115 South 1400 East
Salt Lake City, UT 84112
jordan.gerton@utah.edu

Office Phone: 801-585-0068
Zoom Handle: https://utah.zoom.us/my/jmgerton
Group Website: www.physics.utah.edu/gertonlab

Ph.D. in Physics, *Rice University*, May 2001
Thesis Topic: Molecular Spectroscopy of Bose-Einstein Condensates (Randall G. Hulet)

B.S. (Cum Laude) in Engineering Physics, *University of Arizona*, May 1994

PROFESSIONAL EXPERIENCE

University of Utah	Professor of Physics & Astronomy	2021 – present
	Associate Professor of Physics & Astronomy	2011 – 2021
	Assistant Professor of Physics & Astronomy	2004 – 2011
	Adjunct Assistant Professor of Bioengineering	2005 – 2016
University of Texas	Visiting Professor of Physics	2019 – 2020
Caltech	Beckman Senior Research Fellow	2003 – 2004
	Postdoctoral Scholar	2001 – 2003
Smith College	Molecular Biology Summer Workshop	2003
Pomona College	Visiting Physics Instructor	2002
Rice University	Welch Fellow and Graduate Research Assistant	1995 – 2001

HONORS AND AWARDS

University of Utah	John R. Park Fellowship	2018
	Distinguished Teaching Award	2017
	NSF CAREER Award	2009
	Early Career Teaching Award	2009
	Cottrell Scholar Award	2007
Caltech	Beckman Senior Research Fellowship	2003
Rice University	Wilson Thesis Prize	2001
University of Arizona	Team Captain, Swimming	1993
	Outstanding Male Student Athlete	1993
	NCAA Division I All-American in Swimming	1991

ACADEMIC LEADERSHIP

- Director, Center for Science and Math Education, University of Utah — 2014 – 2022
- Cottrell Scholar Program Committee (Chair: 2023)
  Research Corporation for Science Advancement — 2020 – 2024
- Co-Chair, Student Services and Success working group
  Educational Futures Taskforce, University of Utah — 2018 – 2019
- Associate Chair, Department of Physics & Astronomy, University of Utah — 2016 – 2018

- Co-Founder and Co-Chair, Cottrell Scholars Collaborative National Graduate Teaching Assistant Workshop (Atlanta, GA) 2014 – 2019
- Co-Chair, Cottrell Scholars Collaborative Workshop on Building Authentic Partnerships between Minority Serving and Primarily White Institutions 2017 – 2018
- Science Advisory Committee
  Research Corporation for Science Advancement 2012 – 2018
- Chair, Crocker Science Center Design Committee 2013 – 2017
- Chair, Crocker Science Center Curriculum Committee 2013 – 2017
- Organizer and Chair, 13th International Conference for Near-Field Optics and Related Techniques (Snowbird, UT) 2012 – 2014
- Editorial Board Member, Nature Scientific Reports 2015 – 2016

PENDING AND PLANNED GRANTS

REU Site: An Inclusive Summer Research Program in Physics and Astronomy at the University of Utah. Co-PI with Tino Nyawelo (PI)
$1,011,181: *NSF REU Program* (recommended for funding) 2024-29

Nucleating STEM Education Research Communities with Professional development for Emerging Education Researchers. Listed as senior personnel for my role as a regular (paid) facilitator. PI is Scott Franklin from Rochester Institute of Technology.
$999,962: *NSF Building Capacity in STEM Education Research (BCSER)* 2024-27

CURRENT FUNDING

University of Utah Driving Change Learning Community grant. This was awarded to help facilitate a planning and self-study phase after the HHMI Driving Change initiative was rebooted in February 2021 after a 1-year pause due to COVID.
$60,000: *Howard Hughes Medical Institute Driving Change Initiative* 2021-

The Utah Collaborative for Equitable STEM Teaching. Co-PI with Holly Godsey and others.
$1,449,647: *NSF Noyce Scholars Track I* 2021-26

Cosmic Rays to Establish STEM Positive Identities in Refugees (CRESPIR). Co-PI with Tino Nyawelo (PI) and others. Extended through 2024.
$1,137,834: *NSF Advancing Informal STEM Learning (AISL)* 2020-23

REU Site: An Inclusive REU Program in Physics and Astronomy at the University of Utah. PI with Tino Nyawelo. Extended through 2024
$291k: *NSF REU Program* 2020-23

Utah Pathways to STEM (UPSTEM) Initiative. With Holly Godsey (UU CSME) and others.
$1M: *Howard Hughes Medical Institute Inclusive Excellence Initiative* 2017-24

EXPIRED FUNDING

Exploring Students' Learning of Data Analysis in a Three-Dimensional Lab Environment. Co-PI with Lauren Barth-Cohen (PI) & Claudia Di Grandi
$299k: *NSF IUSE program* 2020-23

Building a Branch from UPSTEM to the HSC: Co-Creating Infrastructure and Skills to Increase Student Diversity and Success in our Health Professional Schools. Collaborator with Janet Lindsley (School of Medicine - Project Owner) and others
$15k: *University of Utah 1U4U program* 2020-21

RAPID: The Impacts of Graduate Education Policies and Practices on the Success and Career Goals of Graduate Students in Physics & Astronomy. Co-PI with Ramón Barthelemy (PI) and Pearl Sandick
$198k: *NSF RAPID funding mechanism* 2020-21

How does grading student work impact the ability of LAs to facilitate productive learning? PI with Gina Frey (Co-PI) and Jess Cleeves
$17.5k: *UU College of Science and VPR Seed Grant program* 2020-21

Building Coherence in STEM Learning Opportunities for Pre-Service Elementary Teachers across Disciplinary Boundaries. Co-PI with Lauren Barth-Cohen (UU CoEd), and Aaron Bertram (UU Math).
$300k: *National Science Foundation (IUSE Program)* 2017-21

REU Site: An Inclusive REU Program in Physics and Astronomy at the University of Utah. PI with Tino Nyawelo. (No-cost extension through 2021.)
$343k: *National Science Foundation (REU Program)* 2017-20

Collaboration to Build Capacity for a Streamlined BS/MEd Program in Science Teacher Preparation, Induction and Mentoring. Co-PI with Holly Godsey (PI) and others.
$117k: *NSF Noyce program* 2019-20

Transforming Instruction in the College of Science through Learning Assistants. PI with Holly Godsey (CSME) and others.
$200k: *Course and Curriculum Transformation grant, CoS @ The U* 2018-20

Alliance to Strengthen the STEM Tapestry (ASSisT): Motivating Critical Identity Shifts to Weave the STEM Disenfranchised into Science and the Sustainability Workforce. Co-PI with Nalini Nadkarni (UU Biology) and others.
$300k: *National Science Foundation (INCLUDES Program)* 2017-19

Learning to Build Authentic Minority Serving Institution/Primarily White Institution Partnerships. Co-lead with Lisa Manning, Syracuse University.
$31k: *Research Corporation for Science Advancement* 2017-19

Development of practical tools for an inclusive STEM learning environment based on student views and recommendations. Collaborator. Lead: Linda Columbus (U Virginia).
$25k: *Research Corporation for Science Advancement* 2017-19

Graduate Teaching Assistant Professional Development Workshop. Co-PI with Mike Schatz (Georgia Tech Physics).
$34k: *National Science Foundation (IUSE Program)* 2016-19

Integrating Computation and Biology into Introductory Physics.
$10k: *John R. Park Teaching Fellowship*, University of Utah 2018-19

Research Experiences for Teachers supplement on REU site grant. PI.
$57k: *National Science Foundation (RET Supplement)* 2018

Promoting Adoption of Research and Inquiry-Based Lab Curricula. Collaborator with Jen Heemstra (UU Chemistry), Rory Waterman (Vermont Chemistry) and others.
$25k: *Research Corporation for Science Advancement* 2016-18

Collaborative Around Research Experiences for Teachers (CARET). Co-PI with John Keller (Cal Poly Physics) and others.
$30k: *Network of STEM Education Centers (NSF)* 2016-18

Mobilizing the Forgotten Army: Equipping TAs with Inquiry-Based Instruction Methods. Co-PI with Mike Schatz (Georgia Tech Physics).
$30k: *Research Corporation for Science Advancement* 2012-17

The "Goldilocks" Platform for Efficient H_2 Fuel Generation: Enhanced Solar-Matched Photocatalysis of H_2O using GaN Surface States. Co-PI with M. Bartl (UU Chemistry).
$250k: *Research Corporation for Science Advancement* 2013-16

Coherent Super-Resolution Optical Microscopy for Enhanced Image Resolution and Speed. Co-PI with R. Menon (UU ECE) and E. Jorgensen (UU Biology).
$396k: *National Science Foundation* 2013-16

CAREER: Tip-Enhanced Fluorescence Microscope for Resolving Single Molecules Within Dense Biomolecular Networks. Sole PI.
$732k: *National Science Foundation* 2009-14

Probing and Manipulating Individual Surface States on GaN Nanowires: Implications for Solar-Driven, Plasmon-Enhanced Water Splitting. Co-PI with P.J. Schuck (LBNL).
$30k: *UU MRSEC Seed Grant* 2012-13

Nanostructure of Chondritic Metereorites. Co-PI with B. Bromley (UU Physics) and I Ivans (UU Astronomy).
$28k: *UU Funding Incentive Seed Grant* 2012-13

Toward Nanoscale Microscopy and Manipulation of Functional Biomolecular Networks. Sole PI.
$100k: *Research Corporation for Science Advancement* 2007-10

Pressure-Induced Changes in the Optical Properties of Quantum Dots. Sole PI.
$35k: *UU Funding Incentive Seed Grant* 2008-09

High Resolution Spectroscopy and Microscopy Studies of the ESCRT Machinery Reconstituted on Planar Membranes. Co-PI with M. Babst (UU Biology) and J. Conboy (UU Chemistry).
$100k: *UU Synergy Interdisciplinary Research Grant* 2006-07

Nanoscience: Where Physics, Biology, and Chemistry Intersect. Co-PI with D. Goldenberg (UU Biology) and J. Shumaker-Parry (UU Chemistry).
$8k: *UU Interdisciplinary Teaching Award* 2006-07

Optical Nano-Imaging System. Sole PI.
$161k: *UU Research Instrumentation Fund* 2005-06

PROFESSIONAL ACTIVITIES

Recent Conferences/Workshops – Education Focused

- Professional Development for Emerging Education Researchers (PEER) Field School
  Facilitator: *Chicago, IL* DEC 2023
- Cottrell Scholars Conference annual meeting
  Member of organizing committee: *Tucson, AZ* JULY 2023
- Professional Development for Emerging Education Researchers (PEER) Field School
  Facilitator: *Rochester, NY* JUN 2023
- Professional Development for Emerging Education Researchers (PEER) Virtual Gateway
  Facilitator: *Virtual* MAR 2023
- Professional Development for Emerging Education Researchers (PEER) Field School
  Facilitator: *Chicago, IL* DEC 2022
- Professional Development for Emerging Education Researchers (PEER) Field School
  Participant: *Rochester, NY* JUN 2022
- Scholarship of Teaching and Learning Conference
  Participant and Presenter: *Davis, CA* DEC 2022
- Cottrell Scholars Conference annual meeting
  Member of organizing committee: *Tucson, AZ* JULY 2022
- The OpEd project workshop
  Participant: *New York, NY (virtual)* JAN 2021
- Center for the Improvement of Mentored Experiences in Research (CIMER) Entering Research workshop
  Participant: *Madison, WI (virtual)* JAN 2021
- Cottrell Scholars Conference annual meeting
  Presenter and member of organizing committee: *Tucson, AZ (virtual)* JULY 2020
- Courageous Conversations about Race
  Participant: *Brownsville, TX* FEB 2020
- American Association of Physics Teachers Summer Meeting
  Workshop organizer and presenter: *Provo, UT* JULY 2019
- Cottrell Scholars Conference annual meeting
  Member of organizing committee: *Tucson, AZ* JULY 2019
- Annual National Graduate Teaching Assistant Workshop
  Co-Chair and facilitator: *Atlanta, GA* MAY 2019
- Physics Teacher Education Coalition (PhysTEC) annual meeting
  Invited Panelist: Boston, MA MAR 2019
- American Association of Physics Teachers Winter Meeting
  Presenter: Houston, TX JAN 2019
- American Association of Physics Teachers Summer Meeting
  Presenter and session Chair: *Washington, DC* JULY 2018

- Cottrell Scholars Conference annual meeting
  Member of organizing committee: *Tucson* JULY 2018
- Network of STEM Education Centers (NSEC) National Conference
  Participant: Columbus, OH JUNE 2018
- Howard Hughes Medical Institute Inclusive Excellence Kickoff Meeting
  Invited Team Member: *Chevy Chase, MD* AUG 2017
- American Association of Physics Teachers Summer Meeting
  Participant: *Cincinnati* JULY 2017
- Cottrell Scholars Conference annual meeting
  Participant: *Tucson* JULY 2017
- Network of STEM Education Centers (NSEC) National Conference
  Participant: New Orleans JUNE 2017
- Accelerating Systemic Change Network workshop
  Participant: New Orleans JUNE 2017
- Annual National Graduate Teaching Assistant Workshop
  Co-Chair and facilitator: *Atlanta, GA* MAY 2017
- Faculty as Designers of Student Success: A Symposium on Teaching and Learning
  Invited panelist: *Salt Lake City* SEPT 2016
- American Association of Physics Teachers Summer meeting
  Participant: *Sacramento* JULY 2016
- Physics Education Research Conference Summer meeting
  Participant: *Sacramento* JULY 2016
- Cottrell Scholars Conference annual meeting
  Participant: *Tucson* JULY 2016
- STEM Center Toolkit Workshop - Network of STEM Education Centers (NSEC)
  Invited panelist: *San Antonio* JUNE 2016
- STEM Best Practices Conference
  Invited panelist: *Salt Lake City* JUNE 2016
- Implementing Effective Evaluation of Teaching Workshop
  Invited participant: *Laguna Beach* MAY 2016
- Cottrell Scholars Collaborative Academic Leadership Training workshop
  Invited participant: *Washington, DC* JAN 2016

<u>Conference/Workshop Organizing and Program Committees</u>

- 16th International Conference on Near-Field Optics and Related Techniques
  International Advisory Committee: *Victoria, BC, Canada (virtual)* AUG 2020
- Cottrell Scholars Conference annual meeting
  Presenter and member of organizing committee: *Tucson, AZ* JULY 2020
- 15th International Conference on Near-Field Optics and Related Techniques
  International Advisory Committee: *Troyes, France* AUG 2018
- 14th International Conference on Near-Field Optics and Related Techniques

International Advisory Committee: *Hamamatsu, Japan* SEPT 2016

- 12th International Conference on Near-Field Optics and Related Techniques
  Program Committee, Session Chair: *Donostia-San Sebastian, Spain* SEPT 2012
- 11th International Conference on Near-Field Optics and Related Techniques
  Program Committee, Session Chair: *Beijing, China* SEPT 2010
- 10th International Conference on Near-Field Optics and Related Techniques
  Program Committee, Session Chair: *Buenos Aires, Argentina* SEPT 2008
- NanoUtah 2012
  Program Committee, Session Chair: *Salt Lake City, Utah* OCT 2012
- Microscopy and Microanalysis Annual Meeting
  Symposium Chair: *Nashville, Tennessee* AUG 2011
- APS Four-Corners Regional Meeting
  Organizing Committee, Session Chair: *Ogden, Utah* OCT 2010
- IEEE-LEOS Summer Topical Meeting on Advanced Nanobiophotonics
  Organizing Committee, Session Chair: *Acapulco, Mexico* JUL 2008

Grant Review Committees/Panels

- Member, NSF Review Panel: Improving Undergraduate Science Education
- Member, NSF Review Panel: Instrument Development for Biological Research
- Member, NSF Review Panel: Major Research Instrumentation
- Member, DOE Review Panel: Early Career Award in Basic Energy Sciences
- Member, Proposal Review Board: Molecular Foundry, Lawrence Berkeley Lab
- Ad Hoc Reviewer: ACS Petroleum Research Fund
- Ad Hoc Reviewer: DOE SBIR Subtopic on Instrumentation for Scanning Probe Microscopy

Selected Science Literacy and Outreach Activities

- Mentor for middle and high-school students in the REFUGES after-school program for refugees: 2020-present
- The Physics of Slopestyle Skiing: NBC Learn video for Winter Olympics, 2014
- Science of Skiing: Google Hangout on Air with NBC Learn, 2014
- Physics Behind the Olympics - Slopestyle Skiing: two-hour event at The Leo, SLC, 2014
- The Physics of Freestyle: panel discussion in Park City, 2014
- Science Night: three-hour interactive event at Emerson Elementary, SLC, 2008 – 2014
- Phonographs and Lightning Rods: Old Tools for New Nanoscience: Science Night Live talk, SLC, 2010
- The Physics of SCUBA: Teaching What You Love. Cottrell Scholar Conference, Tucson, 2009
- The Lens: The Infinite and the Infinitesimal. Utah Symposium in Science and Literature, SLC, 2008
- Physics of SCUBA: 50-minute video produced in Hawaii for Gen Ed Physics class, 2007

- Seeing into the Nanoworld: Keynote lecture at the Salt Lake Valley Science and Engineering Fair, 2007

RECENT DEPARTMENT AND UNIVERSITY SERVICE

(P&A = PHYSICS AND ASTRONOMY; COS = COLLEGE OF SCIENCE)

- Chair, Honors Advising (Departmental Honors Liaison) 2023-pres
- Elected COS member, U of U Undergraduate Council 2023-pres
- Graduate Admissions Coordination Committee, P&A 2023-pres
- Teaching Assistant Committee, P&A 2023-pres
- PANDA Network Committee, P&A 2023-pres
- Teaching Excellence Committee, P&A 2020-22, 2023-pres
- Undergraduate Program and Recruitment Committee, P&A 2023-pres
- Chair, Career-line Faculty Search Committee, P&A 2021-2022
- Equity, Diversity & Inclusion Committee, COS 2020-2022
- Chair, Diversity and Inclusion Committee, P&A: 2020-2021
- Seven Year Graduate Program Review Committee, P&A: 2020-2021
- Teaching Excellence Committee, P&A: 2020-2022
- Undergraduate Program Reform Committee, P&A: 2020-2022
- Co-Chair, Student Success Work Group, UU Educational Futures Taskforce: 2018-2019
- Chair, Science and Math Education faculty cluster search: 2018-2019
- Undergraduate Program Committee, P&A: 2018-2019
- Chair, Ombuds Committee, P&A: 2018-2019
- Chair, Masters of Science for Secondary School Teachers committee: 2017-2022
- Chair, Professor of Educational Practice search committee, P&A: 2017-2018
- Math and Science Education faculty search committees, CoEd: 2015-2018
- College of Science Council: 2015-2019
- LEAP Policy Board 2017-2019
- Chair, REU Committee, P&A 2016-2019
- Policy Board, P&A 2009-12; 13-14; 16-18
- General Education Curriculum Committee: 2016–2019
- Sustainability Education Advisory Committee: 2016–2018
- Center for Cell and Genome Science Review Committee: 2014
- College of Science Dean's Search Committee: 2013–2014
- Physics & Astronomy Undergraduate Advisor Search Committee: 2013–2014
- University Academic Calendar Committee: 2013–2014
- Academic Senate: 2013–2016
- Director of Undergraduate Studies, P&A: 2010–12; 13–14
- Chair, Futures Committee, P&A: 2012–2013
- Chair, REU Committee, P&A: 2008–11; 16-22

- Director of Graduate Studies, P&A: 2008–2009
- Co-Chair, Biophysics Faculty Search Committee: 2007–2009
- Director, Science Instrumentation Track, PMST: 2005–2012
- Chair, Articulation and Curriculum Committee, COS: 2009

MENTORING

Current Graduate Students and Postdocs

- Sanduni Fernando — Physics PhD candidate – Nanophotonics

Former Graduate Students and Postdocs

- Jason May — Physics PhD – successfully defended in June 2022. Now a faculty member at West Virginia University
- Maoji Wang — Physics PhD– successfully defended in September 2021. Now a postdoc in Japan.
- Jason Martineau — Physics PhD – successfully defended in May 2019. Now a data scientist at Western Governor's University
- Lauren Simonsen — Physics PhD awarded in March 2019. Now a new mom in Texas since Summer 2019.
- Yuchen Yang: — Physics MS awarded March 2015. Now a Research Associate at UMass Medical School
- Carl Ebeling: — Physics PhD awarded December 2014. Now an R&D Scientist at Recursion Pharma in Salt Lake City
- Anil Ghimire: — Physics PhD awarded August 2014. Now an R&D Scientist at Keysight Technologies (formerly Agilent) in San Jose
- Analia G. "Yanil" Dall'Asén: — Postdoc (2010-2012). Now faculty at Minnesota State University Mankato
- Eyal Shafran: — Physics PhD Awarded July 2011. Now a data scientist at Western Governor's University
- Ben Mangum: — Physics PhD Awarded March 2010. Now an R&D scientist at Pacific Light Technologies in Portland, OR.
- Chun Mu: — Physics MS Awarded August 2010
- Ben Martin: — Physics MS Awarded December 2009
- Jonathan Cox: — Physics MS Awarded December 2006
- Changan Xie: — Postoc (June 2005 – June 2007)

High-School Students

- Michael Palmer — Rowland Hall student, June 2016 – June 2018

Recent Undergraduate Students

- William Grant — Physics student (SURP) May – August 2023
- Andrew Erickson — Physics student August 2022 - Present
- Molly Griston — REU student (University of Rochester) Summer 2021
- Morgan Adams — REU student (University of Rochester) Summer 2021
- Ashley Merrell — Physics UROP student May – August 2020
- Abigail Ambrose — REU student (Wooster) Summer 2018

- Brianna Montoya — Physics student (post-bac) September 2017 – July 2018
- Nina Filippova — REU student (Princeton) Summer 2017
- Tim Allen — Physics student July 2015 – June 2017
- Sophia Dimas Mahoney: — Physics student January 2012 – June 2015
- Mary Harges: — Physics student June 2013 – June 2014
- Laurel Anderson: — Physics REU student (Dartmouth) Summer 2013
- Sarah Tyler: — Chemistry student October 2012 – August 2013
- Abigail Krueger: — Physics REU student (Purdue) Summer 2013
- Sara Mitchell: — Physics student October 2012 – May 2013
- Jason Martineau — Physics student January 2011 – May 2012
- Cassandra Hammons: — Physics student May 2010 – May 2012
- Benjamin Tessler: — MRSEC REU student (U. of Florida) Summer 2012
- Jessica Johnston: — Physics student December 2008 – July 2012
- Charles McGuire: — Physics student December 2008 – July 2012
- Bhuwan Ghimire: — Physics REU student (Westminster U.) Summer 2011

TEACHING

- PHYS 2010: General Physics I (Spring 2024)
- SCI 3900/HON 3990: Being Human in STEM (Spring 2024)
- PHYS 4010: Physics V – Intermediate E&M and QM (Fall 2023)
- PHYS 2210: Introductory Physics for Scientists and Engineers (Spring 2012, Spring 2013, Spring 2014, Fall 2015, Spring 2017, Spring 2022)
- PHYS 2025: General Physics II laboratory (Fall 2020)
- PHYS 2015: General Physics I laboratory (Spring 2018, Fall 2018, Spring 2019)
- PHYS/ECE 3740: Introduction to Relativity and Quantum Mechanics (Fall 2010, Fall 2011)
- PHYS/BIOL 5285: Biological Microscopy Laboratory (Spring 2011)
- PHYS 7910/BIOL 7406: Single Molecule Biophysics Seminar (Fall 2008)
- PHYS 5810/CHEM 5810/BIOL 5810: Nanoscience: Where Biology, Chemistry, and Physics Intersect (Spring 2007, Spring 2008, Spring 2009, Spring 2010)
- PHYS 1010: The Way Things Work: Elementary Physics (Spring 2006, Fall 2006, Fall 2007, Fall 2008)
- PHYS 3719: Advanced Undergraduate Modern Physics Laboratory (Fall 2004, Fall 2005)

PEER-REVIEWED PUBLICATIONS

In Preparation/Review

- Promoting Sensemaking in Introductory Physics Labs. Under revision at The Physics Teacher. Barth-Cohen L, Davenport K, Gerton J, Hahn K, May J. (alphabetical order) 2023.
- Modern Physics: Understanding the Content Taught in the U.S. Buzzell A, Gerton J, Atherton T, Barthelemy R. Under review at Physical Review Physics Education Research. 2024.

- Quantum Curriculum in the US: How much coursework in Quantum Mechanics is expected for completion of a four year physics degree? Buzzell A, Gerton J, Atherton T, Barthelemy R. Under review at Physical Review Physics Education Research. 2024.

Published

- Chernoff information for creating maximally distinctive engineered point spread functions for multi-color single molecule imaging. Fernando S, Martineau J, Erikson A, Davis A, Bromley B, Jorgensen E, Gerton J. SPIE Photonics West BiOS. 2024.
- Simultaneous spectral differentiation of multiple fluorophores in super-resolution imaging using a glass phase plate. Fernando S, Martineau J, Hobson R, Vu T, Baker B, Mueller B, Menon R, Jorgensen E, and Gerton J. Optics Express. 2023; 31(20):33565-33581. DOI: https://doi.org/10.1364/OE.499929
- Two-Color Fixed Cell Imaging Using Engineered Point Spread Functions – XPSF Family. Fernando S, Martineau J, Hobson R, Jorgensen E, Gerton J. Microsc. Microanal. 2022; 28 (S1). DOI: https://doi.org/10.1017/S1431927622006286
- Graduate program reform in one department of physics and astronomy: From tragedy to more progressive policies and an evolving culture. R. Barthelemy, M. Lenz, A. Knaub, J.M. Gerton, and P. Sandick. *Physical Review Physics Education Research*. **19** (2023). DOI: 10.1103/PhysRevPhysEducRes.19.010102
- Student sensemaking about inconsistencies in a reform-based introductory physics lab. J.M. May, L. Barth-Cohen, J.M. Gerton, C. De Grandi, and A. Adams. *Physical Review Physics Education Research*. **18** (2023). DOI: 10.1103/PhysRevPhysEducRes.18.020134
- Bringing Three-Dimensional Learning to Undergraduate Physics: Insight from an Introductory Physics Laboratory Course. J.M. May, C. De Grandi, , L. Barth-Cohen, A. Beehler, and B. Montoya. *Am. J. Phys.* **90**: 452 (2022).
- Spectral signatures of transverse optical modes in semiconductor nanowires. M. Wang, L. Richey-Simonsen, and J.M. Gerton. *Optica* **8**: 42-49 (2021).
- Heterogeneous Optoelectronic Characteristics of Si Micropillar Arrays Fabricated by Metal-Assisted Chemical Etching. Y. Qian, D.J. Magginetti, S. Jeon, Y. Yoon, T.L. Olsen, M. Wang, J.M. Gerton, and H.P. Yoon. *Nature Scientific Reports.* **10**: 16349 (2020).
- Students' dynamic engagement with experimental data in a physics laboratory setting. J.M. May, L.A. Barth-Cohen, J.M. Gerton, and C. De Grandi. *Proceedings of the 2020 Physics Education Research Conference* (2020).
- A Proposed Method for Optimizing the Spectral Discernibility of Engineered Point-spread Functions for Localization Microscopy. J.T. Martineau, R. Menon, E.M. Jorgensen, J.M. Gerton, *Microscopy and Microanalysis*. **25**(S2): 1232-1233 (2019).
- Models and Impacts of Science Research Experiences: A Review of the Literature of CUREs, UREs, and TREs. J. Krim, L. Cote, R. Schwartz, E. Stone, J. Cleeves, K. Barry, S. Buxner, J. Gerton, L. Horvath, J. Keller, S.C. Lee, S. Locke, B. Rebar, and W. Burgess, *CBE - Life Sciences Education* **18**(4) (2019).
- Precisely Localizing Wavelength Sensitive Point-Spread Functions Engineered With a Silicon Oxide Phase Plate. J.T. Martineau, R. Menon, E.M. Jorgensen, J.M. Gerton, *Microscopy and Microanalysis*. **24**(S1): 1364-1365 (2018).

- Interference based localization of single emitters. A. Meiri, C.G. Ebeling, J. Martineau, Z. Zalevsky, J.M. Gerton, and R. Menon, *Optics Express*. **25** 17174-17191 (2017).
- Investigating Surface Effects of GaN Nanowires Using Confocal Microscopy at Below-Band Gap Excitation. L. Richey-Simonsen, N. Borys, T. Kuykendall, P.J. Schuck, S. Aloni, and J.M. Gerton, *Journal of Materials Research*. (2017).
- Mapping the composition of chondritic meteorite Northwest Africa 3118 with micro-Raman spectroscopy. A.G. Dall'Asén, S.I. Dimas, S. Tyler, J.S. Johnston, T.R. Anderton, I.I. Ivans, J.M. Gerton, B.C. Bromley, and S.J. Kenyon, *Spectroscopy Letters*. (2017).
- Increased localization precision by interference fringe analysis. C. G. Ebeling, A. Meiri, J. Martineau, Z. Zalevsky, J.M. Gerton and R. Menon, *Nanoscale.* **7** 10430-10437 (2015).
- Using a Sharp Metal Tip to Control the Polarization and Direction of Emission from a Quantum Dot. A. Ghimire, E. Shafran, and J.M. Gerton. *Nature Scientific Reports.* **4** 6456 (2014).
- Hyper-spectral imaging in scanning-confocal-fluorescence microscopy using a novel broadband diffractive optic. P. Wang, C.G. Ebeling, J.M. Gerton and R. Menon. *Opt. Commun.* **324** 73-80 (2014).
- Improved localization accuracy in stochastic super-resolution fluorescence microscopy by K-factor image deshadowing. T. Ilovitsh, A. Meiri, C.G. Ebeling, R. Menon, J.M. Gerton, E.M. Jorgensen, Z. Zalevsky. *Biomed. Opt. Exp.* **5** 244-258 (2014).
- Asymmetric packaging of polymerases within vesicular stomatitis virus. J. Hodges, X. Tang, M.B. Landesman, J.B. Ruedas, A. Ghimire, M.V. Gudheti, J. Perrault, E.M. Jorgensen, J.M. Gerton, S. Saffarian. *Biochem. and Biophys. Res. Comm*. **440** 271-276 (2013).
- Effect of magnetic Gd impurities on the superconducting state of amorphous Mo-Ge thin films with different thickness and morphology. H. Kim, A. Ghimire, S. Jamali, T.K. Djidjou, J.M. Gerton, and A. Rogachev. *Physical Review B* **86** 024518 (2012).
- Using the Near-Field Coupling of a Sharp Tip to Tune Fluorescence-Emission Fluctuations during Quantum-Dot Blinking. E. Shafran, B.D. Mangum, and J.M. Gerton. *Physical Review Letters* **107** 037403 (2011).
- Enhancing Long-Range Exciton Guiding in Molecular Nanowires by H-Aggregation Lifetime Engineering. D. Chaudhuri, D.B. Li, Y. Che, E. Shafran, J.M. Gerton, L. Zang, and J.M. Lupton. *Nano Letters* **11** 488 (2011).
- Energy Transfer From an Individual Quantum Dot to a Carbon Nanotube. E. Shafran, B.D. Mangum, and J.M. Gerton. *Nano Letters* **10** 4049 (2010).
- Near-Field Scanning Optical Microscopy. B.D. Mangum. E. Shafran, J. Johnston, and J.M. Gerton. Chapter within the book *Optical Techniques for Solid State Materials Characterization.* Taylor & Francis, 2011.
- Three-Dimensional Mapping of Near-Field Interactions Via Single-Photon Tomography. B.D. Mangum, E. Shafran, C. Mu, and J.M. Gerton. *Nano Letters* **9** 3440–3446 (2009).
- Scattering of plasmons at the intersection of two metallic nanotubes: Implications for tunneling. V.V. Mkhitaryan, Y. Fang, J.M. Gerton, E.G. Mishchenko, and M.E. Raikh. *Physical Review Letters* **101** 256401 (2008).

- Resolving Single Fluorophores Within Dense Ensembles: Contrast Limits of Tip-Enhanced Fluorescence Microscopy. B.D. Mangum, C. Mu, and J.M. Gerton. *Optics Express* **16** 6183 (2008).
- Contrast Mechanisms in Near-Field Fluorescence Microscopy. B.D. Mangum, C. Mu, Z. Ma, and J.M. Gerton. Chapter within the book *Nano-Optics and Near-Field Microscopy*. Artech House Publishers, November 2008.
- Nanoscale Fluorescence Microscopy Using Carbon Nanotubes. C. Mu, B.D. Mangum, C. Xie, and J.M. Gerton. *IEEE Journal of Selected Topics in Quantum Electronics* **14** 206 (2008). Invited Paper.
- Fluorescence Near-Field Microscopy of DNA at Sub-10 nm Resolution. Z. Ma, J.M. Gerton, L.A. Wade, and S.R. Quake. *Physical Review Letters* **97** 260801 (2006).
- Tip-Enhanced Fluorescence Microscopy of High Density Samples. C. Xie, C. Mu, J.R. Cox, and J.M. Gerton. *Applied Physics Letters* **89** 143117 (2006).
- Tip-Enhanced Fluorescence Microscopy at 10 nm Resolution. J.M. Gerton, L.A. Wade, G.A. Lessard, Z. Ma, and S.R. Quake. *Physical Review Letters* **93** 180801 (2004).
- Macroscopic Quantum Tunneling in Bose-Einstein Condensates. C.A. Sackett, J.M. Gerton, M. Welling, and R.G. Hulet. In *Exploring the Quantum/Classical Frontier: Recent Advances in Macroscopic and Mesoscopic Quantum Phenomena*. J.R. Friedman and S. Ham, eds. (Nova Science, 2003).
- Quantum Degeneracy in Lithium Gases. R.G. Hulet & J.M. Gerton. In *Trapped Particles and Fundamental Physics*. S. N. Atutov, R. Calabrese, and L. Moi, eds. (Kluwer, 2002).
- Photoassociative Frequency Shift in a Quantum Degenerate Gas. J.M. Gerton, B.J. Frew, & R.G. Hulet. *Physical Review A* **64** 053410 (2001).
- Direct Observation of Growth and Collapse of a Bose-Einstein Condensate with Attractive Interactions. J.M. Gerton, D. Strekalov, I. Prodan & R.G. Hulet. *Nature* **408** 692 (2000).
- Laser-Free Slow Atom Source. B. Ghaffari, J.M. Gerton, W.I. McAlexander, K.E. Strecker, D.M. Homan, & R.G. Hulet. *Physical Review A* **60** 3878 (1999).
- Dipolar Relaxation Collisions in Magnetically Trapped ^{7}Li. J.M. Gerton, C.A. Sackett, B.J. Frew, & R.G. Hulet. *Physical Review A* **59** 1514 (1999).
- Measurements of Collective Collapse in a Bose-Einstein Condensate with Attractive Interactions. C.A. Sackett, J.M. Gerton, M. Welling, & R.G. Hulet. *Physical Review Letters* **82** 876 (1999).
- Probing a Bose-Einstein Condensate by Near-Resonant Light Scattering. C.A. Sackett, J.M. Gerton, M. Welling, & R.G. Hulet. *Spectral Lineshapes: Proceedings of the Fourteenth International Conference on Spectral Lineshapes*. R. Herman, ed., Volume 10 (1999).
- Collective Collapse of a Bose-Einstein Condensate with Attractive Interactions. C.A. Sackett, J.M. Gerton, M. Welling, & R.G. Hulet. In *Atomic Physics 16*. W. E. Baylis and G. W. F. Drake, eds. (1999).
- Triplet *s*-Wave Resonance in ^{6}Li Collisions and Scattering Lengths of ^{6}Li and ^{7}Li. E.R.I. Abraham, W.I. McAlexander, J.M. Gerton, R.G. Hulet, R. Côté, & A. Dalgarno. *Physical Review A* **55** R3299 (1997).

- Singlet *s*-Wave Scattering Lengths of ^{6}Li and ^{7}Li. E.R.I. Abraham, W.I. McAlexander, J.M. Gerton, R.G. Hulet, R. Côté, & A. Dalgarno. *Physical Review A* **53** R3713 (1996).

SELECTED PRESENTATIONS

- Leveraging an Interdisciplinary Multi-Institutional Faculty Learning Community to Advance Equity and Inclusion. Invited speaker in "Our Inclusive Path Forward: Addressing Inequities in STEM Education" seminar series, College of Natural and Mathematical Sciences, Ohio State University (April 2021).
- This is the Moment to Remake (STEM) Education. Keynote address at 2020 Cottrell Scholars Conference, virtual conference (usually in Tucson) (July 2020).
- Building the Foundation for Institutional Transformation Through Persistent and Strategic Faculty Engagement. Jordan Gerton and Emily Gaines. Showcase presentation at the Network of STEM Education Centers Annual Conference, online (June 2020).
- Helping All Our Students Succeed - Big Ideas and Practical Strategies. Workshop for new faculty in the College of Natural Sciences, University of Texas at Austin (February 2020).
- Exploring Mindset & Response to Failure in Reformed IPLS Labs. Contributed talk at the AAPT Summer Meeting, Provo, UT (July 2019).
- Mobilizing the Forgotten Army: Equipping TAs with Inquiry-Based Instruction Methods. Jordan Gerton, Jacquelyn Chini, and Emily Alicea-Muñoz. Weekend workshop at AAPT Summer Meeting, Provo, UT (July 2019).
- Building Educational Programs at the University of Utah. Physics Colloquium at UT Austin (April 2019).
- Supplemental Activities to Transform Traditional Exams Into Powerful Learning Experiences. Contributed talk at the AAPT Winter Meeting, Houston, TX (January 2019).
- The Academic Life – a New Adventure Around Every Corner, MUSE Lunchtime Lecture, UofU (December, 2018).
- Mobilizing the Forgotten Army: Improving Undergraduate Math and Science Education through Professional Development of Graduate Teaching Assistants. APS March Meeting, Baltimore, MD (March 2016).
- Using Sharp Tips to Control Optical Properties of Single Emitters. University of New Mexico, Albuquerque, NM (February 2016).
- Manipulating light with sharp tips and nanowires. Hefei National Laboratory for Physical Sciences at the Microscale, University of Science and Technology of China, Hefei, China (March, 2015).
- Manipulating light with sharp tips and nanowires. Xidian University, Xian, China (March, 2015).
- Manipulating Light in 3+1 Dimensions using Sharp Tips. AAAS Annual Meeting (February 2015).
- Manipulating Light in 3+1 Dimensions Using Sharp Tips. Materials Research Society spring meeting, San Francisco, CA (April 23, 2014).
- Measurement and Control of Fluorescence Emission from Single Emitters Using Sharp Tips. Physics Colloquium, University of Victoria, Victoria, British Columbia (October, 2012).

- *Ibid*. Physics Colloquium, University of British Columbia, Vancouver B.C. (November 1, 2012).
- *Ibid*. Physics Colloquium, Simon Fraser University, Vancouver B.C. (November 2, 2012).
- Single-Particle Measurements of Energy Transfer in Nanocomposite Materials. NanoUtah 2010, Salt Lake City (October 2010).
- Energy Transfer From an Individual Quantum Dot to a Carbon Nanotube. 11th International Conference on Near-Field Optics (NFO-11), Beijing (September 2010).
- Energy Transfer Between Individual Quantum Dots and Carbon Nanotubes. University of Utah Condensed Matter Seminar, Salt Lake City (April 2010).
- Measuring Energy Transfer on the Nanometer Scale: Implications for High Resolution Microscopy and the Design of Novel Photovoltaic Materials. Nano-optics Seminar, Institut de Ciències Fotòniques (ICFO), Barcelona (October 2009).
- *Ibid*. Condensed Matter Physics Seminar, Swedish Royal Institute of Technology (KTH), Stockholm (October 2009).
- *Ibid*. Condensed Matter Physics Seminar, Sheffield University, Sheffield UK (October 2009).
- Energy Transfer Between Quantum Dots and Carbon Nanotubes. Physics Seminar, Los Alamos National Laboratory (August 2009).
- Exploring the Limits of Tip-Enhanced Fluorescence Microscopy. Condensed Matter Physics Seminar, University of California Irvine (March 2009).
- Can tip-enhanced microscopy be used to resolve the molecular architecture of extended protein networks? California Institute of Technology (March 2009).
- Toward Molecular-Scale Chemical Imaging of Protein Networks. Physics Colloquium, Brigham Young University (February 2008).
- Phonographs and Lightning Rods: Old Tools for New (nano)Science. NAKAMA seminar, University of Utah (January 2008).
- Nanoscale Optical Microscopy with Carbon Nanotubes. IEEE Summer Topical Meeting on Advanced Nanobiophotonics, Acapulco, Mexico (July 2008).
- Nano-Optics with Carbon Nanotubes. Physics Colloquium, Idaho State University (February 2008).
- Toward Molecular-Scale Fluorescence Imaging of Protein Networks. Biology Seminar, University of Utah (November 2007).
- Toward Nanoscale Imaging of Biomolecular Systems. APS Four Corners Annual Meeting, Utah State University, Logan UT (October 2006).
- Molecular Scale Fluorescence Microscopy. Physics Colloquium, Utah State University, Logan, UT (January 2006).
- *Ibid,* Biochemistry Seminar, University of Utah, Salt Lake City, UT (September 2005).
- *Ibid,* Physical Chemistry Seminar, University of Utah, Salt Lake City, UT (September 2005).
- *Ibid,* Whitaker Nanobioengineering Symposium, Rice University, Houston, TX (October 2005).
- Playing with Lightning: Tip-Enhanced Fluorescence Microscopy at 10 nm Resolution. Physics Colloquium, Washington State University, Pullman, WA (April 2004).

RECENT PRESENTATIONS BY STUDENTS AND COLLEAGUES (JMG COAUTHOR)

- Driving Change by Empowering Faculty with Data on Inclusion and Equity. Holly S. Godsey, Jordan Gerton, and Allyson Rocks. Showcase presentation at the Network of STEM Education Centers Annual Conference, St. Louis, MO (now online) (June 2020).
- A Proposed Method for Optimizing the Spectral Discernibility of Engineered Pointspread Functions for Localization Microscopy. Jason Martineau, Rajesh Menon, Erik Jorgensen, and Jordan Gerton. Contributed talk at Microscopy and Microanalysis Annual Meeting, Portland, OR (August 2019).
- Implementation and Adaptation of Evidence-Based IPLS Laboratories. Jason May, Jordan Gerton, Claudia De Grandi, Lauren Barth-Cohen, and Brianna Montoya. Poster at the AAPT Summer Meeting, Provo, UT (July 2019).
- Shifts in Student Attitudes in IPLS Labs. Claudia De Grandi, Jason May, Jordan Gerton, and Lauren Barth-Cohen. Poster at the AAPT Summer Meeting, Provo, UT (July 2019).
- Student Surveys and Mindset Interventions: Analysis from Reformed IPLS Labs. Jason May, Jordan Gerton, Claudia De Grandi, and Lauren Barth-Cohen. Poster at the AAPT Summer Meeting, Provo, UT (July 2019).
- Precisely Localizing Wavelength Sensitive Point-Spread Functions Engineered with a Silicon Oxide Phase Plate. Jason Martineau, Erik Jorgensen, Rajesh Menon, and Jordan Gerton. Invited talk at Microscopy and Microanalysis Annual Meeting, Baltimore, MD (August 2018).
- Supporting Students from 2-year Schools. Laleh Cote and Jordan Gerton. Roundtable discussion at Network of STEM Education Centers Annual Conference, Columbus, OH (June 2018).
- Getting to the Root of the Problem: A discussion about affecting change in STEM. Holly S. Godsey, Belinda O. Saltiban, Jordan Gerton, Martha Bradley, Craig Caldwell and Diane Pataki. Talk at the Transforming STEM in Higher Education Conference: AACU and Project Kaleidoscope, Atlanta, GA (November 2018).
- REFUGES: Refugees Exploring UnderGraduate Education in Science. Tino Nyawelo and Jordan Gerton. Poster at the AAPT Summer Meeting, Washington, DC (July 2018).
- Collaborative Around Research Experience for Teachers. John Keller, Jessica Cleeves, Willie Burgess, Bruce Johnson, Jessica S. Krim, Bryan Rebar, Renee Schwartz, Larry Horvath, Eric Hsu, Jamie Chan, Sanlyn Buxner, Kimberly Sierra-Cajas, Bruce Johnson, Lisa Elfring, Jordan Gerton, Holly Godsey, Elisa Stone, Edward Ham, Laleh Cote, Soon Chun Lee, Mara Alagic, G. Novacek, S. Lefever, Willie Burgess, Sharon Locke, Kelly Barry, Kate Hiester, and Shari Liss Kaye Storm. Research Action Cluster breakout talk at Network of STEM Education Centers Annual Conference, New Orleans, LA (June 2017).
- Promoting undergraduate success in science and math at the University of Utah through a multi-faceted approach. Emily Gaines, Holly Godsey, Tino Nyawelo, and Jordan Gerton. Poster presentation at the Network of STEM Education Centers Annual Conference, San Antonio, TX (June 2016).
- Establishing an undergraduate science & math pipeline: Enhancing K-12 teaching and building connections to higher education. Jordan Gerton, Holly Godsey, Tino Nyawelo, Emily Gaines, Erin Moulding, Nadia Jassim, and Joan Randazzo. Poster presentation at the Network of STEM Education Centers Annual Conference, New Orleans, LA (June 2015).