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Andrew McAllister

Curriculum Vitae

Education

2012–Present **PhD in Applied Physics**, *University of Michigan*, Ann Arbor, MI.
Advisor: Emmanouil Kioupakis
Expected Graduation: Summer 2018

2008–2012 **B.S. in Physics**, *Rensselaer Polytechnic Institute*, Troy, NY.
Dual major in mathematics

Work Experience

2012-Present **Graduate Student Researcher**, *University of Michigan*, Ann Arbor, MI.

June-August 2013 **Computational Chemistry and Materials Science Fellow**, *Lawrence Livermore National Laboratory*, Livermore, CA.

2011-2012 **Undergraduate Research Assistant**, *Rensselaer Polytechnic Institute*, Troy, NY.

Awards

2014 National Science Foundation Graduate Research Fellowship Program

2012 Nadia Trinkala Service Award, RPI Physics Department

2011 Pi Mu Epsilon, Mathematics Honor Society

2010 Rensselaer Polytechnic Institute Founder's Award of Excellence

2008 Boy Scouts of America, Eagle Scout

Public Engagement

2018 **Skype a Scientist**.
More information on my blog, here.

2017 **Nerd Nite Ann Arbor Talk**.
LED Light Bulbs: Why Do They Cost an Arm and a Leg?

2016 **Researchers Expanding Lay-Audience Teaching and Engagement (RELATE) Workshops**.

- Communication Fundamentals Produced a YouTube video highlighting my research.
- Advanced Oral Communication

2013-2016 **American Society for Engineering Education**.
- President: 2014-2015

2008-2012 **Society of Physics Students**.
- President: 2009-2011

Writing and Editing

2018 **Using LEDs to Tell Plants What We Want From Them**.
Worked on as part of "Friends of Joe's Big Idea" Program, accepted at Harvard's *Science in the News* blog and being edited for publication there.

2017 **Press Release for Research Group**.
Picked up by the DOE, NERSC, EurekaAlert! and Semiconductor Today

2017-Present **Senior Editor**, *Students of Applied Physics Project, Applied Physics Student Council*.
I develop and edit articles that PhD students write about each other's research. Example article

2016-Present **Content Editor and Writer for Michigan Science Writers**.
How Gecko Feet Will Make Your Next Move Easier

Teaching Experience

At the University of Michigan:

April 2015 Flow in Technical Writing Workshop

October 2014 Introduction to Mathematica Workshop

April 2014 Introduction to LaTeX Workshop

At Rensselaer Polytechnic Institute:

Spring 2012 Teaching Assistant, Physics 4100 - Introductory Quantum Mechanics

Fall 2011 Teaching Assistant, Physics 2961 - Modern Physics

Fall 2011 Grader, Math 4400 - Ordinary Differential Equations

Spring 2011 Teaching Assistant, Physics 1200 - Introductory Electromagnetism

Fall 2010 Teaching Assistant, Physics 1200 - Introductory Electromagnetism

Other Education Experiences

Winter 2018 **Public Policy 650 - Introduction to Science and Technology Policy Analysis**, *University of Michigan*.

August 2017 **ComSciCon Chicago**, *Chicago, IL*.

Fall 2016 **Engineering 580 - Teaching Engineering**, *University of Michigan*.

Professional Memberships

American Association for the Advancement of Science

American Physical Society

American Society for Engineering Education

Materials Research Society

Society for Social Studies of Science

Publications

1. Jimmy-Xuan Shen, Daniel Steiauf, **Andrew McAllister**, Guangsha Shi, Emmanouil Kioupakis, Anderson Janotti, and Chris Van de Walle, Impact of phonons and spin-orbit coupling on Auger recombination in InAs, *submitted*
2. **Andrew McAllister**, Dylan Bayerl, Emmanouil Kioupakis, Auger and radiative recombination in indium nitride, *Applied Physics Letters*, *Accepted*
3. Kyeongwoon Chung, **Andrew McAllister**, David Bilby, Bong-Gi Kim, Min Sang Kwon, Emmanouil Kioupakis, Jinsang Kim, Designing interchain and intrachain properties of conjugated polymers for latent optical information encoding, *Chemical Science* **6**, 6980-6985 (2015) doi:10.1039/c5sc02403j
4. **Andrew McAllister**, Daniel Åberg, André Schleife, and Emmanouil Kioupakis, Auger recombination in sodium-iodide scintillators from first principles, *Applied Physics Letters* **106**, 141901 (2015) doi:10.1063/1.4914500
5. Daniel Recht, David Hutchinson, Thomas Cruson, Anthony DiFranzo, **Andrew McAllister**, Aurore J. Said, Jeffrey M. Warrender, Peter D. Persans, and Michael J. Aziz, Contactless Microwave Measurements of Photoconductivity in Silicon Hyperdoped with Chalcogens, *Applied Physics Express* **5**, 041301 (2012) doi:10.1143/apex.5041301

Presentations

Contributed

1. **Andrew McAllister**, Dylan Bayerl, Christina Jones, Emmanouil Kioupakis, Auger Recombination From First-principles in Group-III Nitride Alloys, American Physical Society March Meeting 2018, Los Angeles, CA
2. **Andrew McAllister**, Dylan Bayerl, Emmanouil Kioupakis, Auger Recombination in Group-III Nitrides from First Principles, Materials Research Society Fall Meeting, 2017, Boston, MA
3. **Andrew McAllister**, Dylan Bayerl, Emmanouil Kioupakis, Radiative and Auger Recombination in InN, International Conference on Nitride Semiconductors, 2017, Strasbourg, France
4. **Andrew McAllister**, Dylan Bayerl, Emmanouil Kioupakis, Radiative and Auger Recombination of Degenerate Carriers in InN American Physical Society March Meeting, 2017, New Orleans, LA
5. **Andrew McAllister**, Emmanouil Kioupakis, Auger recombination in InN from first principles, American Physical Society March Meeting, 2016, Baltimore, MD
6. **Andrew McAllister**, Emmanouil Kioupakis, Daniel Åberg, Andreé Schleife, Auger recombination in scintillator materials from first principles, American Physical Society March Meeting, 2015, San Antonio, TX

7. **Andrew McAllister**, Predictive modeling of quantum processes for optoelectronic devices, Physics Graduate Student Symposium, 2014, Ann Arbor, MI
8. **Andrew McAllister**, Emmanouil Kioupakis, Daniel Åberg, Andreé Schleife, Auger recombination in sodium iodide, American Physical Society March Meeting, 2014, Denver, CO
9. **Andrew McAllister**, Computational Modeling of Auger Recombination, Computational Chemistry and Materials Science Summer Institute, Livermore, CA, Lawrence Livermore National Laboratory

Poster

1. **Andrew McAllister**, Dylan Bayerl, Emmanouil Kioupakis Auger Recombination in Indium Nitride from First-Principles, Electronic Materials Conference, 2017, South Bend, IN
2. **Andrew McAllister**, Daniel Åberg, Emmanouil Kioupakis, André Schleife, Babak Sadigh, Computational modeling of Auger recombination in scintillators, Computational Chemistry and Materials Science Summer Institute, 2013, Livermore, CA

High-performance Computing Awards

2018 Electronic and optical properties of novel photovoltaic and thermoelectric materials from first-principles, National Energy Research Scientific Computing Center (5,000,000 hours). PI: Emmanouil Kioupakis

2017 Electronic and optical properties of novel photovoltaic and thermoelectric materials from first-principles, National Energy Research Scientific Computing Center (1,800,000 hours). PI: Emmanouil Kioupakis *Note: Award and project was the same as 2016*

2016 Electronic and optical properties of novel photovoltaic and thermoelectric materials from first-principles, National Energy Research Scientific Computing Center (1,800,000 hours). PI: Emmanouil Kioupakis

2015 Electronic and optical properties of novel photovoltaic and thermoelectric materials from first-principles, National Energy Research Scientific Computing Center (4,000,000 hours). PI: Emmanouil Kioupakis

Computer Skills

Programming: Fortran, Python, C++, Matlab, Shell, Git

High Performance Computing Codes: VASP, QuantumEspresso, Wannier90, BerkeleyGW

Other Software: LaTeX, Microsoft Office, Basic Knowledge of Adobe Illustrator and Adobe InDesign

Further details and proficiencies available on request.