

CONTACT INFORMATION

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RESEARCH INTERESTS

• *constraining cosmology through deep radio observations* • *dust-unbiased studies of star-forming galaxies* • *cosmic ray transport and influence on the interstellar medium* • *stellar feedback driven galactic outflows* • *evolution of globular clusters* • *probing intergalactic magnetic fields*

APPOINTMENTS

09/2021 – present | **Carnegie Postdoctoral Fellow** (*Carnegie Observatories, Pasadena, CA*)

EDUCATION

The University of Virginia (*Charlottesville, VA, USA*)

Ph.D. Astronomy (August 2021) | *Advisor: Dr. James J. Condon (NRAO, UVA)*

M.S. Astronomy (May 2017)

Lafayette College (*Easton, PA, USA*)

B.S. Physics with Honors (May 2015) | *Advisor: Dr. David Nice (Lafayette College)*

B.S. Mathematics with Honors (May 2015)

HONORS AND FELLOWSHIPS

08/2024 | **Thacher Award** (\$5,000—*given annually to a Carnegie postdoc “for outstanding research”*)

11/2022 – present | **Vera Rubin Fellowship** (*Carnegie Observatories*)

09/2021 – present | **Carnegie Fellowship** (*Carnegie Observatories*)

01/2022 – 01/2024 | **Carnegie Community Mini Grant** (\$5,000, *Carnegie Observatories*)

08/2019 – 05/2021 | **Grote Reber Doctoral Fellowship** (*National Radio Astronomy Observatory*)

08/2015 – 05/2020 | **Graduate Research Fellowship** (*National Science Foundation*)

08/2015 – 05/2021 | **Jefferson Fellowship** (*Jefferson Scholars Foundation*)

04/2016 – 05/2018 | **Graduate STEM Research Fellowship** (*Virginia Space Grant Consortium*)

05/2014 | **Honorable Mention: Barry M. Goldwater Scholar** (*The Goldwater Foundation*)

TEACHING EXPERIENCE & PROFESSIONAL DEVELOPMENT

06/2023 – 07/2023 | **Advancing Inclusive Mentoring Workshop Series**

Completed two six-week workshops on effective and inclusive mentoring strategies in research and general academic situations. Certificate available upon request.

06/2019 | **Secondary Instructor, The Southern African Sky (Cape Town, South Africa)**

Under the partnership between UVA and iXperience Cape Town, I traveled to Cape Town with Professor Kelsey Johnson to co-teach an introductory undergraduate astronomy class centered around the place of Astronomy in African culture.

06/2018 – 07/2018 | **Instructor of Record, ASTR 1270 (University of Virginia)**

Served as the instructor of record for the introductory Astronomy course: *Unsolved Mysteries of*

the Universe. Designed my own syllabus, assignments, and assessments around active learning models and innovative teaching pedagogy.

2017 – 2022 | **Participant, Tomorrow's Professor Today**

Selected from a competitive applicant pool of graduate students at UVa to participate in seminars and workshops on teaching pedagogy and inclusivity in the classroom.

SERVICE & OUTREACH

01/2022 – present | **Advisory Board Member, Pre-Scientist Inc.**

Letters to a Pre-Scientist connects students with STEM professionals through a structured pen pal program. I serve on the Development Committee which seeks to grow the program to reach more students, there were ~3,500 students in the 2024-2025 cohort! I have also been a long time pen pal to many inspiring “pre-scientists” from rural Illinois to downtown LA.

05/2025 – present | **Carnegie Observatories Magellan Telescope Allocation Committee**

Review proposals for time on the Magellan 6.5 m and Swope 1 m telescopes and make allocation requests based on scientific merit. Served on the TAC for semesters 2025A and 2025B.

01/2025 – present | **Mt. Wilson Observatory STEM Program**

Guide students on a tour through the historic telescopes at Mt. Wilson Observatory. Develop and lead interactive lessons with middle- and high-school students on the important astrophysical discoveries made with these telescopes.

04/2024 – 06/2025 | **Science Consultant, Los Angeles County Museum of Art**

Contributed material (the incredible MeerKAT Galactic center image) and consulted on the Winter 2024/2025 LACMA exhibition *Mapping the Infinite: Cosmologies across Cultures*.

01/2023 – 05/2025 | **Carnegie DEI Committee**

Served as a postdoctoral representative on the Observatories DEI committee.

01/2022 – 01/2024 | **Carnegie Community Mini Grant**

Developed and sent inquiry-based Astronomy activity kits to rural middle schools.

07/2022 – 09/2023 | **Carnegie Postdoc Representative**

Liaison between postdocs and staff advocating for postdoc interests.

01/2020 – 08/2021 | **Director, Dark Skies, Bright Kids Assessments Team**

Led a team of graduate students in designing and implementing qualitative and quantitative assessments of the Dark Skies, Bright Kids outreach program (see below). Under my leadership, we published two papers in peer-reviewed journals.

01/2018 – 04/2018 | **UVa Astronomy Graduate Admissions Representative**

Selected by the faculty to serve as a full member of the graduate admissions committee.

08/2015 – 08/2021 | **Volunteer, Dark Skies, Bright Kids**

An active member of this primarily graduate student run outreach organization. Our mission is to bring the fun of science to under-served elementary school children around Virginia through hands-on, inquiry-based activities.

PUBLIC LECTURES

11/2025 | **Astronomy on Tap (Pasadena, CA)**

Invited public talk: *I am Grote: How one man changed radio astronomy forever*

- 11/2025 | **City of Astronomy Festival (Pasadena, CA)**
Invited public talk: *Tuning in to the Cosmic Radio*
- 10/2025 | **Carnegie Observatories Open House (Pasadena, CA)**
Invited public talk: *Listening to the Cosmic Radio*
- 06/2025 | **Pasadena Rotary Club (Pasadena, CA)**
Invited public talk: *Exploring Cosmic Mysteries with Radio Waves*
- 07/2024 | **Carnegie Lecture Series (Pasadena Senior Center, Pasadena, CA)**
Invited public talk: *Tuning Into the Invisible Universe*
- 04/2024 | **Carnegie Observatories Lecture Series (The Huntington, San Marino, CA)**
Invited public talk: *Tuning Into the Invisible Universe* (recording)
- 04/2024 | **Pre-Eclipse Cocktail Hour at the Renaissance Dallas (Dallas, TX)**
Invited public talk: *The Science of Eclipses*
- 11/2022 | **Carnegie Lecture Series @ PCC (Pasadena City College, Pasadena, CA)**
Invited public talk: *Tuning Into the Radio Universe*

STUDENT SUPERVISION

- 2024 – present | Aarna Garg, UC Santa Cruz (Carnegie Astrophysics Summer Research Internship)
- 2023 – present | Juan Diego Draxl Gianoni, UC San Diego (CASSI)
- 2022 | Eleanor Hort, Pomona College (CASSI)
- 2020 | Kiersten Bond, University of Virginia (Independent Research)
- 2019 | Melanie Grierson, University of Virginia (Senior Thesis)

OBSERVING CAMPAIGNS & EXPERIENCE

Successful proposals as PI:

- X-ray:** • XMM-Newton (2025, 104ks, **awarded \$54.1K**)
- Optical/NIR:** • Magellan (2022–2025, 18 nights)
Techniques used: low-resolution prism spectroscopy, optical/NIR imaging, moderate resolution grism spectroscopy, narrowband imaging, integral field spectroscopy
 • NOIRLab CTIO-Blanco 4 m (2022, 4 nights)
 • Apache Point Observatory 3.5 m (2016-2017, 3 nights)
- Radio:** • MeerKAT (2022, 20 hrs)
(150 additional hours during commissioning)
 • JVLA (18B-116, 17B-385, 122 hrs)
 • ALMA (2016, 9 hrs)

Successful proposals as Co-I:

- Spitzer (2019, 76 hrs) • JVLA (18A-338, 17B-353) • VLBA (18B-041, 17B-364) • Arecibo (2014-2015, 15 hours)

SELECTED CONFERENCES & PRESENTATIONS

02/2026 | **University of Southern California, CosmoLab** (Los Angeles, CA)
 Invited Seminar: *Galaxy evolution with next generation radio telescopes*

01/2026 | **UC Santa Cruz, Department of Astronomy Colloquium** (Santa Cruz, CA)
 Invited Colloquium: *Constraining Cosmic History and Cosmic-Ray Physics with Radio Emission*

10/2025 | **UCLA, Lunch Seminar** (Los Angeles, CA)
 Invited talk: *Galaxy evolution with next generation radio telescopes*

09/2025 | **University of Massachusetts-Amherst, Lunch Seminar** (Amherst, MA)
 Invited talk: *Galaxy evolution with next generation radio telescopes*

05/2025 | **IPAC/Caltech, Lunch Seminar** (Pasadena, CA)
 Invited talk: *Deciphering Cosmic History and Cosmic-Ray Physics with Radio Emission*

01/2025 | **UC Davis Cosmology & Astronomy Seminar** (Davis, CA)
 Invited talk: *Constraining Cosmic History and Cosmic-Ray Physics with Radio Emission*

11/2024 | **Cornell University, Department of Astronomy Colloquium** (Ithaca, NY)
 Invited Colloquium: *Constraining Cosmic History and Cosmic-Ray Physics with Radio Emission*

10/2024 | **Beyond the Edge of the Universe** (Sintra, Portugal)
 Contributed talk: *Cosmic History and Cosmic-Ray Physics with Radio Emission*

10/2024 | **University of Michigan, Department of Astronomy Colloquium** (Ann Arbor, MI)
 Invited Colloquium: *Constraining Cosmic History and Cosmic-Ray Physics with Radio Emission*

10/2024 | **University of Michigan, Conversations on Equity & Inclusion** (Ann Arbor, MI)
 Invited talk: *Demystifying STEM through pen-pal relationships*

03/2024 | **Carnegie Observatories Colloquium** (Pasadena, CA)
 Invited Colloquium: *Tuning the Dials of our Cosmic History with Radio Emission*

02/2024 | **MeerKAT@5** (Stellenbosch, South Africa)
 Contributed talk: *DEEP2@5: Redefining cosmic star formation in the radio*

11/2023 | **CU Boulder APS Friday Lunch Seminar** (Boulder, CO)
 Invited talk: *Confirmation of a Discrepancy between Radio and UV-IR Measures of the SFRD*

10/2023 | **TUNA Lunch Talk @ NRAO** Charlottesville, VA)
 Invited talk: *Confirmation of a Discrepancy between Radio and UV-IR Measures of the SFRD*

05/2023 | **Radio Lunch Seminar Series @ Caltech** (Pasadena, CA)
 Invited talk: *Understanding our Universe through Confusion and Ultra-faint radio galaxies*

05/2023 | **New Eyes on the Universe: SKA & ngVLA** (Vancouver, Canada)
 Contributed talk: *Constraints on the SFH of the Universe by Ultra-Faint Galaxies*

03/2023 | **Scientific Frontiers & Synergies for the DSA-2000 Radio Camera** (Pasadena, CA)
 Contributed talk: *Towards a Robust Measurement of the Star-Formation History of the Universe*

01/2022 | **DSA-2000 Science Workshop** (Virtual)
 Invited talk: *A billion radio galaxies*

11/2021 | **SPARCSX: Capturing Science from the Pathfinder Survey Data** (Virtual)
 Contributed talk: *The Cosmic Star-Formation History Measured at 1.4 GHz*

- 01/2021 | **237th meeting of the American Astronomical Society (Virtual)**
Dissertation talk: *A Radio Continuum Measurement of the Star Formation History of the Universe*
- 10/2020 | **Virtual Internal Science Series @ NRAO** (Charlottesville, VA)
Invited talk: *P(D) Radio Source Counts and the Star Formation History of the Universe*
- 10/2020 | **Galaxies & Cosmology, Stars & Planets Seminar @ Harvard-SAO CfA** (Cambridge, MA)
Invited talk: *A Radio Continuum Measurement of the SFH of the Universe*
- 02/2020 | **Celebrating the Legacy of the Spitzer Space Telescope** (Pasadena, CA)
Contributed talk: *The Dust-unbiased Evolution of Star-Forming Galaxies with Spitzer and Radio*
- 05/2019 | **IX SPARCS Meeting – Pathfinders Get to Work** (Lisbon, Portugal)
Contributed talk: *nJy Science II: The Star Formation History of the Universe*
- 02/2019 | **Lunch Talk, National Radio Astronomy Observatory** (Charlottesville, VA)
Contributed talk: *Star Formation in the Present-Day Throughout the Universe*
- 07/2018 | **The Formation of Globular Clusters at High and Low Redshifts** (Sexten, Italy)
Contributed talk: *Resolved Star Formation Efficiency in the Antennae Galaxies*

PUBLICATIONS

21. N. Seymour, C. Hale, I. Whittam, P. Oesch, et al., [including **A. M. Matthews**] *A JWST Paschen- α Calibration of the Radio Luminosity-Star Formation Rate Relation at $z \sim 1.3$* , *ApJ*, 998, 306S, (2026).
20. I. H. Whittam, M. J. Jarvis, E. J. Murphy, N. J. Adams, R. A. A. Bowler, **A. M. Matthews**, et al., *Evidence for inverse Compton scattering in high-redshift Lyman-break galaxies*, *MNRAS*, 503, 507W, (2025).
19. A. B. Newman, M. Gu, S. Belli, et al. [including **A. M. Matthews**], *A stellar dynamical mass measure of an inactive black hole in the distant universe*, in press, *Science*, arXiv2503.17478, (2025).
18. M. E. Moloko, L. Marchetti, T. Jarrett, J. J. Condon, W. D. Cotton, **A. M. Matthews**, et al., *Probing the Infrared/Radio correlation of the full IRAS Revised Bright Galaxy Sample with MeerKAT and VLA*, *MNRAS*, 543, 2463M, (2025).
17. C. L. Hale, I. Heywood, M. J. Jarvis, et al. [including **A. M. Matthews**], *MIGHTEE: The Continuum Survey Data Release 1*, *MNRAS*, 536, 2187H, (2025).
16. **A. M. Matthews**, W. D. Cotton, W. M. Peters, L. Marchetti, T. H. Jarrett, J. J. Condon, J. M. van der Hulst and M. E. Moloko, *A Galactic Scale Magnetized Wind Around a Normal Star-Forming Galaxy*, *ApJL*, 978L, 25M, (2025).
15. **A. M. Matthews**, D. D. Kelson, A. B. Newman, F. Camilo, J. J. Condon, W. Cotton, M. Dickinson, T. H. Jarrett, M. Lacy, *Confirmation of a Substantial Discrepancy in the Star Formation Rate Density at $0.2 < z < 1.3$* , *ApJ*, 966, 194M, (2024).
14. **A. M. Matthews**, R. Mazzei, A. M. McAlister, et al., *Graduate Student Participation in K-12 Science Outreach: Self-reported Impact on Identity and Confidence of STEM Graduate Students*, *Journal of Higher Education Outreach and Engagement*, 26, 3, p57–72, (2022).
13. I. H. Whittam, M. J. Jarvis, C. L. Hale, et al. [24 additional authors including **A. M. Matthews**],

- MIGHTEE: the nature of the radio-loud AGN population*, MNRAS, 516, 245W, (2022).
12. J. J. Condon, W. D. Cotton, T. Jarrett, L. Marchetti, **A. M. Matthews**, T. Mauch, M. E. Moloko, *A MeerKAT 1.28 GHz Atlas of Southern Sources in the IRAS Revised Bright Galaxy Sample*, ApJ, 257, 35C, (2021).
 11. **A. M. Matthews**, J. J. Condon, W D. Cotton, T. M. Mauch, *Cosmic Star-Formation History Measured at 1.4 GHz*, ApJ, 914, 126, (2021).
 10. **A. M. Matthews**, J. J. Condon, W D. Cotton, T. M. Mauch, *Source Counts Spanning Eight Decades of Flux Density at 1.4 GHz*, ApJ, 909, 193M, (2021).
 9. C.R. Hayes, **A.M. Matthews**, Y. Song, et al., *First results from the Dark Skies, Bright Kids astronomy club draw-a-scientist test*, Physical Review Physics Education Research, 16, 010131, (2020).
 8. T. Mauch, W. D. Cotton, J. J. Condon, **A. M. Matthews**, et al., *The 1.28 GHz MeerKAT DEEP2 Image*, ApJ, 888, 61M, (2020).
 7. J. J. Condon, **A. M. Matthews**, Broderick J. J., *Radio Sources in the Nearby Universe*, ApJ, 872, 148C, (2019).
 6. **A. M. Matthews**, Johnson K. E., Whitmore, B. C., Brogan, C. L., et al., *Resolved Star Formation Efficiency in the Antennae Galaxies*, ApJ, 862, 147M, (2018).
 5. Condon, J. J. & **A. M. Matthews**, *Λ CDM Cosmology for Astronomers*, PASP, 130g, 3001C, (2018).
 4. Z. Arzoumanian, et al. [54 additional authors including **A. M. Matthews**], *The NANOGrav 11-year Data Set: High-precision Timing of 45 Millisecond Pulsars*, ApJS., 235, 37A, (2018).
 3. W. D. Cotton, J. J. Condon, K. I. Kellermann, M. Lacy, R. A. Perley, **A. M. Matthews**, et al., *The Angular Size Distribution of μ Jy Radio Sources*, ApJ, 856, 67C, (2018).
 2. C. R. Hayes et al. [24 additional authors including **A. M. Matthews**], *Disentangling the Galactic Halo with APOGEE. I. Chemical and Kinematical Investigation of Distinct Metal-poor Populations*, ApJ, 852, 49H, (2018).
 1. **A. M. Matthews**, D. J. Nice, E. Fonseca, Z. Arzoumanian, et al., *The NANOGrav Nine-year Dataset: Astrometric Measurements of 37 Millisecond Pulsars*, ApJ, 818, 92M, (2016).