Alan Pearl

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Education

2017 - Pres. **University of Pittsburgh** – Pittsburgh, PA

Dec 2018 Physics M.S.
Physics Ph.D. Candidate, **expected Spring 2023**
Thesis Title: *Illuminating and Tabulating the Galaxy-Halo Connection*
Thesis Advisor: Prof. Andrew Zentner

2013 - 2017 **Rensselaer Polytechnic Institute** – Troy, NY

May 2017 Physics B.S., *magna cum laude*

Fellowships & Awards

2020 **Arts & Sciences Graduate Fellowship**
Dept. of Physics and Astronomy, Pitt

2020 **Thomas-Lain Essay Contest**: Graduate Student Winner
Dept. of Physics and Astronomy, Pitt

2017 **Class of 1902 Research Prize**: For best research paper in graduating class
School of Science, RPI

Research Projects

2021 - 2023 Used DESI data and new statistical methods to place constraints on HOD models
Advisor: Profs. Andrew Zentner, Jeffrey Newman

2019 - 2021 Constructed and calibrated mock galaxy catalogs 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

First-Author Refereed Publications

2022 *CLIMBER: Galaxy-Halo Connection Constraints from Next-generation Surveys*
Pearl, Alan N.; Bezanson, Rachel; Zentner, Andrew R.; et al. 2022, ApJ, 925, 180P

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

Co-Author Refereed Publications

2022 *DESI Survey Validation Spectra Reveal an Increasing Fraction of Recently Quenched Galaxies at* $z \sim 1$
Setton, David J.; Dey, Biprateep; Khullar, Gourav; Bezanson, Rachel; et al. 2022, arXiv.2212.05070

2022 *The Velocity Dispersion Function for Massive Quiescent and Star-Forming Galaxies at* $0.6 < z \leq 1.0$
Taylor, Lance; Bezanson, Rachel;, van der Wel, Arjen; **Pearl, Alan**; et al. 2022, ApJ, 939, 90T

2022 *The Prime Focus Spectrograph Galaxy Evolution Survey*
Green, Jenny; Bezanson, Rachel; Ouchi, Masami; Silverman, John; et al. 2022, arXiv.2206.14908

Non-refereed Publications

2022 Draft: *HOD Constraints from Counts-in-Cylinders in DESI SV3 BGS*
DESI project proposal slides: https://alanpearl.github.io/links/cic-bgs-hod.html

2021 *PFS Mock Catalogs and README Public Release* (https://alanpearl.github.io/#data)
PFS galaxy evolution mock catalogs, with methodological documentation

Software

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

`JaxTabCorr`
Lead developer, Python package for correlation functions (TabCorr), rewritten to be differentiable

`galtab`
Lead developer, Python package for speeding up HOD model predictions via galaxy tabulation

`astropy/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

Simulating Galaxies and Counting Cylinders
Oct 2022 Impossible Problems Interdisciplinary Seminar

Python Packaging Basics
July 2022 AstroPGH Summer Seminar Series, University of Pittsburgh

Counts-in-Cylinders and Mock Galaxy Catalogs
May 2022 Advances in Cosmology through Numerical Simulations, MIAPbP

CLIMBER Mock Catalogs: Optimizing HOD Constraints from Next-Generation Surveys
March 2022 Cosmic Cartography 2022, Kavli IPMU

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

Fitting Models with MCMC
March 2021 McWilliams Software Development Series, Carnegie Mellon University
June 2020 AstroPGH Summer Seminar Series, University of Pittsburgh

Debugging in Python
May 2020 AstroPGH Boot Camp 2020, University of Pittsburgh

Poster: Local Velocity Substructure in the Milky Way Disk
Jan 2017 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*
Pittsburgh Astronomy on Tap Lecture

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