
EDUCATION

- 2011 **Ph. D. in Physics**, Princeton University
Dissertation: *Optical Pumping and Spectroscopy of Alkali Vapors in Magnetic Fields*
([Dissertation link](#))
Advisor: Dr. William Happer
- 2006 **B. S. with Honors in Physics**, California Institute of Technology
Senior Thesis: *The Effects of Selective Doping on Electron Transport in Two-Dimensional Electron Gases*
Advisor: Dr. James Eisenstein

PROFESSIONAL APPOINTMENTS

- 2018– **Assistant professor** Yale-NUS College, Division of Science (Physics)
- 2016–2018 **Postdoctoral research fellow** University of Toronto, Department of Physics
Advisor: Dr. Joseph H. Thywissen
- 2015–2016 **Physicist** AOSense, Inc., Inertial Sensors Divison, Sunnyvale, CA
Supervisor: Dr. Michael R. Matthews
- 2011–2015 **Postdoctoral research associate** Rice University
Department of Physics & Astronomy and Rice Quantum Institute
Advisor: Dr. Randall G. Hulet

REFEREED PUBLICATIONS

9. *Observation of a Transition Between Dynamical Phases in a Quantum Degenerate Fermi Gas*
S. Smale, P. He, **B. A. Olsen**, K. G. Jackson, H. Sharum, S. Trotzky, J. Marino, A. M. Rey,
and J. H. Thywissen
in peer review, [arxiv:1806.11044](https://arxiv.org/abs/1806.11044)
8. *Observation of Quantum-Limited Spin Transport in Strongly Interacting Two-Dimensional Fermi Gases*
C. Luciuk, S. Smale, F. Böttcher, H. Sharum, **B. A. Olsen**, S. Trotzky, T. Enss, and
J. H. Thywissen
Physical Review Letters **118**, 130405 (2017) [doi:10.1103/PhysRevLett.118.130405](https://doi.org/10.1103/PhysRevLett.118.130405)
7. *1D to 3D Crossover of a Spin-Imbalanced Fermi Gas*
M. C. Revelle, J. A. Fry, **B. A. Olsen**, and R. G. Hulet
Physical Review Letters **117**, 235301 (2016) [doi:10.1103/PhysRevLett.117.235301](https://doi.org/10.1103/PhysRevLett.117.235301)
6. *Phase diagram of a strongly interacting spin-imbalanced Fermi gas*
B. A. Olsen, M. C. Revelle, J. A. Fry, D. E. Sheehy, and R. G. Hulet
Physical Review A **92**, 063616 (2015) [doi:10.1103/PhysRevA.92.063616](https://doi.org/10.1103/PhysRevA.92.063616)

5. *Spin-velocity correlations of optically pumped atoms*
R. Marsland III, B. H. McGuyer, **B. A. Olsen**, and W. Happer
Physical Review A **86**, 023404 (2012) [doi:10.1103/PhysRevA.86.023404](https://doi.org/10.1103/PhysRevA.86.023404)
4. *Cusp kernels for velocity-changing collisions*
B. H. McGuyer, R. Marsland III, **B. A. Olsen**, and W. Happer
Physical Review Letters **108**, 183202 (2012) [doi:10.1103/PhysRevLett.108.183202](https://doi.org/10.1103/PhysRevLett.108.183202)
3. *Optical pumping and spectroscopy of Cs vapor at high magnetic field*
B. A. Olsen, B. Patton, Y.-Y. Jau, and W. Happer
Physical Review A **84**, 063410 (2011) [doi:10.1103/PhysRevA.84.063410](https://doi.org/10.1103/PhysRevA.84.063410)
2. *Transfer of spin angular momentum from Cs vapor to nearby Cs salts through laser-induced spin currents*
K. Ishikawa, B. Patton, **B. A. Olsen**, Y.-Y. Jau, and W. Happer
Physical Review A **83**, 063410 (2011) [doi:10.1103/PhysRevA.83.063410](https://doi.org/10.1103/PhysRevA.83.063410)
1. *Temperature-insensitive laser frequency locking near absorption lines*
N. Kostinski, **B. A. Olsen**, R. Marsland III, B. H. McGuyer, and W. Happer
Review of Scientific Instruments **82**, 033114 (2011) [doi:10.1063/1.3574221](https://doi.org/10.1063/1.3574221)

STUDENTS MENTORED

- 2019 Rishav Koirala (Undergraduate student, Yale-NUS College)
Experimental physics research, Yale-NUS College
- 2019 Devendra Neupane (Undergraduate student, Yale-NUS College)
Experimental physics research, Yale-NUS College
- 2019 Tabitha Carter (Undergraduate student, Yale-NUS College)
Experimental physics research, Yale-NUS College
- 2019 Varun Narayan (Secondary student, Singapore American School)
Physics directed reading, Yale-NUS College
- 2018–2019 Vanessa Koh (Undergraduate student, Yale-NUS College)
Physics capstone research co-supervisor, Yale-NUS College & Centre for Quantum Technologies, National University of Singapore
- 2017–2018 Wilson Wu (Undergraduate student, University of Toronto)
Physics Mentorship Program, University of Toronto ([Program link](#))
- 2016–2017 Edward Bredin (Undergraduate student, University of Toronto)
Physics Mentorship Program, University of Toronto
- 2013 Matthias Schmitt (Graduate Student, University of Stuttgart)
Summer Research, Rice University
- 2012 Chris Akers (Undergraduate student, Texas A&M University)
Summer Research, Rice University

TEACHING EXPERIENCE

- 2019 **Instructor** YSC2214: *Introduction to Optics & Imaging*
Yale-NUS College
- 2018 **Instructor** YCC2137: *Scientific Inquiry 2 (Common Curriculum)*
Yale-NUS College
- 2018–2019 **Director of curriculum and instruction**
Say STEM Camp, Tapia Center for Excellence & Equity
Rice University
- 2017 **Instructor** *Phy 326: Advanced Physics Laboratory*
University of Toronto
- 2016–2017 **Lead physics instructor & curriculum development**
Tapia STEM Camps, Tapia Center for Excellence & Equity
Rice University
- 2015 **Guest lecturer** *Physics 202: Modern Physics*
Rice University
- 2013–2015 **Guest lecturer** *Physics 311/312: Introduction To Quantum Physics I/II*
Rice University
- 2010–2011 **Assistant for instruction** *ISC 231: An Integrated, Quantitative Introduction to the Natural Sciences, Laboratory Section*
Princeton University
- 2009–2010 **Instructor** *Physics & Science Reasoning*
Princeton University Preparatory Program
- 2008–2014 **Freelance individual tutor**
Princeton, NJ
- 2005 **Teaching assistant** *Ph 6: Physics Laboratory*
California Institute of Technology
- 2005 **Teaching assistant** *Ph 5: Analog Electronics for Physicists*
California Institute of Technology

PRESS & AWARDS

- 2017 **Article: STEM Camps Showcase PBL**
National Science Teachers Association Reports, September, 2017 ([Article link](#))
- 2008 **American Physical Society DAMOP Meeting Student Travel Stipend**
- 2008 **Experimental NMR Conference Student Travel Stipend**
- 2005 **Dr. and Mrs. Peter S. Cross Summer Undergraduate Research Fellowship**
For research through the California Institute of Technology SURF program

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- Mar 2019 *Contributed Talk*—Fundamental Physics Using Atoms Workshop, OIST, Okinawa, Japan
- Oct 2018 *Physics Seminar*—National University of Singapore
- May 2018 *Contributed Poster*—American Physical Society DAMOP Meeting, Fort Lauderdale, FL
- Apr 2018 *Contributed Talk*—TUCAN Meeting, McMaster University, Hamilton, ON, Canada
- Mar 2018 *Contributed Talk*—American Physical Society March Meeting, Los Angeles, CA
- Mar 2018 *Atomic Physics Seminar*—California Institute of Technology, Pasadena, CA
- Feb 2018 *Physics Seminar*—Western Washington University, Bellingham, WA
- Feb 2018 *Physics Seminar*—Hofstra University, Hempstead, NY
- Feb 2018 *Seminar*—Centre for Quantum Technologies, Singapore
- Feb 2018 *Physics Seminar*—Yale-NUS College, Singapore
- Jan 2018 *Physics Seminar*—Eastern Washington University, Cheney, WA
- June 2017 *Contributed Talk*—American Physical Society DAMOP Meeting, Sacramento, CA
- May 2016 *Quantum Optics Seminar*—University of Toronto, ON, Canada
- Jun 2015 *Contributed Talk*—American Physical Society DAMOP Meeting, Columbus, OH
- Apr 2015 *Scientific Seminar*—AOSense, Inc., Sunnyvale, CA
- Mar 2015 *Contributed Talk*—American Physical Society March Meeting, San Antonio, TX
- Feb 2015 *Physics Colloquium*—Central Washington University, Ellensburg, WA
- Jan 2015 *Physics Colloquium*—Harvey Mudd College, Claremont, CA
- Jun 2014 *Contributed Talk*—American Physical Society DAMOP Meeting, Madison, WI
- Jun 2013 *Contributed Talk*—American Physical Society DAMOP Meeting, Québec City, Québec
- Jun 2011 *Contributed Talk*—American Physical Society DAMOP Meeting, Atlanta, GA
- May 2010 *Contributed Talk*—American Physical Society DAMOP Meeting, Houston, TX
- May 2009 *Contributed Talk*—American Physical Society DAMOP Meeting, Charlottesville, VA
- Mar 2009 *Contributed Poster*—Experimental NMR Conference, Pacific Grove, CA
- May 2008 *Contributed Talk*—American Physical Society DAMOP Meeting, State College, PA
- Mar 2008 *Contributed Poster*—Experimental NMR Conference, Pacific Grove, CA
- Nov 2005 *Contributed Talk*—Southern California Conference for Undergraduate Research, UC Riverside, Thousand Oaks, CA

PROFESSIONAL SERVICE

- 2016 **Reviewer**
Physical Review Letters—American Physical Society
- 2011 **Organizing committee member**
Canadian-American-Mexican Graduate Student Physics Conference
American Physical Society—Forum on Graduate Student Affairs
- 2010 **Travel grant committee chair**
American Physical Society—Forum on Graduate Student Affairs
- 2009–2010 **Member-at-large**
American Physical Society—Forum on Graduate Student Affairs

INSTITUTIONAL SERVICE

- Apr 2019 **Experience Yale-NUS Weekend**
Academic sampler classes for admitted students
- Nov 2018 **Yale-NUS Open House**
Interactive lesson on greenhouse gases, climate change, and laser spectroscopy
- Oct 2018 **Yale-NUS Science Society**
Special lecture on 2018 Nobel Prize in Physics
- 2010–2011 **Academic affairs committee chair**
Princeton University—Graduate Student Government
- 2009, 2010 **Graduate admissions committee member**
Princeton University—Department of Physics

PUBLIC OUTREACH

- 2017–2018 **Skype a Scientist**
Online with four middle/high school classes in the USA and Canada
- 2017, 2018 **Science Rendezvous**
University of Toronto, Toronto, ON, Canada
- 2017, 2018 **Let's Talk Science Challenge**
University of Toronto, Toronto, ON, Canada
- 2009–2011 **Quantum Mechanics for 8th Graders**
John Witherspoon Middle School, Princeton, NJ
- 2009, 2010 **North Jersey Regional Science Fair**
Rutgers University, New Brunswick, NJ