

# Curriculum Vitae

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## Education

- Ph.D.** *Neutron Interactions in the CUORE Neutrinoless Double Beta Decay Experiment*  
Department of Physics, University of California, Berkeley  
December 2008
- A.B.-A.M.** Department of Physics, Harvard University, Cambridge, MA  
June 2003, *Magna cum laude*

## Appointments

- 2023 –** Professor, Drexel University. Experimental neutrino physics research. Neutrinoless double beta decay with EXO-200 (co-Spokesperson) and nEXO. Reactor anti-neutrino spectrum measurement and oscillation search with PROSPECT. Neutrino oscillations with DUNE.
- 2019 – 2023** Associate Dean of Graduate Education, College of Arts & Sciences, Drexel University.
- 2017 – 2023** Associate Professor, Drexel University. See above.
- 2012 – 2017** Assistant Professor, Drexel University. See above.
- 2008 – 2012** Postdoctoral Researcher, Stanford University. EXO-200 low radioactivity construction, cryogenic systems, and operations. Run Coordinator and Technical Coordinator.

## Research Grants

- 2015 – 2026** DOE Office of Science NP grant, Principal Investigator, “Neutrinoless double beta decay at Drexel.”
- 2021 – 2025** DOE Office of Science HEP grant, co-Investigator, “Experimental Particle Physics at Drexel.”
- 2017 – 2021** DOE Office of Science HEP grant, co-Investigator, “Neutrino and Dark Matter Physics at Drexel.”
- 2014 – 2017** DOE Office of Science HEP grant, co-Investigator, “Neutrino Physics at Drexel.”
- 2013 – 2015** Charles E. Kaufman Foundation New Investigator Grant, Principal Investigator, “Solid Xenon Bolometers for Radiation Detection.”

## Awards and Fellowships

- 2022** Global Engagement Funding Award, Drexel University.
- 2019** International Travel Award, Drexel University.
- 2018** Sabbatical leave for academic year 2018-2019, Drexel University.
- 2016** Provost’s Award for Outstanding Early-Career Scholarly Achievement, Drexel University.
- 2016** Career Development Award, Drexel University.
- 2015** Outstanding Faculty Mentor, Drexel University Graduate Student Association.
- 2015** CoAS Teaching Excellence Award, Drexel University.
- 2014** Co-op Employer of the Year, Drexel University.
- 2005 – 2008** Student Employee Graduate Research Fellowship, Lawrence Livermore National Laboratory
- 2003 – 2005** Graduate Opportunity Program Fellowship, University of California, Berkeley

## Publications

81. *An integrated online radioassay data storage and analytics tool for nEXO.*  
R. Tsanget *et al.*, *NIM A*, **1055**, 168477 (2023).
80. *Generative Adversarial Networks for Scintillation Signal Simulation in EXO-200.*  
S. Li *et al.*, *JINST*, **18**, P06005 (2023).
79. *Calibration strategy of the PROSPECT-II detector with external and intrinsic sources.*  
M. Andriamirado *et al.*, *JINST* **18**, P06010 (2023).
78. *Search for MeV Electron Recoils from Dark Matter in EXO-200.*  
S. Al Kharusi, *et al.*, *Phys. Rev. D* **107**, 012007 (2023).
77. *Performance of novel VUV-sensitive Silicon Photo-Multipliers for nEXO.*  
G. Gallina *et al.*, *EPJC* **82**, 1125 (2022).
76. *Development of a  $^{127}\text{Xe}$  calibration source for nEXO.*  
B.G. Lenardo, *et al.*, *JINST* **17**, P07028 (2022).
75. *Joint Determination of Reactor Antineutrino Spectra from  $^{235}\text{U}$  and  $^{239}\text{Pu}$  Fission by Daya Bay and PROSPECT.*  
F.P. An *et al.*, *PRL* **128**, 081801 (2022).
74. *Joint Measurement of the  $^{235}\text{U}$  Antineutrino Spectrum by PROSPECT and STEREO.*  
H. Almazán *et al.*, *PRL* **128**, 081802 (2022).
73. *Scintillation light detection in the 6-m drift-length ProtoDUNE Dual Phase liquid argon TPC.*  
A. Abed Abud *et al.*, *European Physical Journal C* **82**, 618 (2022).
72. *Low exposure long-baseline neutrino oscillation sensitivity of the DUNE experiment.*  
A. Abed Abud *et al.*, *Phys. Rev. D* **105**, 072006 (2022).
71. *nEXO: Neutrinoless double beta decay search beyond  $10^{28}$  year half-life sensitivity.*  
G. Adhikari *et al.*, *J. Phys. G* **49**, 015104 (2022).
70. *The EXO-200 detector, part II: Auxiliary systems.*  
N. Ackerman, *et al.*, *JINST* **17**, P02015 (2022).
69. *Design, construction and operation of the ProtoDUNE-SP Liquid Argon TPC.*  
A. Abed Abud *et al.*, *JINST* **17**, P01005 (2022).
68. *Search for Majoron-emitting modes of  $^{136}\text{Xe}$  double beta decay with the complete EXO-200 dataset.*  
S. Al Kharusi, *et al.*, *Phys. Rev. D* **104**, 112002 (2021).
67. *Improved Short-Baseline Neutrino Oscillation Search and Energy Spectrum Measurement with the PROSPECT Experiment at HFIR.*  
M. Andriamirado, *et al.* *Phys. Rev. D* **103**, 032001 (2021).
66. *Event Reconstruction in a Liquid Xenon Time Projection Chamber with an Optically-Open Field Cage.*  
T. Stiegler, *et al.*, *NIM A* **1000**, 165239 (2021).
65. *Searching for solar KDAR with DUNE.*  
A. Abed Abud *et al.*, *JCAP*, 065 (2021).
64. *Limits on Sub-GeV Dark Matter from the PROSPECT Reactor Antineutrino Experiment.*  
M. Andriamirado, *et al.*, *Phys. Rev. D* **104**, 012009 (2021).

63. *First results on ProtoDUNE-SP liquid argon time projection chamber performance from a beam test at the CERN Neutrino Platform.*  
B. Abi, *et al.* *JINST* **15**, P12004 (2021).
62. *Reflectivity of VUV-sensitive silicon photomultipliers in liquid Xenon.*  
M. Wagenpfeil *et al.*, *JINST* **16**, P08002 (2021).
61. *Reflectance of Silicon Photomultipliers at Vacuum Ultraviolet Wavelengths.*  
P Lv, *et al.* *IEEE Trans. Nucl. Sci.* **67**, 2501(2020).
60. *Neutrino interaction classification with a convolutional neural network in the DUNE far detector.*  
B. Abi, *et al.* *Phys.Rev D* **102**, 092003 (2020).
59. *Long-baseline neutrino oscillation physics potential of the DUNE experiment.*  
B. Abi, *et al.* *Eur.Phys.J. C* **80**, 978 (2020).
58. *Measurement of the scintillation and ionization response of liquid xenon at MeV energies in the EXO-200 experiment.*  
G. Anton, *et al.* *Phys. Rev. C*, **101**, 065501 (2020).
57. *Measurement of the Spectral Shape of the  $\beta$ -decay of  $^{137}\text{Xe}$  to the Ground State of  $^{137}\text{Cs}$  in EXO-200 and Comparison with Theory.*  
S. Al Kharusi, *et al.* *PRL*, **124**, 232502 (2020).
56. *Measurements of electron transport in liquid and gas xenon using a laser-driven photocathode.*  
O. Njoya, *et al.* *NIM A*, **972**, 163965 (2020).
55. *Nonfuel antineutrino contributions in the ORNL High Flux Isotope Reactor (HFIR).*  
A. Balantekin, *et al.* *Phys. Rev. C*, **101**, 054605 (2020).
54. *Reflectivity and PDE of VUV4 Hamamatsu SiPMs in Liquid Xenon.*  
P. Nakarmi, *et al.* *JINST*, **15**, P01019 (2020).
53. *Search for Neutrinoless Double-Beta Decay with the Complete EXO-200 Dataset.*  
G. Anton, *et al.* *PRL*, **123**, 161802 (2019).
52. *Simulation of charge readout with segmented tiles in nEXO.*  
Z. Li, *et al.* *JINST*, **14**, P09020 (2019).
51. *Neutrinoless Double Beta Decay: Status and Prospects.*  
M.J. Dolinski, A.W.P. Poon, and W. Rodejohann, *Annu. Rev. Nucl. Part. Sci.* **69**, 219 (2019).
50. *The Radioactive Source Calibration System of the PROSPECT Reactor Antineutrino Detector.*  
J. Ashenfelter, *et al.*, *NIM A* **944**, 162465 (2019).
49. *Characterization of the Hamamatsu VUV4 MPPCs for nEXO.*  
G. Gallina, *et al.* *NIM A* **940**, 371 (2019).
48. *A Low Mass Optical Grid for the PROSPECT Reactor Antineutrino Detector.*  
J. Ashenfelter, *et al.* *JINST* **14**, 04014 (2019).
47. *Lithium-loaded Liquid Scintillator Production for the PROSPECT experiment.*  
J. Ashenfelter, *et al.* *JINST* **14**, 03026 (2019).
46. *Measurement of the Antineutrino Spectrum from  $^{235}\text{U}$  Fission at HFIR with PROSPECT.*  
J. Ashenfelter, *et al.* *PRL* **122**, 251801 (2019).

45. *The PROSPECT Reactor Antineutrino Experiment.*  
J. Ashenfelter, et al. *NIM A* **922**, 287-309 (2019).
44. *Imaging individual Ba atoms in solid xenon for barium tagging in nEXO.*  
C. Chambers, et al. *Nature* **569**, 203-207 (2019).
43. *VUV-sensitive Silicon Photomultipliers for Xenon Scintillation Light Detection in nEXO.*  
A. Jamil, et al. *IEEE Trans.Nucl.Sci.* **65**, no.11 (2018).
42. *First search for short-baseline neutrino oscillations at HFIR with PROSPECT.*  
J. Ashenfelter, et al. *PRL* **121**, 251802 (2018).
41. *Study of Silicon Photomultiplier Performance in External Electric Fields.*  
X.L. Sun et al. *JINST* **13**, 09006 (2018).
40. *Performance of a segmented  $^6\text{Li}$ -loaded liquid scintillator detector for the PROSPECT experiment.*  
J. Ashenfelter, et al. *JINST* **13**, 06023 (2018).
39. *Deep Neural Networks for Energy and Position Reconstruction in EXO-200.*  
S. Delaquis, et al. *JINST* **13**, 08023 (2018).
38. *Search for nucleon decays with EXO-200.*  
J.B. Albert, et al. *Phys. Rev. D* **97**, 072007 (2018).
37. *Sensitivity and Discovery Potential of nEXO to Neutrinoless Double Beta Decay.*  
J.B. Albert, et al. *Phys. Rev. C* **97**, 065503 (2018).
36. *Characterization of an Ionization Readout Tile for nEXO.*  
M. Jewell, et al. *JINST*, **13**, 01006 (2018).
35. *Search for Neutrinoless Double-Beta Decay with the Upgraded EXO-200 Detector.*  
J.B. Albert, et al. *Physical Review Letters* **120** 072701 (2018).
34. *Searches for Double Beta Decay of  $^{134}\text{Xe}$  with EXO-200.*  
J.B. Albert, et al. *Phys. Rev. D* **96**, 092001 (2017).
33. *Trace radioactive impurities in final construction materials for EXO-200.*  
D.S. Leonard, et al. *Nucl. Instr. Meth. A* **871**, 169 (2017).
32. *Measurement of the Drift Velocity and Transverse Diffusion of Electrons in Liquid Xenon with the EXO-200 Detector.*  
J.B. Albert, et al. *Phys. Rev. C* **95**, 025502 (2017).
31. *The PROSPECT Physics Program.*  
J. Ashenfelter, et al. *Journal of Physics G* **43**, 113001 (2016).
30. *An Optimal Energy Estimator to Reduce Correlated Noise for the EXO-200 Light Readout.*  
C.G. Davis, et al. *JINST* **11**, 07015 (2016).
29. *First Search for Lorentz and CPT Violation in Double Beta Decay with EXO-200.*  
J.B. Albert, et al. *Phys. Rev. D* **93**, 072001 (2016).
28. *Cosmogenic Backgrounds to  $0\nu\beta\beta$  in EXO-200.*  
J.B. Albert, et al. *JCAP* **2016**, 029 (2016).
27. *Search for  $2\nu\beta\beta$  decay of  $^{136}\text{Xe}$  to the  $0_1^+$  excited state of  $^{136}\text{Ba}$  with the EXO-200 liquid xenon detector.*  
J.B. Albert, et al. *Phys. Rev. C* **93**, 035501 (2016).

26. *Background Radiation Measurements at High Power Research Reactors.*  
J. Ashenfelter, et al. *Nuclear Instruments and Methods A* **806**, 401 (2016).
25. *Light Collection and Pulse-Shape Discrimination in Elongated Scintillator Cells for the PROSPECT Reactor Antineutrino Experiment.*  
J. Ashenfelter, et al. *JINST* **10** P11004 (2015).
24. *Measurements of the ion fraction and mobility of alpha and beta decay products in liquid xenon using EXO-200.*  
J.B. Albert, et al. *Phys. Rev. C* **92**, 045504 (2015).
23. *Investigation of radioactivity-induced backgrounds in EXO-200.*  
J.B. Albert, et al. *Phys. Rev. C* **92**, 015503 (2015).
22. *An RF-only ion-funnel for extraction from high-pressure gases.*  
T. Brunner, et al. *International Journal of Mass Spectrometry* **379**, 110 (2015).
21. *Spectroscopy of Ba and Ba<sup>+</sup> deposits in solid xenon for barium tagging in nEXO.*  
B. Mong, et al. *Phys. Rev. A* **91**, 022505 (2015).
20. *An apparatus to manipulate and identify individual Ba ions from bulk liquid Xe.*  
K. Twelker, et al. *Rev. Sci. Instr.* **85**, 095114 (2014).
19. *Search for Majoron-emitting modes of double-beta decay of <sup>136</sup>Xe with EXO-200.*  
J.B. Albert, et al. *Phys. Rev. D* **90**, 092004 (2014).
18. *Search for Majorana neutrinos with the first two years of EXO-200 data.*  
J.B. Albert et al. *Nature* **510**, 229 (2014).
17. *An improved measurement of the  $2\nu\beta\beta$  half-life of Xe-136 with EXO-200.*  
J.B. Albert et al. *Phys. Rev. C* **89**, 015502 (2014).
16. *Search for Neutrinoless Double-Beta Decay in <sup>136</sup>Xe with EXO-200.*  
M. Auger et al. *Physical Review Letters* **109**, 032505 (2012).
15. *The EXO-200 detector, part I: Detector design and construction.*  
M. Auger et al. *JINST* **7**, P05010 (2012).
14. *Xenon purity analysis for EXO-200 via mass spectrometry.*  
A. Dobi et al. *Nuclear Instruments and Methods A* **675**, 40 (2012).
13. *Double-beta decay of <sup>130</sup>Te to the first 0<sup>+</sup> excited state of <sup>130</sup>Xe with CUORICINO.*  
E. Andreotti et al. *Physical Review C* **85**, 045503 (2012).
12. *Observation of Two-Neutrino Double-Beta Decay in Xe-136 with the EXO-200 Detector.*  
N. Ackerman et al. *Physical Review Letters* **107**, 212501 (2011).
11. *A xenon gas purity monitor for EXO.*  
A. Dobi et al. *Nuclear Instruments and Methods A* **659**, 215-228 (2011).
10. *A Magnetically-driven piston pump for ultra-clean applications.*  
R. Neilson et al. *Review of Scientific Instruments* **82**, 105114 (2011).
9. *<sup>130</sup>Te Neutrinoless Double-Beta Decay with CUORICINO.*  
E. Andreotti et al. *Astropartical Physics* **34**, 822-831 (2011).

8. *Search for beta plus/EC double beta decay of  $^{120}\text{Te}$ .*  
E. Andreotti *et al.* *Astroparticle Physics* **34**, 643-648 (2011).
7. *A Simple radionuclide-driven single-ion source.*  
M. Montero Diez *et al.* *Review of Scientific Instruments* **81**, 113301 (2010).
6. *Muon-induced backgrounds in the CUORICINO experiment.*  
E. Andreotti *et al.* *Astroparticle Physics* **34**, 18-24 (2010).
5. *Characterization of large area APDs for the EXO-200 detector.*  
R. Neilson *et al.* *Nuclear Instruments and Methods A* **608**, 68-75 (2009).
4. *Results from a search for the 0 neutrino beta beta-decay of Te-130.*  
C. Arnaboldi *et al.* *Physical Review C* **78**, 035502 (2008).
3. *Measurement of cross sections for the  $^{63}\text{Cu}(\alpha, \gamma)^{67}\text{Ga}$  reaction from 5.9 to 8.7 MeV.*  
M.S. Basunia *et al.* *Physical Review C* **71**, 035801 (2005).
2. *Tunable devices based on dynamic positioning of micro-fluids in micro-structured optical fiber.*  
C. Kerbage *et al.* *Optics Communications* **204**, 179 (2002).
1. *Tunable microfluidic optical fiber.*  
P. Mach *et al.* *Applied Physics Letters* **80**, 4294 (2002).

## Conference Proceedings

4. *Development and characterization of noble solid bolometers.*  
P.L.R. Weigel, E.V. Hansen, M.J. Dolinski, *Proceedings of the 2019 Meeting of the Division of Particles and Fields of the American Physical Society SLAC eConf C1907293*, arXiv:1910.06276 (2019).  
Prepared for APS DPF 2019.
3. *The Enriched Xenon Observatory: EXO-200 and  $\text{Ba}^+$  tagging.*  
M.J. Dolinski for the EXO Collaboration, *Nuclear Physics B Proceedings Supplement* **229-232**, 124 (2012).  
Prepared for Neutrino 2010.
2. *The Enriched Xenon Observatory.*  
M.J. Dolinski for the EXO Collaboration, *AIP Conference Proceedings* **1182**, 92-95 (2009).  
Prepared for CIPANP 2009.
1. *Cross sections for neutron interactions in the CUORE neutrinoless double beta decay experiment.*  
M.J. Dolinski *et al.* *Nuclear Physics B Proceedings Supplement* **221**, 341 (2011).  
Prepared for Neutrino 2006.

## Invited talks

41. *Neutrino oscillation experiments at short and long baselines.*  
Department of Physics and Physical Oceanography Colloquium, University of North Carolina Wilmington, Wilmington, NC, October 2022.
40. *Exploring the physics of neutrino mass with EXO-200 and nEXO.*  
Department of Physics Colloquium, Drexel University, Philadelphia, PA, October 2022.

39. *Instrumentation for next-generation neutrinoless double beta decay searches.*  
Invited talk at the 28th International Nuclear Physics Conference, Cape Town, South Africa, September 2022.
38. *EXO-200 recent results and nEXO outlook.*  
High Energy Physics Seminar, University of Pennsylvania, Philadelphia, PA, August 2022.
37. *Experimental Overview of Neutrinoless Double Beta Decay.*  
Invited talk at Nuclear and Particle Theory Meeting, Washington University in St. Louis (virtual), May 2021.
36. *Neutrinoless Double Beta Decay Searches: Future Status and Interplay.*  
Invited talk at 11th CMB-S4 Workshop, online, August 2020.
35. *EXO-200 and nEXO.*  
Invited session talk at the American Physical Society April Meeting, online, April 2020.
34. *Neutrino Mass Overview.*  
Plenary talk at the Fermilab workshop Topics in Cosmic Neutrino Physics, Batavia, IL, October 2019.
33. *Neutrino Physics with EXO-200 and nEXO.*  
Department of Physics Colloquium, University at Albany, Albany, NY, October 2019.
32. *Neutrinoless Double Beta Decay.*  
Plenary talk at Lepton Photon 2019, Toronto, Canada, August 2019.
31. *Introduction to neutrinoless double beta decay – Experiment.*  
Plenary talk at the ECT\* workshop on Progress and Challenges in the Theory of Neutrinoless Double Beta Decay, Trento, Italy, July 2019.
30. *Neutrinoless double beta decay.*  
Invited talk at the American Physical Society Mid-Atlantic Section Meeting, University of Maryland, College Park, MD, November 2018.
29. *Neutrinoless double beta decay.*  
Plenary talk at Gordon Research Conference on Photonuclear Reactions, Holderness, NH, August 2018.
28. *Studying Neutrinos and Nuclear Reactors with PROSPECT.*  
Department of Physics Colloquium, Indiana University Bloomington, IN, April 2018.
27. *Antimatter, neutrinos, and the search for rare events.*  
Department of Physics Colloquium, University of Tennessee, Knoxville, TN, March 2018.
26. *Neutrino physics with noble liquid detectors.*  
High Energy Physics Seminar, University of California, San Diego, CA, February 2018.
25. *Current and future searches for neutrinoless double beta decay.*  
Department of Physics Colloquium, University of California, San Diego, CA, October 2017.
24. *Searching for neutrinoless double beta decay with EXO-200 and nEXO.*  
High Energy Physics Seminar, McGill University, Montreal, Canada, October 2017.
23. *Current and future searches for neutrinoless double beta decay.*  
Physics Division Colloquium, Argonne National Laboratory, Naperville, IL, September 2017.

22. *Neutrino mass and neutrinoless double beta decay.*  
Plenary talk at DPF 2017, Fermilab, Batavia, IL, August 2017.
21. *Current and future searches for neutrinoless double beta decay.*  
Department of Physics Colloquium, Caltech, Pasadena, CA, May 2017.
20. *Neutrino physics with liquid xenon detectors.*  
High Energy Physics Seminar, Caltech, Pasadena, CA, May 2017.
19. *Neutrinoless Double Beta Decay in Xenon.*  
LNS Colloquium, MIT, Boston, MA, October 2016.
18. *Current and future searches for neutrinoless double beta decay.*  
Plenary talk at DNP 2016 Fall Meeting, Vancouver, CA, October 2016.
17. *Open questions in neutrino physics.*  
Department of Physics Colloquium, Drexel University, Philadelphia, PA, October 2016.
16. *Neutrinoless double beta decay with EXO-200 and beyond.*  
Physics Department Colloquium, University of Chicago, Chicago, IL, April 2016.
15. *Neutrinoless double beta decay with cryogenic xenon detectors.*  
High Energy Physics Seminar, University of Pennsylvania, Philadelphia, PA, November 2015.
14. *Neutrinoless double beta decay with EXO-200 and nEXO.*  
High Energy Physics Seminar, Yale University, New Haven, CT, October 2015.
13. *Studying neutrinos and nuclear reactors with PROSPECT.*  
High Energy Physics Seminar, University of Chicago, Chicago, IL, October 2015.
12. *Studying neutrinos and nuclear reactors with PROSPECT.*  
High Energy Physics Seminar, University of Illinois, Urbana, IL, September 2015.
11. *Neutrinoless double beta decay with EXO-200 and nEXO.*  
Neutrino Physics Seminar, Fermilab, Batavia, IL, September 2015.
10. *Current and future searches for neutrinoless double beta decay.*  
Plenary talk at the Conference on Science at the Sanford Underground Research Facility, South Dakota School of Mines & Technology, Rapid City, SD, May 2015.
9. *Neutrino Physics with EXO-200 and nEXO.*  
Department of Physics Colloquium, Temple University, Philadelphia, PA, September 2014.
8. *Neutrino physics beyond 2030.*  
Physics Department Colloquium, Drexel University, Philadelphia, PA, May 2013.
7. *Neutrinoless double beta decay with EXO and beyond.*  
High Energy Physics Seminar, Princeton University, Princeton, NJ, March 2013.
6. *The next next generation of neutrinoless double beta decay searches.*  
Invited talk at Aspen Winter Workshop, Aspen, CO, February 2013.
5. *Neutrino Physics with the Enriched Xenon Observatory.*  
Physics Department Colloquium, Northeastern University, Boston, MA, January 2013
4. *The search for neutrino mass and the Enriched Xenon Observatory.*  
Physics Department Colloquium, Drexel University, Philadelphia, PA, April 2012.



3. *The Enriched Xenon Observatory.*  
Physics Department Colloquium, Cal Poly, San Luis Obispo, CA, November 2011.
2.  *$0\nu\beta\beta$  in Xenon EXO and NEXT.*  
Plenary talk at BLV2011, Gatlinburg, TN, September 2011.
1. *The Enriched Xenon Observatory: EXO-200 and  $Ba^+$  tagging.*  
Plenary talk at Neutrino 2010, Athens, Greece, June 2010.

## Courses Taught

- Spring 2022-2023 Physics I399: Techniques in Experimental Nuclear Physics (ind. study)
- Winter 2022-2023 Physics 475/576: Introduction to Particle Physics
- Winter 2022-2023 Physics 322: Electromagnetic Fields II
- Fall 2022-2023 Physics 321: Electromagnetic Fields I
- Winter 2021-2022 Physics 322: Electromagnetic Fields II
- Fall 2021-2022 Physics 321: Electromagnetic Fields I
- Winter 2020-2021 Physics 317: Statistical Mechanics
- Winter 2020-2021 Physics 322: Electromagnetic Fields II
- Fall 2020-2021 Physics T580: Liquid Scintillator for Particle Physics Applications (ind. study)
- Fall 2020-2021 Physics 321: Electromagnetic Fields I
- Winter 2019-2020 Physics 317: Statistical Mechanics
- Fall 2019-2020 Physics 326: Quantum Mechanics I
- Fall 2019-2020 UNIV 101: The Drexel Experience
- Fall 2018-2019 Physics 330: Introduction to Nuclear Physics
- Fall 2018-2019 UNIV 101: The Drexel Experience
- Spring 2017-2018 Physics 330: Introduction to Nuclear Physics
- Winter 2017-2018 Physics 317: Statistical Mechanics
- Fall 2017-2018 Physics 330: Introduction to Nuclear Physics
- Fall 2017-2018 UNIV 101: The Drexel Experience
- Winter 2016-2017 Physics 476/576: Introduction to Particle Physics
- Winter 2016-2017 Physics 322: Electromagnetic Fields II
- Fall 2016-2017 Physics 321: Electromagnetic Fields I
- Spring 2015-2016 Physics 135: How Things Work
- Winter 2015-2016 Physics 102: Fundamentals of Physics II
- Fall 2015-2016 Physics 217: Thermodynamics

- Winter 2014-2015 Physics 102: Fundamentals of Physics II
- Fall 2014-2015 Physics 217: Thermodynamics
- Fall 2014-2015 Physics 476/576: Introduction to Particle Physics
- Spring 2013-2014 Physics 135: How Things Work
- Fall 2013-2014 Physics 217: Thermodynamics
- Fall 2012-2013 Physics 476/576: Nuclear and Particle Physics

## **Outreach and Education Activities**

- Program Board Member and poster reviewer for Start Talking Science, an annual public event for interdisciplinary research communication, Philadelphia, PA, 2014 – present.
- Local organizing committee member for the 2024 Conference for Undergraduate Women in Physics, University of Pennsylvania, 2023 – present.
- Mentor with the APS National Mentoring Community, 2020 – 2023.
- Accessibility and technical support volunteer for Black in Physics Week (virtual), 2022.
- Participant in a Meet the Scientists event at the American Junior Academy of Science Conference, 2022.
- Lecturer on Neutrino Physics at TRISEP Summer School, Sudbury, ON, Canada (virtual), 2021.
- Lecturer on neutrino physics at National Nuclear Physics Summer School, University of Tennessee, Knoxville, 2019.
- Seminar speaker on sterile neutrinos at National Nuclear Physics Summer School, Yale University, 2018.
- Program organizer for Kaczmarczik Day, an annual outreach event for 600+ Philadelphia high school students hosted by the Drexel University Department of Physics, 2014 – 2018.
- Organizer, co-facilitator, and lecturer for enrichment workshop on “Astroparticle Physics” at the Julia R. Masterman Laboratory and Demonstration School, Philadelphia, PA, 2017 and 2018.
- Lecturer on neutrinoless double beta decay and direct neutrino mass measurements for International Neutrino Summer School, Fermilab, 2017.
- Invited speaker at Pennsylvania Young Women in Physics Conference, Bucknell University, 2016.
- Lecturer on neutrinoless double beta decay at the SLAC Summer Institute, Menlo Park, CA, 2013.
- Facilitator for workshop on “Diversity in Physics” at the SPS Zone 3/SEPA AAPT Meeting, Drexel University, 2013.
- Seminar speaker on the search for neutrinoless double beta decay with EXO-200 at SLAC Summer Institute 2012, Menlo Park, CA, July 2012.
- Local organizing committee member for the 7th Annual Western Conference for Undergraduate Women in Physics, Stanford University, 2011-2012.

## Undergraduate Trainees

- 6 month cooperative education student employees: Jeffrey Johnson (2022), Natalya Pletskova (2021), Zeviel Imani (2020), Sarah Adams (2018), James Minock (2017), Jared Gdanski (2017), Cuong Trinh (2016), Edward Callaghan (2016), Brian Goddard (2015), Tristan Winick (2015), Jeremy Gaison (2014), Leo Paul Bellefleur (2014), and Michael Jewell (2013).
- STAR summer students: Lourdes Akirtha (2023), Sebastian Brunhart (2019), Adam Dunlop (2019), Othon Tzamtzis (2018), Brian Milenki (2017), James Minock (2016), Philip Weigel (2016), Jared Haughton (2014), and Tristan Winick (2013).
- Pathway to SuperNova student: Nick Yancy (2023) and Caira Dixon (2022)
- Other student researchers: Nicole Khusid (2019, 2020), Ruilin Li (2015, 2016), and James Streuli (2014, 2015)
- Senior research students with thesis titles:
  - 2021-2022. Cordelia David, “Signal to Noise Ratio in Space-Based Optical Systems” (advisor of record).
  - 2021-2022. Bobby Naylor, “The Impact of Cross-Talk on PROSPECT-II Optical Design.”
  - 2020-2021. Zeviel Imani, “Optimization of the DUNE Focusing Horns for the Upcoming 2.4 MW Beam Upgrade” (advisor of record).
  - 2020-2021. Benjamin Arndell, “Design and Thermal Simulation of a Solid Xenon Growth Chamber.”
  - 2020-2021. Xinyu Jiang, “Simulating the Contribution of the High Voltage Feedthrough to the Background Radioactivity for the nEXO Neutrinoless Double Beta Decay Search.”
  - 2019-2020. James Minock, “Cosmic Ray Muons and the PROSPECT Detector.”
  - 2019-2020. Philip Weigel, “Solid Noble Bolometers.”
  - 2018-2019. Riley Stanford, “Environmentally Friendly Film Formation at Lia Diagnostics” (advisor of record).
  - 2017-2018. David Georgeanni, “Liquid Xenon-136 Level Sensor Design for nEXO.”
  - 2017-2018. Carson Lloyd, “EXO-200 Phase II  $\alpha$ -decay Analysis with Machine Learning Reconstruction Techniques.”
  - 2017-2018. Caroline Zhang, “PROSPECT Sensitivity to Sterile Neutrinos.”
  - 2016-2017. Leo Paul Bellefleur, “Modeling Cryogenic Fluids For Future Neutrino Experiments.”
  - 2015-2016. Brian Goddard, “Calibration Studies for PROSPECT: A Precision Reactor Oscillation and SPECTrum Measurement.”
  - 2014-2015. Jeremy Gaison, “Developing a Short Baseline Neutrino Detector Prototype.”
  - 2014-2015. Dylan Temples, “Real Time Liquid Xenon Purity Detector.”
  - 2013-2014. Michael Jewell, “UV LED Based Purity Monitor for nEXO.”
  - 2013-2014. Courtney Slocum, “Solid Xenon Crystal Growth for Neutrinoless Double Beta Decay Detectors.”
  - 2013-2014. Jacob Zettlemoyer, “Search for Sterile Neutrino Oscillations Using Short Baseline Reactor Antineutrinos.”
  - 2012-2013. Bradley Daniel, “Search for Neutrino-less Double Beta Decay Using  $^{136}\text{Xe}$  Crystal as Solid Source Detector.”

- 2012-2013. Michael Demaria, “Bolometer Design For Detecting Neutrinoless Double-Beta Decay in a Xenon Crystal.”
- 2012-2013. Nathan Scott, “Dissolved sources in liquid xenon detectors, with applications to EXO-200” (defended Summer 2014).
- 2012-2013. Nathan Thiem, “Constructing a Liquid Xenon Time Projection Chamber.”

## Doctoral Trainees

- Ariella Atencio, nEXO charge collection hardware characterization (PhD., 2022 – present)
- Ian Kotler, DUNE beam simulation project (MS, 2021 – 2022, PhD., 2022 – present)
- Brady Eckert, EXO-200 detector response and physics studies (PhD., 2021 – present)
- Shashank Jayakumar, PROSPECT-II optical simulations (PhD., 2020 – present)
- Prakash Gautam, PhD. granted September 2022, Dissertation title “Calibration of light response for the nEXO neutrinoless double beta decay search with machine learning” (2018 – 2022)
- Olga Kyzylova, PhD. granted March 2021, Dissertation title “Characterization of Time-Varying Backgrounds in the PROSPECT Experiment” (2017 – 2021)
- Erin Hansen, PhD. granted December 2019, Dissertation title “Radon injection for light response calibration of the nEXO detector” (2016 – 2019)
- Yi-Hsuan Lin, PhD. granted September 2018, Dissertation title “A flow-based model for electronegative impurity transport in EXO-200” (2013 – 2018)
- Erica Smith, PhD. granted March 2016, Dissertation title “Characterization of Radon Progeny in EXO-200 Using Machine Learning Algorithms” (2013 – 2016)

## Masters Trainees

- Evan Chambers, MS granted June 2023, MS Thesis title “Radon Daughter Ion Implantation into the nEXO Cathode” (2021 – 2023)
- Sebastian Brunhart, BS-MS in Chemical Engineering granted June 2023, MS Thesis title “Mathematical Modeling of a Pilot-Scale Distillation Column for the Removal of Radon from Xenon,” co-advisor Nicolas Alvarez (2022 – 2023)

## Postdoctoral Trainees

- Adrian Lozano Sanchez (PhD., 2022), DUNE/LBNF and PROSPECT (October 2022 – present)
- Pierce Weatherly (PhD. University of California, Irvine, 2019), DUNE/LBNF and PROSPECT (August 2019 – September 2022)
- Arun Kumar Soma (PhD. Banaras Hindu University, 2013), nEXO cryogenics and calibration (October 2019 – December 2020)
- Michael Richman (PhD. University of Maryland, College Park, 2014), nEXO (September 2018 – December 2019)
- Jonathan Insler (PhD. University of Rochester, 2011), PROSPECT and DUNE/LBNF (June 2016 – June 2018)

- Yung-Ruey Yen (PhD. University of Maryland, College Park, 2013), EXO-200/nEXO and PROSPECT (February 2014 – August 2018)

## Academic Service

- Graduate College Diversity Advisory Council, Drexel (member, 2022 – present)
- Drexel 2030 Strategic Plan Implementation Graduate Education Initiative Team, Drexel (member, 2021 – present)
- Department of Physics Diversity, Equity, and Inclusion Committee, Drexel (Chair, 2020 – present)
- Committee on Graduate Academic Affairs, Graduate College, Drexel (member, 2020 – 2023)
- University Committee on Graduate Affairs, Graduate College, Drexel (member, 2019 – 2023)
- Graduate Curriculum Committee, College of Arts and Sciences, Drexel (Chair, 2019 – 2023)
- Department of Physics Undergraduate Curriculum Committee, Drexel (member, 2012 – 2019)
- Senate Committee on Academic Affairs, Undergraduate Subcommittee, Drexel (member-at-large, 2017 – 2018)
- College of Arts and Sciences Undergraduate Curriculum Committee, Drexel (member, 2014 – 2018)
- Kaczmarczik Lecture Committee, Drexel (member 2014 - 2015, Chair 2016 – 2018)
- Department of Physics Teaching Faculty Hiring Committee, Drexel (member, 2015 – 2016)
- Department of Physics American Physical Society Committee on the Status of Women in Physics Site Visit Committee, Drexel (Chair, 2014–2015)
- Department of Physics Particle Physics Faculty Hiring Committee, Drexel (member, 2013 – 2014)

## Professional Service Activities

- Member of the Laboratori Nazionali del Gran Sasso Scientific Committee (appointed 2021 – 2024).
- Organizing committee member for the Town Hall on Fundamental Symmetries, Neutrinos, and Neutrons, part of the NSAC long-range planning process (2022).
- Review panel member focusing on installation and integration for the joint DOE/NSF SuperCDMS SNOLAB Operations Review (2022).
- LZ experiment's Department of Energy Critical Decision process and annual project reviewer for cryogenic and process systems (annual, 2015 – 2020).
- Convener for the Neutrino Physics track for the 2019 American Physical Society Division of Particles and Fields Meeting (2019).
- National Science Foundation Committee of Visitors for PHY, Nuclear Physics subcommittee (2019).
- Peer-review referee for the *Journal of Cosmology and Astroparticle Physics*, *European Journal of Physics C*, *Journal of Low Temperature Physics*, *Physical Review C*, and *Nature*.
- Mail reviewer for the American Association for the Advancement of Science, the Dutch Research Council, the Israel Science Foundation, the National Science Foundation, the Department of Energy Office of Science, and the Department of Energy Office of Science Graduate Student Research program.