

Pip Samuel Petersen

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EDUCATION

UNIVERSITY OF WASHINGTON (Doctor of Philosophy in Astronomy)	2023–PRESENT
– <i>Research Interests</i> : Formation and Evolution of Large Scale Structure, Intensity Mapping, (Semi)-analytical Modeling at Different Physical Scales, Epoch of Reionization	
CASE WESTERN RESERVE UNIVERSITY (M.S. in Physics)	2021–2023
– <i>Thesis</i> : <i>Cosmic Topology: Limits on Orientable Euclidean Manifolds from Circle Searches</i>	
PENNSYLVANIA STATE UNIVERSITY (B.S. in Astronomy & Astrophysics, B.S. in Mathematics)	2017–2021
– <i>Thesis</i> : <i>Tunneling Time in Quantum Cosmology</i>	

TEACHING

INSTRUCTOR

- Spring 2023: *Modern Physics*

TEACHING ASSISTANT

- Introductory Astronomy: *Autumn 2023, Winter 2024, Spring 2024, Autumn 2024*
- Introductory Physics: *Spring 2022, Fall 2021, Fall 2017*
- Elementary/Observational Astronomy: *Spring 2021, Fall 2020, Fall 2019*
- Modern Physics: *Spring 2019*

SERVICE & LEADERSHIP

Cleveland Public Library Demo Program, <i>Organizer</i>	2022
Physics Graduate Student Association, <i>Secretary & Treasurer</i>	
Physics UnderRepresented Minority Students, <i>Outreach Chair</i>	
PURMS, <i>Graduate Student Mentor</i>	
Student Handbook Review Committee, <i>Chair</i>	
Gilead's Hackathon-4-HIV, <i>1st Place</i>	
Youth Science Olympiad, <i>Volunteer</i>	
Penn State Instructor Award Committee, <i>Reviewer</i>	2020
Physics Magic Show, <i>Lead Performer</i>	2019
Penn State AstroFest, <i>Volunteer</i>	2018

STUDENTS SUPERVISED

ALYSSA WANG (High School Student)	2023–24
– <i>Simulating Non-Trivial Topology: Finite Euclidean Universes</i>	

AWARDS

ARCS Fellow, <i>University of Washington</i>	2023
Graduate Dean's Instructional Excellence Award, <i>Case Western Reserve University</i>	
NSF Graduate Research Fellow, <i>National Science Foundation</i>	
PATHS STEAM Educational Grant, <i>LGBT Tech</i>	
Gilead Hackathon-4-HIV 1st Place, <i>Gilead Sciences</i>	2022
APS Bridge Scholar, <i>American Physical Society</i>	2021
Schreyer Honors Scholar, <i>Pennsylvania State University</i>	2018
Presidential CES Scholarship, <i>Pennsylvania State University</i>	

RESEARCH

RESEARCHER, UNIVERSITY OF WASHINGTON
– *Advisor: Dr. Matt McQuinn*

JAN 2024 –

RESEARCHER, UNIVERSITY OF WASHINGTON
– *Advisor: Dr. Eric Agol*

MAR 2024 – JUL 2024

RESEARCHER, CASE WESTERN RESERVE UNIVERSITY
– *Advisor: Dr. Glenn Starkman*

JUL 2022 – FEB 2024

UNDERGRADUATE RESEARCHER, PENNSYLVANIA STATE UNIVERSITY
– *Advisor: Dr. Martin Bojowald*

SEPT 2019 – OCT 2021

UNDERGRADUATE REU RESEARCHER, MOUNT WILSON OBSERVATORY
– *Advisor: Dr. Paula Turner*

JUN 2018 – JUL 2018

UNDERGRADUATE RESEARCH, PSU - SCHUYLKILL
– *Advisor: Dr. Michael Gallis*

JAN 2018 – MAY 2018

UNDERGRADUATE LAB ASSISTANT, PSU - SCHUYLKILL
– *Advisor: Dr. Lee Silverberg*

SEPT 2017 – JUN 2018

PUBLICATIONS

- [1] The COMPACT Collaboration (with **Pip Petersen**). Cosmic Topology. Part IIa. Eigenmodes, Correlation Matrices, and Detectability of Orientable Euclidean Manifolds. *Journal of Cosmology and Astroparticle Physics*, 2024(03):036, Mar 2024.
- [2] **Pip Petersen** and The COMPACT collaboration. Cosmic Topology. Part I. Limits on Orientable Euclidean Manifolds from Circle Searches. *Journal of Cosmology and Astroparticle Physics*, 2023(01):030, Jan 2023.
- [3] The COMPACT Collaboration (with **Pip Petersen**). Promise of Future Searches for Cosmic Topology. *Phys. Rev. Lett.*, 132:171501, Apr 2024.
- [4] Martin Bojowald and **Pip Petersen**. Tunneling dynamics of an oscillating universe model. *Journal of Cosmology and Astroparticle Physics*, 2022(05):007, May 2022.
- [5] Hemant P Yennawar, **Samuel D Peterson**, and Lee J Silverberg. Crystal structures of two isomeric 2-aryl-3-phenyl-1,3-thia-zepan-4-ones. *Acta Crystallogr E Crystallogr Commun*, 75(Pt 8):1270–1273, Jul 2019.

PROGRAMS & CONFERENCES

American Astronomical Society 246th Session, <i>Anchorage, AK</i>	2025
Line Intensity Mapping, <i>Annecy, France</i>	
Line Intensity Mapping, <i>Urbana-Champaign, IL</i>	2024
Penn State 5th Annual Workshop, <i>State College, PA</i>	2023
American Astronomical Society 241st Session, <i>Seattle, WA</i>	
Astrophysical Multimessenger Observatory Network Workshop, <i>Chiba, Japan</i>	2019
American Association of Physics Teachers, <i>Schuylkill, PA</i>	2018
Undergraduate Research Symposium, <i>Schuylkill, PA</i>	2017

EXTERNAL TALKS (* = Invited)

Radio Recombination Lines, <i>AAS 246 - Anchorage, AK</i>	2025
Radio Recombination Lines, <i>LIM 2025 - Annecy, France</i>	2025
Cosmic Topology, <i>Penn State 5th Annual Workshop</i>	2023
Cosmic Topology, <i>AAS 241 - Seattle, WA</i>	2023
Cosmic Topology and Circles in the Sky, <i>University of Kentucky – Grad Student Seminar Series*</i>	2022
Cosmic Topology: Constraining the ‘Shape’ of the Universe, <i>CERCA Lunch Lectures</i>	2022