

CONTACT

Dr. Andrew Preston
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EXPERIENCE

Publons

2011 –

Founder and architect

An attempt to decouple the peer-review system from journals by allowing academics to review, rate, and discuss *any* journal article, no matter where published.

- Built with python, django, javascript, and jQuery
- Backend includes a scraper capable of parsing dozens of major journals websites, regex-based search, author name recognition libraries, *ℳc.*

Boston University

2009 – 2011

Postdoc

Beamline scientist at soft x-ray beamline X1B, National Synchrotron Light Source, Brookhaven National Lab

- Managed group of postdoctoral and PhD students
- Proposed, designed, and performed experiments at X1B, at the Advanced Light Source, and at MAXlab
- Studied the electronic structure of novel materials using angle resolved photoemission spectroscopy and x-ray absorption and resonant x-ray emission spectroscopy

Victoria University of Wellington

2006 – 2009

PhD

Used a range of techniques to elucidate the electronic structure of the bulk of the rare-earth nitrides

- Crystal growth: thermal evaporation and pulsed laser deposition
- Sample characterization: XRD, RHEED, RBS, SQUID *ℳc.*
- Calculated electronic structures using both density functional and Hartree-Fock approximations
- Electronic structure measurements: temperature dependent optical and electrical conductivity, soft x-ray absorption and emission spectroscopy

EDUCATION

Victoria University of Wellington, Wellington, NZ

PhD, School of Chemical and Physical Sciences, January 2010

Topic: Electronic structure of the rare-earth nitrides

Advisor: Dr. Ben Ruck

BSc (HONS), Physics, November 2005

Also completed major requirements for Math and Economics

SKILLS

Software Engineering - Python, JavaScript, Matlab, Java, Mathematica, *ℳc.*

Data Analysis - Origin, Igor, gnuplot, *ℳc.*

Communication - Multiple journal articles and presentations

Physics - Soft x-ray spectroscopy, familiar with most other cond. matt. characterization techniques

PUBLICATIONS &
PRESENTATIONS

22. Phys. Rev. B **84**, 235120 (2011)
21. Phys. Rev. B **84**, 235111 (2011)
20. Phys. Rev. B **84**, 155103 (2011)
19. **A. R. H. Preston**, A. DeMasi, L. F. J. Piper, K. E. Smith, W. R. L. Lambrecht, A. Boonchun, T. Cheiwchanchamnangij, J. Arnemann, M. van Schilfgaarde, and B. J. Ruck
First-principles calculation of resonant x-ray emission spectra applied to ZnO
Phys. Rev. B **83**, 205106 (2011)
18. Phys. Rev. B **82**, 235103 (2010)
17. Phys. Rev. B **81**, 233305 (2010)
16. Appl. Phys. Lett. **96**, 071914 (2010)
14. **PhD thesis (2010)**
Electronic structure of the rare-earth nitrides
13. **A. R. H. Preston**, B. J. Ruck, W. R. L. Lambrecht, L. F. J. Piper, J. E. Downes, K. E. Smith, and H. J. Trodahl
Electronic band structure information of GdN extracted from x-ray absorption and emission spectroscopy
Appl. Phys. Lett. **96**, 032101 (2010)
9. Phys. Rev. B **79**, 054301 (2009)
7. Phys. Rev. B **78**, 174406 (2008)
6. **A. R. H. Preston**, B. J. Ruck, L. F. J. Piper, A. DeMasi, K. E. Smith, A. Schleife, F. Fuchs, F. Bechstedt, J. Chai, and S. M. Durbin
Band structure of ZnO from resonant x-ray emission spectroscopy
Phys. Rev. B **78**, 155114 (2008)
5. Phys. Rev. B **76**, 085211 (2007)
4. **A. R. H. Preston**, S. Granville, D. H. Housden, B. Ludbrook, B. J. Ruck, H. J. Trodahl, A. Bittar, G. V. M. Williams, J. E. Downes, A. DeMasi, Y. Zhang, K. E. Smith, and W. R. L. Lambrecht
Comparison between experiment and calculated band structures for DyN and SmN
Phys. Rev. B **76**, 245120 (2007)

Complete list of publications and presentations: preston.co.nz

REFEREES

Dr. Ben Ruck (ben.ruck@vuw.ac.nz)

PhD supervisor

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