Paul Schmelzenbach

Department of Physics and Engineering
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Education

- **Ph.D. Physics**, Oregon State University, Corvallis, OR, 2003
  Thesis: Nuclear Structure of 150-Sm
  Advisor: Ken Krane
- **M.S. Physics**, Oregon State University, Corvallis, OR, 2000
- **B.S. Physics**, Northwest Nazarene University, Nampa, ID, 1998
- **B.S. Chemistry**, Northwest Nazarene University, Nampa, ID, 1998

Teaching Experience

- **Professor of Physics**, Point Loma Nazarene University, San Diego, CA, 2013-Present
  Courses: General Physics I & II, University Physics, Physical Science, Electricity and Magnetism I & II, Analytical Mechanics, Thermodynamics, Excel, MATLAB, Modern Physics Class and Lab, Advanced Lab, Introduction to Engineering I and II, Nuclear Physics Class and Lab, Embedded Systems, Physics of Sound and Music, Earth Science and Cosmos
- **Associate Professor of Physics**, Point Loma Nazarene University, San Diego, CA, 2009-2013
  Courses: General Physics I & II, University Physics, Physical Science, Electricity and Magnetism, MATLAB, Modern Physics Class and Lab, Nuclear Physics Class and Lab, Optics seminar, SEASANDs summer institute content specialist 2010
- **Assistant Professor of Physics**, Point Loma Nazarene University, San Diego, CA, 2006-2009
  Courses: General Physics I & II, Class and Lab, University Physics Class and Lab, Physical Science Class and Lab, Earth Science, Solid State Physics, Electricity and Magnetism; SEASANDs summer institute content specialist 2007
- **Assistant Professor of Physics**, Erskine College, Due West, SC, 2003-2006
  Courses: General Physics I & II, Class and Lab, Modern Physics Lab, Modern Physics II, Electricity and Magnetism I & II, Advanced Lab, Freshman Seminar, Computer Modeling, Introductory Information Technology, Senior Seminar Coordinator

Memberships

- American Physical Society
- American Association of Physics Teachers

Curriculum Development

- Developed of Virtual Labs in General Physics for COVID-19 PLNU
- Developed Physics of Music Labs for PLNU
- Developed Advanced Labs for PLNU
- Developed Nuclear Physics Labs for PLNU
- Developed Modern Physics Labs for PLNU
- Developed General Physics I and II Labs for PLNU
- Developed Physical Science Labs for PLNU
- Developed University Physics I and II Labs for PLNU
- Developed Modern Physics Labs for Erskine College
- Developed Advanced Labs for Erskine College

Research Experience and Student Research

- Led Student Work in Makerspace development, 2021
- Led Student Research in Online Curriculum Development, 2020
- Led Student Summer Research: Investigating Parameters for Sonoluminscence, 2015
- Led Student Summer Research: Development of Sonoluminscence System, 2014
- Led Student Summer Research: Methods of Gamma-Ray Coincidence using NaI Detectors, 2014
- Led Student Summer Research: Initial development of Underwater ROV system, 2013
- Led Student Summer Research: Gamma ray analysis at University of Kentucky, 2005

- Gamma ray spectroscopy: analysis of large data sets, on-line data acquisition at a large accelerator facility, problem solving, and development of analysis techniques, 1998-2003

Honors and Awards

- Excellence in Teaching Award PLNU, 2022
- co-Pi "Scholarships to Support STEM majors Computational Sciences Minors" NSF grant, 2014
- Host Professor for Teachers Noticing Teachers, 2010
- Nominated for Erskine's Younts Excellence in Teaching Award, 2006 & 2004
- Bell Grant for Student Research in Nuclear Physics, 2005
- Outstanding Senior in Physics, 1998
- Outstanding Senior in Chemistry, 1998
- Academy of Science award for outstanding talk in Physics and Chemistry, 1996
- Outstanding Freshmen in Physics, 1994

Publications

Papers

- Cortez, A., & Schmelzenbach, P. D. (2024, June). Integrating chatgpt in an introductory engineering undergraduate course as a tool for feedback. In 2024 ASEE Annual Conference & Exposition.
- Cortez, A., & Schmelzenbach, P. (2025, June). "Student Use of ChatGPT and Claude in Introductory Engineering Education: Insights into Metacognition and Problem-Solving Patterns." In 2025 ASEE Annual Conference & Exposition.
- gamma-ray spectroscopy of 150-Sm through the beta decay of 150-Pm (T=2.7 h) and 150m Eu (T=12.8 h), Phys. Rev. C 98, 034311, 2018
- (co-author) N=90 region: The decays of 152m,g Eu to 152-Sm, Phys. Rev. C 76, 034319, 2007
- (co-author) Identification of a pairing isomeric band in 152-Sm, Phys. Rev. C 71, 041303(R), 2005
- (co-author) Low-Energy Coexisting Band in 154-Gd, Phys. Rev. Lett. 91, 102501, 2003

Talks and Posters

- "Through the lens of physics", Guest Lecture in Christian Faith & the Natural Sciences course at PLNU, 2023
- Determining Density with Water, a Ruler, Floss, and Some Nickels, Talk at National Winter Meeting of American Association of Physics Teachers, 2022
- Gamma-Ray Spectroscopy of Samarium-150, Faculty Scholarship Day at PLNU, 2018
- We can Write, Right, Right? Talk at American Association of Physics Teachers National Winter Meeting, San Diego, 2015
- Using JiTT with Joomla, Talk at Winter Meeting of American Association of Physics Teachers, 2012
- TILE presentation: Using Technology in the Physics Class, 2010-2012
- Freshman Convocation at PLNU: The Universe though the Lens of Physics, 2007-2011
- Student Poster Presented Southeast Section of APS (2004): A Study of 150-Nd through Inelastic Neutron Scattering, 2004

Committee and University Service

- Chair of Faculty Development Committee, 2022-23
- Member of the Faculty Development Committee, 2021-present
- Member of the Diversity Committee, 2018-2021
- Member of the General Education Committee, 2012-2018
- Department Chair of Physics and Engineering, 2012-2015
- Pre-health interview Panel, 2010-2019
- Chair of the Strategic Planning Task 1A Technology Team, 2010
- Established Chapter of the Society of Physics Students, 2009
- Member of the Institutional Effectiveness Committee, 2008-2011
- Physics coordinator for PLNU Science Honors Weekend, 2008-present
- Search Committee for the Dean of the College of Arts and Sciences, 2008
- Erskine College Technology Committee, 2004-2005

Additional Training

- Computational Physics, Optical Electronic Systems, Arduino use in Education, Physics Education Seminar, Safety in the Classroom, New Physics Faculty Workshop

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Community Involvement

- Served as Sidewalk Astronomer at Bayside Community Center
- Developer and Presenter at STEM expo
- Teaching Science Lessons in Elementary Schools
- SEASANDs (Development of High School Teachers)
- Science workshops (Science BLITZ, Science Day at Erskine)
- Sunday School teacher
- Church Board Member
- Brass Ensamble at Church
