Rebekah F. Pestes

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EDUCATION

Virginia Polytechnic Institute and State University, Blacksburg, VA **2015 – 2021**
Ph.D. Physics GPA: 3.85
"Precision Neutrino Oscillations: Important Considerations for Experiments"
Electives Taken: Intermediate General Relativity, Quantitative Analysis of Physical Data, Quantum Field Theory

Mainz Institute for Theoretical Physics, Mainz, Germany **July – Aug 2018**
MITP Summer School
"Toward the Next Quantum Field Theory of Nature"

Walla Walla University, College Place, WA **2010 – 2015**
B.S. Biophysics and Mathematics, Minor in Music Performance GPA: 3.81

RESEARCH EXPERIENCE

Virginia Tech, Physics Department, Blacksburg, VA **May 2021 – Present**
Postdoctoral Associate

Virginia Tech, Physics Department, Blacksburg, VA **Aug 2015 – May 2021**
Graduate Research Assistant

Brookhaven National Laboratory, Upton, NY **Jan – Dec 2020**
DOE Office of Science Graduate Student Research Program Participant

Walla Walla University, Physics Department, College Place, WA **Sept 2010 – July 2015**
Research Assistant

TEACHING EXPERIENCE

NovaStar Prep Tutoring, Reston, VA **Apr 2022 – Present**
Math/Physics Learning Coach

Virginia Tech, Physics Department, Blacksburg, VA **Aug 2016 – Dec 2019**
Graduate Teaching Assistant

Walla Walla University, Physics Department, College Place, WA **Jan 2011 – July 2015**
Teacher's Assistant

Walla Walla University, Teaching Learning Center, College Place WA **Jan 2012 – June 2015**
Math Tutor

Walla Walla University, Engineering Department, College Place, WA **Seasonal, 2012 – 2013**
Wastewater Treatment Lab Assistant

Private Tutor for math, physics, and chemistry (college level) **Oct 2010 – May 2021**

AWARDS

Ladies of Robeson Award Apr 2022

$300.00, recognizing "a female graduate student" at Virginia Tech "who will pursue a post-doctoral position outside of Virginia Tech"

Gertrude Scharff-Goldhaber Prize July 2020

$2,500.00, recognizing "substantial promise and accomplishment by female graduate students in physics" at Stony Brook University or Brookhaven National Laboratory

DOE Office of Science Graduate Student Research Program Aug 2019

$36,714.07 for doing research at Brookhaven National Laboratory with Dr. Peter Denton

William E. Hassinger Graduate Fellowship Apr 2018

$1,635.00 to "encourage and support students coming from surrounding communities who are pursuing graduate degrees in physics" at Virginia Tech

Dean's Diversity Assistantship Apr 2015

$32,645.00 (full year of a research assistantship, including tuition and stipend), for "recruiting underrepresented students" for graduate school at Virginia Tech

Significant Undergraduate Scholarships:

Great Lakes National Scholarship	2013 – 2014
ACT/SAT Scholarship and Achievement Bonus	2010 – 2014
Women in Science Scholarship	2012 – 2013
Math Endowed Scholarship	2011 – 2012
Academic Competitiveness Grant	2010 – 2011
Leadership Award	2010 – 2011

PUBLICATIONS *(NOTE: Authors are listed alphabetically in each publication.)*

P. B. Denton and **R. Pestes**, "Neutrino oscillations through the Earth's core," *Phys. Rev. D*, *104*(11), 113007 (2021), doi:10.1103/PhysRevD.104.113007. (arXiv:2110.01148)

P. Huber, H. Minakata, D. Minic, **R. Pestes**, and T. Takeuchi, "Neutrino oscillations at JUNO, the Born rule, and Sorkin's triple path interference," *Phys. Rev. D*, *105*(11), 115013 (2022), doi:10.1103/PhysRevD.105.115013. (arXiv:2105.14061)

P. B. Denton, J. Gehrlein, and **R. Pestes**, "CP-Violating Neutrino Non-Standard Interactions in Long-Baseline-Accelerator Data," *Phys. Rev. Lett.*, *126*(5), 051801 (2021), doi:10.1103/PhysRevLett.126.051801. (arXiv:2008.01110)

P. B. Denton and **R. Pestes**, "The impact of different parameterizations on the interpretation of CP violation in neutrino oscillations," *JHEP* 05, 139 (2021), doi:10.1007/JHEP05(2021)139. (arXiv:2006.09384)

P. Huber, H. Minakata, and **R. Pestes**, "Interference between the atmospheric and solar oscillation amplitudes," *Phys. Rev. D, 101*(9), 093002 (2020), doi:10.1103/PhysRevD.101.093002. (arXiv:1912.02426)

D. V. Forero, **R. Hawkins**, and P. Huber, "The benefits of a near detector for JUNO," (2017), arXiv:1710.07378.

PRESENTATIONS

Multi-messenger Tomography of Earth Workshop, University of Utah — Jul 2022
Invited Talk: “Observing the Earth's Core with Neutrino Oscillations”

Center for Neutrino Physics Research Day, Virginia Tech — May 2022
Talk: “Investigating the Earth's Core with Neutrinos”

Dissertation Defense, Virginia Tech — Apr 2021
Talk: “Precision Neutrino Oscillations: Important Considerations for Experiments”

Theoretical Physics Seminar, Fermi National Accelerator Lab — Nov 2020
Invited Talk:
“Precision Neutrino Oscillations: Exploring Possibilities and Important Considerations”

Center for Neutrino Physics Seminar, Virginia Tech — Oct 2020
Talk: “Precision Neutrino Oscillations”

Gertrude Scharff-Goldhaber Prize Ceremony, Brookhaven National Lab — Jul 2020
Invited Talk:
“Investigating Important Considerations for Neutrino Oscillation Experiments”

High Energy Theory Lunch Discussion, Brookhaven National Lab — Feb 2020
Talk: “Simulating Neutrino Physics for JUNO”

Center for Neutrino Physics Research Day, Virginia Tech — May 2019
Talk: “The benefits of a near detector for JUNO”

Physics Colloquium, Walla Walla University — May 2017
Talk: “My Pursuit of Neutrinos”

Murdock College Science Research Conference, Pacific University — Nov 2014
Poster: “A Dynamical Model of Alanine Dipeptide"

PROFESSIONAL SERVICE

Astro-particle and Neutrino Theory Journal Club, Blacksburg, VA — Jan-Aug 2022
Co-organizer

Physics REU Graduate Student Q&A, Blacksburg, VA — Jul 2019
Panelist

Professional Development Seminar Series' Graduate Student Panel, Blacksburg, VA — Jun 2019
Panelist

The 20th International Workshop on Neutrinos from Accelerators, Blacksburg, VA — Aug 2018
Room technician

Conference for Undergraduate Women in Physics, Blacksburg, VA — Jan 2017
Panelist, Helped plan/organize

COMPUTER SKILLS

Operating Systems Windows, Mac, Linux

Modeling Software GROMACS, MSMBuilder, LAMMPS

Programming

- Proficient: Mathematica, C/C++ (GLoBES, nuSQuIDS), Perl
- Experienced: HTML, SQL, LabVIEW, Matlab, Maple, Python

PROFESSIONAL MEMBERSHIPS

Sigma Pi Sigma 2017 – Present

Ladies of Robeson (Club for Women in Physics at Virginia Tech) 2015 – Present

American Physical Society 2013 – Present

REFERENCES

Dr. Patrick Huber **Ph.D. Advisor**

Professor, Dept. of Physics, Virginia Tech

🖃 Robeson Hall 117, 850 West Campus Dr, Blacksburg, VA 24061

☎ (540) 231-8727, ✉ pahuber@vt.edu

Dr. John Simonetti **GTA Supervisor**

Associate Chair and Professor, Dept. of Physics, Virginia Tech

🖃 Robeson Hall 225, 850 West Campus Dr, Blacksburg, VA 24061

☎ (540) 231-8740, ✉ jhs@vt.edu

Diane Walker-Green **Majors Tutoring Supervisor**

Dir. of Undergrad. Advising and Enrollment, Dept. of Physics, Virginia Tech

🖃 Robeson Hall 222B, 850 West Campus Dr, Blacksburg, VA 24061

☎ (540) 231-5792, ✉ dwalkerg@vt.edu

Dr. Peter Denton **SCGSR Collaborator**

Assistant Physicist, Brookhaven National Lab

🖃 Bldg 510A, PO Box 5000, Upton, NY 11973

☎ (631) 344-3767, ✉ pdenton@bnl.gov

Dr. Hisakazu Minakata **Collaborator**

Professor Emeritus, Tokyo Metropolitan University

🖃 2-1-6-706, Kasuga, Bunkyo-ku, Tokyo 112-0003 Japan

☎ 81-3-5615-8038, ✉ hisakazu.minakata@gmail.com