Jennifer T. Choy

University of Wisconsin-Madison
Engineering Hall 3546A
1415 Engineering Drive, Madison, WI 53706

Email: jennifer.choy@wisc.edu
Group website: https://choy.engr.wisc.edu
Work phone: 608-263-6974

Education

Harvard University, Cambridge, MA
- PhD, Applied Physics (Advisor: Marko Lončar) 2013
- MS, Applied Physics 2008

Massachusetts Institute of Technology (MIT), Cambridge, MA
- BSc, Nuclear Science and Engineering 2007
- BSc, Physics 2007

Positions

University of Wisconsin-Madison
Assistant Professor Jan 2019–
- Department of Electrical and Computer Engineering (primary affiliation)
- Department of Engineering Physics
- Department of Materials Science and Engineering
- Department of Physics
- Grainger Institute of Engineering
- Wisconsin Quantum Institute
- Chicago Quantum Exchange

Draper Laboratory, Electro-optics and Instruments group 2013–2018
Principal Member of the Technical Staff (2016–2018), Senior Member of the Technical Staff (2013–2016)
- Developed quantum, optical, and mechanical sensors for guidance and navigation
- Technical director on Chip-scale Combinatorial Atomic Navigator (C-SCAN) program funded by DARPA
- Program manager on Precise Robust Inertial Guidance for Munitions (PRIGM) programs funded by DARPA

Harvard University, Laboratory for Nanoscale Optics 2008–2013
Graduate student and post-doctoral researcher under Prof. Marko Lončar

MIT, Nuclear Magnetic Resonance Laboratory 2004–2007
Undergraduate researcher under Prof. David G. Cory

Awards

NSF CAREER Award (2023)

Grainger Institute Faculty Scholar Award, UW-Madison (2018)

Outstanding Contribution Award, Draper Laboratory (2015, 2016, 2017, 2018)

Outstanding Task Leader Award Finalist, Draper Laboratory (2016)

Materials Research Society Graduate Student Silver Award (2012)

National Science Foundation Graduate Research Fellowship (2007–2012)

First place winner (as part of a team of five) of the American Nuclear Society Undergraduate Student Design Competition (2007)

Roy Axford Award, Department of Nuclear Science and Engineering, MIT (2007)

Barry M. Goldwater Scholarship (2006)

Irving Kaplan Award, Department of Nuclear Science and Engineering, MIT (2006)

Awards received by lab members

ECE Chancellors Opportunity Fellowship (2022, Sabrina Wu)

Student Paper Finalist at OSA Optical Sensors and Sensing Congress (2021, Ricardo Vidrio)

Ford Foundation Fellowships Honorable Mention (2021, Sarah G. Francis)

Sophomore Research Fellowship - Honorable Mention (2020, Zhengzhi Chen)

Graduate Engineering Research Scholars (GERS) Advanced Opportunity Fellowship (Sarah G. Francis; Ricardo Vidrio)

Publications

27. R Vidrio, D Vincent, B Bachman, C Saucedo, M Zahedian, Z Xu, J Lai, TA Grotjohn, S Kolkowitz, J-H Seo, RJ Hamers, KG Ray, Z Ma, JT Choy, "Effects of molecular contamination and sp2 carbon on oxidation of (100) single-crystal diamond surfaces", arXiv:2304.02217 (2023)
26. PM Pellegrino, G Brambilla, F Volmer, JT Choy, "Optical sensors, 2022: introduction to the feature issue", Optics Express, 31(9), 14997-14999 (2023)
25. X Yang, M Benelajla, S Carpenter, JT Choy, "Analysis of atomic magnetometry using metasurface optics for balanced polarimetry," Optics Express, 31, 13436-13446 (2023)
24. M Zahedian, J Liu, R Vidrio, S Kolkowitz, JT Choy, "Modeling of Radiative Emission from Shallow Color Centers in Single Crystalline Diamond", Laser and Photonics Reviews 2200529 (2023)
23. A Gardill, I Kemeny, Y. Li, M. Zahedian, M Zahedian, X Xu, V Lordi, A Gali, JR Maze, JT Choy, S Kolkowitz, "Super-resolution Airy disk microscopy of individual color centers in diamond", ACS Photonics 9(12), 3848-3854 (2022)
22. B Bachman, Z Jones, Zachary, G Jaffe, J Salman, R Wambold, Z Yu, J Choy, S Kolkowitz, M Eriksson, M Kats, R Hamers, "High-density covalent grafting of spin-active molecular moieties to diamond surfaces", *Langmuir*, 37(30), 9222–9231 (2021)
21. RA Wambold, Z Yu, Y Xiao, B Bachman, G Jaffe, S Kolkowitz, JT Choy, MA Eriksson, RJ Hamers, MA Kats, "Adjoint-optimized nanoscale light extractor for nitrogen-vacancy centers in diamond," *Nanophotonics*, 10(1) (2020)
20. JT Choy, "Photonics for atomic sensors." *Photonics Spectra* (August 2020 issue)
19. I Huang, J Holzgrafe, R Jensen, J Choy, M Bawendi, and M Lončar, "10 nm Gap Bowtie Plasmonic Nanoresonators Fabricated by Modified Lift-off Process," *Appl. Phys. Lett.*, **109**, 133105 (2016)
18. RA Jensen, I Huang, O Chen, JT Choy, TS Bischof, M Lončar, MG Bawendi, "Optical Trapping and Two-Photon Excitation of Colloidal Quantum Dots using Bowtie Apertures," *ACS Photonics*, **3 (3)**, 423–427 (2016)
17. S Meesala, YI Sohn, HA Atikian, S Kim, MJ Burek, JT Choy, M Lončar, "Enhanced strain coupling of nitrogen vacancy spins to nanoscale diamond cantilevers," *Phys. Rev. Applied*, **5**, 034010 (2016)
16. HA Atikian, A Eftekharian, AJ Salim, MJ Burek, JT Choy, AH Majedi, M Lončar, "Superconducting nanowire single photon detector on diamond," *Appl. Phys. Lett.*, **104 (12)**, 122602 (2014)
15. K Bayat, J Choy, M Farrokh Baroughi, S Meesala, M Lončar, "Efficient, Uniform, and Large Area Microwave Magnetic Coupling to NV Centers in Diamond Using Double Split-Ring Resonators," *Nano Lett.*, **14 (3)**, 1208–1213 (2014)

14. R Mahfouz, DL Floyd, W Peng, JT Choy, M Lončar, OM Bakr, "Size-controlled fluorescent nanodiamonds: a facile method of fabrication and color-center counting," *Nanoscale*, **5 (23)**, 11776–11782 (2013)
13. JT Choy, I Bulu, B Hausmann, and M Lončar, "Plasmonic gratings for improving single photon collection for color centers in diamond," *Appl. Phys. Lett.*, **103 (16)**, 161101 (2013)
12. JDB Bradley, CC Evans, JT Choy, O Reshef, PB Deotare, F Parsy, KC Phillips, M Lončar, and E Mazur, "Submicrometer-wide amorphous and polycrystalline anatase TiO_2 waveguides for microphotonic devices," *Opt. Express*, **20**, 23821–23831 (2012)
11. BJM Hausmann, JT Choy, TM Babinec, BJ Shields, I Bulu, MD Lukin, and M Lončar, "Diamond nanophotonics and applications in quantum science and technology," *Phys. Status Solidi A*, **209**, 1619–1630 (2012)
10. BM Hausmann, B Shields, Q Quan, P Maletinsky, M McCutcheon, JT Choy, TM Babinec, A Kubanek, A Yacoby, MD Lukin, M Lončar, "Integrated diamond networks for quantum nanophotonics," *Nano Lett.* **12 (3)**, 1578–1582 (2012)
9. JT Choy, JDB Bradley, PB Deotare, IB Burgess, CC Evans, E Mazur, and M Lončar, "Integrated TiO_2 resonators for visible photonics," *Opt. Lett.* **37**, 539-541 (2012)
8. JT Choy, BM Hausmann, TM Babinec, I Bulu, M Khan, P Maletinsky, A Yacoby, and M Lončar, "Enhanced single photon emission from a diamond-silver aperture," *Nature Photon.* **5**, 738–743 (2011)
7. Y Zhang, C Hamsen, JT Choy, Y Huang, JH Ryou, RD Dupuis, and M Lončar, "Photonic crystal disk lasers," *Opt. Lett.* **36 (14)**, 2704–2706 (2011)
6. TM Babinec, BM Hausmann, JT Choy, M Khan, PR Hemmer, and M Lončar, "Quantum photonics with diamond," *IEEE Photon. Soc. Newslett.* **25**, 13–18 (2011)
5. I Bulu, TM Babinec, B Hausmann, JT Choy, M Lončar, "Plasmonic resonators for enhanced diamond NV-center single photon sources," *Opt. Exp.* **19**, 5268–5276 (2011)
4. BM Hausmann, TM Babinec, JT Choy, JS Hodges, S Hong, I Bulu, A Yacoby, M Lukin and M Lončar, "Single color centers implanted in diamond nanostructures," *New J. Phys.* **13**, 045004 (2011)
3. TM Babinec, JT Choy, KJM Smith, M Khan, and M Lončar, "Design and focused ion beam fabrication of single crystal diamond nanobeam cavities," *J. Vac. Sci. Technol. B* **29**, 010601 (2011)
2. LE Fernandes, JT Choy, DR Khanal, DG Cory, "Experimental realization of electromagnetically induced transparency in liquid-state NMR," *Concept Magn. Reson. A* **30A (5)**, 236–245 (2007)
1. J Choy, W Ling, A Jerschow, "Selective detection of ordered sodium signals via the central transition," *J. Magn. Reson.* **180**, 105–109 (2006)

Book Chapter

JT Choy, BJM Hausmann, MJ Burek, T. Babinec, M Lončar, "Nanofabrication of photonic devices from single crystal diamond for quantum information processing (QIP)," invited book chapter in *Quantum Information Processing with Diamond*, edited by S Prawer and I Aharonovich, Woodhead Publishing (2014)

Patents

K Kotru, JM Brown, DL Butts, RE Stoner, JT Choy, DMS Johnson, N Pomeroy, SP Smith, N Wu, "Atom interferometry in dynamic environments", US Patent 10,331,087 (2019)

A Gill, SJ Byrnes, J Choy, CY Wang, MA Sinclair, A Kelsey, D Johnson, "An optical design for atom-interferometric inertial sensors with enhanced stability", US Patent 10,157,692 (2018)

Presentations (speaker only)

41. Invited talk at the 245th Electrochemical Society (ECS) meeting, May 2024
40. Invited seminar at University of Michigan, April 2024
39. Invited talk at IEEE Photonics Society Summer Topicals, July 2023
38. Invited talk at Photonics North, June 2023
37. Invited talk at *CLEO*, May 2023
36. Invited seminar at Mississippi State University, March 2023
35. Invited seminar at University of Washington – Seattle, February 2023
34. Invited talk at *SPIE Photonics West*, January 2023
33. JT Choy and S Mouradian, "Quantum sensing discussion." Special Event at Optica Optical Sensors and Sensing Congress, July 2022
32. Invited talk at *SPIE Photonics West*, January 2022
31. Webinar on quantum sensing hosted by *Laser Focus World*, October 2021
30. *Hamamatsu Quantum Technologies Webinar*, hosted by *Photonics Media* September 2021
29. Invited talk at *IEEE Research and Applications of Photonics in Defense (RAPID)*, August 2021
28. Invited talk at *META 2020, Session on Opto-mechanical metasurfaces and metamaterials*, July 2021 (talk canceled for COVID-related reasons)
27. *IQUIST Seminar*, University of Illinois Urbana-Champaign, May 2021
26. "Electromagnetic field imaging using quantum sensors." *Imaging and Visualization Workshop*, Grainger Institute of Engineering, University of Wisconsin-Madison, October 2020
25. Invited talk at *Photonics for Quantum 2*, Rochester Institute of Technology, Rochester, NY, June 2020
24. *Center for Photonics Innovation Seminar*, Arizona State University, Tempe, AZ, April 2020 (postponed due to COVID-19)
23. *Wyant College of Optical Sciences Colloquium*, University of Arizona, Tucson, AZ, April 2020 (postponed due to COVID-19)
22. *Material Science and Engineering Seminar*, University of Wisconsin-Madison, Madison, WI, February 2020
21. "Atom-based quantum sensors: applications to navigation." *Grainger Friday Seminar*, University of Wisconsin-Madison, Madison, WI, November 2019
20. "Atoms reveal the hidden workings of the universe." *SoundWaves: Hidden Worlds of the Universe*, University of Wisconsin-Madison, Madison, WI, April 2019
19. "Cold atom inertial sensors." Briefing presented to the Defense Science Board, Cambridge, MA, May 2018

18. "A hybrid atom interferometer accelerometer-gyroscope." Contributed talk. *IEEE/ION Position Location and Navigation Symposium*, Monterey, CA, April 2018
17. "Atomic and solid-state quantum sensing." Seminar talk. *Department of Engineering Physics Seminar*, University of Wisconsin-Madison, Madison, WI, March 2018
16. "A hybrid atom-interferometer-based inertial measurement unit." Contributed talk. *Joint Navigation Conference*, Dayton, OH, June 2017
15. "A cold atom accelerometer-gyroscope." Invited talk. *First Meeting of the NATO Sensors and Electronics Technology Panel on "Mobile Quantum Sensors for Navigation, Timing, and Gravitation"*, Paris, France, April 2017
14. "Engineering light-matter interactions with atom-like systems." Seminar talk. *R.G. Herb Condensed Matter Seminar*, University of Wisconsin-Madison, Madison, WI, September 2016
13. "Cold atom inertial sensors." Briefing presented to the Utility of Quantum System Study Panel of the Air Force Scientific Advisory Board, Cambridge, MA, March 2015
12. "Plasmonic gratings for improving single photon collection for color centers in diamond." Contributed talk. *Material Research Society (MRS) Fall Meeting*, Boston, MA, November 2012
11. "Single photon sources based on nanostructured diamond." Invited talk. *Quantum Innovators Workshop*, Institute for Quantum Computing, Waterloo, Canada, September 2012
10. "Diamond-silver apertures with plasmonic gratings." Contributed talk. *Conference on Lasers and Electro-Optics (CLEO)*, San Jose, CA, May 2012
9. "Single photon sources based on diamond-silver apertures." Seminar talk. *Center for Nanoscale Systems Seminar*, Harvard University, Cambridge, MA, December 2011
8. "Integrated optical resonators in titanium dioxide thin films for the visible wavelengths." Poster. *MRS Fall Meeting*, Boston, MA, November 2011
7. "Diamond nanophotonics and quantum optics." Invited talk. *International Materials Research Congress (IMRC)*, Cancun, Mexico, August 2011
6. "Enhanced single photon emission by diamond-plasmon nanostructures.," Contributed talk. *CLEO*, Baltimore, MD, May 2011
5. "Diamond nanophotonics." Seminar talk. *Nanoscale Science and Engineering Center Applied Physics 298r Seminar*, Harvard University, Cambridge, MA, April 2011
4. "Enhanced single photon emission by diamond-plasmon nanoapertures." Poster. *WE-Heraeus-Seminar in Diamond: Spintronics, Photonics, Bio-Applications*, Bad Honnef, Germany, April 2011
3. "Optical characterization of diamond nanoparticles and their applications." Contributed talk. *MRS Fall Meeting*, Boston, MA, November 2010
2. "Diamond nanophotonics." Poster. *Harvard Smithsonian Institute of Theoretical Atomic and Molecular Physics (ITAMP) Seminar Series*, Cambridge, MA, November 2010
1. "Design for a compact neutron interferometer." Team presentation. *American Nuclear Society Winter Meeting*, Washington, DC, November 2007

Conference contributions by group members

7. X Yang, S Choi, M Kim, C Fang, H Mei, S Carpenter, M Benelajla, S Perlowski, D Czaplewski, A Dibos, M Kats, J Choy. "Progress towards a metasurface-integrated atomic magnetometer." Poster (accepted). Frontiers in Optics + Laser Science, October 2023
6. R Vidrio, C Saucedo, B Bachman, RJ Hamers, JT Choy, "Analyzing the layered heterogeneity of (100) single-crystalline diamond using Angle-Resolved XPS." Contributed talk (accepted). International Conference on Diamond and Carbon Materials 2023
5. R Vidrio, D Vincent, B Bachman, C Saucedo, M Zahedian, Z Xu, T Grotjohn, S Kolkowitz, J Lai, J-H Seo, RJ Hamers, KR George, Z Ma, JT Choy, "Preparation and analysis of oxidation on (100) single-crystal diamond surface." Contributed talk. MRS Fall Meeting, November 2022
4. M Zahedian, J Liu, R Vidrio, S Kolkowitz, JT Choy, "Depth dependence of the radiative lifetimes of shallow color centers in single crystalline diamond." Poster. MRS Fall Meeting, November 2022
3. X Yang, S Francis, M Benelajla, JT Choy, "Chip-scale optics for atomic magnetometry." Contributed talk. OSA Novel Optical Materials and Applications (NOMA), July 2021
2. R Vidrio, M Zahedian, H Zhang, B Schneider, X Zu, A Couet, JT Choy, "Characterization of luminescence and electron transport in corroded zirconium alloys." Contributed talk. OSA Optical Sensors and Sensing Congress, July 2021. **Student Paper Finalist.**
1. X Yang, JF Doyle, JT Choy, "Development of a photonic-integrated atomic magnetometer." Contributed talk. APS DAMOP, June 2020

Professional activities

General chair for the inaugural Optica Quantum Sensing Conference (2024)

Guest editor for Optics Express Optical Sensors issue (2022)

Program chair for Optica Sensing Congress 2023

Conference subcommittee chair on Quantum Sensing for Optica Sensors and Sensing Congress (2020, 2021, 2022, 2023), Nanophotonics, Plasmonics, and Metamaterials for IEEE Photonics Conference (2022, 2023)

Award committee member for the Deborah Jin Award for Outstanding Doctoral Thesis Research in Atomic, Molecular, or Optical Physics (2023)

Conference organizing committee for Optica Novel Optical Materials and Applications conference (2019-present), subcommittee on Quantum Optics of Atoms, Molecules, and Solids for CLEO (2022, 2023), subcommittee on Nanophotonics for IEEE Photonics Conference (2021)

Consultant to Duality (2021-2022), Quantum Valley Ideas Lab (2021), Defense Science Board (2018), Air Force Scientific Advisory Board (2015)

Panelist for NATO Sensor Electronics and Technology Panel on "Mobile Quantum Sensors for Navigation, Timing, and Gravitation" (2017)

Proposal reviewer for National Science Foundation (2019, 2021), UW2020 WARF Discovery Initiative, Swiss National Science Foundation (2022)

Referee for Nature, Optical Materials Express, Nano Letters, Scientific Reports, Optics Express, Optics Letters, Carbon, INERTIAL 2022

Grants and contracts

19. Program: CAREER: Solid-state quantum navigation and timekeeping
Sponsor: National Science Foundation
Institutions: University of Wisconsin-Madison
Years: 2024–2029
Amount: $550,000 (total)
Role: lead PI

18. Program: QuSeC-TAQS: Compact and Robust Quantum Atomic Sensors for Timekeeping and Inertial Sensing
Sponsor: National Science Foundation
Institutions: University of Wisconsin-Madison
Years: 2023–2027
Amount: $2,000,000 (total)
Role: lead PI

17. Program: All-optical quantum techniques for fusion research
Sponsor: Department of Energy, Fusion Energy Sciences
Institutions: University of Wisconsin-Madison
Years: 2023–2026
Amount: $1,500,000 (total)
Role: lead PI

16. Program: Role of nanoscale heterogeneities on charged species transport in oxide
Sponsor: Department of Energy, Office of Science
Institutions: University of Wisconsin-Madison
Years: 2023–2026
Amount: $956,217 (total)
Role: co-PI

15. Program: Wisconsin Center for Semiconductor Thermal Photonics
Sponsor: Wisconsin Alumni Research Foundation Research Forward Award
Institutions: University of Wisconsin-Madison
Years: 2023–2025
Amount: $250,000 (total)
Role: co-PI

14. Program: Satellite-Borne Quantum Gravity Gradiometer for Observing Mass Density Variations and Transport Phenomena
Sponsor: National Aeronautics and Space Administration
Institutions: University of Wisconsin-Madison
Years: 2023–2024
Amount: $10,000 (total)
Role: co-PI

13. Program: Study and control of macroscopic quantum coherence in cold atoms
Sponsor: Wisconsin Alumni Research Foundation Fall Competition Award
Institutions: University of Wisconsin-Madison
Years: 2023–2024
Amount: $46,825
Role: single PI

12. Program: Q-NEXT Next Generation Quantum Science and Engineering
Sponsor: Department of Energy
Institutions: University of Wisconsin-Madison, Argonne National Laboratory
Years: 2021–2022
Amount: $50,000 (Choy portion)
Role: Senior Personnel

11. Program: Modeling, probing, and controlling quantum coherence in materials
Sponsor: Department of Energy, Basic Energy Sciences
Institutions: University of Wisconsin-Madison, Lawrence Livermore National Laboratory
Years: 2022–2025
Amount: $2,827,889 (total)
Role: co-PI (2022–2023); lead PI (2023–2025)

10. Program: Quantum plasmonics for thermal atoms
Sponsor: Wisconsin Alumni Research Foundation Fall Competition Award
Institutions: University of Wisconsin-Madison
Years: 2021–2022
Amount: $45,439
Role: single PI

9. Program: QLCI-CI: Hybrid Quantum Architectures and Networks
Sponsor: National Science Foundation
Institutions: University of Wisconsin-Madison
Years: 2020–2025
Amount: $8,560,000 (total)
Role: Senior Personnel; faculty lead in Quantum Outreach, Education, and Workforce Development

8. Program: Wisconsin Materials Research Science and Engineering Center seed project
Sponsor: National Science Foundation
Institutions: University of Wisconsin-Madison
Years: 2020–2022
Amount: $148,570 (Choy and Couet portion)
Role: co-PI with Adrien Couet

7. Program: Photonic engineering for quantum sensors
Sponsor: Wisconsin Alumni Research Foundation Fall Competition Award
Institutions: University of Wisconsin-Madison
Years: 2020–2021
Amount: $41,878
Role: single PI

6. Program: Nanophotonic approaches to atomic sensors
Sponsor: Office of Naval Research
Institutions: University of Wisconsin-Madison
Years: 2020–2024
Amount: $449,764
Role: single PI

5. Program: Quantum probes of the materials origins of decoherence
Sponsor: Department of Energy, Basic Energy Sciences
Institutions: University of Wisconsin-Madison, Lawrence Livermore National Laboratory
Years: 2019–2022
Amount: $2,400,000 (total)
Role: co-PI

4. Program: Miniaturized Inertial Measurement Unit (mini-IMU)
Sponsor: Office of Naval Research
Institution: Draper
Years: 2018–2019
Role: Technical Director (during proposal and initial months of program)

3. Program: Precise Robust Inertial Guidance for Munitions Navigation-Grade Inertial Measurement Unit (PRIGM:NGIMU)
   Sponsor: DARPA
   Institution: Draper (as subcontractor to Honeywell)
   Years: 2016–2017
   Role: Program Manager (2017)
2. Program: Precise Robust Inertial Guidance for Munitions: Advanced Inertial Micro Sensors (PRIGM:AIMS)
   Sponsor: DARPA
   Institution: Draper
   Years: 2016–2017
   Role: Program Manager (2017)
1. Program: Chip-Scale Combinatorial Atomic Navigator (C-SCAN)
   Sponsor: DARPA
   Institution: Draper
   Years: 2013–2017
   Role: Task Lead (2013–2015); Technical Director (2015–2017)

Teaching

University of Wisconsin-Madison

ECE 601: Introduction to Quantum Sensing — F2023
Special topics course (developed by instructor) that introduces fundamental concepts and applications of quantum sensing technologies to undergraduates.

EMA 550: Astrodynamics — S2021, S2022, S2023
Advanced undergraduate course on orbital mechanics

EMA 601/NE 602: Quantum Engineering with Atoms and Photons — F2020, F2021
Grad 50% Special topics course (developed by instructor) on the quantum and optical physics describing the quantum properties of atoms and how atoms interact with electromagnetic radiation, including light, as well as the application of quantum science to sensing, communication, and communication.

NE 427: Nuclear Instrumentation Laboratory — S2019, F2019, S2020, F2022
Undergraduate course consisting of both lecture and laboratory components. Topics include: counting statistics and error propagation, interactions of radiation with matter, Geiger-Mueller and other gas-filled counters, scintillation counters, neutron detection, gamma spectroscopy, range of radiation particles, coincidence measurements, and neutron activation analysis.

Harvard University

SPU 25: Science of the Physical Universe: Energy (Teaching Fellow) — Spring 2010

Educational Studies Program, MIT

High School Studies Program course "Elementary Nuclear Physics" — Spring 2006

Department of Physics, MIT

8.03: Wave Mechanics (Grader) — Fall 2005
8.01L: Classical Mechanics (Tutor) — Fall 2004

Service at UW-Madison

PhD Graduate Committee in Electrical and Computer Engineering (2023-2024)
Qualifying exam committee in Engineering Physics (2020-2023)
Faculty Senate (Oct 2020-2022)
Academic advising in EP for 1 MS and 7 undergraduate students

Faculty advisor for UW-Madison's chapter in American Institute of Aeronautics and Astronautics (AIAA)
Faculty mentor at Tau Beta Pi, UW-Madison chapter (2022)

Research advising at UW-Madison

Postdoctoral Researchers
Maryam Zahedian (December 2020-present)
Meryem Benelajla (January 2021-January 2022)

Graduate Students
Xuting Yang (Materials Science and Engineering, January 2019-present)
Ricardo Vidrio (Nuclear Engineering and Engineering Physics, April 2019-present)
Sarah Francis (Nuclear Engineering and Engineering Physics, September 2019-December 2021)
Zachary Jankowski (Electrical and Computer Engineering, September 2021-present)
Sabrina Wu (Electrical and Computer Engineering, June 2022-present)
Soyeon Choi (Physics, June 2022-May 2023)
Andrew Tong (Electrical and Computer Engineering, September 2023-)
Pree Mukherjee (Electrical and Computer Engineering, September 2023-)

Undergraduates and research interns
Zhengzhi Chen (Electrical and Computer Engineering, January 2019-2020)
John Doyle (Electrical and Computer Engineering, February 2019-2020)
Mazna Aljneibi (Nuclear Engineering and Engineering Physics, February 2019-2020)
Bryan Xu (Applied Mathematics, Engineering, and Physics, June 2020-June 2022)
Andrew Tong (Physics, August 2020-August 2023)
Jietian Liu (Applied Mathematics, Engineering, and Physics, September 2020-August 2022)
Steven Carpenter (Applied Mathematics, Engineering, and Physics, May 2021-present)
Sarah Perlowski (Physics, September 2021-present)
Kate Arutyunova (Physics and Electrical Engineering at MIT, Open Quantum Initiative Fellow, Summer 2022)
Sarah Perlowski (Physics, September 2021-present)
Veshnu Vemuri (Engineering Mechanics, September 2022-present)
Seamus Lavine (Engineering Mechanics, September 2022-May 2023)
Erin Diran-Ojo (Electrical and Computer Engineering at University of Michigan - Ann Arbor, Open Quantum Initiative Fellow, Summer 2023)

PhD Defense Committee
Zhenyang Xia (Electrical and Computer Engineering, 2019), Daniel Thrasher (Physics, 2020), Baris Ozguler (Physics, 2020), Alireza Shahsafi (Electrical and Computer Engineering, 2021); Gabriel Jaffe (Physics, 2021); Jad Salman (Elecctrical and Computer Engineering, 2021); Nathan Strachen (Electrical and Computer Engineering, 2021); Raymond Wambold (Electrical and Computer Engineering, 2021); Gregory Holdman (Physics, 2022); Jae Ha Ryu (Electrical and Computer Engineering, 2022); Benjamin Bachman (Chemistry, 2022), Chuanhong Vincent Liu (Physics, 2023), Colin Whistler (Physics, 2023), Susan Sorensen (Physics, 2023), Aedan Gardill (Physics, 2023), Leah Tom (Physics, 2023), Juan Bohorquez (Physics, 2023), Michael Bulatowicz (Physics, 2023), Boyuan Liu (Electrical and Computer Engineering, 2023)

Preliminary Exam Committees
Alireza Shahsafi (Electrical and Computer Engineering, 2019); Jad Salman (Electrical and Computer Engineering, 2019); Nathan Strachen (Electrical and Computer Engineering, 2019); Xiaoyu Jiang (Physics, 2020); Harry Fang (Materials Science and Engineering, 2021); Aedan Gardill (Physics, 2021); Xuting Yang (Materials Science

and Engineering, 2021); Hongyan Mei (Electrical and Computer Engineering, 2022); Ricardo Vidrio (Nuclear Engineering and Engineering Physics, 2022); Matt Cambria (Physics, 2022); Demeng Feng (Electrical and Computer Engineering, 2022); Cuauhtemoc Rodriguez Sanchez (Nuclear Engineering and Engineering Physics, 2022), Armand Keyhani (Nuclear Engineering and Engineering Physics, 2023), Qingyi Zhou (Electrical and Computer Engineering, 2023), Sanket Deshpande (Electrical and Computer Engineering, 2023)

Education initiatives and outreach

Faculty advisor for AIAA UW-Madison's Intercollegiate rocket engineering competition team at 2023 Spaceport America Cup

Faculty and research mentor for Open Quantum Initiative Fellowship program (2022, 2023)

Member of the American Semiconductor Academy (ASA) planning team, focusing on initiatives for semiconductor microelectronics education

Mentor for Lincoln High School Scientific Research Program in Yonkers, NY (2022)

Volunteer for Physics Fair at UW-Madison (2020, 2022)

Interviewee for local NBC news segments on UVC lights for disinfection (November 2020)

Faculty guest at *Women in Science & Engineering* dinner (2019, 2020)

Engineering Possibilities Showcase, Draper (2017)

NeXXt scholar program fellow, New York Academy of Sciences (2013–2014)

Volunteer, *Cambridge 8th grade Science and Engineering Showcase*, Harvard (2012)

Volunteer, *NanoDays*, Museum of Science, Boston, MA (2012)

"Diamonds and light." Podcast. *Museum of Science Podcast*, Boston, MA (2012)

Tutor and Science Olympiad advisor for Cambridge School Volunteers, Cambridge Rindge and Latin School (2008–2010)