

William R. Saunders

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EDUCATION	Boston University , Boston, MA Ph.D. in Astronomy NASA FINESST Fellow Advisor: Paul Withers GPA: 3.93/4	(anticipated) August 2023
	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 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
RESEARCH POSITIONS	Graduate Research Fellow Boston University, Boston MA Advisor: Paul Withers (BU), Michael Person (MIT) Topics: Stellar occultations, Mars atmosphere, Uranus atmosphere	Sept. 2018 - Present
	Undergraduate Researcher University of Pennsylvania, Philadelphia, PA Advisor: Gary Bernstein Topic: Transient search using the Dark Energy Survey	Sept. 2015 - May 2018
	Summer Researcher NASA Ames Research Center, Moffett Field, CA Advisor: Uma Gorti Topic: Protoplanetary disk simulations	June 2017 - Aug. 2017
	High School & Undergraduate Researcher University of Pennsylvania, Philadelphia, PA Advisor: James Aguirre Topic: Supernova remnant search with PAPER radiotelescope	Aug. 2012 - June 2015
	High School Summer Researcher American Museum of Natural History, New York, NY Advisor: Emily Rice Topic: Brown dwarfs	May 2014 - Aug. 2014
	HONORS AND AWARDS	Future Investigators in NASA Earth and Space Science and Technology Fellowship (FINESST) Winner (\$100,000)

American Geophysical Union Dewan Young Scholarship Winner 2022-2023
 Massachusetts Space Grant Consortium Graduate Fellowship May - August 2022
 Massachusetts Space Grant Consortium Graduate Fellowship Jan - May 2022
 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 Dec. 2019
(awarded to top 3.5%)
 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 (awarded to 8,000 high school seniors) 2014

**TEACHING
POSITIONS**

Instructor of Record 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

**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

11. (Poster) *Uranus' Lower Themosphere is Cooler than Previously Thought* Dec. 2022
 AGU Winter Meeting, Chicago, IL.

10. (Oral) *Uranus' Lower Themosphere is Cooler than Previously Thought* Nov. 2022
NASA Outer Planets Assessment Group, Houston, TX.
9. (Poster) *Uranus Upper-Atmospheric Temperatures from Stellar Occultations* Sep. 2022
EPSC meeting, Granada, Spain.
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* 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

5. (Co-Convener) *Listening to Our World: Sonification Applications in Research, Education, and Outreach* Dec. 2022
AGU Winter Meeting, Chicago, IL.
4. (Talk) *Astro[sound]bites: A new audio resource for informal education* Nov. 2021
Workshop on Astronomy Beyond the Common Senses, virtual.
3. (Talk) *Astro[sound]bites: A new audio resource for conveying 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.

CONFERENCE PROCEEDINGS

2. **Saunders, W.**, Rice, M., Gagliano, A. (2022). ASTRO[SOUND]BITES: AN AUDIO RESOURCE FOR INFORMAL EDUCATION. 2nd Workshop on Astronomy Beyond the Common Senses for Accessibility and Inclusion. http://www.astroscu.unam.mx/rmaa/RMxAC..54/PDF/RMxAC..54_WSaunders-XIV.pdf.
1. Gagliano, A., Rice, M., **Saunders, W.** (2021). Astro[sound]bites: a New Audio Resource for Conveying Recent Astronomy Research. ASP Conference Series, 531, 111-117. <http://aspbooks.org/publications/531/111.pdf>.

INVITED TALKS & COLLOQUIA

5. *Revised Temperatures for Uranus' Upper Stratosphere and Lower Thermosphere* Nov. 2022
Johns Hopkins University Applied Physics Laboratory, Laurel, MD
4. *The Shadow Chaser: A Mission Concept to Observe Uranus and Neptune Stellar Occultations* Jan. 2022
NASA Langley Research Center, Hampton, VA
3. *The Shadow Chaser: A Mission Concept to Observe Uranus and Neptune Stellar Occultations* Nov. 2021
Hampton Univ., Hampton, VA
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 66 episodes and 16,000 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
	Astrobiters Administrative Committee	Sep. 2021 - Present
	<ul style="list-style-type: none"> • Developed the first Astrobiters webinar panel event: “How to Find an Advisor” in March 2021. • Panel attended and viewed by over 40 participants. 	
	ComSciCon Atlanta Podcasting Expert	Feb. 2022
	ComSciCon Flagship	Aug. 2021
	<ul style="list-style-type: none"> • Flagship science communication conference for graduate students. • Selected as attendee in 2021. 	
	Astrobiters Undergraduate Chair	Sep. 2020 - Aug. 2021
	<ul style="list-style-type: none"> • 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
	<ul style="list-style-type: none"> • 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
	<ul style="list-style-type: none"> • 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
Tutor for introductory physics and astronomy courses.

2015 - 2018

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