Benjamin A. D. Williamson MSci, PhD, MRSC

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Employment

University College London (2018 – Present)
PDRA in Computational Materials Design
Scanlon Materials Theory Group
Advisor: Prof. David O. Scanlon

Education

University College London (2014 – 2018)
PhD in Computational Inorganic Materials Chemistry
Thesis title : *Understanding the Electronic and Thermodynamic Properties of Wide Band Gap Materials*
Supervisor: Prof. David O. Scanlon; Secondary Supervisor: Prof. Claire J. Carmalt

University College London (2010 – 2014)
MSci in Chemistry – 1st Class Honours
MSci dissertation title: *Computational Design of Next-Generation p-Type Semiconductors*
Supervisor: Prof. David O. Scanlon
BSc dissertation title: *Z-Schemes for Photocatalytic Water Splitting*
Supervisor: Prof. Furio Cora

The King's School, Rochester (2005 – 2010)
A-levels: Chemistry (A), Maths (B), Music: (B), Art (A)
9 GCSEs: Grade A*– B
Music Scholar, Academic Scholar and Prefect

Westminster Abbey Choir School (2000 – 2005)

Publications

1. *Computationally Driven Discovery of Layered Quinary Oxychalcogendide p-Type Transparent Conductors* **B.A.D. Williamson**, G.J. Limburn, G. Hyett and D.O. Scanlon; *ChemRxiv* (2018)
   DOI: chemrxiv.7078205

2. *Origin of High-Efficiency Photoelectrochemical Water Splitting on Hematite/Functional Nanohybrid Metal Oxide Overlayer Photoanode after a Low Temperature Inert Gas Annealing Treatment* S. Ho-Kimura, **B.A.D. Williamson**, S. Sathasivam, S.J.A. Moniz, G. He, W. Luo, D.O. Scanlon, J. Tang, I.P. Parkin; *ACS Omega*, 4 (1), 1449-1459 (2019)
   DOI: 10.1021/acsomega.8b02444

3. *Phosphorus Doped SnO_2 Thin Films for Transparent Conducting Oxide Applications: Synthesis, Opto-electronic Properties and Computational Models*; M.J. Powell, **B.A.D. Williamson**, S-Y. Baek, J. Manzi, D. Potter, D.O. Scanlon and C.J. Carmalt; *Chemical Science*, 9 (41), 7968-7980 (2018)
   DOI: 10.1039/C8SC02152J

4. *Enhanced Electrical Properties of Antimony Doped Tin Oxide Thin Films Deposited via Aerosol Assisted Chemical Vapour Deposition*; S. Ponja, **B.A.D. Williamson**, S. Sathasivam, D.O. Scanlon, I.P. Parkin, C.J. Carmalt; *Journal of Materials Chemistry C*, 6, 7257-7266 (2018)
   DOI: 10.1039/C8TC01929K

5. *A Novel Laboratory-based Hard X-ray Photoelectron Spectroscopy System*; A. Regoutz, M. Mascheck, T. Wiell, S.K. Eriksson, C. Liljenberg, K. Tetzner, **B.A.D. Williamson**, D. O. Scanlon and P. Palmgren; *Review*

of Scientific Instruments, 89 (7), 073105 (2018)
DOI: 10.1063/1.5039829

6. *Chemical Vapor Deposition of Photocatalytically Active Pure Brookite TiO_2 Thin Films*; A.M. Alotaibi, S. Sathasivam , **B.A.D. Williamson**, A. Kafizas , C. Sotelo-Vazquez, A. Taylor, D.O. Scanlon, and I.P. Parkin; *Chem. Mater.*, 30 (4), 1353-1361 (2018)
DOI: 10.1021/acs.chemmater.7b04944

7. *A Deeper Understanding of Interstitial Boron-Doped Anatase Thin Films as A Multifunctional Layer Through Theory and Experiment*; M. Quesada-Gonzalez, **B.A.D. Williamson**, C. Sotelo-Vazquez, A. Kafizas, N.D. Boscher, R. Quesada-Cabrera, D.O. Scanlon, C.J. Carmalt, I.P. Parkin; *J. Phys. Chem. C*, 122 (1), 714-726 (2018)
DOI: 10.1021/acs.jpcc.7b11142

8. *Self-Compensation in Transparent Conducting F-Doped SnO_2*; J.E.N. Swallow, **B.A.D. Williamson**, T.J. Whittles, M. Birkett, T.J. Featherstone, N. Peng, A. Abbott, M. Farnworth, K.J. Cheetham, P. Warren, D.O. Scanlon, V.R. Dhanak, T.D.Veal; *Adv. Funct. Mater.*, 1701900 (2017)
DOI: 10.1002/adfm.201701900

9. *Chemical Vapor Deposition Synthesis and Optical Properties of Nb_2O_5 Thin Films with Hybrid Functional Theoretical Insight into Band Structure and Band Gaps*; S. Sathasivam, **B.A.D. Williamson**, S.A. Al Thabaiti, A.Y. Obaid, S.N. Basahel, M. Mokhtar, D.O.Scanlon, C.J. Carmalt, I.P.Parkin; *ACS Appl. Mater. Interfaces*, 9 (21), 18031-18038 (2017)
DOI: 10.1021/acsami.7b00907

10. *Computational and Experimental Study of Ta_2O_5 Thin Films*; S. Sathasivam, **B.A.D. Williamson**, A. Kafizas, S.A. Althabaiti, A.Y. Obaid, S.N. Basahel, D.O. Scanlon, C.J. Carmalt, I.P Parkin; *J. Phys. Chem. C*, 121 (1), 202-210 (2017)
DOI: 10.1021/acs.jpcc.6b11073

11. *Transparent Conducting n-type ZnO:Sc – Synthesis, Optoelectronic Properties and Theoretical Insight*; S.C. Dixon, S. Sathasivam, **B.A.D. Williamson**, D.O. Scanlon, C.J. Carmalt, I.P. Parkin; *J. Mater. Chem. C*, 5, 7585-7597 (2017)
DOI: 10.1039/C7TC02389H

12. *Engineering Valence Band Dispersion for High Mobility p-Type Semiconductors*; **B.A.D. Williamson**, J. Buckeridge, J. Brown, S. Ansbro, R.G. Palgrave, D.O. Scanlon; *Chem. Mater.*, 29 (6), 2402-2413 (2017)
DOI: 10.1021/acs.chemmater.6b03306

13. *A Single-Source Precursor Approach to Solution Processed Indium Arsenide Thin Films*; P. Marchand, S. Sathasivam, **B.A.D. Williamson**, D. Pugh, S.M. Bawaked, S.N. Basahel, A.Y. Obaid, D.O. Scanlon, I.P. Parkin, C.J. Carmalt; *J. Mater. Chem. C*, 4, 6761-6768 (2016)
DOI: 10.1039/C6TC02293F

Conference Presentations

1. Contributed: B.A.D Williamson: *Dispelling the Myth of Passivated Codoping in TiO_2*, MRS Fall Meeting; Boston US, 2018 – Oral

2. Contributed: B.A.D.Williamson: *Computationally Aided Discovery of Layered Quinary Oxychalcogenide p-type Transparent Conductors*, MRS Fall Meeting; Boston US, 2018 – Poster
Winner of the ICDD prize for materials characterisation

3. Contributed: B.A.D Williamson: *Doubled Conductivity in Transparent Conducting In_2O_3 Through Novel Dopant Design*, MMM Hub; Thomas Young Centre, London, UK, 2018 – Poster

4. Invited: B.A.D Williamson: *Doubled Conductivity in Transparent Conducting In_2O_3 Through Novel Dopant Design*, MCC 3rd Conference, Lincoln UK, 2018 – Oral

5. Contributed: B.A.D Williamson: *Doubled Conductivity in Transparent Conducting In_2O_3 Through Novel Dopant Design*, Gordon Research Conference; Defects In Semiconductors, Colby-Sawyer College, New Hampshire, US, 2018 – Poster

6. Invited: B.A.D Williamson: *Beyond Conventional Doping in SnO_2*, Thomas Young Centre, London UK, 2017 – Oral

7. Contributed: B.A.D Williamson: *Beyond Conventional Doping in SnO_2*, E-MRS; Spring Meeting, Strasbourg France, 2017 – Poster

8. Contributed: B.A.D Williamson: *Engineering Valence Band Dispersion For High-Mobility p-type Semiconductors*, E-MRS; Spring Meeting, Strasbourg France, 2017 – Oral

9. Contributed: B.A.D Williamson: *Engineering Valence Band Dispersion For High-Mobility p-type Semiconductors*, MRS Fall Meeting; Boston US, 2016 – Poster

10. Contributed: B.A.D Williamson: *Engineering Valence Band Dispersion For High-Mobility p-type Semiconductors*, SSCG Christmas Meeting; Canterbury UK, 2015 – Poster

Teaching

2014 – present: Supervised final year MSci research projects at UCL
2014 – present: Demonstrated in 1st year undergraduate workshops
2018 – present: Tutor in 1st year undergraduate inorganic chemistry course at UCL

Other Skills and Interests

Considerable experience in the Unix command line as well as in Bash and Python.
Experienced use with the *ab-initio* codes: VASP and Questaal.
Proficient experience in using the LaTeX typesetting system as well as with the Microsoft Office suite.
Active committee member of the University of London Chamber Choir (2010 – present)
Keen interests in cycling, hill walking, classical music, literature and technology.

References

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