Dr. Andrew R. H. Preston

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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 scraping dozens of major journals, regex-based search, author name recognition libraries, *&c.*

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 *&c.*
- 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, Mathematic, *&c.*
Data Analysis - Origin, Igor, *&c.*
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*)
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