Shubham Kanodia

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https://shbhuk.github.io/ shbhuk@gmail.com

EDUCATION

Pennsylvania State University — **Pennsylvania, USA**
Doctor of Philosophy (Ph.D.) Astrophysics — Sept 2017 - Now

Brown University — **Rhode Island, USA**
Master of Science (Sc.M.) Physics — Sept 2015 - Dec 2016

St. Xavier's College — **Mumbai, India**
Bachelor of Science (B.Sc.) Physics — 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 (2017, 2018, 2019)
  - Volunteered with Brown Cubesat Educational Outreach Saturday STEM program at West Broadway Middle School to communicate Science and Physics to students. (2015 - 2016)
  - Volunteered at Umang Foundation, Mumbai - teaching underprivileged children basic Mathematics and English. (2012 - 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 Astronomical 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

- **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

From Pixels to Population: New tools to understand M dwarf exoplanets — **Online**
PSU Center for Exoplanets and Habitable Worlds Seminar — Sep 2021

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 — **State College, USA**
PSETI Seminar — October 2020

Next-gen RV instrumentation and M-R relationships — **State College, USA**
PSU Department Lunch Talk — February 2019

Placing Limits in Radio SETI: The Cosmic Haystack — **Houston, USA**
NASA Technosignatures Workshop, USRA — September 2018

Ultra-Stable Input Light for Ultra-Stable Spectrometers: — **USA**
Emerging Researchers in Exoplanet Science symposium (ERES IV), PSU — June 2018

Optical Design for EXoplanet Climate Infrared TElescope (EXCITE) — **State College, USA**
PSU Department Lunch Talk — September 2017

PUBLIC TALKS

Digging through the Cosmic Haystack — **State College, USA**
Astronomy on Tap: State College — October 2019

Searching for other worlds, other life — **State College, USA**
Nerd Nite: Webster's Cafe — June 2019

Finding Earth 2.0 — **Mumbai, India**
Nehru Planetarium — Jan 2018

ACADEMIC SERVICE

Referee
International Journal of Astrobiology

Science Organizing Committee
Emerging Researchers in Exoplanet Sciences IV — June 2018

TEACHING

Teaching probabilistic programming — **State College, USA**
Pennsylvania State University — July 2021 - Aug 2021
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 `exoplanet`.

Teaching Assistant for Astronomy lab — **Providence, USA**
Brown University — Jan 2016 - Apr 2016
Lab assistant for basic astronomy labs, eg. measuring blue shift of Andromeda, CCD imaging etc. (Prof. Ian Dell'Antonio)

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/Master's student in Engineering Science at Pennsylvania State University