

Alex M. Ganose

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Date of Birth: 3rd September 1991

Education

University College London (2015 – present)

PhD in Molecular Modelling and Materials Science

Preliminary thesis title: “Earth-abundant and non-toxic materials for energy applications.”

University College London (2014 – 2015)

MRes. in Molecular Modelling and Materials Science, Distinction

Dissertation title: “Tailoring the band gap of SnO₂ for improved transparent electronic conducting properties in solar cells.”

University College London (2010 – 2014)

MSci. in Natural Sciences (Organic Chemistry and Neuroscience), 1st Class Honours

Dissertation title: “Synthesis of novel covalent organic frameworks.”

Manchester Grammar School, 2003 – 2010:

A Levels - Chemistry (A), Physics (A), Maths (A), Biology (A)

10 GCSE's - Grade A*– A

Awards

2017 Awarded £3,000 for best use of ARCHER (UK national supercomputer)

2017 UCL Computational Chemistry poster presentation prize

2017 UCL M3S Industry Day poster presentation prize

2015 Violet Horshall Prize, UCL

Teaching

2015 – present: Supervised 6 final year research projects at UCL

2015 – present: Demonstrator for M³S Computational Labs at UCL

2015 – present: Demonstrator for 1st and 2nd year Inorganic Chemistry Workshops at UCL

Publications 15 published, 1 in submission (211 citations, H-index of 9, [Google Citations](#))

1. D. Biswas, **A. M. Ganose**, R. Yano, J. M. Riley, L. Bawden, O.J. Clark, J. Feng, L. Collins-Mcintyre, M.T. Sajjad, W. Meevasana, T.K. Kim, M. Hoesch, J.E. Rault, T. Sasagawa, D. O Scanlon, P. D. C. King, Narrow-band anisotropic electronic structure of ReS₂, *Physical Review B*, **96**, 085205 (2017) doi: 10.1103/PhysRevB.96.085205
2. C. N. Savory, **A. M. Ganose**, and D. O. Scanlon, Exploring the PbS-Bi₂S₃ series for next generation energy conversion materials, *Chemistry of Materials*, **29**, 5156–5167 (2017) 10.1021/acs.chemmater.7b00628

3. **A. M. Ganose**, C. N. Savory, and D. O. Scanlon, Electronic and defect properties of $(\text{CH}_3\text{NH}_3)_2\text{Pb}(\text{SCN})_2\text{I}_2$ analogues for photovoltaic applications, *Journal of Materials Chemistry A*, **5**, 7845–7853 (2017) doi: 10.1021/acs.chemmater.7b00464
4. C. H. Hendon, K. T. Butler, **A. M. Ganose**, Y. Roman-Leshkov, D. O. Scanlon, G. A. Ozin, A. Walsh, Electroactive Nanoporous Metal Oxides and Chalcogenides by Chemical Design, *Chemistry of Materials*, **29**, 3663–3670 (2017) doi: 10.1039/C7TA01688C
5. **A. M. Ganose**, C. N. Savory, and D. O. Scanlon, Beyond Methylammonium Lead Iodide: Prospects for the Emergent Field of ns^2 Containing Solar Absorbers, *Chemical Communications*, Accepted (2016) doi: 10.1039/C6CC06475B
6. C. N. Savory, **A. M. Ganose**, W. Travis, R. S. Atri, R. G. Palgrave and D. O. Scanlon, An Assessment of Silver Copper Sulphides for Photovoltaic Applications: Theoretical and Experimental Insights, *Journal of Materials Chemistry A*, **4**, 12648 (2016) doi: 10.1039/C6TA03376H
7. A. E. Maughan, **A. M. Ganose**, M. M. Bordelon, E. M. Miller, D. O. Scanlon, and J. R. Neilson, Defect Tolerance to Intolerance in the Vacancy Ordered Double Perovskite Semiconductors Cs_2SnI_6 and Cs_2TeI_2 , *Journal of the American Chemical Society*, **138**, 8453 (2016) doi: 10.1021/jacs.6b03207
8. N. F. Quackenbush, H. Paik, M. J. Wahila, S. Sallis, M. E. Holtz, X. Huang, **A. M. Ganose**, B. J. Morgan, D. O. Scanlon, Y. Gu, F. Xue, L.-Q. Chen, G. E. Sterbinsky, C. Schlueter, T.-L. Lee, J. C. Woicik, J.-H. Guo, J. D. Brock, D. A. Muller, D. A. Arena, D. G. Schlom, and L. F. J. Piper, The stability of the M2 phase of vanadium dioxide induced by coherent epitaxial strain, *Physical Review B*, **94**, 085105 (2016) doi: 10.1103/PhysRevB.94.085105
9. **A. M. Ganose**, M. Cuff, K. T. Butler, A. Walsh and D. O. Scanlon, Interplay of Orbital and Relativistic Effects in Bismuth Oxyhalides: BiOF , BiOCl , BiOBr and BiOI , *Chemistry of Materials*, **28**, 1980 (2016) doi: 10.1021/acs.chemmater.6b00349
10. W. Travis, C. Knapp, C. N. Savory, **A. M. Ganose**, P. Kafourou, X. Song, Z. Sharif, J. K. Cockcroft, D. O. Scanlon, H. Bronstein and R. G. Palgrave, Hybrid Organic–Inorganic Coordination Complexes as Tunable Optical Response Materials, *Inorganic Chemistry*, **55**, 3393 (2016) doi: 10.1021/acs.inorgchem.5b02749
11. **A. M. Ganose**, K. T. Butler, A. Walsh and D. O. Scanlon, Relativistic Electronic Structure and Band Alignment of BiSI and BiSeI : Candidate Photovoltaic Materials, *Journal of Materials Chemistry A*, **4**, 2060 (2016) doi: 10.1039/C5TA09612J
12. Y. Hu, N. Goodeal, Y. Chen, **A. M. Ganose**, R. G. Palgrave, H. Bronstein, M. O. Blunt, Probing the chemical structure of monolayer covalent-organic frameworks grown via Schiff-base condensation reactions, *Chemical Communications*, **52**, 9941–9944 (2016)
13. **A. M. Ganose** and D. O. Scanlon, Band gap and work function tailoring of SnO_2 for improved transparent conducting ability in photovoltaics, *Journal of Materials Chemistry C*, **4**, 1467 (2016) doi: 10.1039/C5TC04089B
14. **A. M. Ganose**, C. N. Savory and D. O. Scanlon, $(\text{CH}_3\text{NH}_3)_2\text{Pb}(\text{SCN})_2\text{I}_2$: a more stable structural motif for hybrid halide photovoltaics?, *Journal of Physical Chemistry Letters*, **6**, 4594 (2015) doi: 10.1021/acs.jpcclett.5b02177
15. C. I. Hiley, D. O. Scanlon, A. A. Sokol, S. M. Woodley, **A. M. Ganose**, S. Angio, J. M. De Teresa, P. Manuel, D. D. Khalyavin, M. Walker, M. R. Lees, and R. I. Walton, Antiferromagnetism at $T > 500\text{K}$ in the layered hexagonal ruthenate SrRu_2O_6 , *Physical Review B*, **92**, 104413 (2015) doi: 10.1103/PhysRevB.92.104413

Conference Presentations (Oral) (2016 – present)

1. **Contributed A. M. Ganose** “Non-toxic and earth-abundant bismuth chalcogenide photovoltaics”, *CAM-IES*, London, UK, (2017)
2. **Contributed A. M. Ganose** “Non-toxic and earth-abundant V–VI–VII semiconductors for solar cells”, *E-MRS Spring Meeting*, Strasbourg, France, (2016)
3. **Contributed A. M. Ganose** “Beyond MAPbI₃: the search for stable hybrid halide perovskites”, *E-MRS Spring Meeting*, Strasbourg, France, (2016)
4. **Contributed A. M. Ganose** “Tuning the band gap of SnO₂ for improved transparent conducting oxide properties in photovoltaics”, *Material Chemistry Consortium Conference*, Cardiff, UK (2016)
5. **Contributed A. M. Ganose** “(CH₃NH₃)₂Pb(SCN)₂I₂: a new more stable structural motif for hybrid halide photovoltaics?”, *RSC Next Generation Materials for Solar Photovoltaics*, London, UK (2016).
6. **Contributed A. M. Ganose** “The search for non-toxic and earth-abundant solar absorbers”, *SuperSolar Hub – Winter Technical Meeting*, London, UK (2016)

Work History

Imanova Centre for Imaging Sciences, June – September 2013

I created an electronic template of rodent CNS areas to integrate into the MCID imaging program and an automatic electronic weighing program for the laboratory balances. Additionally, I worked closely with the image analysis team to optimise MRI scan images.

Apple, August 2011 – August 2012

I was responsible for repairing damaged mobile devices including both hardware and software issues. In this position there was a strong emphasis on time management, as we had a large number of customers to see per hour and any delays caused immediate backlogs.

Manchester University, June 2009

Research assistant in the department of life sciences.

Other Skills

Proficient at programming in Python, C++/Java/bash and using the command line.
Experience using the LaTeX typesetting system.

Interests

Active member of the UCL Chemical and Physical Society.
Contributing to open source programming projects.
Keen interest in music, technology and literature.

References

PhD Supervisor

Dr. David Scanlon
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Masters Project Supervisor

Dr. Hugo Bronstein
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