

Shubham Kanodia

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EDUCATION

Pennsylvania State University

Doctor of Philosophy (Ph.D.) Astrophysics

Pennsylvania, USA

Sept 2017 - Now

Brown University

Master of Science (Sc.M.) Physics

Rhode Island, USA

Sept 2015 - Dec 2016

St. Xavier's College

Bachelor of Science (B.Sc.) Physics

Mumbai, India

June 2012 - Apr 2015

AWARDS

- Downsbrough Graduate Fellowship in Astrophysics, Penn State, 2021
- Zaccheus Daniel Fellowship, Penn State, 2018, 2020
- Homer F. Braddock / Nellie H. and Oscar L. Roberts Fellowship, Penn State, 2017
- J.N. Tata Endowment Fund for Higher Education, Mumbai, 2015
- INSPIRE Scholarship - Government of India, Mumbai, 2013

SKILLS

- **Software** - Python, Zemax, R, \LaTeX , IDL, SolidWorks, Java, Javascript
- **Outreach** -
 - Volunteered for Astrofest - Penn State Department of Astronomy Annual outreach event (July 2017, 2018, 2019)
 - Volunteered with Brown Cubesat Educational Outreach Saturday STEM program at West Broadway Middle School to communicate Science and Physics to students. (Oct 2015 - Apr 2016)
 - Volunteered at Umang Foundation, Mumbai - teaching underprivileged children basic Mathematics and English. (Dec 2012 - Dec 2014)

PUBLICATIONS

1st-3rd AUTHOR

- **Shubham Kanodia**, Gudmundur Stefansson, Caleb I. Canas, and others, “TOI-532b: The Habitable-zone Planet Finder confirms a Large Super Neptune in the Neptune Desert orbiting a metal-rich M dwarf host”, *The Astronomical Journal*, 162, 135, (2021). [[ADS](#)].
- **Shubham Kanodia**, Samuel Halverson, J. P. Ninan, and others, “A Harsh Test of Far-field Scrambling with the Habitable-zone Planet Finder and the Hobby-Eberly Telescope”, *The Astrophysical Journal*, 912, 1, 11, (2021). [[ADS](#)].
- **Shubham Kanodia**, J. P. Ninan, A. J. Monson, Suvrath Mahadevan, and others, “Ghosts of NEID’s Past”, *Proceedings of the SPIE*, 11447, 1144740 (2020). [[ADS](#)].
- Christian Schwab, Andrew Monson, **Shubham Kanodia**, “The NEID spectrometer: fibre injection system design”, *Proceedings of the SPIE*, 11447, 114474L (2020). [[ADS](#)].
- Jason Wright, and **Shubham Kanodia**, “Barycentric Corrections for Precise Radial Velocity Measurements of Sunlight”, *The Planetary Science Journal*, 1, 2, 38, (2020). [[ADS](#)].

- Caleb I. Cañas, Gudmundur Stefansson, **Shubham Kanodia**, “A warm Jupiter transiting an M dwarf: A TESS single transit event confirmed with the Habitable-zone Planet Finder”, *The Astrophysical Journal*, 160, 3, 147, (2020). [\[ADS\]](#).
- **Shubham Kanodia**, Caleb I. Canas, Gudmundur Stefansson, and others, “TOI-1728b: The Habitable-zone Planet Finder confirms a warm super Neptune orbiting an M dwarf host”, *The Astrophysical Journal*, 899, 1, 29, (2020). [\[ADS\]](#).
- **Shubham Kanodia**, Angie Wolfgang, Gudmundur K. Stefansson, Bo Ning, Suvrath Mahadevan, “Mass-Radius relationship for M dwarf exoplanets: Comparing nonparametric and parametric methods”, *The Astrophysical Journal*, 882, 1, 38, (2019). [\[ADS\]](#).
- Jason Wright, **Shubham Kanodia** and Emily Lubar, “How Much SETI Has Been Done? Finding Needles in the n-dimensional Cosmic Haystack”, *The Astronomical Journal*, 156, 6, 260, (2018). [\[ADS\]](#).
- **Shubham Kanodia**, Suvrath Mahadevan, Lawrence. W. Ramsey, and others, “Overview of the spectrometer optical fiber feed for the Habitable-zone Planet Finder”, *Proceedings of the SPIE*, 10702, 107026Q (2018). [\[ADS\]](#).
- **Shubham Kanodia**, and Jason Wright, “Python Leap Second Management and Implementation of Precise Barycentric Correction (barycorrpy)”, *Research Notes of the AAS*, 2, 1 (2018). [\[ADS\]](#).

CO-AUTHOR

- Vigneshwaran Krishnamurthy, Teruyuki Hirano, Gudmundur Stefansson, and others, “Nondetection of Helium in the Upper Atmospheres of TRAPPIST-1b, e, and f”, *The Astrophysical Journal*, 162, 82 (2021). [\[ADS\]](#).
- Shreyas Vissapragada, Gudmundur Stefansson, Michael Greklek-McKeon, “A Search for Planetary Metastable Helium Absorption in the V1298 Tau System”, *The Astrophysical Journal - Accepted* (2021). [\[ADS\]](#).
- Jack Lubin, Paul Robertson, Gudmundur Stefansson, and others, “Stellar Activity Manifesting at a One Year Alias Explains Barnard b as a False Positive”, *The Astrophysical Journal*, 162, 61 (2021). [\[ADS\]](#).
- Suvrath Mahadevan, Gudmundur Stefansson, Paul Robertson, and others, “The Habitable-zone Planet Finder Detects a Terrestrial-mass Planet Candidate Closely Orbiting Gliese 1151: The Likely Source of Coherent Low-frequency Radio Emission from an Inactive Star”, *The Astrophysical Journal Letters - Accepted* (2021). [\[ADS\]](#).
- Arvind Gupta, Jason Wright, Paul Robertson, and others, “Target Prioritization and Observing Strategies for the NEID Earth Twin Survey”, *The Astronomical Journal*, 161, 30, (2021). [\[ADS\]](#).
- Gudmundur Stefansson, Ravi Kopparapu, Andrea Lin, and others, “A Mini-Neptune and a Venus-Zone Planet in the Radius Valley Orbiting the Nearby M2-dwarf TOI-1266: Validation with the Habitable-zone Planet Finder”, *The Astronomical Journal*, 160, 6, 259, (2020). [\[ADS\]](#).
- Gudmundur Stefansson, Suvrath Mahadevan, Marissa Maney, and others, “The Habitable-zone Planet Finder Reveals A High Mass and a Low Obliquity for the Young Neptune K2-25b”, *The Astronomical Journal*, 160, 4, 192, (2020). [\[ADS\]](#).
- Paul Robertson, Gudmundur K. Stefansson, Suvrath Mahadevan, and others, “Persistent starspot signals on M dwarfs: multi-wavelength Doppler observations with the Habitable-zone Planet Finder and Keck/HIRES”, *The Astrophysical Journal*, 897, 2, 125, (2020). [\[ADS\]](#).
- J.P. Ninan, Gudmundur K. Stefansson, Suvrath Mahadevan, and others, “Evidence for He I 10830

Å Absorption during the Transit of a Warm Neptune around the M-dwarf GJ 3470 with the Habitable-zone Planet Finder”, *The Astrophysical Journal*, 894, 2, 97, (2020). [ADS].

- Arpita Roy, Sam Halverson, Suvrath Mahadevan, and others, “Solar Contamination in Extreme-precision Radial-velocity Measurements: Deleterious Effects and Prospects for Mitigation”, *The Astronomical Journal*, 159, 4, 161, (2020). [ADS].
- Gudmundur K. Stefansson, Caleb Canas, John Wisniewski, and others, “A Sub-Neptune-sized Planet Transiting the M2.5 Dwarf G 9-40: Validation with the Habitable-zone Planet Finder”, *The Astronomical Journal*, 159, 3, 100, (2020). [ADS].
- Paul Robertson, Tyler Anderson, Gudmundur K. Stefansson, and others, “Ultra-Stable Environment Control for the NEID Spectrometer: Design and Performance Demonstration”, *Journal of Astronomical Telescopes, Instruments, and Systems*, 5, 015003, (2019). [ADS].
- Andrew J. Metcalf, Tyler Anderson, Chad F. Bender, and others, “Stellar Spectroscopy in the Near-infrared with a Laser Frequency Comb”, *Optica*, 6, 2, 233, (2019). [ADS].
- Edited by Dawn Gelino and Jason Wright; Chapter Leads: Natalie Batalha, Svetlana Berdyugina, Emilio Enriquez, **Shubham Kanodia**, Andrew Siemion, Jason Wright, Shelley Wright, “NASA and the Search for Technosignatures: A Report from the NASA Technosignatures Workshop”, *NASA Technosignatures Workshop Participants (2018)* [ADS].
- J.P. Ninan, Chad F. Bender, Suvrath Mahadevan, and others, “The Habitable-Zone Planet Finder: improved flux image generation algorithms for H2RG up-the-ramp data”, *Proceedings of the SPIE*, 10709, 107092U (2018). [ADS].
- Gudmundur K. Stefansson, Suvrath Mahadevan, Leslie Hebb and others, “Toward Space-like Photometric Precision from the Ground with Beam-shaping Diffusers”, *The Astrophysical Journal*, 848, 1, (2017). [ADS].

POSTER PRESENTATIONS

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|---|---------------------------------|
| ○ Unearthing the dependence of exoplanet populations on stellar parameters | Online |
| Emerging Researchers in Exoplanet Science 2021 | May 2021 |
| ○ Combining the power of astrostatistics and precision instrumentation | Online |
| STScI symposium | April 2021 |
| ○ Exploring flares around the M dwarf VB-10 with high resolution IR spectroscopy | Online |
| Cool Stars 20.5 | March 2021 |
| ○ Ghosts of NEID’s Past | Online |
| SPIE Astronomical Telescopes and Instrumentation 2020 | December 2020 |
| ○ NEID Fiber feed and barycentric correction system | Grindelwald, Switzerland |
| Extreme Precision Radial Velocity IV | March 2019 |
| ○ Overview of the spectrometer optical fiber feed for HPF | Austin, USA |
| SPIE Astronomical Telescopes and Instrumentation 2018 | June 2018 |

PROFESSIONAL TALKS

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|--|---------------|
| From Pixels to Population: New tools to understand M dwarf exoplanets | Online |
| NASA Goddard Extrasolar Planets Seminar | Sep 2021 |
| Searching for lasers around cool stars | Online |
| Order of the Octopus | July 2021 |

Searching for the proverbial needle in the Cosmic Haystack PSETI Seminar	State College, USA October 2020
Next-gen RV instrumentation and M-R relationships PSU Department Lunch Talk	State College, USA February 2019
Placing Limits in Radio SETI: The Cosmic Haystack NASA Technosignatures Workshop, USRA	Houston, USA September 2018
Ultra-Stable Input Light for Ultra-Stable Spectrometers: Emerging Researchers in Exoplanet Science symposium (ERES IV), PSU	USA June 2018
Optical Design for EXoplanet Climate Infrared TElescope (EXCITE) PSU Department Lunch Talk	State College, USA September 2017

PUBLIC TALKS

Digging through the Cosmic Haystack Astronomy on Tap: State College	State College, USA October 2019
Searching for other worlds, other life Nerd Nite: Webster's Cafe	State College, USA June 2019
Finding Earth 2.0 Nehru Planetarium	Mumbai, India Jan 2018

ACADEMIC SERVICE

Referee

International Journal of Astrobiology

Science Organizing Committee

Emerging Researchers in Exoplanet Sciences IV June 2018

TEACHING

Teaching probabilistic programming Pennsylvania State University Spread across 5 weeks, I developed and taught an informal course on probabilistic programming, and statistical inference using the Hamiltonian Monte Carlo Python code - PyMC3 and package <code>exoplanet</code> .	State College, USA July 2021 - Aug 2021
Teaching Assistant for Astronomy lab Brown University Lab assistant for basic astronomy labs, eg. measuring blue shift of Andromeda, CCD imaging etc. (Prof. Ian Dell'Antonio)	Providence, USA Jan 2016 - Apr 2016

MENTORING

- Emily Lubar (2017 – 2020) - Now a graduate student at University of Texas, Austin
- Helen Baran (2019 – 2020) - Now a graduate student at Paris Observatory
- Marissa Maney (2019 – 2021) - Now a graduate student at Harvard University
- Brody McElwain (2020 –) - Undergraduate student in Engineering Science at Pennsylvania State University