Bochmann, *J. Am. Chem. Soc.*, 2007, **129**, 881–884.

- (13) 'Pincer' pyridyl- and bipyridyl-N-heterocyclic carbene analogues of the Grubbs' metathesis catalyst, J. A. Wright, A. A. Danopoulos, W. B. Motherwell, R. J. Carroll, S. Ellwood, *J. Organomet. Chem.*, 2006, **691**, 5204–5210.
- (12) Synthesis and crystal structure of  $[C_6H_5Hg(H_2NSiMe_3)][H_2N\{B(C_6F_5)_3\}_2]$ , a phenyl–mercury(II) cation stabilised by a non-coordinating counter-anion, Y. Sarazin, J. A. Wright and M. Bochmann, *J. Organomet. Chem.*, 2006, **691**, 5680–5687.
- (11) "Pincer" N-Heterocyclic Carbene Complexes of Rhodium Functionalised with Pyridyl and Bipyridyl Donors, J. A. Wright, A. A. Danopoulos, W. B. Motherwell, R. J. Carroll, S. Ellwood and J. Saßmannshausen, *Eur. J. Inorg. Chem.*, 2006, 4857–4865.
- (10) {Bis(3,5-Di-tert-butyl-2-oxidobenzyl)[2-(N,N-dimethylamino)ethyl]amine- $\kappa^4N,N',O,O'$ }zinc(II) and {bis(3-tert-butyl-5-methyl-2-oxidobenzyl)[2-(N,N-dimethylamino)ethyl]amine- $\kappa^4N,N',O,O'$ }(tetrahydrofuran)-zinc(II), R. H. Howard, M. Bochmann and J. A. Wright, *Acta Cryst. C*, 2006, **62**, m293–m296.
- (9) The synthesis of new weakly coordinating diborate anions: anion stability as a function of linker structure and steric bulk, M. H. Hannant, J. A. Wright, S. J. Lancaster, D. L. Hughes, P. N. Horton and M. Bochmann, *Dalton Trans.*, 2006, **35**, 2415–2426.
- (8) Anion Influence in Metallocene-based Olefin Polymerisation Catalysts, P. A. Wilson, M. H. Hannant, J. A. Wright, R. Cannon and M. Bochmann, *Macromol. Symp.*, 2006, **236**, 100–110.
- (7) 'Pincer' dicarbene complexes of some early transition metals and uranium, D. Pugh, J. A. Wright, S. Freeman and A. A. Danopoulos, *Dalton Trans.*, 2006, **35**, 775–782.
- (6) Novel Anti-Markovnikov Regioselectivity in the Wacker Reaction of Styrenes, J. A. Wright, M. J. Gaunt and J. B. Spencer, *Chem.–Eur. J.*, 2005, **12**, 949–955.
- (5) Molecular  $N_2$  complexes of iron stabilised by N-heterocyclic pincer dicarbene ligands, A. A. Danopoulos, J. A. Wright and W. B. Motherwell, *Chem. Commun.*, 2005, **41**, 784–786.
- (4) Picoline and pyridine functionalised chelate N-heterocyclic carbene complexes of nickel: synthesis and structural studies, S. Winston, N. Stylianides, A. A. D. Tulloch, J. A. Wright and A. A. Danopoulos, *Polyhedron*, 2004, **23**, 2813–2820.
- (3) N-Heterocyclic "Pincer" Dicarbene Complexes of Cobalt(I), Cobalt(II), and Cobalt(III), A. A. Danopoulos, J. A. Wright, W. B. Motherwell and S. Ellwood, *Organometallics*, 2004, **23**, 4807–4810.
- (2) N-Heterocyclic Pincer Dicarbene Complexes of Iron(II): C-2 and C-5 Metalated Carbenes on the Same Metal Center, A. A. Danopoulos, N. Tsoureas, J. A. Wright and M. E. Light, *Organometallic*, 2004, **23**, 166–168.
- (1) Sequential removal of the benzyl-type protecting groups PMB and NAP by oxidative cleavage using CAN and DDQ, J. A. Wright, J.-Q. Yu and J. B. Spencer, *Tetrahedron Lett.*, 2001, **41**, 4033–4036.

## Posters

- Replacing Precious Metals: Iron-Containing Enzymes Show the Way, J. A. Wright and C. J. Pickett, *SET for Britain 2011*, Houses of Parliament, London, 14th March 2011.
- [FeFe-Hydrogenase subsite analogues: seeing protonation intermediates by stopped-flow spectroscopy], J. A. Wright, P. J. Turrell and C. J. Pickett, *Faraday Discussions 148*, Nottingham, UK, 5th to 7th July 2010.
- Mechanistic investigations into the Wacker reaction of styrenes, J. A. Wright, M. J. Gaunt and J. B. Spencer, *13th International Symposium on Homogeneous Catalysis*, Tarragona, Spain, 3rd to 7th September 2002.

## Talks

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- *The mono-iron hydrogenase: accurate active site models*, Coordination Chemistry Discussion Group Meeting, University of East Anglia, 8th July 2011.
- *Model hydrogenase subsites: seeing hydride formation as it happens*, Joe Spencer Memorial Lectures, University of Cambridge, 23rd April 2010.
- *Mechanism studies on hydrogenase models*, Dibrugarh University, Dibrugarh, India, 4th December 2009.
- *Mechanism studies on hydrogenase models*, Second Young Indian Scientists Networking Conference, Kolkata, India, 2nd December 2009.