

Daniel J. Perrefort

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Education

2015 - 2021	University of Pittsburgh Ph.D. Physics (2021) M.S. Physics (2017)
2012 - 2015	University of Connecticut B.S. Applied Physics

Software Development

snat_sim	Scalable data analysis pipeline run at the NERSC supercomputing center for researching atmospheric effects in the Legacy Survey of Space and Time (<i>Lead Developer</i>). ↗
Egon	A light-weight Python framework for building parallelized and highly modular data analysis pipelines (<i>Lead Developer</i>). ↗
Pitt-Google Broker	Cloud based data processing and alert distribution service for astronomical surveys built to support end user analysis in the cloud and via a website interface.
SNDData	Python data-access API that maps diverse, external data models onto a scalable and easy to use interface (<i>Lead Developer</i>). ↗
pwv_kpno	Scientific Python package that models atmospheric properties at user specified locations world wide (<i>Lead Developer</i>). ↗
ImSim	Incorporated a model for optical telescope observations into the ImSim package used to generate realistic astronomical images taken by the upcoming Legacy Survey of Space and Time. ↗

Service

2018 - 2020	Dietrich Graduate School of Arts & Sciences Graduate Council Committee Member, University of Pittsburgh
2017 - 2020	Graduate Student Organization Physics Department Representative, University of Pittsburgh
Spring 2019	Arts and Sciences Graduate Travel Grant Committee Committee Chair, University of Pittsburgh
2017 - 2019	Association of Physics and Astronomy Students Co-President, University of Pittsburgh
2014 - 2015	Student Leadership Board, College of Liberal Arts and Sciences Recruitment Chair & Communications Task Force member, University of Connecticut

Outreach

March 2019	Astronomy on Tap - Science Communication Event Presenter, Franktuary Bar and Resturaunt
March 2019	Physics Department Prospective Students Weekend Event Coordinator, University of Pittsburgh
February 2019	Physics Department Three Minute Thesis Competition Co-Organizer, University of Pittsburgh
February 2019	“Meet a Scientist”: Phipps Science Communication Workshop Table Presenter, Phipps Conservatory
September 2018	“Pursuing Success in Non-Academic Career Paths” Networking Series Co-Organizer, University of Pittsburgh
March 2018	Physics Department Prospective Students Weekend Event Coordinator, University of Pittsburgh
March 2018	Physics Department Three Minute Thesis Competition Coordinator and Co-Organizer, University of Pittsburgh
February 2017	Transitioning Into Physics Research Mentorship Event Co-Coordinator, University of Pittsburgh
September 2017	Mentorship Event for Physics Graduate Teaching Assistants Co-Coordinator, University of Pittsburgh

Mentorship

- Emily Forsyth - Univ. Pittsburgh undergraduate student (2019 - present) (poster)
- Ella Kane - Univ. Pittsburgh undergraduate student (2019 - present) (poster)
- Anish Bagwhat - Univ. Pittsburgh undergraduate student (2019 - 2020)

Talks and Presentations

Aug 11, 2020	Rubin Observatory Project and Community Workshop, <i>Virtual</i> (Talk)
Jun 3, 2020	2020 Pitt Summer Bootcamp, <i>Virtual</i> (Talk)
Jan 24, 2020	Astro-Lunch Seminar Series, <i>University of Pittsburgh</i> (Talk)
Jan 21, 2020	LSST/DESC Collaboration Meeting, <i>University of Arizona</i> (Talk)
Sep 26, 2019	Midwest Workshop on Supernovae and Transients, <i>Ohio State University</i> (Talk)
Feb 4, 2018	Astro-Lunch Seminar Series, <i>University of Connecticut</i> (Talk)
Oct 4, 2018	LSST/DESC Photometric Calibration Workshop, <i>LPNHE, Paris France</i> (Talk)
Sep 18, 2018	Astro-Hacks Programming Series, <i>CMU</i> (Talk)
Jul 24, 2018	Dark Energy Science Collaboration Meeting, <i>CMU</i> (Poster)
Feb 3, 2017	Astro-Snacks Seminar Series, <i>University of Pittsburgh</i> (Talk)

Fellowships and Funding Awards

Summer 2021	Z. Daniels Fellow University of Pittsburgh, Pittsburgh, PA
Spring 2020	Pittsburgh Particle, Astrophysics, and Cosmology Center Graduate Appointment University of Pittsburgh, Pittsburgh, PA
Fall 2018	Arts & Sciences Fellow in Physics and Astronomy University of Pittsburgh, Pittsburgh, PA
2015 - 2016	K. Leroy Irvis Fellow University of Pittsburgh, Pittsburgh, PA

Travel Grants

Total Awarded: \$6,000

September 2019	TOM Toolkit Workshop Travel Grant TOM Toolkit Workshop at CSP Observatories in Pasadena, Ca
July 2019	LSST Corporation Travel Grant LSST Project and Community Workshop, Tuscon, Az
July 2019	LSST Dark Energy Science Collaboration (DESC) Travel Grant LSST DESC Collaboration Meeting at the Astroparticle and Cosmology Laboratory, Paris, Fr
February 2019	LSST Dark Energy Science Collaboration (DESC) Travel Grant LSST DESC Collaboration Meeting at UC Berkely, Berkely, CA
February 2019	LSST Dark Energy Science Collaboration (DESC) Travel Grant LSST Broker Workshop at UC Berkely, Berkely, CA
February 2019	Graduate Student Organization (GSO) Travel Grant Individual talk at University of Connecticut, Storrs, CT
October 2018	LSST-DESC Photometric Calibration Travel Grant LPNHE, Paris, France
June 2018	Data Visualization and Exploration in the LSST Era Travel Grant University of Illinois, Urbana - Champaign, IL
February 2018	LSST Dark Energy Science Collaboration (DESC) Travel Grant LSST DESC Collaboration Meeting at SLAC National Accelerator Laboratory, Menlo Park, CA

Teaching

Fall 2016	Introduction to Physics I (PHYS 0110) Teaching Assistant, University of Pittsburgh
Summer 2016	Basic Physics for Science and Engineering II (PHYS 0175) Teaching Assistant, University of Pittsburgh

Publications

Published

3. A Template Based Approach to the Photometric Classification of SN 1991bg-like Supernovae in the SDSS-II Supernova Survey
Daniel Perrefort, Yike Zhang, Lluís Galbany, Michael Wood-Vasey, Santiago González-Gaitán
[The Astrophysical Journal](#)
2. *The LSST DESC DC2 Simulated Sky Survey*
LSST Dark Energy Science Collaboration et al. (alphabetical)
[The Astrophysical Journal](#)
1. *pwv_kpno: A Python Package for Modeling the Atmospheric Transmission Function due to H₂O*
Daniel Perrefort, Michael Wood-Vasey, K. Azalee Bostroem et al.
[Publications of the Astronomical Society of the Pacific](#)

Submitted

3. *Type Ia Host Bias is Robust Across Different Observation Methods and Fitting Techniques*
Jared Hand; Shu Liu; Lluís Galbany, **Daniel Perrefort**, et al.
[The Astrophysical Journal](#)
2. *DESC DC2 Data Release Note*
LSST Dark Energy Science Collaboration et al. (alphabetical)
[The Astrophysical Journal](#)
1. *GPS Measurements of Precipitable Water Vapor Can Improve Survey Calibration: A Demonstration from KPNO and the Mayall z-band Legacy Survey*
W. M. Wood-Vasey, **Daniel Perrefort**, Ashley Baker
[The Astrophysical Journal](#)

White Papers

2. *Single-object Imaging and Spectroscopy to Enhance Dark Energy Science from LSST*
Astro2020 Decadal paper - Principle Author: R. A. Hložek
[Bulletin of the AAS](#)
1. *Wide-field Multi-object Spectroscopy to Enhance Dark Energy Science from LSST*
Astro2020 Decadal paper - Principle Author: Rachel Mandelbaum
[Bulletin of the AAS](#)