

# Alan Pearl

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Ph.D. Candidate  
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## Education

- 2017 - Pres.** **University of Pittsburgh** – Pittsburgh, PA  
GPA: 3.89
- Dec 2018** Physics M.S.  
Physics Ph.D. Candidate, **expected 2022-2023**  
Thesis Title: *Probing the Galaxy-Halo Connection*  
Thesis Advisor: Prof. Andrew Zentner
- 2013 - 2017** **Rensselaer Polytechnic Institute** – Troy, NY  
GPA: 3.75
- May 2017** Physics B.S., *magna cum laude*

## Awards and Merit-Based Scholarships

- Total: \$110,188
- 2020** **Arts & Sciences Graduate Fellowship** (\$23,688)  
Dept. of Physics and Astronomy, Pitt  
**Thomas-Lain Fund Scholarship** (\$5,000): Essay contest  
Dept. of Physics and Astronomy, Pitt
- 2017** **Class of 1902 Research Prize** (\$500): For the best research results culminating in a paper  
School of Science, RPI  
**Sigma Pi Sigma**, Dept. of Physics, RPI  
**Honorable Mention for Poster Presentation**  
Undergraduate Research Symposium, RPI
- 2016** **Archimedean Society**: For at least one semester with a 4.0 GPA, RPI
- 2014** **Jarvis Memorial Scholarship** (\$21,000): For excellence in first year of college  
Manchester Scholarship Foundation
- 2013** **Rensselaer Medal** (\$60,000), RPI

## Research Projects

- 2020 - Pres.** Implement differentiable HOD models into an open-source software package  
Advisor: Prof. Andrew Zentner
- 2019 - 2020** Constructed a mock galaxy catalog for the PFS collaboration  
Advisor: Prof. Rachel Bezanson
- 2016 - 2017** Used LAMOST data to construct a map of bulk velocity of the Milky Way disk  
Advisor: Prof. Heidi Newberg


## Refereed Journal Publications

- 2017** *A Map of the Local Velocity Substructure in the Milky Way Disk*  
**Pearl, Alan N.**; Newberg, Heidi Jo; Carlin, Jeffrey L.; Smith, R. Fiona 2017, ApJ, 847, 123P


## Late-Stage Paper Draft

**2021** *CLIMBER: Galaxy-Halo Connection Constraints from Next-Generation Surveys*  
**Pearl, Alan**; Bezanson, Rachel; Newman, Jeffrey; Zentner, Andrew  
**View draft** <https://alanpearl.github.io/documents/climber-paper.pdf>

## Software

 **mocksurvey**

**Lead developer**, Python package that creates mock galaxy catalogs using UniverseMachine

 **halotools**

**Contributor**, Python package that provides a wide array of galaxy-halo connection models

## Invited Talks

**March 2021** Astro Seminar Series, Tufts University

**Oct 2020** Guest Lecture, Bridgewater State University

## Conference and Workshop Presentations

**May 2021** *Mock Galaxy-Halo Constraints from Next-Generation MOS Surveys*  
STScI Workshop: Multi-object Spectroscopy for Statistical Measures of Galaxy Evolution

**March 2021** *Interactive Tutorial: Fitting Models with MCMC*  
McWilliams Software Development Series, Carnegie Mellon University

**June 2020** AstroPGH Summer Seminar Series, University of Pittsburgh

**May 2020** *Interactive Tutorial: Debugging in Python*  
AstroPGH Boot Camp 2020, University of Pittsburgh

**Feb 2020** *Talk: Building Mock Universes with the Galaxy-Halo Connection*  
Three Minute Thesis, Dept. of Physics and Astronomy, Pitt

**Jan 2017** *Poster: Local Velocity Substructure in the Milky Way Disk*  
American Astronomical Society, 229th AAS Meeting, id.142.14

## Broader Outreach Talks

**July 2021** *The Connection Between Galaxies and Dark Matter*  
No-Jargon Talk Series, hosted by Women and Minorities in Physics at Pitt

**Nov 2019** *Black Holes*  
Astronomy on Tap Lecture, Pittsburgh

**May 2017** *How to Become a Scientist – and Other Perks of Higher Education*  
Guest Lecture, North End Middle School, Waterbury, CT

## Teaching Assistant Appointments

**Spring 2020** *Physics 0111 – Introduction to Physics 2*. Instructor: Matteo Broccio  
**Recitation TA**, Undergraduate course, University of Pittsburgh

**Fall 2019** *Mathematical Methods for Physics*. Instructor: Brian Batell  
**Grader**, Graduate/Undergraduate course, University of Pittsburgh

**Summer 2018** *Stars, Galaxies, and the Cosmos*. Instructors: Zeynep Kalendar, Melanie Good  
**Recitation TA**, Undergraduate course, University of Pittsburgh

**Spring 2018** *Galaxies and Cosmology*. Instructor: Jeffrey Newman  
**Grader**, Graduate/Undergraduate course, University of Pittsburgh  
*Basics of Space Flight*. Instructor: John Radzilowicz  
**Recitation TA**, Undergraduate course, University of Pittsburgh

**Fall 2017** *Hubble to Stonehenge*. Instructor: Jeffrey Newman  
**Recitation TA**, Undergraduate course, University of Pittsburgh