

BARRY HAYCOCK

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PROFILE Computational Solid State Physicist. Currently employed in the Lewis Group in West Virginia University. An IRCSET Scholar.

EXPERIENCE **POSTDOC RESEARCH ASSISTANT**
West Virginia University, WV 26501 2011-Present

PH.D. STUDENT
Dublin Institute of Technology, Dublin, Ireland 2004-2011

EDUCATION **DUBLIN INSTITUTE OF TECHNOLOGY**
Dublin, Ireland — Ph.D. Physics, Successfully defended June 10th 2011

DUBLIN INSTITUTE OF TECHNOLOGY
Dublin Ireland — B.Sc. Physics & Physics Technology, 2004

INSTITUTE OF TECHNOLOGY, TALLAGHT
Dublin, Ireland — Higher Diploma, Physics & Instrumentations, 2002

INSTITUTE OF TECHNOLOGY, TALLAGHT
Dublin, Ireland — Higher Certificate, Physics & Instrumentations, 2001

TERENURE COLLEGE.
Dublin, Ireland — Leaving Certificate, 1999.

CURRENT COLLABORATIONS José Ortega (Universidad Autonoma de Madrid), Pavel Jelinek and Prokop Hapala (Czech Academy of Sciences), Talat Rahman, (UC Florida) developments to local-orbital density-functional based electronic-structure code (**FIREBALL**).

Christopher Matranga (NIST, Pittsburgh), Delafossite Materials.

Karl Johnson (University of Pittsburgh), Metal Oxide Frameworks.

PUBLICATIONS **B.. Haycock**, D. G. Trabada, J. Ortega, J.D. O'Mahony, and J.P. Lewis, 2011, "Metalization of the K-overlayer on the β -SiC(100) c(4X2) Surface," *J. Phys. Cond. Matter* (Submitted June 2012)

B. Haycock, D. G. Trabada, J. Ortega, J.D. O'Mahony, and J.P. Lewis, 2011, "Soft phonon effects on the electronic structure of the silicon-poor 3C-SiC(111) and 6H-SiC(0001) surfaces," *Phys. Rev. Lett.* (Submitted August 2012)

B. Haycock, M.K. Underwood, J. Lekse, C. Matranga, and J.P. Lewis, "High Throughput Calculations of Transparent Conducting Oxide $\text{CuGa}_{1-x}\text{Fe}_x\text{O}_2$ Delafossite structures", 2012(In preparation)

M.K. Underwood, **B. Haycock**, J. Lekse, C. Matranga, and J. P. Lewis^{†,*}, "Strain-Induced Photoabsorption in Transparent Conducting Oxide $\text{CuGa}_{1-x}\text{Fe}_x\text{O}_2$ Delafossites" 2012 (In preparation)

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B. Haycock, J. Ortega, and Lewis, J. P. (2011), “Failure of potassium dimer formation on the β -SiC(100)-c(4×2) surface.” *physica status solidi (b)*, **248**: 2072–2075. doi: 10.1002/pssb.201147170

Lewis, J. P., Jelínek, P., Ortega, J., Demkov, A. A., Trabada, D. G., **Haycock, B.**, Wang, H., Adams, G., Tomfohr, J. K., Abad, E., Wang, H. and Drabold, D. A. (2011), “Advances and applications in the FIREBALL *ab-initio* tight-binding molecular-dynamics formalism.” *physica status solidi (b)*, **248**: 1989–2007. doi: 10.1002/pssb.201147259

PRESENTATIONS

Hosted “FIREBALL World Congress” for developers of *ab-initio* MD code in the University of Central Florida, Orlando, June 18th -21st 2012. Chaired all scientific sessions and planning meeting, delivered 10 hours of technical lectures (2 sessions per day).

WVU High Performance Computing Summer Institute, May 14 – 18, 2012, talk “Introduction to the FIREBALL *ab-initio* MD package”

American Physical Society, March Meeting, Dallas, March 2011, talk, “K-Induced Semiconducting to Metallic Transition on the β -SiC(100) c(4x2) Surface”

American Physical Society, March Meeting, New Orleans, March 2008, talk, “Computational Atomic Structure of the Si(111)-4x1-In System”

Condensed Matter and Materials Physics(CMMP) Conference.,April 2007, talk, “RAS Calculation of Metallic Overlayers on Silicon”

I.O.P Spring Weekend, Birr Castle, Ireland, March 2006 poster “Computational results of the In-Si(111) Surface”

SKILLS / AWARDS

IRCSET Scholarship 2005 (Irish Research Council for Science Education and Technology). First awardee in Physics in DIT to receive this prestigious award.

FOCAS Award for academic achievement, 2004.

LIS Award for academic achievement, 2001/2002.

OTHER INFORMATION

Active mentor of the high school robotics team Mountain Area Robotics Society (MARS). The team qualified for the World Championships 2010 in Atlanta Georgia and the 2012 World Championships.

Services include: Peer review of papers for *Physica Status Solidi* and *The Journal of Physical Chemistry*.

As a coordinator of the FIREBALL package development, I maintain a strong relationship with all developers with regular updates and Gantt-Charts to keep momentum on the project.

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REFERRALS

Prof. Jose Ortega
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E-28049, Madrid, Spain
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Prof. James P. Lewis,
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