Allison M. Matthews — Curriculum Vitae

Experience

09/2021 – present | **Carnegie Postdoctoral Fellow** (*Carnegie Observatories, Pasadena, CA*)
08/2015 – 08/2021 | **Research Fellow** (*University of Virginia, Charlottesville, VA*)
06/2018 – 07/2018 | **Instructor of Record** (*University of Virginia, Charlottesville, VA*)

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 Awards

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

08/2015 | **Hearst Minority Fellowship in the Biological and Physical Sciences**
The Hearst Foundation

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

08/2011 – 05/2015 | **Marquis Scholar** (Lafayette College's most prestigious four-year fellowship)
Lafayette College

05/2012 – 05/2015 | **EXCEL Research Scholar**
Lafayette College

Publications

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**, 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 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).

Selected Conferences & Presentations

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)**
Oral presentation: *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)**
Oral presentation: *A Radio Continuum Measurement of the Star Formation History of the Universe*

02/2020 | **Celebrating the Legacy of the Spitzer Space Telescope (Pasadena, CA)**
Oral presentation: *The Dust-unbiased Evolution of Star-Forming Galaxies with Spitzer and Radio Observations*

05/2019 | **IX SPARCS Meeting – Pathfinders Get to Work (Lisbon, Portugal)**
Oral presentation: *nJy Science II: The Star Formation History of the Universe*

02/2019 | **Lunch Talk, National Radio Astronomy Observatory (Charlottesville, VA)**
Oral presentation: *Star Formation in the Present-Day Throughout the Universe*

07/2018 | **The Formation of Globular Clusters at High and Low Redshifts (Sexten, Italy)**
Oral presentation: *Resolved Star Formation Efficiency in the Antennae Galaxies*

04/2018 | **Virginia Space Grant Consortium Research Conference (Norfolk, VA)**
Oral presentation: *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)**
Oral presentation: *A High-Resolution Radio Study of Early-Universe Star Formation*

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

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

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

2015 – present | **American Astronomical Society Meeting Posters**
id. 547.11, *Dark Skies, Bright Kids Year 12*, **A.M. Matthews**, et al. (2021)
id. 203.12, *Dark Skies, Bright Kids Year 11*, M. Pryal, **et al.** (2020)
id. 147.09, *Dark Skies, Bright Kids Year 10*, M. Finn, **A. M. Matthews**, et al. (2019)
id. 360.01, *Dark Skies, Bright Kids Year 9*, A. M. Burkhardt, **A.M. Matthews**, et al. (2018)
id. 335.09, *Dark Skies, Bright Kids Year 8*, L. E. Bittle, **et al.** (2017)
id. 248.07, *Dark Skies, Bright Kids Year 7*, L. E. Bittle, **et al.** (2016)
id. 138.16, *Testing Stellar Evolution Theory: Absolute Dimensions of the Low-Mass Binary Star V651 Cassiopeiae*, **A. M. Matthews**, et al. (2015)

Selected Teaching, Outreach, & University Service

01/2020 – present | **Director, Dark Skies, Bright Kids Assessments Team**
I lead 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 a paper on the perceptions of scientists by elementary school children, and the effect on that perception from participation in our program.

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.

2018 – present | **Undergraduate Research Mentor**
I have been privileged to act as a research advisor/mentor for two astronomy undergraduates: M. Grierson and K. Bond. I learned much on designing appropriate projects, communicating the work's big picture, and creating an environment where questions are encouraged.

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.

03/2018 – present | **Member, The Raven Society**
"The Raven Society was founded in 1904 and is an honor society unique to the University of Virginia committed to recognizing contribution to the University and to fostering academic excellence."

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 postdoc 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 – present | **Volunteer, Dark Skies, Bright Kids**
I am 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.

01/2017 – 01/2018 | **Leader; Graduate Student Journal Club**
I organized weekly meetings for graduate students to present their work, lead discussions on seminal papers, and organized group observing proposals.

2017 – present | **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.

2016 – present | **Various acts of University service**
Throughout my graduate career I have 1) served as a graduate student representative on a task force examining the future of teaching at UVa and 2) served as an annual panelist and reviewer for UVa's "NSF GRFP Draft Writing Workshops."

Observing Campaigns & Experience

CO-I: Spitzer, *Spitzer observations of the MeerKAT-D2 deep radio field*
PID 14246: 75.6 hours to deeply image the MeerKAT DEEP2 field to cross-identify 98% of the radio sources with a NIR counterpart.

CO-I: VLBA, *Extending the Deep-wide VLBA observations of the JWST-NEP Survey Field*
18B-041: 450 hours to achieve 1.5 μJy/beam for 400 phase centres; distinguishing AGN from star-forming galaxies.

PI: JVLA, *Star Formation Through Cosmic Time*
18B-116: 120 hours to statistically measure the source counts of star-forming galaxies through the confusion distribution of the image.

PI: JVLA, *Star Formation Through Cosmic Time*
17B-385: 2 hours of DDT to image four candidate fields for future deep observations to detect the faintest star-forming galaxy population.

Co-I: JVLA, *Co-evolution of Star-forming Galaxies and AGN in the JWST NEP Deep Field*
18A-338: 70 hours to detect faint sources in a future JWST deep field to study the coevolution of AGN and star-forming galaxies.

Co-I: JVLA, *Co-evolution of Starforming Galaxies and AGN in the JWST Deep Time-Domain Field*
17B-353: 30 hours to detect faint sources in a future JWST deep field to study the coevolution of AGN and star-forming galaxies.

Co-I: VLBA, *Deep-wide VLBA observations of the JWST-NEP Survey Field*
17B-364: 52 hours to identify AGN from star-forming galaxies in a deep radio field for the purposes of studying their coevolution.

PI: ALMA, *ALMA's First Look at the Crab Pulsar*
2016.1.10023.S: 1.9 hours to obtain the first phase-averaged flux density measurements at two different millimeter wavelengths.

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.

Arecibo Observatory
15 hours of on-site and remote pulsar observations with the 430 MHz, L-Band, and S-Band receivers.