

Biographical Sketch

Derek Stewart

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Professional Preparation

University of Tennessee – Chattanooga, TN	Physics (Magna Cum Laude)	B. S. 1996
University of Virginia, Charlottesville, VA	Engineering Physics	M. S. 1998
University of Virginia/Oak Ridge Natl. Lab	Physics	Ph.D. 2001
Sandia Natl. Labs, Livermore, CA (Post-doc)	Nanoscale Transport	2001-2004

Research and Professional Experience

Senior Research Associate, Cornell Nanoscale Science and Technology Facility	2009-present
Scientific Computation Research Associate, Cornell Nanoscale Science and Technology Facility	2004-2009
Postdoctoral Research Associate, Sandia Natl. Laboratories, Livermore, CA	2001 - 2004.

Selected Publications

- A. Ward, D. A. Broido, **D. A. Stewart**, G. Deinzer, “*Ab-initio theory of the lattice thermal conductivity of diamond*”, **Physical Review B****80**, Editor’s Selection, 125203 (2009).
- D. A. Stewart**, I. Savić, and N. Mingo, “*The role of isotopes in the thermal conductivity of boron nitride nanotubes*”, **Nano Letters**, **9**, 81 (2009).
- K. A. Mkhoyan, A. W. Contryman, J. Silcox, **D. A. Stewart**, G. Eda, and M. Chhowalla, “*Atomic structure, bonds, and electronic properties of graphene-oxide films measured by STEM and Electron Energy Loss Spectroscopy*”, **Nano Letters**, **9**, 1058 (2009).
- I. Savić, N. Mingo, and **D. A. Stewart**, “*Phonon transport in isotope-disordered carbon and boron-nitride nanotubes: is localization observable?*”, **Physical Review Letters**, **101**, 165502 (2008).
- N. Mingo, **D. A. Stewart**, D. A. Broido, and D. Srivastava, “*Phonon transmission through defects in carbon nanotubes from first principles*”, **Physical Review B**, **77**, 033418 (2008).
- D. A. Broido, M. Malorny, G. Birner, N. Mingo, and **D. A. Stewart**, “*Intrinsic lattice thermal conductivity of semiconductors from first principles*”, **Applied Physics Letters**, **91**, 231922 (2007).
- E. Y. Tsymbal, K. D. Belashchenko, J. P. Velev, S. S. Jaswal, M. van Schilfgaarde, I. I. Oleinik, and **D. A. Stewart**, “*Interface effects in spin-dependent tunneling*”, **Progress in Materials Science**, **52**, 401 (2007).
- D. A. Stewart** and F. Léonard, “*Energy Conversion Efficiency in Nanotube Optoelectronics*”, **Nano Letters**, **5**, 219 (2005).
- S. Faleev, F. Léonard, **D. A. Stewart**, and M. van Schilfgaarde, “*Ab-initio TB-LMTO method for non-equilibrium electron transport in nanosystems*”, **Phys. Rev. B**, **71**, 195422 (2005).
- J. Velev, K. D. Belashchenko, **D. A. Stewart**, M. van Schilfgaarde, S. S. Jaswal, and E. Y. Tsymbal, “*Negative spin polarization and large tunneling magnetoresistance in epitaxial Co/SrTiO₃/Co magnetic tunnel junctions*”, **Phys. Rev. Lett.**, **95**, 216601, (2005).

Synergistic Activities

- **Organizer** of the **2005 Cornell Nanoscale Facility Fall Workshop**
“Modeling the Nanoscale World”, Oct. 10-12th, 2005
- **Organizer** of the **2006 Cornell Nanoscale Facility Fall Workshop**
“Building Nanostructures Bit by Bit.” Oct. 23rd-25th, 2006
- **Organizer** of the **2007 Cornell Nanoscale Facility Fall Workshop**
“Defining the Interface between Nanoscience & Geology”, Nov. 12th-13th, 2007
These workshops provided participants with detailed introductions to modeling tools for nanoscale research as well as hands-on introductions to specific codes.
- **Co-organizer** of the **2009 CECAM Symposium**, "Thermoelectric Transport: progress in first principles and other approaches and interplay with experiment", July 22-24, 2009
- **Mentor** for undergraduate Nathan Ridling (North Georgia College and State University) summer 2005 REU program hosted by the Cornell Nanoscale Facility. Research project: *Input file translator for information exchange between different density functional codes.*
- **Mentor** for undergraduate Prem Vuppuluri (University of Portland) summer 2007 REU program hosted by the Cornell Nanoscale Facility. *Thermal transport in silicon nanowires.*
- **Mentor** for undergraduate Garron Deshazer (Emory University) summer 2008 REU program hosted by the Cornell Nanoscale Facility. Research Project: *Nanoscale heat conduction at interfaces*

Collaborators and Other Affiliations

Collaborators

Dr. D. A. Broido, Boston College
Dr. N. Mingo, UC Santa Cruz/ CEA-Grenoble
Dr. I. Savic, CEA-Grenoble
Dr. J. Silcox, Cornell University
Dr. S. Faleev, Sandia National Lab
Dr. E. Y. Tsybmal, University of Nebraska
Dr. K. D. Belaschenko, University of Nebraska
Dr. S. S. Jaswal, University of Nebraska
Dr. I. I. Oleynik, University of South Florida
Dr. D. Srivastava, UC Santa Cruz
Dr. M. Malorny, Dr. G. Birner, and Dr. G. Deinzer, University of Regensburg, Germany

Dr. P. E. Hopkins, Sandia National Labs
Dr. M. Chhowalla, Rutgers University
Dr. X.-G. Zhang, ORNL
Dr. J. Velev, University of Nebraska
Dr. A. Mkhoyan, University of Minnesota

Graduate and Postdoctoral Advisors

Graduate Advisor (M. S.): Dr. Pamela Norris, University of Virginia
Graduate Advisor (Ph. D.): Dr. John Ruvalds, University of Virginia
Graduate Advisor (Ph. D.): Dr. William Butler, Oak Ridge National Laboratory
Postdoctoral Advisor: Dr. Mark van Schilfgaarde, Arizona State
Postdoctoral Advisor: Dr. François Léonard, Sandia National Laboratories

Former Students I have mentored or served on Dissertation Committees

Eric Yu (M. E. Electrical Engineering, Cornell University)
Alistair Ward (Ph.D, Physics, Boston College)