

Stella Koch Ocker

CURRICULUM VITAE

WEBSITE: stellakochocker.com

EMAIL: socker@caltech.edu

ORCID: [0000-0002-4941-5333](https://orcid.org/0000-0002-4941-5333)

CITIZENSHIP: USA, Germany

EDUCATION

Cornell University	Ithaca, NY
Ph.D. in Astronomy	2023
M.S. in Astronomy	2020

Dissertation Title: “Characterizing Cosmic Plasmas from the Heliosphere to Distant Galaxies”

Advisor: Prof. James Cordes

Oberlin College	Oberlin, OH
B.A. with High Honors in Physics (Concentration in Astrophysics)	2018

EMPLOYMENT

Caltech & Carnegie Observatories	Pasadena, CA
Caltech-Carnegie Brinson Prize Postdoctoral Fellow	2023–current

Cornell University	Ithaca, NY
Graduate Research Assistant	2018–2023

RESEARCH INTERESTS

- Interstellar, circumgalactic, & intergalactic media
- Energetic transients and compact objects, including fast radio bursts, pulsars, and long-period transients
- Precision pulsar timing & its applications: gravitational wave detection & General Relativity

SCHOLARSHIPS, GRANTS, AND AWARDS

• International Space Science Institute (ISSI/Bern) International Team Grant (Co-PI)	2024–2026
• Carnegie-Caltech Brinson Prize Fellowship	2023–2026
• Cranson & Edna Shelley Graduate Research Award, Cornell University	2023
• NASA Outer Heliosphere Guest Investigator Grant (Student Co-I)	2020–2023
• Outstanding Student Presentation Award, American Geophysical Union Fall Meeting	2022
• International Astronomical Union & Heising-Simons Foundation Travel Grant	2022
• Cranson & Edna Shelley Graduate Research Award, Cornell University	2021
• Prize for Highest Scientific Merit, Cornell KK Wang Space Tech Poster Competition	2021
• Cranson & Edna Shelley Outstanding Teaching Assistant Award, Cornell University	2020
• Honorable Mention, NSF Graduate Research Fellowship Competition	2020
• Graduate Student Fellowship, Cornell University	2018–2019
• Carl E. Howe Prize in Physics, Oberlin College	2018
• Oberlin Physics & Astronomy Department Honors Program	2017–2018
• Robert Weinstock Prize for Outstanding Achievement in Physics Coursework (Oberlin)	2017
• John Frederick Oberlin Merit Scholarship	2014–2018

FIRST-AUTHOR REFEREED PUBLICATIONS

1. **Ocker SK**, Chen M, Oh SP, Sharma P. “Microphysics of circumgalactic turbulence probed by fast radio bursts and quasars.” *ApJ* 988, 69. July, 2025. doi:[10.3847/1538-4357/ade0bc](https://doi.org/10.3847/1538-4357/ade0bc)
2. **Ocker SK** and Cosens M. “Probing the low-velocity regime of non-radiative shocks with neutron star bow shocks.” *ApJL* 975:L31. November, 2024. doi:[10.3847/2041-8213/ad87cf](https://doi.org/10.3847/2041-8213/ad87cf)
3. **Ocker SK**, Anderson LD, Lazio J, Cordes JM, Ravi V. “Implications for Galactic electron density structure from pulsar sightlines intersecting HII regions.” *ApJ* 974:10. October, 2024. doi:[10.3847/1538-4357/ad6a51](https://doi.org/10.3847/1538-4357/ad6a51)
4. **Ocker SK**, Cordes JM, Chatterjee S, Stinebring DR, Dolch T, Pelgrims V, McKee JW, Giannakopoulos C, Reardon DJ. “Pulsar scintillation through thick and thin: Bow shocks, bubbles, and the broader interstellar medium.” *MNRAS* 527:7568. January, 2024. doi:[10.1093/mnras/stad3683](https://doi.org/10.1093/mnras/stad3683)
5. **Ocker SK**, Cordes JM, Chatterjee S, Li D, Niu CH, McKee JW, Law CJ, Anna-Thomas R. “Scattering variability detected from the circumspace medium of FRB 20190520B.” *MNRAS* 519:821. February, 2023. doi:[10.1093/mnras/stac3547](https://doi.org/10.1093/mnras/stac3547)
6. **Ocker SK**, Cordes JM, Chatterjee S, Gorsuch M. “Radio scattering horizons for interstellar and extragalactic transients.” *ApJ* 934:71. July, 2022. doi:[10.3847/1538-4357/ac75ba](https://doi.org/10.3847/1538-4357/ac75ba)
7. **Ocker SK**, Cordes JM, Chatterjee S, Niu CH, Li D, McKee JW, Law CJ, Tsai CW, Anna-Thomas R, Yao JM, Cruces M. “The large dispersion and scattering of FRB 20190520B are dominated by the host galaxy.” *ApJ* 931:87. May, 2022. doi:[10.3847/1538-4357/ac6504](https://doi.org/10.3847/1538-4357/ac6504)
8. **Ocker SK**, Cordes JM, Chatterjee S, Dolch T. “An in situ study of turbulence near stellar bow shocks.” *ApJ* 922:233. December, 2021. doi:[10.3847/1538-4357/ac2b28](https://doi.org/10.3847/1538-4357/ac2b28)
9. **Ocker SK**, Cordes JM, Chatterjee S, Gurnett D, Kurth B, Spangler S. “Persistent plasma waves in interstellar space detected by Voyager 1.” *Nature Astronomy* 5, 761-765. May, 2021. doi:[10.1038/s41550-021-01363-7](https://doi.org/10.1038/s41550-021-01363-7)
10. **Ocker SK**, Cordes JM, Chatterjee S. “Constraining galaxy haloes from the dispersion and scattering of fast radio bursts and pulsars.” *ApJ* 911:2. April, 2021. doi:[10.3847/1538-4357/abeb6e](https://doi.org/10.3847/1538-4357/abeb6e)
11. **Ocker SK**, Cordes JM, Chatterjee S. “Electron density structure of the local Galactic disk.” *ApJ* 897:2. July, 2020. doi:[10.3847/1538-4357/ab98f9](https://doi.org/10.3847/1538-4357/ab98f9)
12. **Ocker SK**, Petrie G. “The effects of spatial smoothing on solar magnetic helicity parameters and the hemispheric helicity sign rule.” *ApJ*. 832:162. November, 2016. doi:[10.3847/0004-637X/832/2/162](https://doi.org/10.3847/0004-637X/832/2/162)

CO-AUTHOR REFEREED PUBLICATIONS

39 co-authored papers total; significant contributions are listed first, then large collaboration papers.

1. Cordes JM, **Ocker SK**, Chatterjee S et al. “Fundamental Noise Processes in Pulsar Timing Arrays.” Invited submission to *Living Reviews in Relativity*.
2. Ould-Boukattine OS, Cooper AJ, Hessels JWT, Hewitt DM, **Ocker SK** et al. “A HyperFlash and ÈCLAT view of the local environment and energetics of the repeating FRB 20240619D.” Submitted to *MNRAS*. [arXiv:2509.16374](https://arxiv.org/abs/2509.16374)
3. Faber J, Ravi V, **Ocker SK** et al. “A Heavily Scattered Fast Radio Burst Is Viewed Through Multiple Galaxy Halos.” Submitted to *ApJ*. [arXiv:2405.14182](https://arxiv.org/abs/2405.14182)
4. Connor L, Ravi V, Sharma K, **Ocker SK** et al. “A gas rich cosmic web revealed by partitioning the missing baryons.” *Nature Astronomy*. June, 2025. doi:[10.1038/s41550-025-02566-y](https://doi.org/10.1038/s41550-025-02566-y)

5. Reardon DJ, Main R, **Ocker SK** et al. “Bow shock and Local Bubble plasma unveiled by the scintillating millisecond pulsar J0437–4715.” *Nature Astronomy*. April, 2025. doi:10.1038/s41550-025-02534-6
 6. Niu CH, Li D, ..., **Ocker SK** et al. “A repeating fast radio burst in a dense environment with a compact persistent radio source.” *Nature* 606, 873877. June, 2022. doi:10.1038/s41586-022-04755-5
 7. Cordes JM, **Ocker SK**, Chatterjee S. “Redshift estimation and constraints on intergalactic and interstellar media from dispersion and scattering of fast radio bursts.” *ApJ* 931:88. May, 2022. doi:10.3847/1538-4357/ac6873
 8. Stinebring DR, Rickett BJ, **Ocker SK**. “The frequency dependence of scintillation arc thickness in pulsar B1133+16.” *ApJ* 870:2. January, 2019. doi:10.3847/1538-4357/aaef80
-
9. Sherman M, Kosogorov N, Law C, Ravi V, Faber J, **Ocker SK** et al. “Deep Synoptic Array Science: Searching for Long Duration Radio Transients with the DSA-110.” Submitted to *PASP*. arXiv:2510.18136
 10. Matt C, Gultekin K, Kelley L et al. (including **Ocker SK**). “Inferring Mbh-Mbulge Evolution from the Gravitational Wave Background.” Submitted to *ApJ*. arXiv:2508.18126
 11. The NANOGrav Collaboration (including **Ocker SK**). “The NANOGrav 15 yr Data Set: Targeted Searches for Supermassive Black Hole Binaries.” Submitted to *ApJ*. arXiv:2508.16534
 12. Anumalapudi A et al. (including **Ocker SK**). “ASKAP J144834-685644: a newly discovered long period radio transient detected from radio to X-rays.” *MNRAS* 542:1208. September, 2025. doi:10.1093/mnras/staf1227
 13. The NANOGrav Collaboration (including **Ocker SK**). “The NANOGrav 15 yr dataset: Search for gravitational wave memory.” *ApJ* 987:5. June, 2025. doi:10.3847/1538-4357/add874
 14. Wang Z et al. (including **Ocker SK**). “Detection of X-ray emission from a bright long-period radio transient.” *Nature* 642:8068. June, 2025. doi:10.1038/s41586-025-09077-w
 15. Geiger A, Cordes JM, Lam MT, **Ocker SK** et al. “The NANOGrav 12.5 yr dataset: Probing interstellar turbulence and precision pulsar timing with PSR J1903+0327.” *ApJ* 986:191. June, 2025. doi:10.3847/1538-4357/add0b6
 16. The NANOGrav Collaboration (including **Ocker SK**). “The NANOGrav 15 yr dataset: Harmonic analysis of the pulsar angular correlations.” *ApJ* 985:99. May, 2025. doi:10.3847/1538-4357/adc997
 17. Lee J et al. (including **Ocker SK**). “The emission of interpulses by a 6.45-h-period coherent radio transient.” *Nature Astronomy* 9:393. March, 2025. doi:10.1038/s41550-024-02452-z
 18. The NANOGrav Collaboration (including **Ocker SK**). “The NANOGrav 15 yr dataset: Posterior predictive checks for gravitational-wave detection with pulsar timing arrays.” *Phys. Review D* 111:4. February, 2025. doi:10.1103/PhysRevD.111.042011
 19. The NANOGrav Collaboration (including **Ocker SK**). “The NANOGrav 15 yr Data Set: Running of the Spectral Index.” *ApJL* 978:L29. January, 2025. doi:10.3847/2041-8213/ad99d3
 20. The NANOGrav Collaboration (including **Ocker SK**). “The NANOGrav 15 Yr Data Set: Removing Pulsars One by One from the Pulsar Timing Array.” *ApJ* 978:168. January, 2025. doi:10.3847/1538-4357/ad93aa
 21. The NANOGrav Collaboration (including **Ocker SK**). “The NANOGrav 15 yr Data Set: Looking for Signs of Discreteness in the Gravitational-wave Background.” *ApJ* 978:31. January, 2025. doi:10.3847/1538-4357/ad93d5

22. Sharma K, Ravi V, Connor L, Law C, **Ocker SK**, Sherman M et al. “Preferential occurrence of fast radio bursts in massive star-forming galaxies.” *Nature* 635:61. November, 2024. [doi:10.1038/s41586-024-08074-9](https://doi.org/10.1038/s41586-024-08074-9)
23. Turner JE, Dolch T, Cordes JM, **Ocker SK** et al. “A Cyclic Spectroscopy Study of PSR B1937+21: Demonstration of Improved Scintillometry.” *ApJ* 927:16. September, 2024. [doi:10.3847/1538-4357/ad5af9](https://doi.org/10.3847/1538-4357/ad5af9)
24. Sherman M, Ravi V, El-Badry K, Sharma K, **Ocker SK**, Kosogorov N, Connor L, Sharma K. “Searching for magnetar binaries disrupted by core-collapse supernovae.” *MNRAS* 531:2379. June, 2024. [doi:10.1093/mnras/stae1289](https://doi.org/10.1093/mnras/stae1289)
25. Johnson A et al. (including **Ocker SK**). “NANOGrav 15-year gravitational-wave background methods.” *Physical Review D* 109:103012. May, 2024. [doi:10.1103/PhysRevD.109.103012](https://doi.org/10.1103/PhysRevD.109.103012)
26. The NANOGrav Collaboration (including **Ocker SK**). “Comparing recent pulsar timing array results on the nanohertz stochastic gravitational wave background.” *ApJ* 966:105. May, 2024. [doi:10.3847/1538-4357/ad36be](https://doi.org/10.3847/1538-4357/ad36be)
27. The NANOGrav Collaboration (including **Ocker SK**). “The NANOGrav 15 yr data set: Search for transverse polarization modes in the gravitational wave background.” *ApJL* 964:L14. March, 2024. [doi:10.3847/2041-8213/ad2a51](https://doi.org/10.3847/2041-8213/ad2a51)
28. The NANOGrav Collaboration (including **Ocker SK**). “The NANOGrav 12.5 yr data set: A computationally efficient eccentric binary search pipeline and constraints on an eccentric supermassive binary candidate in 3C 66B.” *ApJ* 963:144. March, 2024. [doi:10.3847/1538-4357/ad1f61](https://doi.org/10.3847/1538-4357/ad1f61)
29. The NANOGrav Collaboration (including **Ocker SK**). “The NANOGrav 12.5 yr data set: Search for gravitational wave memory.” *ApJ* 963:61. March, 2024. [doi:10.3847/1538-4357/ad0726](https://doi.org/10.3847/1538-4357/ad0726)
30. Becsy et al. (including **Ocker SK**). “How to detect an astrophysical nanohertz gravitational wave background.” *ApJ* 959:9. December, 2023. [doi:10.3847/1538-4357/ad09e4](https://doi.org/10.3847/1538-4357/ad09e4)
31. The NANOGrav Collaboration (including **Ocker SK**). “The NANOGrav 15 yr data set: Search for anisotropy in the gravitational wave background.” *ApJ Letters* 956:L3. October, 2023. [doi:10.3847/2041-8213/acf4fd](https://doi.org/10.3847/2041-8213/acf4fd)
32. The NANOGrav Collaboration (including **Ocker SK**). “The NANOGrav 15-year data set: Evidence for a gravitational wave background.” *ApJ Letters* 951:L8. June, 2023. [doi:10.3847/2041-8213/acdac6](https://doi.org/10.3847/2041-8213/acdac6)
33. The NANOGrav Collaboration (including **Ocker SK**). “The NANOGrav 15-year data set: Observations and timing of 68 millisecond pulsars.” *ApJ Letters* 951:L9. June, 2023. [doi:10.3847/2041-8213/acda9a](https://doi.org/10.3847/2041-8213/acda9a)
34. The NANOGrav Collaboration (including **Ocker SK**). “The NANOGrav 15-year data set: Detector characterization and noise budget.” *ApJ Letters* 951:L10. June, 2023. [doi:10.3847/2041-8213/acda88](https://doi.org/10.3847/2041-8213/acda88)
35. The NANOGrav Collaboration (including **Ocker SK**). “The NANOGrav 15-year data set: Search for signals from new physics.” *ApJ Letters* 951:L11. June, 2023. [doi:10.3847/2041-8213/acdc91](https://doi.org/10.3847/2041-8213/acdc91)
36. Falxa et al. (including **Ocker SK**). “Searching for continuous gravitational waves in the second data release of the International Pulsar Timing Array.” *MNRAS* 521:5077. June, 2023. [doi:10.1093/mnras/stad812](https://doi.org/10.1093/mnras/stad812).
37. The NANOGrav Collaboration (including **Ocker SK**). “The NANOGrav 12.5 year data set: Bayesian limits on gravitational waves from individual supermassive black hole binaries.” *ApJ Letters* 951:L28. July, 2023. [doi:10.3847/2041-8213/acdbc7](https://doi.org/10.3847/2041-8213/acdbc7).
38. Anna-Thomas R, Connor L, ... **Ocker SK** et al. “Magnetic field reversal in the turbulent environment around a repeating fast radio burst.” *Science* 380:6645. May, 2023. [doi:10.1126/science.abo6526](https://doi.org/10.1126/science.abo6526)

39. Stinebring DR, Rickett BJ, Minter AH, Hill AS, Jussila AP, Mathis L, McLaughlin MA, **Ocker SK**, Ransom SM. “A scintillation arc survey of 22 pulsars with low to moderate dispersion measures.” *ApJ* 941:34. December, 2022. doi:10.3847/1538-4357/ac8ea8

NON-REFEREED PUBLICATIONS

1. **Ocker SK** & Cordes JM. “NE2001p: A native Python implementation of the NE2001 Galactic electron density model.” *RNAAS*, 8, 17. January, 2024. doi:10.3847/2515-5172/ad1bf1
2. **Ocker SK**, Cordes JM, Chatterjee S, Hazboun J, Dolch T, Stinebring D, Madison D, White S, Taylor G, Lewandowska N, Lam M. “Heliosphere meets interstellar medium, in a Galactic context.” Decadal Survey for Solar and Space Physics (Heliophysics) 2024-2033, white paper, *BAAS*, 55, 301. July, 2023. doi:103847/252cfcb.dd406a9d

AFFILIATIONS

- DSA-2000 Pulsar Search Working Group 2025–
- Pulsar Science Working Group, Square Kilometer Array Observatory (SKAO) 2024–
- North American Nanohertz Observatory for Gravitational Waves (NANOGrav) 2019–
- Voyager Interstellar Mission
NASA Outer Heliosphere Guest Investigator 2020–2023
Science Steering Group 2023–
- American Astronomical Society (AAS) 2018–2023

TELESCOPE TIME ALLOCATIONS (PI: OCKER)

PI of 38 nights total on large ground-based facilities: 30 nights of institutional time on optical/IR telescopes, & 61.3 hours of internationally competed time on radio telescopes.

- Magellan Telescopes, Las Campanas Observatory: 6.5 nights (2025A), 8.5 nights (2024B), 4.5 nights (2024A)
- Keck II Telescope, W.M. Keck Observatory: 1.5 nights (2025B), 3 nights (2025A), 1.5 nights (2024A)
- Hale Telescope, Palomar Observatory: 2 nights (2025A), 2.5 nights (2024B)
- Green Bank Telescope: 27.5 hr Rank B (2024B), 16.5 hr Rank A (2023A)
- Five-hundred-meter Aperture Spherical Telescope: 17.3 hr Rank A (2021)

TEACHING

- **Radio Propagation Theory Summer Course** at Caltech Summer 2025
Co-taught with Prof. Vikram Ravi; wrote and delivered two lectures and a problem set
- **Python Programming Workshop** at Cornell University Summer 2021
Developed and taught astronomy coding tutorials for Research Experiences for Undergraduates
- **Head Teaching Assistant** at Cornell University (ASTRO 1102/1104) Spring 2020
Led team of 5 TA's, coordinated student accommodations, taught weekly recitation, wrote and graded problem sets and exams
- **Teaching Assistant** at Cornell University (ASTRO 1101/1103) Fall 2019
Taught two weekly recitations, wrote and graded problem sets and exams, held office hours
- **Teaching Assistant** at Oberlin College (PHYS 111) Spring 2017
Taught two weekly recitations, held office hours
- **Teaching Assistant** at Oberlin College (PHYS 110) Fall 2016
Taught two weekly recitations, held office hours

MENTORING

Visiting Graduate Student Researcher Program , Caltech	
<i>Mentee: Francesco Angelo Iraci, University of Cagliari</i>	2025
CASSI-SURF Summer Research Program , Caltech & Carnegie Observatories	
<i>Mentee: Zaara Bhatia, Harvey-Mudd College</i>	2025
<i>Mentee: Stephen Romero-Ruiz, Caltech</i>	2024
Astronomy Mentoring Program for Upcoming Postdocs (AMP-UP)	
<i>Mentee: Joanna Sakowska, Instituto de Astrofísica de Andalucía</i>	2025
<i>Mentee: Abby Lee, University of Chicago</i>	2024
Advancing Inclusive Mentoring (AIM) Program , CSU Long Beach & Carnegie Science	
<i>Mentoring course & certification</i>	2024
Research Experiences for Undergraduates , Cornell University	
<i>Mentee: Taite Ellenson, Cornell University</i>	2022
<i>Mentee: Miranda Gorsuch, University of Wisconsin Stevens Point</i>	2021
<i>Mentee: Samantha Rosenfeld, Union College</i>	2020

INVITED TALKS

32 total invited talks: 9 colloquia, 9 seminars, 7 international conferences, and 7 specialized conferences

1. Colloquium, Physics & Astronomy Department, University of Idaho (2025).
2. MIST2025 Conference, Institut Études Scientifiques de Cargèse, France (2025).
3. Pulsar2025 Conference, Geremeas, Italy (2025).
4. Cosmic Ecosystems Conference, Perimeter Institute (2025).
5. Colloquium, Max Planck Institute for Radio Astronomy (2025).
6. Colloquium, Anton Pannekoek Institute for Astronomy, University of Amsterdam (2025).
7. Colloquium, ASTRON Institute for Radio Astronomy (2025).
8. Colloquium, Institute for Theory and Computation, Harvard University (2025).
9. Observational Astronomy Seminar, CIERA, Northwestern University (2025).
10. Research Seminar, University of Chicago (2025).
11. FRB2024 Conference, Khao Lak, Thailand (2024).
12. Towards a Holistic Understanding of the Multi-scale, Multi-phase Circumgalactic Medium, Aspen Center for Physics (2024).
13. International Pulsar Timing Array Conference, Haus-Sexten Center for Astrophysics (2024).
14. Fields, Flows, & Filaments Workshop, Stanford University (2024).
15. Astrophysics Lunch Seminar, UC Berkeley (2024).
16. KIPAC Tea, Stanford University (2024).
17. Astrophysics Division Seminar, Jet Propulsion Laboratory, California Institute of Technology (2023).
18. Salpeter Workshop on the Interstellar Medium, Cornell University (2023).
19. Astrophysics of Fast Radio Bursts II, Flatiron Institute (2023).
20. Colloquium, Physics & Astronomy Department, Oberlin College (2023).
21. Special Session SH22C (*Interstellar Probe*), American Geophysical Union Conference (2022).

22. “There’s Plenty of Room at the Bottom” FRB Meeting, Cornell University (2022).
23. Colloquium, CSIRO Australia National Telescope Facility (2022).
24. Scintillometry Workshop, University of Toronto (2022).
25. Breaking News Session, International Astronomical Union General Assembly Symposium: The Dawn of Cosmology & Multi-Messenger Studies with Fast Radio Bursts (2022).
26. Diffuse Ionized Gas Seminar, University of Washington, Seattle (2022).
27. FRB Seminar, Academia Sinica Institute of Astronomy and Astrophysics (ASIAA), Taiwan (2022).
28. Radio/mm/sub-mm Seminar, Caltech (2022).
29. Colloquium, Green Bank Observatory (2021).
30. *Interstellar Probe* Workshop, Applied Physics Laboratory, Johns Hopkins University (2021).
31. Colloquium, Netherlands Institute for Radio Astronomy (ASTRON/JIVE; 2021).
32. CHIME/FRB Collaboration Journal Club (2021).

CONTRIBUTED TALKS AND POSTERS

26 total contributed talks and posters: 18 specialized conferences/workshops and 8 major conferences

1. Probing CGM Microphysics with FRBs and Quasars. Talk. FRB2025, McGill University (2025).
2. Using Bow Shocks to Unveil the Structure of Neutron Star Winds. Talk. 18th Annual Bonn Neutron Star Workshop, Max Planck Institute for Radio Astronomy (2025).
3. Constraining the Dissipation of VLISM Turbulence. Talk. Spring Meeting of the Voyager Interstellar Mission Science Steering Group (2025).
4. Pulsar Scintillation in the Interstellar Zoo. Talk. Scintillometry Workshop, University of Central Florida (2024).
5. Probing the Sun’s Interstellar Environment from AU to 100s of Parsec Scales. Poster. American Geophysical Union Conference (2023).
6. Pulsar Scintillation through Thick and Thin. Talk. Scintillometry Workshop (2023).
7. The Path to a Next-Generation Galactic Electron Density Model. Talk. FRB2023 (2023).
8. A High-Resolution Study of Pulsar Scintillation. Talk. NANOGrav Fall Meeting (2023).
9. Mapping Small-Scale Structure in the ISM from Voyager to Nearby Pulsars. Talk. Spring Meeting of the Voyager Interstellar Mission Science Steering Group (2023).
10. A Search for Scintillation from Pulsar Bow Shocks. Talk. NANOGrav Spring Meeting (2023).
11. Noise Considerations for Pulsar Science with DSA-2000. Scientific Frontiers and Synergies with the DSA-2000 Radio Camera. Poster. California Institute of Technology (2023).
12. Bow Shocks of Scintillating Pulsars. Talk. Scintillometry Workshop, University of Toronto (2022).
13. Scattering Horizons for Fast Radio Bursts. Talk. International Astronomical Union General Assembly; Symposium: The Dawn of Cosmology & Multi-Messenger Studies with Fast Radio Bursts (2022).
14. Mapping the Local ISM From Voyager to Pulsars. Talk. Spring Meeting of the Voyager Interstellar Mission Science Steering Group (2022).
15. Scattering Horizons for Pulsars and Fast Radio Bursts. Poster. NANOGrav Spring Meeting (2022).
16. An In Situ Study of Turbulence Near Stellar Bow Shocks. Talk. NANOGrav Fall Meeting (2021).

17. Turbulence Near Stellar Bow Shocks. Talk. Fall Meeting of the Voyager Interstellar Mission Science Steering Group (2021).
18. Leveraging the Combined Scattering and DM Budget. Talk. FRB2021 (2021).
19. Interstellar Propagation Effects Near and Far. Talk. NANOGrav Spring Meeting (2021).
20. Voyager 1 Is Now an Interstellar Probe. Poster. KK Wang Cornell Space Tech Industry Day (2021).
21. Voyager 1 Detects Persistent Plasma Waves in Interstellar Space. Talk. Spring Meeting of the Voyager Interstellar Mission Science Steering Group (2021).
22. Interstellar Turbulence Near the Heliospheric Boundary. Talk. Fall Meeting of the Voyager Interstellar Mission Science Steering Group (2020).
23. Assessing Chromatic Arrival Time Perturbations for NANOGrav's Error Budget. Poster. 235th AAS Meeting (2020).
24. Multi-Frequency Scintillation Arc Study of Pulsar B1133+16. Poster. 233rd AAS Meeting (2019).
25. Multiple scintillation arcs in a nearby pulsar, B1133+16: crucial clues? Talk. Scintillometry Workshop, University of Toronto (2017).
26. The effects of spatial smoothing on solar magnetic helicity and the hemispheric helicity sign rule. Poster. 47th AAS/Solar Physics Division Meeting (2016).

PROFESSIONAL SERVICE

• Journal Referee <i>ApJ, Nature Astronomy, Nature Communications, MNRAS, A&A, Science China PMA</i>	ongoing
• Colloquium Committee, Caltech Astronomy Department <i>Selected and invited speakers, hosted talks</i>	2025–
• Colloquium Committee, Carnegie Observatories <i>Selected and invited speakers, organized talks</i>	2024–
• Observational Eras Committee, NANOGrav Collaboration <i>Gathered materials on organizational structure of other collaborations; formulated recommendations for reorganization of collaboration procedures</i>	2024–
• Giant Metrewave Radio Telescope Time Allocation Committee: External Reviewer <i>Reviewed and graded telescope proposals</i>	2025
• Scientific Organizing Committee, Annual Scintillometry Workshop <i>Reviewed abstracts, meeting schedule</i>	2025
• Scientific Organizing Committee, Keck Observatories Science Meeting <i>Reviewed abstracts, meeting schedule, session chair</i>	2025
• Scientific Organizing Committee, FRB2024 Thailand <i>Drafted conference goals, reviewed abstracts, meeting schedule</i>	2024
• German Israeli Foundation for Scientific Research and Development: External Reviewer <i>Evaluated grant proposals, provided written feedback</i>	2024
• Hubble Space Telescope Allocation Committee: External Reviewer <i>Evaluated grant proposals, provided written feedback</i>	2024
• Caltech Optical Observatories Time Allocation Committee <i>Evaluated observing proposals, recommended time allocations, provided written feedback</i>	2024
• NASA Review Panel Member <i>Evaluated grant proposals</i>	2023, 2024
• NANOGrav Climate & Equity Committee <i>Contributor to NANOGrav Diversity Plan, annual climate survey, & DEI trainings for biannual collaboration meetings</i>	2021–2023

- **Peer Mentor Coordinator, Cornell Astronomy Graduate Network** 2021–2022
Paired graduate student mentors and mentees; trained mentors; led group mentoring sessions
- **President, Cornell Astronomy Graduate Network** 2020–2021
Contributed to creation of Cornell Astronomy Graduate Student Handbook and the Astronomy Peer Mentoring Network
- **Secretary & Outreach Coordinator, Cornell Astronomy Graduate Network** 2019–2020
Organized the weekly graduate student and post-doc seminar; lead organizer of outreach events involving graduate students (see Outreach section below)
- **Student Representative, Oberlin College Department of Physics & Astronomy** 2016–2018
Attended all faculty meetings; led student committee for 2017 faculty search; organized weekly Women/Trans/Nonbinary in Physics Tea

OUTREACH

- Letters to a Pre-Scientist 2024–
- Caltech Astronomy on Tap 2025
- Reddit Ask Me Anything, Voyager Interstellar Mission 2024
- Carnegie Observatories Open House 2023
- Public Talk, Cornell Astronomical Society 2023
- Contributing Writer, Ask an Astronomer: curious.astro.cornell.edu 2018–2023
- Public Talk, Southern Maine Astronomers Organization 2022
- Workshop Leader, Expanding Your Horizons, Cornell University 2019, 2021–2022
- Organizer, Museum in the Dark Event, Museum of the Earth, Ithaca NY 2019–2020
- Program Leader, 4-H Career Explorations, Cornell University 2019

SELECTED MEDIA INTERVIEWS

- NPR: “The Voyager 1 spacecraft has a big glitch” [npr.org](https://www.npr.org)
- Vice News: “Flying 15 Billion Miles Away from Earth” [youtube.com](https://www.youtube.com)
- NPR: “Planning for a space mission to last more than 50 years” [npr.org](https://www.npr.org)
- WKMG News 6 Space Curious Podcast: “How Big is the Solar System?” podcasts.apple.com
- NBC: “NASA spacecraft detects a constant ‘hum’ deep in the cosmos” [nbcnews.com](https://www.nbcnews.com)
- Gizmodo: “NASA’s Voyager 1 Probe Detects the Steady ‘Hum’...” [gizmodo.com](https://www.gizmodo.com)
- NASA: “Voyager 1’s Density Measurements are Making Waves” [nasa.gov](https://www.nasa.gov)
- AASNova: “What Fast Radio Bursts Tell Us About Galaxy Halos” [aasnova.org](https://www.aasnova.org)