

# William R. Saunders

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<b>EDUCATION</b>	<b>Boston University</b> , Boston, MA Ph.D. in Astronomy NASA FINESST Fellow Advisor: Paul Withers GPA: 3.93/4	(anticipated) August 2023
	<b>Boston University</b> , Boston, MA M.A. in Astronomy	May 2020
	<b>University of Pennsylvania</b> , Philadelphia, PA B.A. in Physics & Astronomy, <i>summa cum laude</i> with major honors 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	May 2018
<b>RESEARCH POSITIONS</b>	<b>Graduate Research Fellow</b> Boston University, Boston MA Advisor: Paul Withers (BU), Michael Person (MIT) Topics: Stellar occultations, Mars atmosphere, Uranus atmosphere	Sept. 2018 - Present
	<b>Undergraduate Researcher</b> University of Pennsylvania, Philadelphia, PA Advisor: Gary Bernstein Topic: Transient search using the Dark Energy Survey	Sept. 2015 - May 2018
	<b>Summer Researcher</b> NASA Ames Research Center, Moffett Field, CA Advisor: Uma Gorti Topic: Protoplanetary disk simulations	June 2017 - Aug. 2017
	<b>High School &amp; Undergraduate Researcher</b> University of Pennsylvania, Philadelphia, PA Advisor: James Aguirre Topic: Supernova remnant search with PAPER radiotelescope	Aug. 2012 - June 2015
	<b>High School Summer Researcher</b> American Museum of Natural History, New York, NY Advisor: Emily Rice Topic: Brown dwarfs	May 2014 - Aug. 2014
	<b>HONORS AND AWARDS</b>	<b>Future Investigators in NASA Earth and Space Science and Technology Fellowship (FINESST) Winner</b>

Massachusetts Space Grant Consortium Graduate Fellowship	May - August 2022
Massachusetts Space Grant Consortium Graduate Fellowship	Jan - May 2022
DPS Outreach and Education Grant, astro[ <a href="#">sound</a> ]bites	2021 - 2022
AGU Sharing Science Grant, astro[ <a href="#">sound</a> ]bites	2021
Summer Professional Development Fellowship, Boston University	May - Aug. 2021
DPS Outreach and Education Grant, astro[ <a href="#">sound</a> ]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
<b>AGU Outstanding Student Presentation Award</b> (awarded to top 3.5%)	<b>Dec. 2019</b>
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
<b>National Merit Scholar (awarded to 8,000 high school seniors)</b>	2014

**TEACHING  
POSITIONS**

<b>Instructor of Record</b> Boston University, Boston MA AS 102: The Astronomical Universe	July - Aug. 2022
<b>Teaching Fellow</b> Boston University, Boston MA AS 100: Cosmic Controversies	Jan. 2021 - May 2021
<b>Teaching Fellow</b> Boston University, Boston MA AS 102: The Astronomical Universe	Sep. 2021 - Dec. 2021

**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**

<u>First Author, Research</u>	
8. (Poster) <i>The Feasibility of Space-Based Stellar Occultation Observations of Uranus and Neptune</i> AGU Winter Meeting, New Orleans, LA.	Dec. 2021

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

#### Outreach

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

#### **INVITED TALKS & COLLOQUIA**

8. *The Shadow Chaser: A Mission Concept to Observe Uranus and Neptune Stellar Occultations* Jan. 2022  
NASA Langley Research Center, Hampton, VA
7. *The Shadow Chaser: A Mission Concept to Observe Uranus and Neptune Stellar Occultations* Nov. 2021  
Hampton Univ., Hampton, VA
6. *The Shadow Chaser: A Mission Concept to Observe Uranus and Neptune Stellar Occultations* Oct. 2021  
Astronomy Dept. Seminar Series, Boston Univ., Boston, MA
5. *Review of Observations of Uranus and Neptune* Mar. 2021  
Astronomy Dept. Seminar Series, Boston Univ., Boston, MA

4. *Creating the astro[sound]bites Podcast* April 2020  
Astronomy Dept. Seminar Series, Boston Univ., Boston, MA
  3. *Re-Analysis of a Stellar Occultation: Finding Waves in Ancient Data* Nov. 2019  
Astronomy Dept. Seminar Series, Boston Univ., Boston, MA
  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 Alex Gagliano, Kiersten Boley, Sabrina Berger, and me (formerly by Malena Rice).
  - Each episode features two Astrobites posts, discussion, and a “space sound”.
  - Available on astrosoundbites.com, Apple Podcasts, Google Play, SoundCloud, Spotify, Amazon Music, and Audible.
  - Over 14,000 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.

**Astrobiters Undergraduate Chair** Sep. 2020 - Aug. 2021

- Developed the first Astrobiters webinar panel event: "How to Find an Advisor" in March 2021.
- Panel attended and viewed by over 40 participants.

**Astrobiters Writing Contributor** Jan. 2019 - Jan. 2021

- Astrobiters 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](http://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