

# Rebekah F. Pestes

P.O. Box 11663  
Blacksburg, VA 24062  
Cell: (402) 853-1370  
rebekah.pestes@gmail.com

---

## 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

Brookhaven National Laboratory, Upton, NY **Jan – Dec 2020**

**DOE Office of Science Graduate Student Research Program**

“Are the standard neutrino oscillation parameters enough? Analyzing non-unitarity of  $U_{\text{PMNS}}$ ”

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

---

## WORK EXPERIENCE

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

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

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

---

## 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

---

## AWARDS

<b>Ladies of Robeson Award</b>	Apr 2022
\$300.00, recognizing “a female graduate student” at Virginia Tech “who will pursue a post-doctoral position outside of Virginia Tech”	
<b>Gertrude Scharff-Goldhaber Prize</b>	July 2020
\$2,500.00, recognizing “substantial promise and accomplishment by female graduate students in physics” at Stony Brook University or Brookhaven National Laboratory	
<b>DOE Office of Science Graduate Student Research Program</b>	Aug 2019
\$36,714.07 for doing research at Brookhaven National Laboratory with Dr. Peter Denton	
<b>William E. Hassinger Graduate Fellowship</b>	Apr 2018
\$1,635.00 to “encourage and support students coming from surrounding communities who are pursuing graduate degrees in physics” at Virginia Tech	
<b>Dean's Diversity Assistantship</b>	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	
<i>Significant Undergraduate Scholarships:</i>	
<b>Great Lakes National Scholarship</b>	2013 – 2014
<b>ACT/SAT Scholarship and Achievement Bonus</b>	2010 – 2014
<b>Women in Science Scholarship</b>	2012 – 2013
<b>Math Endowed Scholarship</b>	2011 – 2012
<b>Academic Competitiveness Grant</b>	2010 – 2011
<b>Leadership Award</b>	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)

## PUBLICATIONS CONT'D

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 Invited Talk: “Observing the Earth's Core with Neutrino Oscillations”	Jul 2022
Center for Neutrino Physics Research Day, Virginia Tech Talk: “Investigating the Earth's Core with Neutrinos”	May 2022
Dissertation Defense, Virginia Tech Talk: “Precision Neutrino Oscillations: Important Considerations for Experiments”	Apr 2021
Theoretical Physics Seminar, Fermi National Accelerator Lab Invited Talk: “Precision Neutrino Oscillations: Exploring Possibilities and Important Considerations”	Nov 2020
Center for Neutrino Physics Seminar, Virginia Tech Talk: “Precision Neutrino Oscillations”	Oct 2020
Gertrude Scharff-Goldhaber Prize Ceremony, Brookhaven National Lab Invited Talk: “Investigating Important Considerations for Neutrino Oscillation Experiments”	Jul 2020
High Energy Theory Lunch Discussion, Brookhaven National Lab Talk: “Simulating Neutrino Physics for JUNO”	Feb 2020
Center for Neutrino Physics Research Day, Virginia Tech Talk: “The benefits of a near detector for JUNO”	May 2019
Physics Colloquium, Walla Walla University Talk: “My Pursuit of Neutrinos”	May 2017
Murdock College Science Research Conference, Pacific University Poster: “A Dynamical Model of Alanine Dipeptide”	Nov 2014

---

## PROFESSIONAL SERVICE

Astro-particle and Neutrino Theory Journal Club, Blacksburg, VA <b>Co-organizer</b>	Jan-Aug 2022
Physics REU Graduate Student Q&A, Blacksburg, VA <b>Panelist</b>	Jul 2019
Professional Development Seminar Series' Graduate Student Panel, Blacksburg, VA <b>Panelist</b>	Jun 2019
The 20 <sup>th</sup> International Workshop on Neutrinos from Accelerators, Blacksburg, VA <b>Room technician</b>	Aug 2018

## PROFESSIONAL SERVICE CONT'D

Conference for Undergraduate Women in Physics, Blacksburg, VA  
**Panelist, Helped plan/organize**

Jan 2017

---

## 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