

# Peter B. Denton, Ph.D.

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## Research Experience

Physicist at Brookhaven National Laboratory, January 2024–Present.

Associate Physicist at Brookhaven National Laboratory, October 2020–December 2023.

Assistant Physicist at Brookhaven National Laboratory, October 2018–September 2020.

Postdoctoral Fellow at Niels Bohr International Academy, September 2016–August 2018.

Graduate Student Research Program in Theoretical Physics with Stephen Parke at Fermilab, August 2015–August 2016.

DOE funded research assistant with Thomas J. Weiler at Vanderbilt University, Spring 2011–Fall 2015.

Research assistant with Sokrates Pantelides at Vanderbilt University, Summer–Fall 2010.

Lee Teng Internship with Tanaji Sen at Fermilab, Summer 2009.

Bonner Labs with Bill Llope at Rice University, Summer 2008.

## Research Interests

SM and BSM neutrino theory.

Astroparticle physics.

Black hole phenomenology.

Dark matter physics.

Papers [\[inspire\]](#), [\[arXiv\]](#)

## Degrees

Ph.D. Physics, Vanderbilt University, August 2016.

B.S. Physics, Rice University, May 2010.

B.A. Mathematics, Rice University, May 2010.

## Honors and Awards

Physical Review D Reviewer Excellence 2024 Award, awarded April 2024.

Neutrino Physics Center (NPC) award to work with Stephen Parke at Fermilab, awarded May 2023.

Nominated and selected as the BNL delegate to the 2022 Science and Technology in Society Forum in Kyoto, October 2022.

BNL NPP DEI grant \$10,000 to support Apurva Goel, awarded April 2022.

Neutrino Physics Center (NPC) award of \$10,000 to work with Stephen Parke at Fermilab, awarded December 2018.

Neutrino Theory Network (NTN) award of \$14,000 to work with Irina Mocioiu at PSU, awarded June 2018.

The Giorgio Salvini diploma from the Erice International School of Subnuclear Physics, awarded June 2016.

PITT PACC travel award to attend Pheno '16, awarded April 2016.

Vanderbilt Dissertation Enhancement Grant of \$2,000 to attend the Theoretical Advanced Study Institute, awarded April 2014.

Subsidy of \$1,600 to attend the Theoretical Advanced Study Institute: Amplitudes For Colliders in June 2014, awarded April 2014.

Division of Particles & Fields travel grant to the APS April 2013 meeting, awarded March 2013.

The Robert T. Lagemann Award of \$1,000 for highest academic achievement by a first-year graduate student, awarded April 2011.

McMinn Fellowship at Vanderbilt of \$25,000 over five years, awarded March 2010.

## Collaborations

Deep Underground Neutrino Experiment (DUNE), 2021–Present.

Forward Search Experiment at the LHC (FASER), 2018–Present.

Giant Radio Array for Neutrino Detection (GRAND), 2017–Present.

LSST-DESC, 2024–Present.

## Service

Long Island Science & Engineering Fair judge, February, 2025.

Pub Talk as a part of SURF's Neutrino Day program, July, 2024.

Member of BNL's Nuclear and Particle Physics DEI council, 2023–2025.

Diversity Professional Leadership mentor through Stony Brook, 2022–Present.

Co-chair of Brookhaven Forum 2021, 2023, 2025.

Co-chair of NuTau2021.

Brookhaven Women In Science (BWIS) member, 2020–2025.

Snowmass neutrino oscillations subtopic convener and neutrino theory liaison 2020–2022 organizing many workshops.

Interact with grade-school students via APS's *Adopt-A-Physicist*, Skype-A-Scientist, ... programs, 2018–2021.

International Organizing Committee for Neutrino 2020.

Convener for Brookhaven Forum 2019, DPF 2019, WIN 2021, and ICHEP 2022.

N3AS Professional Development Training 2022.

Judge for the 12th International Neutrino Summer School at Fermilab 2019.

Session chair for Pheno 2019, Pheno 2020, AstroDark-2021.

Reviewer for Physical Review Letters, Journal of High Energy Physics, Physical Review D, Physics Letters B, European Physical Journal C, Reviews of Modern Physics, Journal of Mathematical Physics, Nuclear Physics B, Journal of Physics G, Journal of Open Source Science, Astrophysical Journal Letters, Monthly Notices of the Royal Astronomical Society, Modern Physics Letters A, Chinese Physics C, and Universe.

Brookhaven Neutrino Theory Virtual Seminar creator/organizer, 2020–2022.

BNL HET seminar organizer, 2019–2020, 2022–2023.

BNL HET lunch discussion organizer, 2019–2021.

NBIA Astroparticle journal club co-chair, 2017–2018.

## Physics Schools Attended

Erice International School of Subnuclear Physics in Sicily (ISSP), June 2016.

Theoretical Advanced Study Institute in Elementary Particle Physics (TASI), Boulder CO, June 2014.

Introduction to accelerator physics, United States Particle Accelerator School, June 2009.

## Software

c++, mpi, openmp, python, matplotlib, L<sup>A</sup>T<sub>E</sub>X, beamer, GLoBES, pythia, ROOT, MATHEMATICA, MATLAB, FORTRAN, gnuplot, java, html, javascript, ...

## Students Advised/Mentored

Charlie Gourley: SULI student from RPI, 2024.

Abdullah Moin: DPLN student from Stony Brook, 2024.

DaiJon James: DPLN student from Stony Brook, 2022–2023. Currently a PhD student at Amherst.

Apurva Goel: SULI student at Brookhaven 2022–2023. Currently a PhD student at UCSD.

Rebekah Pestes: Virginia Tech SCGSR student to Brookhaven, 2020–2021. Defended her physics PhD 2021, postdoced in Paris, currently in industry.

Yves Kini: visiting student through the African School of Physics at Brookhaven 2019–2020. Currently a postdoc at University of Amsterdam.

Asli Abdullahi: IPPP Durham visiting PhD student at Brookhaven 2020. Defended her physics PhD in 2022, postdoced at FNAL, currently a postdoc at IFT.

Klaes Møller: University of Copenhagen, master's thesis: *Constraining Astrophysical Parameters with Neutrinos*, 2017–2018.

Anna Suliga: University of Copenhagen, master's thesis: *Diffuse supernova neutrino background*, 2017–2018. Defended her physics PhD 2021, currently postdoc at NYU.

Mia-Louise Nielsen: University of Copenhagen, bachelor's thesis: *Star-forming galaxies as sources of high energy neutrinos*, 2017. Defended her physics MSc 2019.

## Teaching

Teaching assistant at Vanderbilt University, Fall 2010–Spring 2015.

Teaching assistant for the Physics Department at Rice University, Fall 2009.

Writing consultant at Rice University, 2007–2010.

Tutoring English, math, and physics at middle school, high school, undergraduate, and graduate school levels, 2005–2015.

## Other

Hobbies: ultimate frisbee, piano, photography.

Third prize in the 2023 BNL Earth Day photo contest: “When Nature Takes Over.”