

JAMES P. S. WALSH

✉ jpswalsh@umass.edu
☎ +1 (413) 545-1557
🌐 <http://jpswalsh.com>
📧 jpswalsh@umass.edu

University of Massachusetts Amherst
Department of Chemistry
Physical Sciences Building
690 N Pleasant St
Amherst, MA 01003

RESEARCH POSITIONS

Assistant Professor **Sep 2019 – Present**
University of Massachusetts Amherst, United States

Postdoctoral Fellow with Prof Danna Freedman **May 2015 – Aug 2019**
Northwestern University, United States

Postdoctoral Fellow with Dr Jacob Overgaard **Mar 2015 – May 2015**
Aarhus University, Denmark

Research Associate with Dr Alistair Fielding **Nov 2014 – Feb 2015**
University of Manchester, United Kingdom

EDUCATION

PhD in Inorganic Chemistry **Sep 2010 – Oct 2014**
Nanoscience Doctoral Training Centre, University of Manchester, United Kingdom
Advisors: Prof David Collison, Prof Eric McInnes, and Prof Richard Winpenny

MChem in Chemistry with Forensic Science **Sep 2006 – Aug 2010**
University of Manchester, United Kingdom

HONOURS AND AWARDS

COMPRES Postdoc Travel Scholarship (*Annual Meeting, Santa Ana Pueblo, New Mexico, USA*) **Aug 2018**

IUCr-HP Early Career Travel Award (*IUCr Commission on High-Pressure, Honolulu, Hawai'i, USA*) **Jul 2018**

Northwestern Postdoctoral Professional Development Travel Award **Dec 2017**

International Institute for Nanotechnology Outstanding Researcher Award **Sep 2017**

COMPRES Postdoc Travel Scholarship (*Annual Meeting, Santa Ana Pueblo, New Mexico, USA*) **Jul 2017**

Marie Skłodowska-Curie Masterclass Invited Participant (*Aarhus University, Denmark*) **May 2016**

INVITED TALKS

Special Seminar (*Georgia Institute of Technology, Georgia, USA*) **Feb 2019**

Special Seminar (*University of Massachusetts at Amherst, Massachusetts, USA*) **Jan 2019**

Special Seminar (*University of Michigan, Michigan, USA*) **Dec 2018**

Materials in Extreme Environments at ACS Fall 2018 (*Boston, Massachusetts, USA*) **Aug 2018**

Workshop of the IUCr Commission on High-Pressure (*Honolulu, Hawai'i, USA*) **Jul 2018**

Special Seminar (*Michigan State University, Michigan, USA*) **Jan 2018**

HPCAT Beamline Review (*Advanced Photon Source, Illinois, USA*) **Nov 2017**

Workshop on Probing Materials Under Extreme Conditions (*Advanced Photon Source, Illinois, USA*) **Oct 2017**

Nuclear Resonant Scattering and Data Analysis Workshop (*Argonne National Laboratory, Illinois, USA*) **Nov 2016**

Gordon Research Seminar: Research at High Pressure (*Holderness School, Plymouth, New Hampshire, USA*) **Jul 2016**

TEACHING EXPERIENCE

Guest Lecturer, Graduate Inorganic Chemistry **2017 – Present**
Northwestern University, USA

Laboratory Demonstrator (Teaching Assistant), Inorganic Synthesis **2011 – 2013**
University of Manchester, UK

PUBLICATIONS

29. **Goldschmidtite, (K,REE,Sr)(Nb,Cr)O₃: A new perovskite supergroup mineral found in diamond from Koffiefontein, South Africa**
Meyer, N. A.; Wenz, M. D.; Walsh, J. P. S.; Jacobsen, S. D.; Locock, A. J.; Harris, J. W. *Am. Mineral.*, **2019**, *104*, 1345–1350.
28. **High-pressure synthesis of the BiVO₃ perovskite**
Klein, R. A.; Altman, A. B.; Saballos, R. J.; Walsh, J. P. S.; Tamerius, A. D.; Meng, Y.; Puggioni, D.; Rondinelli, J. M.; Jacobsen, S. D.; Freedman, D. E. *Phys. Rev. Mater.*, **2019**, *3*, 064411.
27. **MnBi₂: A metastable high-pressure phase in the Mn–Bi system**
Walsh, J. P. S.; Clarke, S. M.; Tamerius, A. D.; Meng, Y.; Jacobsen, S. D.; Freedman, D. E. *Chem. Mater.*, **2019**, *31*, 3083–3088.
26. **Insights into single-molecule magnet behavior from the experimental electron density of linear two-coordinate iron complexes**
Thomsen, M. K.; Nyvang, A.; Walsh, J. P. S.; Bunting, P. C.; Long, J. R.; Neese, F.; Atanasov, M.; Genoni, A.; Overgaard, J. *Inorg. Chem.*, **2019**, *58*, 3211–3218.
25. **Controlling dimensionality in the Ni–Bi system with pressure**
Clarke, S. M.; Powderly, K. M.; Walsh, J. P. S.; Yu, T.; Wang, Y.; Meng, Y.; Jacobsen, S. D.; Freedman, D. E. *Chem. Mater.*, **2019**, *31*, 955–959.
24. **Discovery of Cu₃Pb**
Tamerius, A. D.; Clarke, S. M.; Gu, M.; Walsh, J. P. S.; Esters, M.; Meng, Y.; Hendon, C. H.; Rondinelli, J. M.; Jacobsen, S. D.; Freedman, D. E. *Angew. Chem., Int. Ed.*, **2018**, *57*, 12809–12813.
23. **Impact of pressure on magnetic order in jarosite**
Klein, R. A.; Walsh, J. P. S.; Clarke, S. M.; Guo, Y.; Bi, W.; Fabbris, G.; Meng, Y.; Haskel, D.; Alp, E. E.; Van Duyne, R. P.; Jacobsen, S. D.; Freedman, D. E. *J. Am. Chem. Soc.*, **2018**, *140*, 12001–12009.
22. **High-pressure synthesis: A new frontier in the search for next-generation intermetallic compounds**
Walsh, J. P. S.; Freedman, D. E. *Acc. Chem. Res.*, **2018**, *51*, 1315–1323.
21. **Evidence of spin canting, metamagnetism, negative coercivity and slow relaxation in a two-dimensional network of {Mn₆} cages**
Dendrinou-Samara, C.; Walsh, J. P. S.; Murny, C. A.; Collison, D.; Winpenny, R. E. P.; Tuna, F. *Eur. J. Inorg. Chem.*, **2018**, 485–492.
20. **Molecular single-ion magnets based on lanthanides and actinides: Design considerations and new advances in the context of quantum technologies**
McAdams, S. G.; Ariciu, A.-M.; Kostopoulos, A. K.; Walsh, J. P. S.; Tuna, F. *Coord. Chem. Rev.*, **2017**, *346*, 216–239.
19. **Creating binary Cu–Bi compounds via high-pressure synthesis: A combined experimental and theoretical study**
Clarke, S. M.; Amsler, M.; Walsh, J. P. S.; Yu, T.; Wang, Y.; Meng, Y.; Jacobsen, S. D.; Wolverson, C.; Freedman, D. E. *Chem. Mater.*, **2017**, *29*, 5276–5285.
18. **Discovery of FeBi₂**
Walsh, J. P. S.; Clarke, S. M.; Meng, Y.; Jacobsen, S. D.; Freedman, D. E. *ACS Cent. Sci.*, **2016**, *2*, 867–871.
This paper was highlighted in the following articles:
(a) Fredrickson, D. "A pressurized exploration of intermetallic chemistry." *ACS Cent. Sci.*, **2016**, *2*, 773–774.
(b) Szuroimi, P. "Forcing iron to bond to bismuth." *Science*, **2016**, *354*, 1246–1247.
17. **Using Supramolecular Chemistry to Build Quantum Logic Gates (Preview Article)**
Walsh, J. P. S.; Freedman, D. E. *Chem*, **2016**, *1*, 668–669.

16. **Oximato-bridged copper(II) compounds: Syntheses, molecular structures, magnetic, thermal and spectroscopic properties**
Naskar, J. P.; Biswas, C.; Bandyopadhyay, N.; Walsh, J. P. S.; Tuna, F.; Zhu, M.; Lu, L. *J. Coord. Chem.*, **2016**, *69*, 2329–2341.
15. **Evidence of slow magnetic relaxation in $\text{Co}(\text{AcO})_2(\text{py})_2(\text{H}_2\text{O})_2$**
Walsh, J. P. S.; Bowling, G.; Ariciu, A.-M.; Jailani, N. F. M.; Chilton, N. F.; Waddell, P. G.; Collison, D.; Tuna F.; Higham, L. J. *Magnetochemistry*, **2016**, *2*, 23.
14. **Dioxygen binding at a four-coordinate cobaltous porphyrin site in a metal–organic framework: structural, EPR, and O_2 adsorption analysis**
Gallagher, A. T.; Kelty, M. L.; Park, J. G.; Anderson, J. S.; Mason, J. A.; Walsh, J. P. S.; Collins, S. L.; Harris, T. D. *Inorg. Chem. Front.*, **2016**, *3*, 536–540.
13. **Magnetism and variable temperature and pressure crystal structures of a linear oligonuclear cobalt bis-semiquinonate**
Overgaard, J.; Møller, L. H.; Borup, M. A.; Tricoire, M.; Walsh, J. P. S.; Diehl, M.; Rentschler, E. *Dalton. Trans.*, **2016**, *45*, 12924–12932.
12. **Discovery of a superconducting Cu–Bi intermetallic compound via high-pressure synthesis**
Clarke, S. M.; Walsh, J. P. S.; Amsler, M.; Malliakas, C. D.; Yu, T.; Goedecker, S.; Wang, Y.; Wolverton, C.; Freedman, D. E. *Angew. Chem., Int. Ed.*, **2016**, *55*, 13446–13449.
11. **Electronic structure of a mixed-metal fluoride-centered triangle complex: A potential qubit component**
Walsh, J. P. S.; Meadows, S. B.; Ghirri, A.; Moro, F.; Jennings, M.; Smith, W. F.; Graham, D. M.; Kihara, T.; Nojiri, H.; Vitorica-Yrezabal, I. J.; Timco, G. A.; Collison, D.; McInnes, E. J. L.; Winpenny, R. E. P. *Inorg. Chem.*, **2015**, *54*(24), 12019–12026.
10. **Hexanuclear 3d–4f neutral Co_2Ln_4 clusters: Synthesis, structure, and magnetism**
Goura, J.; Chakraborty, A.; Walsh, J. P. S.; Tuna, F.; Chandrasekhar, V. *Cryst. Growth Des.*, **2015**, *15*(7), 3157–3165.
9. **P–C bond cleavage-assisted lanthanide phosphate coordination polymers**
Goura, J.; Walsh, J. P. S.; Tuna, F.; Halder, R.; Maji, T. K.; Chandrasekhar, V. *Cryst. Growth Des.*, **2015**, *15*(6), 2555–2560.
8. **Discrete and polymeric cobalt organophosphates: isolation of a 3-D cobalt phosphate framework exhibiting selective CO_2 capture**
Gupta, S. K.; Kuppaswamy, S.; Walsh, J. P. S.; McInnes, E. J. L.; Murugavel, R. *Dalton Trans.*, **2015**, *44*, 5587–5601.
7. **A synthetic strategy for switching the single ion anisotropy in tetrahedral Co(II) complexes**
Vaidya, S.; Upadhyay, A.; Kumar Singh, S.; Gupta, T.; Tewary, S.; Langley, S. K.; Walsh, J. P. S.; Murray, K. S.; Rajaraman, G.; Shanmugam, M. *Chem. Comm.*, **2015**, *51*, 3739–3742.
6. **Structural, magnetic and catalytic properties of cobalt chromite obtained through precursor method**
Gingasu, D.; Mandru, I.; Culita, D. C.; Patron, L.; Calderon-Moreno, J.-M.; Osiceanu, P.; Preda, S.; Oprea, O.; Parvulescu, V.; Teodorescu, V.; Walsh, J. P. S. *Mater. Res. Bull.*, **2015**, *62*, 52–64.
5. **Self-assembly of a 3d–5f trinuclear single-molecule magnet from a pentavalent uranyl complex**
Chatelain, L.; Walsh, J. P. S.; Pécaut, J.; Tuna, F.; Mazzanti, M. *Angew. Chem.*, **2014**, *53*(49), 13434–13438.
4. **Synthesis, structure, and magnetism of non-planar heptanuclear lanthanide(III) complexes**
Goura, J.; Walsh, J. P. S.; Tuna, F.; Chandrasekhar, V. *Dalton Trans.*, **2014**, *44*, 1142–1149.
3. **Relationships between electron density and magnetic properties in water-bridged dimetal complexes**
Overgaard, J.; Walsh, J. P. S.; Hathwar, V. R.; Jørgensen, M. R. V.; Hoffman, C.; Platts, J. A.; Piltz, R.; Winpenny, R. E. P. *Inorg. Chem.*, **2014**, *53*(21), 11531–11539.
2. **On the possibility of magneto-structural correlations: Detailed studies of dinickel carboxylate complexes**
Walsh, J. P. S.; Sproules, S.; Chilton, N. F.; Barra, A.-L.; Timco, G. A.; Collison, D.; McInnes, E. J. L.; Winpenny, R. E. P. *Inorg. Chem.*, **2014**, *53*(16), 8464–8472.

1. Tetranuclear lanthanide(III) complexes in a seesaw geometry: Synthesis, structure, and magnetism

Goura, J.; Walsh, J. P. S.; Tuna, F.; Chandrasekhar, V. *Inorg. Chem.*, **2014**, *53*(7), 3385–3391.

REFEREES

Prof Danna Freedman

Department of Chemistry,
Northwestern University,
Evanston, IL, 60208
United States
danna.freedman@northwestern.edu

Prof Steven Jacobsen

Department of Earth and Planetary Sciences,
Northwestern University,
Evanston, IL, 60208
United States
s-jacobsen@northwestern.edu

Prof Richard Winpenny

School of Chemistry,
University of Manchester,
Oxford Road, Manchester,
United Kingdom, M13 9PL
richard.winpenny@manchester.ac.uk

Prof David Collison

School of Chemistry,
University of Manchester,
Oxford Road, Manchester,
United Kingdom, M13 9PL
david.collison@manchester.ac.uk