

Alexa Morales

Department of Astronomy and Cosmic Frontier Center, University of Texas at Austin

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Education

University of Texas at Austin (UT Austin)

Expected Graduation: Spring 2026

College of Natural Sciences

Advisor: Steven Finkelstein

Ph.D. in Astronomy

University of Texas at Austin (UT Austin)

August 2021 – April 2024

College of Natural Sciences

Advisor: Steven Finkelstein

M.A. in Astronomy

Florida International University (FIU)

August 2016 – April 2021

College of Arts, Science, and Education

**Bachelor of Science in Physics, Second Major in Natural and Applied Sciences,
Minors in Mathematics & Astronomy**

Research Experience

University of Texas at Austin, Austin, TX

August 2021 – Present

Observational Astrophysics – Dr. Steven Finkelstein

- Implement a forward approach to the measurement of the UV spectral slope using spectral energy distribution (SED) fittings to understand differences in the rest-frame ultraviolet (UV) spectral slope (β) and UV colors to tell us about galaxy properties such as stellar mass (SM), dust attenuation, and SM-metallicity relations
- Analyze *HST* and *JWST* spectroscopic and photometric data to measure β for a range of redshifts using Python, high-end performance computing provided through UT Austin & TACC, and SAOImage DS9

Center for Astrophysics | Harvard & Smithsonian, Cambridge, MA

June 2020 – July 2021

Theoretical Astrophysics – Dr. Charlotte Mason

- Improved determination of timeline of reionization by studying the evolving shape of the Lyman-alpha luminosity function (LF)
- Modeled the evolution of the Lyman-alpha luminosity function as a function of redshift and the neutral fraction of hydrogen, by combining theoretical models of Lyman-alpha emission during reionization with the galaxy UV luminosity function

Florida International University, Miami, FL

July 2019 – October 2019

Observational Astrophysics – Dr. James Webb

- Studied the variability and activity of active galactic nuclei (AGN), i.e. galaxies centered with supermassive black holes, using optical telescopes
- Modeled microvariability of different objects, calculated their average absolute magnitudes, light curves, and their look-back in time with an average of 60 years' worth of data

Technical Skills

Operating Systems: MAC OS, Windows

Programming Experience: Python, LaTeX, HTML, Bash

Software & Platforms: Microsoft Office, Google Suite, SAOImage DS9, Stampede2/Stampede3/Lonestar6 (High-End/High Performance Computing, UT Austin & TACC)

Publications & Presentations

Publications

- **First Author:**
 - **Morales, A. M.**, Mason, C. A., Bruton, S., et al. 2021, 'The Evolution of the Lyman-Alpha Luminosity Function During Reionization,' ApJ, 919, 120
 - **Morales, A. M.**, Finkelstein, S., Leung, G., et al., 2024 'Rest-Frame UV Colors for Faint Galaxies at $z \geq 9$ with the JWST NGDEEP Survey', ApJL, 964, L24
 - **Morales, A. M.**, Finkelstein S., et al. 2025 'The Evolution of Galaxy Rest-Frame UV Colors from $z = 2\text{-}4$ with UVCANDELS', ApJ, 985, 174
 - **Morales, A. M.**, Finkelstein S., et al. 'Testing Photometric Techniques for Measuring the UV Spectral Slope Using JWST Prism Spectroscopy', accepted to ApJ Oct. 2025, pending publication.
 - **Morales, A. M.**, Finkelstein S., et al. 'The Evolution of Galaxy Rest-Frame UV Colors from $z=5\text{-}16$ with JWST', in preparation.
 - **Morales, A. M.**, Finkelstein S., et al. 'Observed and Intrinsic UV Slopes for $z > 5$ Galaxies in the JWST CAPERS Survey ', in preparation.
- **Co-author:**
 - Bruton, S., Scarlata, C., et al. 2023, 'The Impact of Cosmic Variance on Inferences of Global Neutral Fraction Derived from Lyman-alpha Luminosity Functions During Reionization', ApJ, 953, 29
 - Finkelstein, S. L., et al. 2022, 'A Long Time Ago in a Galaxy Far, Far Away: A Candidate $z \sim 14$ Galaxy in Early JWST CEERS Imaging ', ApJL, 940, L55
 - Zavala, Jorge A., et al. 2023 "A dusty starburst masquerading as an ultra-high redshift galaxy in JWST CEERS observation', ApJL, 943, L9

[See my full list of first and co-authored papers hyperlinked here.](#)

First author: 4 – Citations: 135, Total publications: 20 – Citations: 2,581 as of Oct. 2025

Presented Talks & Posters

- **Conference Poster + Lightning Talk** – 'Observed vs. Intrinsic UV Spectral Slopes for $z > 4$ Galaxies with the JWST CAPERS Survey', CFC Conference, UT Austin, Texas, 2025
- **Seminar Speaker** – 'Rest-Frame UV Spectral Slope Best Practices in the Era of JWST', UT Astronomy Galaxies and Cosmology Seminar, Austin, TX, 2025
- **Invited Speaker** – Université de Montréal Cielo Institute's Astromerique Student Talk Series: 'The Evolution of Rest-Frame UV Spectral Slopes with the UVCANDELS + NGDEEP Surveys at $z=2\text{-}4$ and $z=9\text{-}16$ ', 2024
- **Conference Poster** – 'Rest-Frame UV Colors for Faint Galaxies at $z \geq 9$ with the JWST NGDEEP Survey', First Stars Conference, Flatiron Institute, NYC, 2024
- **Invited Speaker** – JHU/STSci Exgal Seminar: 'Rest-Frame UV Colors for Faint Galaxies at $z \geq 9$ with the JWST NGDEEP Survey', 2024
- **Seminar Speaker** – 'Rest-Frame UV Colors for Faint Galaxies at $z \geq 9$ with the JWST NGDEEP Survey', UT Astronomy Galaxies and Cosmology Seminar, Austin, TX, 2024
- **Conference Poster** – 'Rest-Frame UV Colors for Faint Galaxies at $z \geq 9$ with the JWST NGDEEP Survey', First Light Conference, MIT, Boston, 2023
- **Seminar Speaker** – 'The Evolution of Galaxy Rest-Frame UV Colors from $z \sim 2\text{-}4$ with HST UVCANDELS', UT Astronomy Galaxies and Cosmology Seminar, Austin, TX, 2023
- **Invited Speaker** – UVCANDELS Special Session: 'The Evolution of Galaxy Rest-Frame UV Colors in the GOODSN Field at $z=2\text{-}4$ with UVCANDELS', AAS 241st Meeting, 2023
- **Seminar Speaker** – 'The Evolution of the Lyman-Alpha Luminosity Function During Reionization', UT Astronomy Galaxies and Cosmology Seminar, Austin, TX, 2022
- **Conference Speaker** – 'The Evolution of the Lyman-Alpha Luminosity Function During Reionization', SAZERAC Summer Conference, 2021
- **Conference Poster** – 'The Evolution of the Lyman-Alpha Luminosity Function During Reionization', AAS 237th Meeting, 2021

Telescope Time Awarded

- **JWST Cycle 3**
 - 5507 - Deep Spectroscopy of Galaxies at z=4-14: Uncovering Drivers of Early Galaxy Formation and Black Hole Growth (Hutchison PI – Morales CoI)
- **HST Cycle 30 GO**
 - 17281 - Revealing the Nature of Five Potential Bright Galaxies at $z > 10$ (Leung PI – Morales CoI)

Academic Achievements & Awards

NSF Graduate Research Fellow	September 2023 – Present
AAS 237th Meeting Chambliss Astronomy Achievement Award (Honorable Mention)	February 2021
NSF S-STEM Scholarship	January 2018 – April 2021
Inducted Member of Sigma Pi Sigma Physics National Honor Society	April 2018
FIU Dean's List	August 2016 – April 2021

Leadership Activities

FIU Society of Physics Students (SPS)	August 2018 – April 2021
• Executive Board Member – CSO Representative	
FIU Society for the Advancement of Women in STEM (AWSTEM)	August 2018 – December 2019
• Executive Board Member – Secretary	

Affiliations & Involvement

Member of the following HST/JWST collaborations:	August 2021 – Present
• UVCANDELS, CEERS, NGDEEP, COSMOS-Web, MEOW, THRILS, CAPERS	
Astronomy on Tap Austin	November 2023 – Present
UT Austin Astronomy E&I Organization	August 2021 – Present
UT Austin Astronomy Vertically Integrated Projects (VIP) Program	August 2021 – Present
FIU Sigma Pi Sigma Physics National Honor Society	August 2016 – April 2021
FIU AWSTEM (Society for the Advancement of Women in STEM)	August 2017 – April 2021
FIU Society of Physics Students	August 2016 – April 2021
American Physical Society	August 2016 – April 2021
FIU Astronomy Club	August 2016 – April 2021

Employment Experience

UT Astronomy Department: Teaching Assistant for Intro to Astronomy	August 2022 – December 2022
• Worked as an in-class tutor to help facilitate an active learning environment	
• Held tutoring and review sessions outside of class to aid student understanding of various astronomy concepts	
FIU Online: Student Course Developer	October 2019 – August 2021
• Maintained, produced, tested, and quality assured courseware for online deployment	
• Collaborated closely with a development team on multiple projects	
FIU Physics Department: Learning Assistant for Physics with Calculus II	January 2019 – May 2019
• Worked as an in-class tutor in order to help facilitate an active learning environment	
• Aided student understanding of complex physics and math concepts through office hours and review sessions	

Additional Information

Languages: Fluent in English & Spanish

Additional Relevant Courses: Regression Analysis, Survey of the Interstellar Medium, Computational Astrophysics, Gravitational Dynamics, Math Methods in Astrophysics, Radiative Processes & Radiative Transfer, Elements of Cosmology, Astronomical Data Analysis, Observational Astronomy + Lab, Modern Astrophysics, Mathematical Methods for Theoretical Physics, Ordinary and Advanced Partial Differential Equations, Linear Algebra, Calculus I-II-III, Statistical Methods I

Current List of Publications as of October 2025

1. Leung, G. C. K., Finkelstein, S. L., Pérez-González, P. G., et al. (2025). *Exploring the Nature of Little Red Dots: Constraints on Active Galactic Nucleus and Stellar Contributions from PRIMER MIRI Imaging*. *Astrophysical Journal*, **992**, 26. (Cited: 46)
2. Lambrides, E., Larson, R., Hutchison, T., et al. (2025). *Discovery of Multiply Ionized Iron Emission Powered by an Active Galactic Nucleus in a $z \sim 7$ Little Red Dot*. arXiv:2509.09607. (Cited: 4)
3. Donnan, C. T., Dickinson, M., Taylor, A. J., et al. (2025). *Very bright, very blue, and very red: JWST CAPERS analysis of highly luminous galaxies with extreme UV slopes at $z=10$* . arXiv:2507.10518. (Cited: 11)
4. ** Morales, A. M., Finkelstein, S. L., Arrabal Haro, P., et al. (2025). *Testing Photometric Techniques for Measuring the Rest-Frame UV Spectral Slope Against JWST PRISM Spectroscopy*. arXiv:2507.03118. (Cited: 2)
5. ** Morales, A. M., Finkelstein, S. L., Bagley, M. B., et al. (2025). *Galaxy Rest-frame UV Colors at $z \sim 2\text{--}4$ with HST UVCANDELS*. *Astrophysical Journal*, **985**, 174. (Cited: 7)
6. Dottorini, D., Calabro, A., Pentericci, L., et al. (2025). *Evolution of the UV slope of galaxies at cosmic morning ($z > 4$): The properties of extremely blue galaxies*. *Astronomy & Astrophysics*, **698**, A234. (Cited: 12)
7. Finkelstein, S. L., Bagley, M. B., Arrabal Haro, P., et al. (2025). *The Cosmic Evolution Early Release Science Survey (CEERS)*. *Astrophysical Journal*, **983**, L4. (Cited: 70)
8. Mehta, V., Rafelski, M., Sunnquist, B., et al. (2024). *UVCANDELS: Catalogs of Photometric Redshifts and Galaxy Physical Properties*. *Astrophysical Journal Supplement Series*, **275**, 17. (Cited: 6)
9. Finkelstein, S. L., Leung, G. C. K., Bagley, M. B., et al. (2024). *The Complete CEERS Early Universe Galaxy Sample: A Surprisingly Slow Evolution of the Space Density of Bright Galaxies at $z \sim 8.5\text{--}14.5$* . *Astrophysical Journal*, **969**, L2. (Cited: 218)
10. ** Morales, A. M., Finkelstein, S. L., Leung, G. C. K., et al. (2024). *Rest-frame UV Colors for Faint Galaxies at $z \sim 9\text{--}16$ with the JWST NGDEEP Survey*. *Astrophysical Journal*, **964**, L24. (Cited: 46)
11. Larson, R. L., Hutchison, T. A., Bagley, M., et al. (2023). *Spectral Templates Optimal for Selecting Galaxies at $z > 8$ with the JWST*. *Astrophysical Journal*, **958**, 141. (Cited: 110)
12. Leung, G. C. K., Bagley, M. B., Finkelstein, S. L., et al. (2023). *NGDEEP Epoch 1: The Faint End of the Luminosity Function at $z \sim 9\text{--}12$ from Ultradeep JWST Imaging*. *Astrophysical Journal*, **954**, L46. (Cited: 94)
13. Larson, R. L., Finkelstein, S. L., Kocevski, D. D., et al. (2023). *A CEERS Discovery of an Accreting Supermassive Black Hole 570 Myr after the Big Bang: Identifying a Progenitor of Massive $z > 6$ Quasars*. *Astrophysical Journal*, **953**, L29. (Cited: 374)
14. Bruton, S., Scarlata, C., Haardt, F., et al. (2023). *The Impact of Cosmic Variance on Inferences of Global Neutral Fraction Derived from Ly α Luminosity Functions during Reionization*. *Astrophysical Journal*, **953**, 29. (Cited: 10)
15. Arrabal Haro, P., Dickinson, M., Finkelstein, S. L., et al. (2023). *Spectroscopic Confirmation of CEERS NIRCam-selected Galaxies at $z \simeq 8\text{--}10$* . *Astrophysical Journal*, **951**, L22. (Cited: 199)
16. Finkelstein, S. L., Bagley, M. B., Ferguson, H. C., et al. (2023). *CEERS Key Paper. I. An Early Look into the First 500 Myr of Galaxy Formation with JWST*. *Astrophysical Journal*, **946**, L13. (Cited: 532)
17. Bagley, M. B., Finkelstein, S. L., Koekemoer, A. M., et al. (2023). *CEERS Epoch 1 NIRCam Imaging: Reduction Methods and Simulations Enabling Early JWST Science Results*. *Astrophysical Journal*, **946**, L12. (Cited: 267)
18. Zavala, J. A., Buat, V., Casey, C. M., et al. (2023). *Dusty Starbursts Masquerading as Ultra-high Redshift Galaxies in JWST CEERS Observations*. *Astrophysical Journal*, **943**, L9. (Cited: 155)
19. Finkelstein, S. L., Bagley, M. B., Arrabal Haro, P., et al. (2022). *A Long Time Ago in a Galaxy Far, Far Away: A Candidate $z \sim 12$ Galaxy in Early JWST CEERS Imaging*. *Astrophysical Journal*, **940**, L55. (Cited: 357)
20. ** Morales, A. M., Mason, C. A., Bruton, S., et al. (2021). *The Evolution of the Lyman-alpha Luminosity Function during Reionization*. *Astrophysical Journal*, **919**, 120. (Cited: 82)

** = First Author