Nikko J. Cleri · Curriculum Vitae · cleri@tamu.edu · orcid.org/0000-0001-7151-009X · Website: tx.ag/cleri

Nikko J. Cleri | CV

- 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. He currently studies emission-line galaxies with a focus on rest-frame UV/optical spectra of high-redshift galaxies. He primarily uses data from *JWST* and *HST*, and is a member of the CEERS (Cosmic Evolution Early Release Science), NGDEEP (Next Generation Deep Extragalactic Exploratory Public Survey), 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
- Associate Advisors: Robert C. Kennicutt, Justin Spilker
- Thesis: *Spectroscopic Studies of Stars and Black Holes Across Cosmic Time*

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

- Advisor: Jonathan R. Trump
- Associate Advisors: Cara Battersby and Gerald V. Dunne
- 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 — 1

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)

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	

Mentoring

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

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

Technical Skills and Programming Languages

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

Observing Experience

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

Publications

Summary

- Refereed: 22, Submitted: 10
- Papers as Lead/Significant Author: 8
- Total Citations: 681, H-Index: 13, Reads: >16000 (from NASA ADS, updated May 2023)

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*, arXiv e-prints, arXiv:2301.07745
- **Cleri, N. J.**, Yang, G., Papovich, C, et al. 2022, *CLEAR: High-Ionization [Ne V] λ3426 Å 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. submitted, *A CEERS Discovery of an Accreting Supermassive Black Hole 570 Myr after the Big Bang: Identifying a Progenitor of Massive z > 6 Quasars*, arXiv e-prints, arXiv:2303.08918.
- Backhaus, B.E., Bridge J.S., Trump, J.R., **Cleri, N.J.**, et al. submitted, *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 24

- 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
- Estrada-Carpenter, V., et al. 2023, *CLEAR: The Morphological Evolution of Galaxies in the Green Valley*, arXiv e-prints, arXiv:2305.04953
- Jung, I., et al. 2023, *CEERS: Diversity of Lyman-Alpha Emitters during the Epoch of Reionization*, arXiv e-prints, arXiv:2304.05385.
- Arrabal Haro, P., et al. 2023, *Spectroscopic confirmation of CEERS NIRCam-selected galaxies at* $z \simeq 8 - 10$, arXiv e-prints, arXiv:2304.05378.
- Yang, G., et al. 2023, *CEERS Key Paper VI: JWST/MIRI Uncovers a Large Population of Obscured AGN at High Redshifts*, arXiv e-prints, arXiv:2303.11736.
- Simons, R.C., et al. 2023, *CLEAR: Survey Overview, Data Analysis and Products*, arXiv e-prints, arXiv:2303.09570.
- Papovich, C., et al. 2023 submitted, *CEERS Key Paper IV: Galaxies at* $4 < z < 9$ *are Bluer than They Appear – Characterizing Galaxy Stellar Populations from Rest-Frame* ~ 1 *micron Imaging*, arXiv e-prints, arXiv:2301.00027.
- Kocevski, D.D., et al. 2023 submitted, *Hidden Little Monsters: Spectroscopic Identification of Low-Mass, Broad-Line AGN at* $z > 5$ *with CEERS*, arXiv e-prints, arXiv:2302.00012.
- Jung, I, et al. 2022 submitted, *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.
- Finkelstein, S.L.. et al. 2022 submitted, *CEERS Key Paper I: An Early Look into the First 500 Myr of Galaxy Formation with JWST*, arXiv e-prints, arXiv:2211.05792
- Perez-Gonzalez, P.G.. et al. 2022 submitted, *CEERS Key Paper V: A triality on the nature of HST-dark galaxies*, ApJL, 946, L16
- Guo, Y. et al. 2022 submitted, *First Look at z > 1 Bars in the Rest-Frame Near-Infrared with JWST Early CEERS Imaging*, arXiv e-prints, arXiv:2210.08658

- Kocevski, D. et al. 2022 submitted, *CEERS Key Paper III: The Resolved Host Properties of AGN at 3 < z < 5 with JWST*, arXiv e-prints, arXiv:2208.14480
- Rose, C. et al. 2022 submitted, *Identifying Galaxy Mergers in Simulated CEERS NIRCam Images using Random Forests*, ApJ, 942, 54
- Zavala, J. et al. 2022 submitted, *Dusty starbursts masquerading as ultra high redshift galaxies in JWST observations*, ApJL, 943, L9
- Constantin, L. et al. 2022, *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
- 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
- Finkelstein, S.L. et al. 2022 submitted, *A Long Time Ago in a Galaxy Far, Far Away: A Candidate* $z \sim 14$ *Galaxy in Early JWST CEERS Imaging*, ApJL, 940, L55
- Trump, J.R. et al. 2022 submitted, *The Physical Conditions of Emission-Line Galaxies at Cosmic Dawn from JWST/NIRSpec Spectroscopy in the SMACS 0723 Early Release Observations*, ApJ, 945, 35
- Matharu, J. et al. 2022 submitted, *CLEAR: The Evolution of Spatially Resolved Star Formation in Galaxies between* $0.5 \leq z \leq 1.7$ *using H*α *Emission Line Maps*, ApJ, 937, 16
- Papovich, C. et al. 2022 submitted, *CLEAR: The Ionization and Chemical-Enrichment Properties of Galaxies at* $1.1 < z < 2.3$ ApJ, 937, 22
- Jung, I. et al. 2022, *CLEAR: Boosted Ly*α *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

Presentations

Research Presentations — 10

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 CE*ν*NS* at AAS 233rd Meeting, Seattle, Washington, USA	Poster
1 August 2018	*Modeling* ^{8}*B Solar Neutrino Detection with CE*ν*NS* at TAMU Undergraduate Research Poster Session, College Station, Texas, USA	Poster

Outreach and Professional Development Presentations — 5

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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B.S. Advisor **Prof. Gerald V. Dunne** UConn

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