

William R. Saunders

725 Commonwealth Ave.
Boston, MA 02215
email: wsaund(at)bu.edu
website: williamrsaunders.com

EDUCATION	Boston University , Boston, MA Ph.D. in Astronomy (anticipated) May 2023 Advisor: Paul Withers GPA: 3.93/4
	Boston University , Boston, MA M.A. in Astronomy May 2020
	University of Pennsylvania , Philadelphia, PA B.A. in Physics & Astronomy, <i>summa cum laude</i> with honors May 2018 Advisor: Gary Bernstein Senior Honors Thesis: <i>Development of Efficiency Simulator for Detecting Planet Nine using the Dark Energy Survey</i> Minors: Mathematics, History GPA: 3.81/4
RESEARCH POSITIONS	Graduate Research Fellow Sept. 2018 - Present Boston University, Boston MA Advisor: Paul Withers (BU), Michael Person (MIT) Topics: Stellar occultations, Mars atmosphere, Uranus atmosphere
	Undergraduate Researcher Sept. 2015 - May 2018 University of Pennsylvania, Philadelphia, PA Advisor: Gary Bernstein Topic: Transient search using the Dark Energy Survey
	Summer Researcher June 2017 - Aug. 2017 NASA Ames Research Center, Moffett Field, CA Advisor: Uma Gorti Topic: Protoplanetary disk simulations
	High School & Undergraduate Researcher Aug. 2012 - June 2015 University of Pennsylvania, Philadelphia, PA Advisor: James Aguirre Topic: Supernova remnant search with PAPER radiotelescope
	High School Summer Researcher May 2014 - Aug. 2014 American Museum of Natural History, New York, NY Advisor: Emily Rice Topic: Brown dwarfs
	Instructor of Record (anticipated) July - Aug. 2022 Boston University, Boston MA AS 102: The Astronomical Universe

Teaching Fellow Jan. 2021 - May 2021
 Boston University, Boston MA
 AS 100: Cosmic Controversies

Teaching Fellow Sep. 2021 - Dec. 2021
 Boston University, Boston MA
 AS 102: The Astronomical Universe

HONORS AND AWARDS

DPS Outreach and Education Grant, astro[sound]bites	2021 - 2022
AGU Sharing Science Grant, astro[sound]bites	2021
Summer Professional Development Fellowship, Boston University	May - Aug. 2021
DPS Outreach and Education Grant, astro[sound]bites	2020 - 2021
Massachusetts Space Grant Consortium Graduate Fellowship	May - Aug. 2021
Massachusetts Space Grant Consortium Graduate Fellowship	May - Aug. 2020
NSF Graduate Research Fellowship Honorable Mention	April 2020
AGU Outstanding Student Presentation Award (awarded to top 3.5%)	Dec. 2019
Pennsylvania Space Grant Consortium Undergraduate Scholarship	2017 - 2018
University Scholar (For Advanced Undergraduate Researchers)	2015 - 2018
Dean's List	2014 - 2018
University Physics Competition Silver Medalist	Jan. 2016
National Merit Scholar	2014

PEER-REVIEWED PUBLICATIONS

First Author

2. **Saunders, W.**, Person, M., Withers, P., Sayanagi, K., Young, C., Randall, C., Valle, T. (2022). Assessment of the Feasibility of Space-Based Stellar Occultation Observations of Uranus and Neptune. *Planetary and Space Science*. doi.org/10.1016/j.pss.2022.105431.
1. **Saunders, W.**, Person, M., Withers, P., (2021). Observations of Gravity Waves in the Middle Atmosphere of Mars. *The Astronomical Journal*. doi.org/10.3847/1538-3881/abf1ef.

Co-Author

2. Bernardinelli, P., Bernstein, G., Sako, M., Hamilton, S., Gerdes, D., Adams, F., **Saunders, W.**, ... (2021). Testing the Isotropy of the Dark Energy Survey's Extreme Trans-Neptunian Objects. *The Planetary Science Journal*.
1. Bernardinelli, P., Bernstein G., Sako, M., Liu, T., **Saunders, W.**, ... (2020). Trans-Neptunian Objects Found in the First Four Years of the Dark Energy Survey. *The Astrophysical Journal*.

CONFERENCE PRESENTATIONS

First Author, Research

8. (Poster) *The Feasibility of Space-Based Stellar Occultation Observations of Uranus and Neptune* Dec. 2021
 AGU Winter Meeting, New Orleans, LA.
7. (Invited Talk) *Observations of Gravity Waves in the Middle Atmosphere of Mars* Dec. 2020
 AGU Winter Meeting, virtual
6. (Talk) *Measuring the Stratospheric Temperature of Uranus Using Archival Stellar Occultations* Dec. 2020
 AGU Winter Meeting, virtual.

5. (Talk) *Re-Analysis of the 1976 Mars Occultation of Epsilon Geminorum: Detection of Gravity (Buoyancy) Waves*
EPSC Meeting, virtual. Oct. 2020
4. (Poster) *Re-Analysis of the 1976 Mars Occultation of Epsilon Geminorum*
AGU Winter Meeting, San Francisco, CA
Winner of the Outstanding Student Presentation Award Dec. 2019
3. (Poster) *Initial Results of a Re-Analysis of the 1976 Mars Occultation of Epsilon Geminorum*
Ninth International Conference on Mars, Pasadena, CA July 2019
2. (Poster) *Impact of Ice on the Evolution of Protoplanetary Disks and Formation of Planetary Systems*
AAS Winter Meeting, Washington, D.C. Jan. 2018
1. (Talk) *Optimizing Difference Imaging to Identify Trans-Neptunian Objects using the Dark Energy Survey*
Astrophilly Conference, Villanova, PA Aug. 2016

Outreach

4. (Talk) *Astro[sound]bites: A new audio resource for emphinformal education*
Workshop on Astronomy Beyond the Common Senses, virtual. Nov. 2021
3. (Talk) *Astro[sound]bites: A new audio resource for emphconveying recent astronomy research*
Communicating Astronomy with the Public, virtual. May 2021
2. (iPoster and Talk) *Astro[sound]bites: A new audio resource for conveying recent astronomy research*
AAS Winter Meeting, virtual
Conference proceeding in the Bulletin of the AAS Jan. 2021
1. (Talk) *Astro[sound]bites: A new audio resource for conveying recent astronomy research*
DPS Annual Meeting, virtual. Oct. 2020

INVITED TALKS & COLLOQUIA

8. *The Shadow Chaser: A Mission Concept to Observe Uranus and Neptune Stellar Occultations*
NASA Langley Research Center, Hampton, VA Jan. 2022
7. *The Shadow Chaser: A Mission Concept to Observe Uranus and Neptune Stellar Occultations*
Hampton Univ., Hampton, VA Nov. 2021
6. *The Shadow Chaser: A Mission Concept to Observe Uranus and Neptune Stellar Occultations*
Astronomy Dept. Seminar Series, Boston Univ., Boston, MA Oct. 2021
5. *Review of Observations of Uranus and Neptune*
Astronomy Dept. Seminar Series, Boston Univ., Boston, MA Mar. 2021
4. *Creating the astro[sound]bites Podcast*
Astronomy Dept. Seminar Series, Boston Univ., Boston, MA April 2020
3. *Re-Analysis of a Stellar Occultation: Finding Waves in Ancient Data*
Astronomy Dept. Seminar Series, Boston Univ., Boston, MA Nov. 2019

2. *Impact of Ice on the Evolution of Protoplanetary Disks and Formation of Planetary Systems* Aug. 2017
Meeting of the National Astrobiology Institute,
NASA Ames Research Center, CA
1. *Optimizing Difference Imaging to Identify Trans-Neptunian Objects using the Dark Energy Survey* (plenary talk) Feb. 2017
Yale Undergraduate Research Conference, New Haven, CT

**OUTREACH
TALKS**

2. *Hey, You're in the Way: Measuring Planet Atmospheres When They Align with Stars* July 2020
Astronomy on Tap – Lansing, MI
1. *Hey, You're in the Way: Measuring Planet Atmospheres When They Align with Stars* May 2020
CAS Public Talks, Boston University, Boston, MA

**SCIENCE
OUTREACH**

- astro[sound]bites Podcast Founder and Co-Host** Nov. 2019 - Present
- Bi-weekly podcast companion to Astrobites.org.
 - Co-hosted by Malena Rice, Alex Gagliano, and I.
 - Each episode features two Astrobites posts, discussion, and a “space sound”.
 - Available on astrosoundbites.com, Apple Podcasts, Google Play, SoundCloud, and Spotify.
 - Over 10,000 total downloads in over 50 countries.

- Brainspace Magazine Astronomy Contributor** Aug. 2019 - Present
- *Brainspace* is a quarterly science magazine aimed at children ages nine to fourteen with a readership of approximately 40,000.

Published Works

- “It’s Pi Time” Spring 2022
 “Thinking Small: The CubeSat Revolution” Fall 2021
 “Cloudy with a Chance of Bacteria” Spring 2021
 “Where did the Moon Come From?” Fall 2020
 “Bringing Home a Piece of Mars” Winter 2019 - 2020
 “Solar Storms” Fall 2019

- ComSciCon Flagship** Aug. 2021
- Flagship science communication conference for graduate students.
 - Selected as attendee in 2021.

- ComSciCon Atlanta Podcasting Expert** Feb. 2022

- Astrobites Administrative Committee** Sep. 2021 - Present
- Developed the first Astrobites webinar panel event: “How to Find an Advisor” in March 2021.
 - Panel attended and viewed by over 40 participants.

- Astrobites Undergraduate Chair** Sep. 2020 - Aug. 2021
- Developed the first Astrobites webinar panel event: “How to Find an Advisor” in March 2021.
 - Panel attended and viewed by over 40 participants.

Astrobites Writing Contributor Jan. 2019 - Jan. 2021

- Astrobites is a graduate-student run website that summarizes recent astronomy research at an undergraduate level.
- Writers publish monthly, and peer-review others' publications.

Research Peer Advisor Aug. 2016 - May 2018

- Center for Undergraduate Research and Fellowships, University of Pennsylvania
- Advise undergraduates on first steps to beginning original research.

MEDIA APPEARANCES **REACH, a Science Podcast for Kids** March. 2022

Recorded a segment on artificial satellites and the CubeSat revolution.
<https://reach-a-space-podcast-for-kids.simplecast.com/episodes/reaching-out-what-is-a-satellite-UbxrAEyC>

Guest Presenter on In Plain English podcast Nov. 2021

Listen to In Plain English: inplainenglishpod.org.

GBH Guest Appearance Sep. 2021

Helped explained the celestial origin of the phrase "dog days of summer" in a segment that aired on GBH. Watch the segment here: <https://youtu.be/CZerMXwQJxU>.

TUTORING & MENTORSHIP **Ben Connect** 2020 - 2021

Mentoring two undergraduates as part of the University of Pennsylvania alumni mentorship program.

Physics Unlimited August 2020

Hosted two "facilitator sessions" for international high school students in the Physics Unlimited summer program to discuss physics and learn about academia.

Center for Undergraduate Research and Mentorship 2016 - 2018

Undergraduate Peer Research Mentor.

Dept. of Physics & Astronomy, University of Pennsylvania 2015 - 2018

Tutor for introductory physics and astronomy courses.

PROFESSIONAL MEMBERSHIP American Astronomical Society
Division for Planetary Sciences of the AAS
American Geophysical Union
National Association of Science Writers
Sigma Xi Scientific Research Honor Society
Sonification World Chat