Benjamin A. D. Williamson MSci, PhD, MRSC, NKS

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Employment

Norwegian University of Science and Technology (NTNU) (2019 – Present)
Postdoctoral Researcher in Computational Materials Design
Functional Materials and Materials Chemistry Research Group (FACET)
Advisor: Prof. Sverre M. Selbach

University College London (2018 – 2019)
Postdoctoral Research Associate 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

Publications

1. *Resonant Doping for High Mobility Transparent Conductors: The Case of Mo-doped In_2O_3*
J.E.N. Swallow, **B.A.D. Williamson**, S. Sathasivam, M. Birkett, T.J. Featherstone, P.A.E. Murgatroyd, H.J. Edwards, Z.W. Lebens-Higgins, D.A. Duncan, M. Farnworth, P. Warren, N. Peng, T-L. Lee, L.F.J. Piper, A. Regoutz, C.J. Carmalt, I.P.Parkin, V.R. Dhanak, D.O. Scanlon and T.D. Veal; *Mater. Horiz., Advance Article*, (2019)
DOI: 10.1039/C9MH01014A

2. *Dispelling the Myth of Passivated Codoping in TiO_2*
B.A.D. Williamson, J. Buckeridge, N.P. Chadwick, S. Sathasivam, C.J. Carmalt, I.P. Parkin and D.O. Scanlon; *Chem. Mater.*, 31 (7), 2577-2589 (2019)
DOI: 10.1021/acs.chemmater.9b00257

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

4. *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

5. *Phosphorus Doped SnO_2 Thin Films for Transparent Conducting Oxide Applications: Synthesis, Optoelectronic 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; *Chem. Sci.*,

9 (41), 7968-7980 (2018)
DOI: 10.1039/C8SC02152J

6. *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; *J. Mater. Chem. C*, 6, 7257-7266 (2018)
DOI: 10.1039/C8TC01929K

7. *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; *Rev. Sci. Inst., 89 (7), 073105 (2018)*
DOI: 10.1063/1.5039829

8. *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

9. *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

10. *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

11. *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

12. *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

13. *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

14. *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

15. *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: *Resonant Doping for High Mobility Transparent Conductors: The Case of Mo-doped In_2O_3*, 11th Petite Workshop on defects in energy materials; Sommarøy, Norway 2019 – Oral
2. Contributed: B.A.D Williamson: *Computationally Aided Discovery of Layered Quinary Oxychalcogenide p-type Transparent Conductor*, Workshop For Atomistic Modelling; Trondheim, Norway 2019 – Poster
3. Contributed: B.A.D Williamson: *Dispelling the Myth of Passivated Codoping in TiO_2*, MRS Fall Meeting; Boston US, 2018 – Oral
4. 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
5. 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
6. Invited: B.A.D Williamson: *Doubled Conductivity in Transparent Conducting In_2O_3 Through Novel Dopant Design*, MCC 3rd Conference, Lincoln UK, 2018 – Oral
7. 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
8. Invited: B.A.D Williamson: *Beyond Conventional Doping in SnO_2*, Thomas Young Centre, London UK, 2017 – Oral
9. Contributed: B.A.D Williamson: *Beyond Conventional Doping in SnO_2*, E-MRS; Spring Meeting, Strasbourg France, 2017 – Poster
10. Contributed: B.A.D Williamson: *Engineering Valence Band Dispersion For High-Mobility p-type Semiconductors*, E-MRS; Spring Meeting, Strasbourg France, 2017 – Oral
11. Contributed: B.A.D Williamson: *Engineering Valence Band Dispersion For High-Mobility p-type Semiconductors*, MRS Fall Meeting; Boston US, 2016 – Poster
12. Contributed: B.A.D Williamson: *Engineering Valence Band Dispersion For High-Mobility p-type Semiconductors*, SSCG Christmas Meeting; Canterbury UK, 2015 – Poster

Teaching

2014 – 2019: Supervised six final year MSci research projects at UCL
2014 – 2019: Demonstrated in 1st year undergraduate workshops (CHEM1004)
2018 – 2019: Tutor in 1st year undergraduate inorganic chemistry courses at UCL (CHEM1101 and CHEM0013)

References

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