Appointments

09/2021 – | **Vera Rubin Fellow** (*Carnegie Observatories, Pasadena, CA*)

Education

The University of Virginia (*Charlottesville, VA, USA*)
Ph.D. Astronomy (August 2021)
M.S. Astronomy (May 2017)
Advisor: Dr. James J. Condon (NRAO, UVa)

Lafayette College (*Easton, PA, USA*)
B.S. Physics with Honors (May 2015)
B.S. Mathematics with Honors (May 2015)
Advisor: Dr. David Nice (Lafayette College)

Honors and Fellowships

11/2022 – | **Vera Rubin Fellowship**
Carnegie Observatories

01/2022 – | **Carnegie DEI Mini Grant**
$5,000 grant for DEI efforts from Carnegie Observatories

09/2021 – | **Carnegie Fellowship**
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** (UVa's premiere five-year graduate fellowship)
The 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

Selected Conferences & Presentations

05/2023 | **New Eyes on the Universe: SKA & ngVLA (Vancouver, Canada)**
Contributed talk (∼25% of abstracts selected): *Constraints on the Star-Formation History 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*

11/2022 | **Carnegie Lecture Series @ PCC (Pasadena City College, Pasadena, CA)**
Invited public talk: *Tuning Into the Radio 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 (National Radio Astronomy Observatory, 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-Smithsonian Center for Astrophysics, Cambridge, MA)**
Invited talk: *A Radio Continuum Measurement of the Star Formation History 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 Observations*

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*

04/2018 | **Virginia Space Grant Consortium Research Conference (Norfolk, VA)**
Contributed talk: *Mapping the Cosmic Evolution of the Star Formation Rate Density*
Invited to speak to all attendees on the impact of the VSGC grant on research

04/2017 | **Virginia Space Grant Consortium Research Conference (Williamsburg, VA)**
Contributed talk: *A High-Resolution Radio Study of Early-Universe Star Formation*

11/2016 | **83rd Southeastern Section of the American Physical Society (Charlottesville, VA)**
Contributed talk: *The Efficiency of Star Formation in the Antennae Galaxies*

02/2015 | **Meeting of the North American NanoHertz Gravitational Observatory (Arecibo, Puerto Rico)**
Contributed talk: *Positions and Motions of Millisecond Pulsars*

08/2014 | **Smithsonian Astrophysical Observatory REU Symposium (Harvard-Smithsonian Center for Astrophysics, Cambridge, MA)**
Contributed talk: *Testing Stellar Evolution Theory: Absolute Dimensions of the Low-Mass Binary Star V651 Cassiopeiae*

Student Supervision

2022 | Eleanor Hort, Pomona College (Carnegie Astrophysics Summer Research Internship)

2020 | Kiersten Bond, University of Virginia (Independent Research)

2019 | Melanie Grierson, University of Virginia (Senior Thesis)

Teaching Experience

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.

2018 – 2019 | **Participant, SciComm**
I participated in a 1-year program for NSF GRFP Fellows that provided training and experience in science communication to: engage the public; collaborate across disciplines; inspire our next generation of scientists; and to communicate with the media, and decision-makers.

Outreach & Service

01/2022 – present | **Carnegie DEI Mini Grant**
I have been developing and sending Astronomy activity kits focusing on inquiry-based learning to rural elementary and middle schools. Activity days are accompanied by an online session with an expert in the relevant topic.

01/2022 – present | **Development Committee Member, Letters to a Pre-Scientist**
The non-profit *Letters to a Pre-Scientist* connects students with STEM professionals through a structured pen pal program. In addition to being a pen pal, I serve on the Development Committee which seeks to grow the program in order to reach more students.

01/2020 – 08/2021 | **Director, Dark Skies, Bright Kids Assessments Team**
I 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**
I was selected by the faculty to serve as a member on the graduate admissions committee. My duties included reading applications, conducting interviews, discussing applicant admittance, and organizing prospective student visit.

2015 – present | **Advocacy Activites Promoting Women in STEM**

I was the only female Physics major during my undergrad career, and learned from that lack of community how important it is. At UVa, I resurrected a dormant group of graduate and post-doc women in the astronomy department and lead meetings, discussions, and social events about once a month. I was also part of a small group of graduate students who wrote a letter to the faculty concerning sexual harassment and inclusion in the department. The creation of a department code of conduct resulted from our efforts.

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

I was 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.

Observing Campaigns & Experience

Magellan, PI: *Understanding Star Formation in the Faintest Radio Galaxies*, (2022-2023)

10 nights over semesters 2022A/2022B to obtain low-resolution optical spectra and deep J-band photometry.

MeerKAT, PI: *Disk Superwinds Driven by Cosmic-Rays in NGC 1532*, (2022)

20 hours of high spectral-resolution 1.4 GHz observations.

CTIO Blanco-4m, PI: *Understanding Star Formation in the Faintest Radio Galaxies*, (2022)

4 nights over semesters 2022A/2022B to obtain deep DECam $ugrizY$ photometry.

Spitzer, Co-I: *Spitzer observations of the MeerKAT-D2 deep radio field*, (2019)

PID 14246: 75.6 hours to deeply image the MeerKAT-DEEP2 field at $3.6\,\mu$m and $4.5\,\mu$m.

JVLA, PI: *Star Formation Through Cosmic Time*, (2018)

18B-116: 120 hours to measure radio source counts through the images' confusion distribution.
17B-385: 2 hours of DDT to image four candidate fields for future deep observations to detect the faintest star-forming galaxy population.

JVLA, Co-I:

18A-338: *Co-evolution of Star-forming Galaxies and AGN in the JWST NEP Deep Field*, (2018)
17B-353: *Co-evolution of Star-forming Galaxies and AGN in the JWST NEP Deep Field*, (2017)

VLBA, Co-I:

18B-041: *Extending the Deep-wide VLBA observations of the JWST-NEP Survey Field*, (2018)
17B-364: *Deep-wide VLBA observations of the JWST-NEP Survey Field*, (2017)

ALMA, PI:

2016.1.10023.S: *ALMA's First Look at the Crab Pulsar*, (2016)

Apache Point Observatory (APO) 3.5m Telescope

25 hours of on-site and remote observing with the Dual Imaging Spectrograph to obtain spectroscopic redshifts for a sample of 12 galaxies., (2016-2017)

Arecibo Observatory

15 hours of on-site and remote pulsar observations with the 430 MHz, L-Band, and S-Band receivers., (2014-2015)

Publications

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, in press, (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 Reseearch*, 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**, *ΛCDM 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 μJy 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).