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 Physics South 313  U.S. Citizen

## EDUCATION

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December 2019	Ph.D. Physics Enriched Xenon Observatory (EXO-200, nEXO) <i>Radon injection for light response calibration of the nEXO detector</i>	Drexel University, Philadelphia, PA Advisor: Dr. Michelle Dolinski
	Graduate Minor in Undergraduate STEM Education	
June 2013	M.S. Physics Daya Bay Neutrino Oscillations Experiment <i>Toy Monte Carlo Simulations to Accompany Muon Azimuthal Distribution Survey</i>	Rensselaer Polytechnic Institute, Troy, NY Advisor: Dr. James Napolitano
June 2012	B.S. Physics, <i>magna cum laude</i>	Rensselaer Polytechnic Institute, Troy, NY

## PROFESSIONAL APPOINTMENTS

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2020-present	Postdoctoral Scholar	University of California, Berkeley, Berkeley, CA
Summer 2023	Physics Instructor	University of California, Berkeley, Berkeley, CA
2016-2019	Graduate Researcher	Drexel University, Philadelphia, PA
2013-2015	Graduate Researcher	University of California, Los Angeles, Los Angeles, CA
2013-2014	Graduate Teaching Assistant	University of California, Los Angeles, Los Angeles, CA
2012-2013	Graduate Teaching Assistant	Rensselaer Polytechnic Institute, Troy, NY
2011-2012	Undergraduate Laboratory Facilitator	Rensselaer Polytechnic Institute, Troy, NY
2009-2012	Undergraduate Researcher	Rensselaer Polytechnic Institute, Troy, NY

## INSTRUCTION EXPERIENCE

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2023	<b>PHYS 105 (Analytic Mechanics) Instructor</b> University of California, Berkeley <ul style="list-style-type: none"><li>&gt; Instructor-of-record for upper division mechanics (Taylor).</li><li>&gt; Physics, engineering, and computer science majors. Data Science Domain Emphasis (Python) course.</li><li>&gt; 33 students : 1 instructor : 1 graduate student instructor</li><li>&gt; Course syllabus &amp; instructor evaluations available upon request. “She asks questions in such a way that makes us think past the surface-level details and quickly pull information from derived equations. Her awareness of student experience, accessibility, and her willingness to work with students is a trait I very much appreciated and made me enjoy this course so much more.”</li></ul>
2014 - 2015	<b>Personal Tutor</b> <ul style="list-style-type: none"><li>&gt; AP Physics B/C (Harvard-Westlake School, Los Angeles, CA)</li><li>&gt; University-level thermodynamics, fluids, waves, light, and optics</li><li>&gt; University-level electricity, magnetism, and modern physics</li></ul>
2013 - 2014	<b>Teaching Assistant</b> University of California, Los Angeles <ul style="list-style-type: none"><li>&gt; PHYS 6A - Physics for Life Sciences Majors: Mechanics (now PHYSICS 5A) (Giancoli) Developed context-rich problems for students to work on in groups in hour-long recitation sections. 3 sections per week. ~25-50 students/section attended regularly.</li><li>&gt; PHYS 17 - Introduction to Quantum Mechanics and Statistical Mechanics (Serway / Moses / Moyer) Developed and instructed hour-long recitation sections. In alignment with best practices, students worked in groups to solve problems and discuss solutions as a class. 1 section per week. 50 students/section attended regularly.</li></ul>
2012 - 2013	<b>Teaching Assistant</b> Rensselaer Polytechnic Institute <ul style="list-style-type: none"><li>&gt; PHYS 2510 (now 2210): Quantum Physics I (Townsend) In addition to expected responsibilities, taught two guest lectures for PHYS 2510 — one as a introduction to quantum mechanical operators, and one on the topic of Fourier transforms.</li><li>&gt; PHYS 4100: Introduction to Quantum Mechanics (Griffiths)</li></ul>
2011 - 2012	<b>Laboratory Facilitator</b> Rensselaer Polytechnic Institute <ul style="list-style-type: none"><li>&gt; PHYS 1150 - Honors Physics I (Halliday / Resnick / Krane)</li><li>&gt; PHYS 1250 - Honors Physics II (Halliday / Resnick / Krane)</li></ul>

## INSTRUCTION CERTIFICATION

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### Inclusive Research Mentor-Manager Training

Spring 2023

Intensive workshop series funded by the NSF and offered by the UCSF Office of Career and Professional Development. The course provides participants with a new framework to hire, teach, train and supervise research trainees, interns, and employees inclusively. This framework integrates education, management and leadership theory and is applied to the research laboratory culture.

### Drexel University Graduate Minor in Undergraduate STEM Education

December 2019

### Drexel CIRTL Associate Certificate

2019

Awarded in association with the Center for the Integration of Research, Teaching, and Learning (CIRTL), Drexel CIRTL Certificates distinguish emerging leaders in evidence-based teaching practices among future faculty.

## INSTRUCTION TRAINING & COURSEWORK

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### **CIRTL Network - First Year Faculty Teaching Academy**

Summer 2022

Intensive course designed for future faculty. Students will learn how to create a great learning experience for their classrooms while developing a solid foundation of best teaching practices and strategies.

### **CIRTL Network - Research Mentor Training**

Spring 2022

Students will develop their personal mentoring philosophy, learn how to articulate that philosophy across a variety of disciplines, and refine strategies for dealing with mentoring challenges.

### **Drexel GRAD 512 - Advanced Undergraduate STEM Pedagogical Techniques**

Summer 2019

Students will address approaches to utilizing technology tools to support implementation of active-learning, confront how learning involves more than content and includes metacognition, epistemology, and affective features. Term project: "Slack in the classroom: survey and pilot study"

### **Drexel GRAD 513 - Improving STEM Education Through Research**

Spring 2019

This course will teach students how to: search, read and understand the education literature to modify their approach to their teaching; design studies to address STEM education research questions; design effective grant proposals and publications in STEM education.

### **CIRTL Network - Diversity in the College Classroom**

Spring 2019

In this course, students develop practical classroom strategies that address "equity," "inclusion," "diversity," and related terms. Students consider research on bias and build a community of inquiry around ways diversity affects both our teaching and student learning.

### **CIRTL Network - Equity in STEM for all Genders**

Fall 2018

Students will study how gender bias impacts STEM training and careers. Participants will increase awareness of gender bias through analysis of identity, roles, and contexts where gender bias manifests in STEM university situations.

### **Drexel GRAD 514 - Quality Assessment Practices**

Summer 2018

Students will learn and apply best assessment practices in STEM learning environments to: develop their own cognitive and affective assessments aligned with learning objectives; provide students with appropriate formative feedback reflective of STEM learning; suggest modifications to STEM instructional practices based on assessment data.

### **Drexel GRAD T-580 - Foundations in Evidence-Based STEM Pedagogy**

Winter 2016

A graduate level introduction to evidence-based approaches to teaching STEM undergraduates. Discussion, research, and practice of a number of evidence-based pedagogical approaches, with an emphasis on understanding why changes to STEM teaching are important for promoting retention and diversity in STEM fields.

## UNDERGRADUATE MENTORING

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2021-present	<p><b>Shreya Puranam (B.S. Physics, UCB, 2024)</b> CUORE, CUPID</p> <ul style="list-style-type: none"> <li>➤ Analysis of CUORE detector waveforms for corrections to the Optimum Filter energy reconstruction. Principle Component Analysis and neural network implementation to improve energy resolution through an energy-dependent correction. Expected Senior Thesis (May 2024). Presented this work at the American Physical Society (APS) Division of Nuclear Physics (DNP) Fall 2023 Conference Experience for Undergraduates (CEU) poster session.</li> <li>➤ Analysis of neutron-induced gamma ray background of <math>^{100}\text{Mo}</math> using data from an experiment at the Tandem accelerator at TUNL. Calculation of cross sections and implications for background studies in CUPID. Presented this work at the APS DNP Fall 2022 CEU poster session.</li> </ul>
2021-present	<p><b>Anisha Yeddanapudi (B.S. Physics, UCB, 2024)</b> CUORE, CUPID</p> <ul style="list-style-type: none"> <li>➤ Analysis of <math>^{228}\text{Th}</math> gamma calibration data in CUORE to search for correlations between errors in energy reconstruction and physical topology of events in the CUORE detector, including possible connections to NTD placement and detector non-uniformities. Expected Senior Thesis (May 2024).</li> <li>➤ Analysis of neutron-induced gamma ray background of <math>^{100}\text{Mo}</math> using data from an experiment at the Tandem accelerator at TUNL. Calculation of cross sections and implications for background studies in CUPID. Presented this work at the APS DNP Fall 2022 CEU poster session.</li> </ul>
2021-2023	<p><b>Kaylee Graham (B.S. Physics, UCB, 2024)</b> CUPID, DEMETER</p> <ul style="list-style-type: none"> <li>➤ Generalization of photonic simulations in Geant4 software, including the addition of reflecting foils and absorptive sensors. Calculations of sensitivity for DEMETER toward distinction of one- and two-electron events in <math>\text{Li}_2^{100}\text{MoO}_4</math>.</li> </ul>
Summer 2022	<p><b>Yoonsang Kim (B.S. Physics, UCB, 2025)</b> CUPID, DEMETER</p> <ul style="list-style-type: none"> <li>➤ Simulations of phonons in <math>\text{Li}_2^{100}\text{MoO}_4</math> using Geant4 software for use in the design of the DEMETER detector module. Calculations of sensitivity based on position and energy topology and their dependence on sensor location.</li> </ul>
2016 - 2019	<p><b>Philip Weigel (B.S. Physics, Drexel, 2020)</b> nEXO, liquid xenon purity monitor, solid xenon bolometers</p> <ul style="list-style-type: none"> <li>➤ Currently a graduate student at Massachusetts Institute of Technology in the Department of Physics.</li> </ul>
2019	<p><b>Nicole Khusid (B.S. Physics, University of Connecticut, 2022)</b> EXO-200, nEXO</p> <ul style="list-style-type: none"> <li>➤ Currently a graduate student at Stony Brook University in the Department of Physics and Astronomy.</li> </ul>
2018	<p><b>Othon Tzamtzis (B.S. Physics, Drexel, 2022)</b> nEXO, liquid xenon purity monitor</p> <ul style="list-style-type: none"> <li>➤ Currently a Junior Business Analyst in the finance sector.</li> </ul>
2017	<p><b>Jared Gdanski (B.S. Physics, Drexel, 2020)</b> nEXO, liquid xenon purity monitor</p> <ul style="list-style-type: none"> <li>➤ Currently a graduate student at The Ohio State University Department of Physics.</li> </ul>
2014 - 2015	<p><b>Chloe Groome (B.S. Physics, UCLA, 2015)</b> CUORE, CUORE-0</p> <ul style="list-style-type: none"> <li>➤ Graduate student &amp; NSF GRFP fellow at UC Irvine in the Chemical Engineering and Materials Science Department. (2018-2023)</li> <li>➤ Now an engineer in the High Performance Computing sector.</li> </ul>

## RESEARCH EXPERIENCE

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2021 - present	<b>Demonstrator Experiment with Multiplexed Event Topology and Energy Reconstruction (DEMETER)</b> University of California, Berkeley Lawrence Berkeley National Laboratory (LBNL) In collaboration with the Physics Division of Lawrence Berkeley National Laboratory, I am designing a detector to demonstrate distinction of one- and two-electron events within ultra-cryogenic macrocalorimeters. This requires development of multiplexed signal readout of arrays of superconducting sensors at the milliKelvin scale with stringent radiopurity requirements, as well as photonic and phononic simulations and event reconstruction.
2020 - present	<b>CUORE with Upgraded Particle IDentification (CUPID)</b> University of California, Berkeley Gran Sasso National Laboratory (LNGS)  <b>Measurements of Neutron-Induced Gamma Ray Background of <math>^{100}\text{Mo}</math></b> To examine the impact of gamma ray background due to neutron scattering of $^{100}\text{Mo}$ , we conducted an experiment at the Tandem van de Graaff Accelerator at Triangle Universities Nuclear Laboratory (TUNL) using a sample of CUPID's enriched $\text{Li}_2^{100}\text{MoO}_4$ . I convene the working group of researchers from TUNL, Virginia Tech, MIT, Tennessee Tech, and UC Berkeley, and supervise the students working on analyzing beam data and calculating cross sections from neutrons at 6 MeV energy.
2020 - present	<b>Cryogenic Underground Observatory for Rare Events (CUORE)</b> University of California, Berkeley Gran Sasso National Laboratory (LNGS)  <b>Multidimensional approach to the search for decays to excited states in CUORE</b> I am developing multi-dimensional cuts to search for two neutrino double beta decay ( $2\nu\beta\beta$ ) to excited states spread across multiple crystals with advanced patterns of energy deposition, taking into account scattered gamma events and multi-site topologies which make up a large number of previously rejected events. This search is informed by Monte Carlo simulations with cues from supervised machine learning algorithms.

## RESEARCH EXPERIENCE (CONTINUED)

2016 - 2019	<b>Enriched Xenon Observatory (EXO-200, nEXO)</b>	<b>Drexel University</b>
	<b>Radon injection for light-response calibration in the nEXO detector</b> My dissertation focused on a proposal to inject dissolved radon into the nEXO xenon recirculation system, which will flush alpha-emitting nuclei into the center of the detector with high-scintillation, low-ionization signals — ideal for calibrating the detector response to light as a function of position (“lightmap”). <ul style="list-style-type: none"><li>› I benchmarked EXO-200 fluid flow simulations using a combination of simulated events and data from an end-of-run calibration campaign on EXO-200 using sources of both <math>^{220}\text{Rn}</math> and <math>^{222}\text{Rn}</math>. From this campaign, I measured the growth and decay of daughter populations and converted them into concentration maps of the center of the detector as a function of time. I compared these maps to SolidWorks fluid flow simulations of EXO-200 to test simulation reliability.</li><li>› I developed a novel algorithm in python to combine SolidWorks fluid flow simulations of nEXO with the Geant4-based nEXO Monte Carlo; my algorithm predicts the number of decays in the central detector region as a function of time after radon is injected. In combination with resolution requirements from the nEXO lightmap framework, this will drive design constraints for the full-scale nEXO radon injection calibration campaign.</li></ul> <b>Liquid xenon switching purity monitor</b> I contributed to the design and construction of a liquid xenon switching purity monitor; the novel design drifts an electron cloud into a region where the electric field is switched at a kHz frequency to artificially extend the drift length. Simulations performed at Drexel suggest that this method can measure lifetimes at the 10 ms scale required to achieve sufficient energy resolution in nEXO. <ul style="list-style-type: none"><li>› I designed and constructed the circuit box for the high voltage switches and characterized these switches at low voltages, including mitigation of flyback voltages and transients.</li><li>› I supervised electrostatic COMSOL simulations for a systematic study of both the high-transparency shielding grids and the high voltage switching region.</li><li>› I mounted inner cryostat components and contributed to DAQ programming and software interfacing of the slow control electronics.</li></ul>	
2016 - 2017	<b>Solid xenon bolometers</b>	<b>Drexel University</b>
	In an effort to understand microscopic anticorrelation phenomenon in cryogenic liquid xenon detectors, Drexel University is building a cryostat to grow solid xenon bolometers. This technology offers insight into the previously unmeasurable phonon energy channel in liquid xenon. <ul style="list-style-type: none"><li>› I developed and furthered initial construction of a cryostat to epitaxially grow solid xenon bolometers at 4K as a proof-of-concept for a future detector design.</li><li>› I supervised the development of a software system to readout and monitor signals from slow-control hardware.</li></ul>	

## RESEARCH EXPERIENCE (CONTINUED)

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2013-2016	<b>Cryogenic Underground Observatory for Rare Events (CUORE)</b>	University of California, Los Angeles Gran Sasso National Laboratory (LNGS)
	<b>Antireflective coatings for increased light collection</b> Using class-1000 clean rooms at UCLA and UC Santa Barbara, I tested a variety of coatings on Ge and Si wafers and characterized them at multiple angles of incidence — a critical distinction from previous literature. I published this work in the Journal of Instrumentation and proposed several options for anti-reflective coatings depending on the final design of the CUPID experiment.	
2009-2013	<b>Daya Bay Neutrino Oscillations Experiment</b>	Rensselaer Polytechnic Institute
	<b>Monte Carlo simulations for muon azimuthal distribution survey</b> I created a toy Monte Carlo simulation to predict the capabilities of Daya Bay to reconstruct atmospheric muons. This would provide a proof-of-concept for a muon azimuthal distribution survey of the mountains above the Daya Bay detectors. While an azimuthal distribution survey was made difficult by the distribution of photomultiplier tubes (PMTs) in the Daya Bay detector, this model suggested possible upgrades if the survey became a priority in the future.	

## AWARDS & HONORS

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2019	College of Arts and Sciences Outstanding Mentorship Award Drexel University Graduate College; Drexel Office of Undergraduate Research
2019	Graduate Student Travel Grant American Physical Society Division of Nuclear Physics
2018	Travel Award for Excellence in Graduate Research American Physical Society Forum on Graduate Student Affairs
2018	Drexel University International Travel Award Drexel University Office of International Programs
2013	Nadia Trinkala Service Award for significant contributions to the community & quality of life at Rensselaer and in City of Troy.

## INVITED PRESENTATIONS

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- 2023 Hansen, E.V., “Climate of the Field”  
Particle Physics Project Prioritization Panel (P5) Town Hall at SLAC, CA, USA
- 2023 Hansen, E.V., “CUPID, CUPID-1T, and the future of neutrinoless double beta decay”  
High Energy Physics Seminar at Department of Physics and Astronomy, Michigan State University, MI, USA
- 2023 Hansen, E.V., “Quantum-Enabled Searches for New Physics”  
Seminar at Department of Physics, Santa Clara University, Santa Clara, CA, USA
- 2022 Hansen, E.V., “CUPID, CUPID-1T, and the future of neutrinoless double beta decay”  
Seminar at National Institute for Nuclear Theory (INT), University of Washington, Seattle, Washington
- 2022 Hansen, E.V., “CUPID, CUPID-1T, and the DEMETER demonstrator”  
Seminar at Neutrino Physics: The Future is Now, Snowmass Community Summer Study, Seattle, WA
- 2021 Hansen, E.V., “Search for two-neutrino double-beta decay of  $^{130}\text{Te}$  to excited states of  $^{130}\text{Xe}$  with CUORE”  
Institute for Nuclear and Particle Astrophysics (INPA) seminar, Lawrence Berkeley National Laboratory
- 2020 Hansen, E.V., “Neutrinoless double beta decay and the search for neutrino mass”  
2017 Fall Meeting of the American Physical Society’s Division of Nuclear Physics, Virtual Conference  
<http://meetings.aps.org/Meeting/DNP20/Session/KM.1>

## SELECTED CONFERENCE PRESENTATIONS

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- 2022 Hansen, E.V., “Transforming U.S. Particle Physics Education: Missing Elements in Graduate Education”  
2023 American Association of Physics Teachers Summer Meeting
- 2022 Hansen, E.V. (for the CUPID collaboration), “Toward CUPID-1T: a bolometric experiment to explore  $0\nu\beta\beta$  in the Normal Ordering region”  
2021 Fall Meeting of the American Physical Society’s Division of Nuclear Physics  
<https://meetings.aps.org/Meeting/DNP22/Session/DD.4>
- 2022 Hansen, E.V. (for the CUPID collaboration & DEMETER working group), “CUPID, CUPID-1T, and the DEMETER Demonstrator”  
Neutrino 2022: International Conference on Neutrino Physics and Astrophysics
- 2022 Hansen, E.V. (for the CUPID collaboration & DEMETER working group), “Research and development progress toward DEMETER & CUPID-1T”  
2021 April Meeting of the American Physical Society  
<https://meetings.aps.org/Meeting/APR22/Session/B14.2>
- 2021 Hansen, E.V. (for the CUPID collaboration & DEMETER working group), “Progress toward a multiplexed read-out of transition-edge sensors for CUPID-1T”  
2021 Fall Meeting of the American Physical Society’s Division of Nuclear Physics, Virtual Conference  
<https://meetings.aps.org/Meeting/DNP21/Session/PB.5>
- 2021 Hansen, E.V. (for the CUORE collaboration), “Search for two-neutrino double-beta decay of  $^{130}\text{Te}$  to excited states of  $^{130}\text{Xe}$  with CUORE”  
2021 April Meeting of the American Physical Society, Virtual Conference  
<http://meetings.aps.org/Meeting/APR21/Session/D13.4>



## SELECTED PUBLICATIONS

Primary authorship or editorship bolded.

Full scholarship available at [scholar.google.com/citations?user=jHXL0ssAAAAJ](https://scholar.google.com/citations?user=jHXL0ssAAAAJ).

1. "Large-area photon calorimeter with Ir-Pt bilayer transition-edge sensor for the CUPID experiment" V. Singh *et al.* [CUPID Collaboration]. Phys. Rev. Applied 20, no. 6, 064017 (2023)
2. "Improving the Performance of Cryogenic Calorimeters with Nonlinear Multivariate Noise Cancellation Algorithms" K. Vetter *et al.*. (2023) arXiv:2311.01131 [physics.ins-det]
3. "A first test of CUPID prototypal light detectors with NTD-Ge sensors in a pulse-tube cryostat" K. Alfonso *et al.* [CUPID Collaboration]. JINST 18 06, P06033 (2023)
4. "Community Engagement Frontier" K.A. Assamagan & B. Quinn *et al.*. (2022) arXiv preprint arXiv:2211.13210 [physics.soc-ph] (*contribution to Snowmass 2021*)
5. **"Diversity, Equity, and Inclusion in Particle Physics"** C. Bonifazi *et al.*. (2022) arXiv preprint arXiv:2209.12377 [physics.soc-ph] (*contribution to Snowmass 2021*)
6. "Optimization of the first CUPID detector module" K. Alfonso *et al.* [CUPID Collaboration]. Eur. Phys. J. C 82, no. 9, 1-9 (2022)
7. "An Energy-dependent Electro-thermal Response Model of CUORE Cryogenic Calorimeter" D.Q. Adams *et al.* [CUORE Collaboration]. JINST 17, P11023 (2022)
8. "New direct limit on neutrinoless double beta decay half-life of  $^{128}\text{Te}$  with CUORE" D.Q. Adams *et al.* [CUORE Collaboration]. Phys. Rev. Lett. 129, 222501 (2022)
9. **"Transforming US Particle Physics Education"** E.V. Hansen *et al.*. (2022) arXiv preprint arXiv:2204.08983 [physics.ed-ph] (*contribution to Snowmass 2021*)
10. **"Climate of the Field: Snowmass 2021"** E.V. Hansen *et al.*. (2022) arXiv preprint arXiv:2204.03713 [physics.soc-ph] (*contribution to Snowmass 2021*)
11. "Search for Neutrinoless  $\beta^+ EC$  Decay of  $^{120}\text{Te}$  with CUORE" D.Q. Adams *et al.* [CUORE Collaboration]. Phys. Rev. C 105, 065504 (2022)
12. "Search for Majorana neutrinos exploiting millikelvin cryogenics with CUORE" CUORE Collaboration. Nature 604, 53-58 (2022)
13. **"Toward CUPID-1T"** A. Armato *et al.* [CUPID Collaboration]. (2022) arXiv preprint arXiv:2203.08386 [nucl-ex] (*contribution to Snowmass 2021*)
14. "The EXO-200 detector, part II: Auxiliary systems" N. Ackerman *et al.* [EXO-200 Collaboration]. JINST 17, no. 02, P02015 (2022)
15. "CUORE opens the door to tonne-scale cryogenics experiments" D.Q. Adams *et al.* [CUORE Collaboration]. Prog. Part. Nuc. Phys. 103902 (2021)
16. "Measurement of the scintillation and ionization response of liquid xenon at MeV energies in the EXO-200 experiment" G. Anton *et al.* [EXO-200 Collaboration]. Phys. Rev. C 101, no. 6, 065501 (2020)
17. "Search for Neutrinoless Double-Beta Decay with the Complete EXO-200 Dataset" G. Anton *et al.* [nEXO Collaboration]. Phys. Rev. Lett. 123, no. 16, 161802 (2019)
18. "Imaging individual Ba atoms in solid xenon for barium tagging in nEXO" C. Chambers *et al.* [nEXO Collaboration]. Nature 569, 203–207 (2019)
19. "Double-beta decay of  $^{130}\text{Te}$  to the first  $0^+$  excited state of  $^{130}\text{Xe}$  with CUORE-0" C. Alduino *et al.* [CUORE Collaboration]. Eur. Phys. J. C 79, no. 9, 795 (2019)
20. "nEXO Pre-Conceptual Design Report" S. Al Kharusi *et al.* [nEXO Collaboration]. arXiv:1805.11142 [physics.ins-det]
21. "Deep Neural Networks for Energy and Position Reconstruction in EXO-200" S. Delaquis *et al.* [EXO Collaboration]. JINST 13, no. 08, P08023 (2018)
22. "First Results from CUORE: A Search for Lepton Number Violation via  $0\nu\beta\beta$  Decay of  $^{130}\text{Te}$ " C. Alduino *et al.* [CUORE Collaboration]. Phys. Rev. Lett. 120, no. 13, 132501 (2018)
23. "Sensitivity and Discovery Potential of nEXO to Neutrinoless Double Beta Decay" J. B. Albert *et al.* [nEXO Collaboration]. Phys. Rev. C 97, no. 6, 065503 (2018), LLNL-JRNL-737682
24. "Search for Neutrinoless Double-Beta Decay with the Upgraded EXO-200 Detector" J. B. Albert *et al.* [EXO Collaboration]. Phys. Rev. Lett. 120, no. 7, 072701 (2018)
25. "CUORE sensitivity to  $0\nu\beta\beta$  decay" C. Alduino *et al.* [CUORE Collaboration]. Eur. Phys. J. C 77, no. 8, 532 (2017)
26. "Measurement of the two-neutrino double-beta decay half-life of  $^{130}\text{Te}$  with the CUORE-0 experiment" C. Alduino *et al.* [CUORE Collaboration]. Eur. Phys. J. C 77, no. 1, 13 (2017)
27. **"Characterization of single layer anti-reflective coatings for bolometer-based rare event searches"** E. V. Hansen, N. DePorzio and L. Winslow. JINST 12, no. 09, P09018 (2017)

## LEADERSHIP

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- 2024-2026 APS Committee on Education**  
Member of APS Committee on Education, responsible for supporting the APS strategic plan by promoting and supporting education of physics students at all levels within and without the physics community.
- 2023-2025 APS DNP Education Committee**  
Member of the APS DNP Education Committee, responsible for organization and execution of educational and outreach programs within and without the physics community. Personal responsibilities include maintenance of the Nuclear Physics Graduate Schools brochure.
- 2021-present UC Berkeley Physics APS-IDEA Team / DEI Committee**  
Member of the APS Inclusion, Diversity, and Equity Alliance (APS-IDEA) team representing UC Berkeley. Responsible for connecting resources between the APS-IDEA community members and the experiences at UC Berkeley. Postdoctoral representative to the Berkeley Physics DEI Committee, responsible for postdoc-related events like town halls and socials, as well as the subcommittee on graduate student recruitment.
- 2020-2022 CUORE Publications Board**  
Member of CUORE collaboration Publications Board, responsible for shepherding articles from initial writing through internal and external review to publication.
- 2017-2019 Drexel Minorities and Women in Physics Committee**  
Co-founder and co-author of proposal (2017) to redesign Drexel physics admission procedures.  
Treasurer (2018-2020) - funding proposals, budget maintenance, and organization of event finances
- 2017-2018 Drexel Physics Graduate Student Association**  
Vice President of Diversity, elected by membership  
Organizing and supporting events with diversity focus, like LGBTQ+ Ally training and related colloquia.

## ACTIVITIES & OUTREACH

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- 2020-2021 SAGE- S (Science Accelerating Girls' Engagement in STEM) Planning Committee**  
Member of Volunteer Sub-Committee: Responsible for developing literature-driven training around bias and cultural awareness to support volunteer's interactions with participants.  
Member of Professional Growth Sub-Committee: Responsible for planning and logistics of professional growth workshops including 'harnessing opportunities from success and failure'.
- 2016-2018 Philadelphia Science Festival, Science Carnival**  
2018 Supervised Drexel physics booth, including organizing space and funding logistics, transporting demonstrations, and organizing volunteers  
2016, '17, '19 Volunteered at Drexel physics booth, presenting demonstrations to families of all ages
- 2017-2018 Philadelphia Area Girls Enjoying Science™ (PAGES)**  
Volunteer, presenting physics demonstrations to sixth-grade girls across the Philadelphia region to increase visibility of women in STEM.