# 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. *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, just accepted* (2018)
   DOI: 10.1039/C8SC02152J

3. *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

4. *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

5. *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

6. *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

7. *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

8. *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

9. *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

10. *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

11. *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

12. *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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