

EMILY MORAVEC

RESEARCH INTERESTS

Active Galactic Nuclei; Radio Galaxies; Galaxy Clusters; Interferometric Imaging

EDUCATION

Ph.D. in Astronomy, University of Florida, Gainesville, FL December 2019

Dissertation, *Radio Galaxies in Massive Galaxy Clusters at $z \sim 1$*

Advisor: Dr. Anthony Gonzalez

- Investigated the interplay between radio galaxies and the cluster environment at $z \sim 1$ using radio, optical, and infrared data.

Master's of Science in Astronomy, University of Florida, Gainesville, FL May 2016

Bachelor of Arts in Physics, St. Olaf College, Northfield, MN May 2014

Magna Cum Laude, Honors in Physics

POSITIONS HELD

Postdoctoral Fellow, Astronomical Institute of the Czech Academy of Sciences, Prague, Czech Republic
February 2020 - present

ALMA Support Scientist, Czech ARC Node, Prague, Czech Republic February 2020 - present

Research Assistant, University of Florida, Gainesville, FL August 2018 - December 2019

Graduate Teaching Assistant, University of Florida, Gainesville, FL August 2015 - May 2016

Graduate Student Fellow, University of Florida, Gainesville, FL August 2014 - August 2018

Undergraduate Researcher, Maria Mitchell Observatory, Nantucket, MA June 2013 - January 2014

Undergraduate Researcher, University of Wisconsin-Madison, Madison, WI May - August 2012

PEER REVIEWED PUBLICATIONS

First Author

- **Moravec, E. A.** et al., *The Massive and Distant Clusters of WISE Survey. IX. High Radio-Activity in a Merging Cluster*, 2020, ApJ.
- **Moravec, E. A.** et al., *The Massive and Distant Clusters of WISE Survey. VII. The Environments and Properties of Radio Galaxies in Clusters at $z \sim 1$* , 2020, ApJ, 88, 74.
- **Moravec, E. A.** et al., *The Massive and Distant Clusters of WISE Survey. V: Extended Radio Sources in Massive Galaxy Clusters at $z \sim 1$* , 2019, ApJ, 871, 186.
- **Moravec, E. A.** et al., *HST and Ground-based Spectroscopy of Quasar Outflows: From Mini-BALs to BALs*, 2017, MNRAS, 468, 4539.

Co-Author

- See ORCID page (<https://orcid.org/0000-0001-9793-5416>)

NOTABLE PUBLICATIONS

- **Moravec E.**, Czekala I., and Follette K. *The Early Career Perspective on the Coming Decade, Astrophysics Career Paths, and the Decadal Survey*. Astro2020: Decadal Survey on Astronomy and Astrophysics, APC White Papers, BAAS, Vol. 51, Iss. 7, ID. 8.
- **Moravec, E.**, Nguyen, L. T., and Percher, A. *Training in Policy Memoranda Writing for Early Career Scientists*, 2019, Journal of Science Policy & Governance, Vol. 15, Issue 1.

PROFESSIONAL ACTIVITY

Fellowships and Grants

- **American Astronomical Society Doxsey Travel Prize Honorable Mention**, \$265, AAS, January 2020.
- **NASA Florida Space Grant Consortium Dissertation Improvement Fellowship**, ~\$5000, Florida Space Grant Consortium, May 2019 - April 2020
- **Research!America 2019 Microgrant**, \$2500, Research!America, October 2019
- **Science Policy Microgrant**, \$2500, National Science Policy Network, September 2018
- **Christine Mirzayan Science & Technology Policy Graduate Fellowship**, \$9000, National Academies of Sciences, Engineering, and Medicine, January - April 2018
- **Graduate Student Fellowship**, \$100,000, University of Florida, August 2014 - August 2018
- **H3C Initiative Grant**, \$800, Bob Graham Center for Public Service and Student Affairs at the University of Florida, April 2016
- **Travel Grant**, \$350, University of Florida's Graduate Student Council, April 2016, Sept 2017, April 2019
- **Graduate Student Travel Grant**, \$600, College of Liberal Arts and Sciences, University of Florida, April 2016, October 2017, April 2019

Workshops

- **Radio/Millimeter Astrophysical Frontiers in the Next Decade Workshop** (participant), Charlottesville, VA, June 2019.
- **Interferometry Imaging Workshop** (co-organizer & presenter), University of Florida, FL, May 30, 2019.
- **Green Bank Telescope Remote Observer Training Workshop** (participant), Green Bank Observatory, WV, Jan 23 -24, 2019.
- **Astro2020 Early Career Focus Session** (organizer and participant), National Academies of Sciences, Engineering, and Medicine, Washington D.C., October 8 - 9, 2018.
- **Science Policy Memo Writing Workshop**, National Science Policy Network, Washington D.C., October 5 - 6, 2018
- **16th Synthesis Imaging Workshop**, NRAO, Socorro, NM, May 16 - 23, 2018
- **6th VLA Data Reduction Workshop**, NRAO, Socorro, NM, October 23 - 27, 2017
- **Astronomy Ambassador Outreach Workshop**, American Astronomical Society, Kissimmee, FL, January 3-4, 2016

Seminars and Conference Presentations

- **The Effect of Environment on Radio Galaxies at $z \sim 1$** (Invited Astronomy Seminar), Astrophysics Group at Michigan State, Zoom, November 2020.
- **Investigating AGN Spectral States with Radio Morphology** (Contributed Talk), Young Astronomers on Galactic Nuclei, Zoom conference, October 2020.
- **High Radio Activity in a MaDCoWS Merging Galaxy Cluster** (AAS Journal Author Series Video), September 2020.
- **High Radio Activity in a MaDCoWS Merging Galaxy Cluster** (TUNA Talk), NRAO, Zoom, September 2020.
- **The Effect of Environment on Radio Galaxies at $z \sim 1$** (Invited Colloquium), Galaxy Cluster Group at the Center for Astrophysics, Zoom, September 2020.

- **High Radio Activity in a MaDCoWS Merging Galaxy Cluster** (Invited Science Lunch Talk), Green Bank Observatory, Zoom, August 2020.
- **Radio-Active CoWS: The Environments and Properties of Radio Galaxies in Massive Clusters at $z \sim 1$** (Dissertation Talk), 235th American Astronomical Society Meeting, Honolulu, HI, January 2020.
- **The Impact of the AAS Astronomy Ambassadors on Astronomy Outreach in Florida** (Talk at Special Session *The AAS Astronomy Ambassadors Program: Past, Present, and Future*), 235th American Astronomical Society Meeting, Honolulu, HI, January 2020.
- **Radio Galaxies in Galaxy Clusters at $z \sim 1$** (Defense), University of Florida, Gainesville, FL, October 2019.
- **Probing the Role of Environment on Radio AGN at $z \sim 1$ with MaDCoWS** (Invited Colloquium), Astronomical Institute of the Czech Academy of Sciences, Prague, Czech Republic, July 2019.
- **Radio-Active CoWS: Extended Radio Sources in Massive Clusters at $z \sim 1$** (Poster), Tracing Cosmic Evolution with Clusters of Galaxies, Sexten, Italy, July 2019.
- **Probing the Role of Environment on Radio AGN at $z \sim 1$ with MaDCoWS** (TUNA Lunch Talk), NRAO, Charlottesville, VA, June 2019.
- **Radio-Active CoWS: Probing the Role of Environment on Radio AGN in Massive Clusters at $z \sim 1$** (Poster), Radio/Millimeter Astrophysical Frontiers in the Next Decade Workshop, Charlottesville, VA, June 2019.
- **Probing the Role of Environment on AGN at $z \sim 1$ with MaDCoWS** (Invited Colloquium), Green Bank Observatory, WV, January 2019.
- **Radio-Active CoWS: Extended Radio Sources in Massive Clusters at $z \sim 1$** (Poster & Flash Talk), Are AGN Special? Workshop, Durham, U.K., August 2018.
- **HST and Ground-based Spectroscopy of Quasar Outflows** (Contributed Talk), Quasar Symposium, London, Ontario, Canada, May 2016.
- **HST and Ground-based Spectroscopy of Quasar Outflows** (Contributed Talk), 227th American Astronomical Society Meeting, Kissimmee, FL, January 2016.
- **Mapping the Characteristics of NCG 7081 as a Function of Galactic Radius** (Poster), 223rd AAS Meeting, Washington D.C., January 2015.

Collaborations

- *MaDCoWS*: The Massive and Distant Clusters of *WISE* Survey Collaboration January 2016 - present
- SHIVA: Searching for a Holistic Interpretation of Variable Accretion January 2020 - present
- ExtRAC: Extended Radio Sources in Clusters February 2020 - present
- SPARCS WG on Source Finding and Characterisation February 2020 - present

Memberships

- American Astronomical Society October 2013 - present
- Sigma Pi Sigma May 2013 - present

AWARDED OBSERVING TIME

VLA

- (20B) Borkar, A. et al. *Revealing the Elusive Power Source of Green Pea Galaxies*, 19 hours (C).
- (18A) **Moravec, E.A.** et al. *Radio-Active CoWS: Extended FIRST Sources in MaDCoWS Clusters*, 11.5 hours (B + C)
- (16B + 17B) Gonzalez, A. et al. *Extended FIRST Sources in MaDCoWS Clusters*, 15.5 + 22.3 hours (C).

GBT

- (19B+ 20A +20B) Brodwin, M. et al. MUSTANG-2 Observations of the Highest-Richness MaDCoWS Clusters at $0.8 < z < 1.6$, 60 (A) + 63 (A) + 105 (B)

SCIENTIFIC AND TECHNICAL EXPERTISE

- **Observing Experience**
 - JVLA** — Created scheduling blocks for continuum observations for 4 projects (L-band, C-band, X-band; A and B configurations), imaged over 50 datasets
 - GBT** — 2 weeks in-situ observational training, 35+ hours of observing experience with MUSTANG2, certified remote observer
- **Documentation:** co-author of VLA Self-Calibration Tutorial, creation of personal website guide, contributor to GBT MUSTANG2 observer's guide, code documentation, academic paper writing
- **Interferometry:** radio interferometric calibration and imaging, particularly self-calibration and wide-field, high-dynamic range imaging using multi-frequency-synthesis; multi-frequency datasets
- **Data Familiarity:** JVLA, radio morphology catalogs, LoTSS, XMM SUSS, 4XMM-DR9, Swift UVOT SSC, Swift 2SXPS, Spitzer, PanSTARRS, DECaLS, HST COS spectra, MDM CCDS spectra, SDSS & BOSS spectra, WIYN IFU spectra (300 - 1000 nm), SNIFS IFU spectra from 2.2m telescope of University of Hawaii (400 - 1000 nm), Gemini GMOS Images
- **Astronomical Languages/Software:** CASA, DS9, IRAF/PyRAF, IDL, Topcat
- **Programming Languages/Software:** Python, Unix CLI/Bash, LaTeX, Git, C++, Jekyll

RELATED PROFESSIONAL EXPERIENCE

Mirzayan Science and Technology Policy Fellow; Independent Consultant; Presentation Team

National Academies of Sciences, Engineering, and Medicine, Washington D.C. April 2018 - present

- Main visionary and event coordinator for a 2-day Early Career Focus Session which educated and included early career astronomers and astrophysicists in the planning and input process of the astronomy and astrophysics decadal survey.
- Responsible for writing white paper concerning discussion at focus session and presenting to decadal survey panel.

Co-Founder of Emerging Leaders in Science Policy and Advocacy

University of Florida, Gainesville, Florida

May 2018 - December 2019

Co-president: 2018-2019, Secretary: 2019

- Co-founded a student-led, diverse organization of scientists that strives to initiate informed discussions about science policy and participate in advocacy for evidence-based policy.

Congressional Visits Day Volunteer

March 2016

American Astronomical Society, Washington D.C.

- Trained for and met with Members of Congress to raise visibility and support for science, engineering, and technology.

ASTRONOMY OUTREACH

UF Astro Outreach Team

August 2014 - present

University of Florida, Gainesville, FL

- Design and coordinate community educational events and workshops in collaboration with various local institutions.
- January 2016: Officially co-founded team with the mission to create impactful outreach events and fulfill outreach requests.

Co-Founder of Springs & Stars Initiative

April 2016 - April 2017

University of Florida, Gainesville, FL

- Co-recipient of the University of Florida's Bob Graham Center H3C Initiative Grant.
- Execute 3 educational star gazing event in 3 Florida State Parks in order to bridge the gap between education hubs, underserved rural areas, and Florida's public parks.