NIKKO J. CLERI

❱ Position: PhD Candidate at Texas A&M University

❱ Research: High-Redshift Galaxies, Galaxy Evolution, Emission-Line Galaxies, Population III Stars, Active Galactic Nuclei, Black Hole Seeds, Star Formation, Dust Attenuation

❱❱❱ Summary

Nikko J. Cleri is a PhD candidate in astronomy at Texas A&M University, currently applying for postdoctoral positions. He studies galaxy evolution through rest-frame UV/optical spectroscopy from *JWST* and *HST*. He is a member of the CEERS (Cosmic Evolution Early Release Science), NGDEEP (Next Generation Deep Extragalactic Exploratory Public), and CLEAR (CANDELS Lyman-α Emission at Reionization) collaborations. He is also very active in mentoring and outreach initiatives, currently serving as the coordinator for Texas A&M's Mentoring and Advising Graduates in an Inclusive Community (MAGIC) program.

❱❱❱ Education

2021 - Present	**Ph.D. Astronomy**	Texas A&M University

❱ Advisor: Casey Papovich

❱ Thesis: *Spectroscopic Studies of Stars and Black Holes Across Cosmic Time*

2019 - 2021	**M.S. Physics**	University of Connecticut

❱ Advisor: Jonathan R. Trump

❱ Thesis: *CLEAR: Paschen-β Star Formation Rates and Dust Attenuation in Low Redshift Galaxies*

2015 - 2019	**B.S. Physics	Mathematics Minor**	University of Connecticut

❱ Advisor: Gerald V. Dunne

❱ Undergraduate Research: *Resurgent Trans-Series for Non-Integrable Deformations of Painleve II*

❱❱❱ Academic and Professional Appointments

2021-	**Graduate Student** (Advisor: Prof. Casey Papovich)	TAMU
2021	**Research Technician** (Advisor: Prof. Jonathan Trump)	UConn
2019-21	**Graduate Student** (Advisor: Prof. Jonathan Trump)	UConn
2017-20	**Research Assistant** (Advisor: Prof. Gerald Dunne)	UConn
2018	**NSF REU Student** (Advisor: Prof. Louis Strigari)	TAMU

❱❱❱ Awarded Proposals and and Grants - Total Value: >$135k

Principal Investigator		1
2021	**HST Cycle 29** - AR 16609: *Peering Through the Dust: Paschen-beta Indicators of Star Formation and Dust Attenuation*	~$136k
Co-Investigator		2
2023	**JWST Cycle 2** - GO 3703: *Breaking the z=10 barrier with MIRI: redshift confirmation and detection of rest-frame optical emission lines* (PI: J. Zavala)	24.33 hours
2023	**Gemini**: *GS-2023A-Q-136: Optical Spectroscopy of JWST ERO Galaxies* (PI: B. Backhaus)	20 hours

❱❱❱ Honors and Awards

2022	**Texas Space Grant Consortium Graduate Fellow** - $5K	TAMU
2018	**NSF REU** - $5K	TAMU
2016	**Dean's List** - College of Liberal Arts and Sciences	UConn

| 2015-19 | **Governor's Scholarship** - $8.5K/yr | UConn |
| 2015 | **Community Service Scholarship** - $1K | UConn |

❱❱❱ Teaching Experience - Cumulative Enrollment: 361

| 2019-21 | **TA** - PHYS 1501: Physics for Engineers I - Cumulative Enrollment: 253 | UConn |
| 2021 | **TA/CA** - PHYS 1025: Introduction to Astronomy - Cumulative Enrollment: 108 | UConn |

❱❱❱ Professional Service

| 2021- | **Referee** - Astrophysical Journal (ApJ) | |

❱❱❱ Mentoring

2023-24	**Graduate Representative** - TAMU Astronomy	TAMU
2022-24	**Coordinator** - Mentoring and Advising Graduates in an Inclusive Community (MAGIC)	TAMU
2022-24	**Mentor** - Mentoring and Advising Graduates in an Inclusive Community (MAGIC)	TAMU
2017-18	**Mentor** - UConn Undergraduate Peer Mentoring	UConn

❱❱❱ Outreach

2022-	**Volunteer** - Gateway to Graduate School	TAMU
2022-	**Demonstrator** - Physics and Engineering Festival	TAMU
2022	**High School Research Reviewer** - Lumiere	TAMU
2021-	**Presenter** - Astronomy on Tap BCS 'In the News'	TAMU
2021-22	**Treasurer** - Astronomy on Tap BCS	TAMU
2021-	**Pen-Pal** - Letters to a Pre-Scientist	TAMU
2018	**Volunteer** - Mitchell Institute Star Party Group	TAMU
2014-	**Member** - Booth Memorial Astronomical Society, Stratford, CT	

❱❱❱ Societies and Organizations

2023	**LSSTC Data Science Fellowship Program**	Auditor
2018	**American Astronomical Society**	Member
2018	**American Physical Society**	Member
2018	**American Institute of Physics**	Member
2015	**Society of Physics Students**	Member

❱❱❱ Observing Experience

| 2023 | **W.M. Keck Observatory** - LRIS | 3 nights |
| 2018 | **McDonald Observatory** | 4 nights |

❱❱❱ Technical Skills and Programming Languages

Programming	**Fluent** - Python, LaTeX	
	Familiar - SQL, Julia, C, C++, R, IDL, perl, Mathematica, MATLAB, HTML, CSS	
Software	**Fluent** - Cloudy, PyNeb	
	Familiar - grizli, DS9, IRAF	

❱❱❱ Website Architect

❱ **Personal Website**: tx.ag/cleri

❱ **TAMU Astronomy** (with other grad students): tamu-astro.github.io/

❱ **Mentoring and Advising Graduates in an Inclusive Community (MAGIC)** (with other grad students): tx.ag/tamumagic

❯❯❯ Publications

Summary   NASA ADS, updated November 2023

❯ Refereed: 30, Submitted: 1

❯ Papers as Lead/Significant Author: 8

❯ Total Citations: 1299, H-Index: 19

Lead/Co-Lead Author   4

❯ **Cleri, N. J.**, Olivier, G. M., Hutchison T. A., et al. 2023, *Using [Ne V]/[Ne III] to Understand the Nature of Extreme-Ionization Galaxies*, ApJ, 953, 10

❯ **Cleri, N. J.**, Yang, G., Papovich, C, et al. 2023, *CLEAR: High-Ionization [Ne V] λ3426 Emission-line Galaxies at* $1.4 < z < 2.3$, ApJ, 948, 112

❯ **Cleri, N. J.**, Trump, J. R., Backhaus, B. E., et al. 2022, *CLEAR: Paschen-β Star Formation Rates and Dust Attenuation of Low Redshift Galaxies*, ApJ, 929, 3

❯ **Cleri, N. J.**, Dunne, G. V., 2020, *Resurgent Trans-Series for Non-Integrable Deformations of Painleve II*, Journal of Physics A: Mathematical General, 53, 355203

Significant Author   4

❯ Larson, R.L., Finkelstein, S.L., Kocevski, D.D., Hutchison, T.A., Trump, J.R., Arrabal Haro, P., Bromm, V., **Cleri, N.J.**, 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*, ApJL, 953, L29

❯ Backhaus, B.E., Bridge J.S., Trump, J.R., **Cleri, N.J.**, et al. 2023, *CLEAR: Detecting Low-Luminosity Active Galactic Nuclei at* $0.6 < z < 1.3$ *via Spatially Resolved Hubble Space Telescope Grism Emission Line Ratios*, ApJ, 943, 37.

❯ Prescott, M.K.M., Finlator, K.M., **Cleri, N.J.**, et al. 2022, *Using Multiple Emission Line Ratios to Constrain the Slope of the Dust Attenuation Law*, ApJ, 928, 71

❯ Backhaus, B.E., Trump, J.R., **Cleri, N.J.**, et al. 2022, *CLEAR: Emission Line Ratios at Cosmic High Noon*, ApJ, 926, 161

Co-Author: Refereed   22

❯ Fujimoto, S., et al. 2023, *ALMA FIR View of Ultra High-redshift Galaxy Candidates at* $z \sim$ *11-17: Blue Monsters or Low-z Red Interlopers?*, ApJ, 955, 130

❯ Kocevski, D.D., et al. 2023, *Hidden Little Monsters: Spectroscopic Identification of Low-Mass, Broad-Line AGN at* $z > 5$ *with CEERS*, ApJL, 954, L4

❯ Arrabal Haro, P., et al. 2023, *Spectroscopic confirmation of CEERS NIRCam-selected galaxies at* $z \simeq 8 - 10$, ApJL, 951, L22

❯ Estrada-Carpenter, V., et al. 2023, *CLEAR: The Morphological Evolution of Galaxies in the Green Valley*, ApJ, 951, 115

❯ Yang, G., et al. 2023, *CEERS Key Paper VI: JWST/MIRI Uncovers a Large Population of Obscured AGN at High Redshifts*, ApJL, 950, L5

❯ Papovich, C., et al. 2023, *CEERS Key Paper IV: Galaxies at* $4 < z < 9$ *are Bluer than They Appear – Characterizing Galaxy Stellar Populations from Rest-Frame* ~ 1 *micron Imaging*, ApJL, 949, L18

❯ Simons, R.C., et al. 2023, *CLEAR: Survey Overview, Data Analysis and Products*, ApJS, 266, 13

❯ Constantin, L. et al. 2023, *Expectations of the size evolution of massive galaxies at* $3 \leq z \leq 6$ *from the TNG50 simulation: the CEERS/JWST view*, ApJ, 946, 71

❯ Perez-Gonzalez, P.G.. et al. 2022, *CEERS Key Paper V: A triality on the nature of HST-dark galaxies*, ApJL, 946, L16

❯ Kocevski, D.D., et al. 2023, *CEERS Key Paper II: The Resolved Host Properties of AGN at 3 < z < 5 with JWST*, ApJL, 946, L14

❯ Finkelstein, S.L.. et al. 2023, *CEERS Key Paper I: An Early Look into the First 500 Myr of Galaxy Formation with JWST*, ApJL, 946, L13

❱ Guo, Y. et al. 2023, *First Look at z > 1 Bars in the Rest-Frame Near-Infrared with JWST Early CEERS Imaging*, ApJL, 945, L10

❱ Trump, J.R. et al. 2023, *The Physical Conditions of Emission-Line Galaxies at Cosmic Dawn from JWST/NIRSpec Spectroscopy in the SMACS 0723 Early Release Observations*, ApJ, 945, 35

❱ García-Argumánez, A. et al. 2023, *Probing the earliest phases in the formation of massive galaxies with simulated HST+JWST imaging data from Illustris*, ApJ, 944, 3

❱ Zavala, J. et al. 2023, *Dusty starbursts masquerading as ultra high redshift galaxies in JWST observations*, ApJL, 943, L9

❱ Rose, C. et al. 2023, *Identifying Galaxy Mergers in Simulated CEERS NIRCam Images using Random Forests*, ApJ, 942, 54

❱ 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

❱ Papovich, C. et al. 2022, *CLEAR: The Ionization and Chemical-Enrichment Properties of Galaxies at $1.1 < z < 2.3$* ApJ, 937, 22

❱ Matharu, J. et al. 2022, *CLEAR: The Evolution of Spatially Resolved Star Formation in Galaxies between $0.5 \leq z \leq 1.7$ using Hα Emission Line Maps*, ApJ, 937, 16

❱ Jung, I. et al. 2022, *CLEAR: Boosted Lyα Transmission of the Intergalactic Medium in UV bright Galaxies*, ApJ, 933, 87

❱ Simons, R. C. et al. 2021, *CLEAR: The Gas-Phase Metallicity Gradients of Star-Forming Galaxies at $0.6 < z < 2.6$*, ApJ, 923, 203

❱ Estrada-Carpenter, V. et al. 2020, *CLEAR II: Evidence for Early Formation of the Most Compact Quiescent Galaxies at High Redshift*, ApJ, 880, 2

Co-Author: Submitted

❱ Chworowsky, K., et al. 2023, *Evidence for a Shallow Evolution in the Volume Densities of Massive Galaxies at $z = 4$ to 8 from CEERS*, arXiv e-prints, arXiv:2311.14804

❱ Morales, A.M., et al. 2023, *Rest-Frame UV Colors for Faint Galaxies at $z \sim 9 - 16$ with the JWST NGDEEP Survey*, arXiv e-prints, arXiv:2311.04294

❱ Finkelstein, S.L., et al. 2023, *The Complete CEERS Early Universe Galaxy Sample: A Surprisingly Slow Evolution of the Space Density of Bright Galaxies at $z \sim 8.5 - 14.5$*, arXiv e-prints, arXiv:2311.04279

❱ Shen, L., et al. 2023, *NGDEEP Epoch 1: Spatially Resolved Hα Observations of Disk and Bulge Growth in Star-Forming Galaxies at $z \sim 0.6$-2.2 from JWST NIRISS Slitless Spectroscopy*, arXiv e-prints, arXiv:2310.13745

❱ Ronayne, K., et al. 2023, *CEERS: 7.7 μm PAH Star Formation Rate Calibration with JWST MIRI*, arXiv e-prints, arXiv:2310.07766

❱ Kirkpatrick, A., et al. 2023, *CEERS Key Paper VII: JWST/MIRI Reveals a Faint Population of Galaxies at Cosmic Noon Unseen by Spitzer*, arXiv e-prints, arXiv:2308.09750

❱ Backhaus, B.E., et al. 2023, *CEERS Key Paper VII: Emission Line Ratios from NIRSpec and NIRCam Wide-Field Slitless Spectroscopy at z>2*, arXiv e-prints, arXiv:2307.09503

❱ Calabró, A, et al. 2023, *Near-infrared emission line diagnostics for AGN from the local Universe to redshift 3*, arXiv e-prints, arXiv:2306.08605

❱ Barro, G., et al. 2023, *Extremely red galaxies at $z = 5 - 9$ with MIRI and NIRSpec: dusty galaxies or obscured AGNs?*, arXiv e-prints, arXiv:2305.14418

❱ Jung, I., et al. 2023, *CEERS: Diversity of Lyman-Alpha Emitters during the Epoch of Reionization*, arXiv e-prints, arXiv:2304.05385

❱ Jung, I, et al. 2022, *New $z > 7$ Lyman-alpha Emitters in EGS: Evidence of an Extended Ionized Structure at $z \sim 7.7$*, arXiv e-prints, arXiv:2212.09850

❯❯❯ Presentations

Research Presentations		12
11 September 2023	*Emission Line Ratio Diagnostics of AGN, Black Hole Seeds and Population III Stars with JWST* at the First Year of JWST Science Conference, Space Telescope Science Institute, Baltimore, Maryland, USA	Poster
17 August 2023	*Diagnostics of Exotic Ionizing Sources with JWST* at Texas A&M Astrosymposium, College Station, Texas, USA	Talk
10 May 2023	*Diagnostics of Exotic Ionizing Sources Across Cosmic Time - High-Ionization Emission-Line Ratios: Ne53* at University of Texas, Austin, Texas, USA	Talk
12 January 2023	*High-Ionization [Ne V] Emission-Line Galaxies at Cosmic Noon and the Epoch of Reionization* at AAS 241st Meeting, Seattle, Washington, USA	Poster
2 December 2022	*Using [Ne V] to Constrain the Sources of Highly-Energetic Photoionization Across Cosmic Time: Exploring the "Mystery of Neon" with HST and JWST* at Texas A&M University, College Station, Texas, USA	Talk
18 August 2022	*Extreme High-Ionization Emission-Line Galaxies at Cosmic Noon and the Epoch of Reionization: Exploring the "Mystery of Neon" with HST and JWST* at Texas A&M University, College Station, Texas, USA	Talk
22 July 2022	*The Evolution of Spectroscopy from HST to JWST: Implications for the Epoch of Reionization* at Texas A&M University, College Station, Texas, USA	Talk
14 June 2022	*HST Grism Observations of Paschen-Line Star-Formation and Dust Attenuation: A Precursor to the JWST Era* at AAS 240th Meeting, Pasadena, California, USA	Poster
27 August 2021	*Paschen-β Star Formation Rates and Dust Attenuation with HST and JWST* at Texas A&M Astrosymposium, College Station, Texas, USA	Talk
13 January 2021	*CLEAR: Paschen-β Star Formation Rates and Dust Attenuation in Low Redshift Galaxies* at AAS 237th Meeting, Virtual	Poster
9 January 2019	*Modeling ^{8}B Solar Neutrino Detection with CEνNS* at AAS 233rd Meeting, Seattle, Washington, USA	Poster
1 August 2018	*Modeling ^{8}B Solar Neutrino Detection with CEνNS* at TAMU Undergraduate Research Poster Session, College Station, Texas, USA	Poster
Outreach and Professional Development Presentations		6
10 November 2023	*How to Be A Referee* at Texas A&M University, College Station, Texas, USA	Talk
28 July 2023	*How to Get Into Grad School* at Texas A&M University, College Station, Texas, USA	Panel
11 November 2022	*Data Visualization in Astronomy: More Important than the Science Itself?* at Texas A&M University, College Station, Texas, USA	Talk
29 July 2022	*How to Get Into Grad School* at Texas A&M University, College Station, Texas, USA	Panel
2 June 2022	*Data Visualization in Astronomy: More Important than the Science Itself?* at Texas A&M University, College Station, Texas, USA	Talk
2 June 2022	*Matplotlib: The Champion of Plotting in Python* at Texas A&M University, College Station, Texas, USA	Workshop
1 June 2022	*pandas: Your Best Friend for Data Analysis in Python* at Texas A&M University, College Station, Texas, USA	Workshop

❱❱❱ References

PhD Advisor   **Prof. Casey J. Papovich**   Texas A&M

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M.S. Advisor   **Prof. Jonathan R. Trump**   UConn

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PhD Mentor   **Prof. Robert C. Kennicutt**   Texas A&M

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