

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

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|---|---|---------------------------|
| 2021 - Present | Ph.D. Astronomy | Texas A&M University |
| » Advisor: Casey Papovich | | |
| » Thesis: <i>Spectroscopic Studies of Stars and Black Holes Across Cosmic Time</i> | | |
| 2019 - 2021 | M.S. Physics | University of Connecticut |
| » Advisor: Jonathan R. Trump | | |
| » Thesis: <i>CLEAR: Paschen-β Star Formation Rates and Dust Attenuation in Low Redshift Galaxies</i> | | |
| 2015 - 2019 | B.S. Physics Mathematics Minor | University of Connecticut |
| » Advisor: Gerald V. Dunne | | |
| » Undergraduate Research: <i>Resurgent Trans-Series for Non-Integrable Deformations of Painleve II</i> | | |

»»» Academic and Professional Appointments

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|---------|--|-------|
| 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 Grants - Total Value: >\$135k

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

»»» Honors and Awards

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|------|--|-------|
| 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 |

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|---|---|----------|
| 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, Mathematica, MATLAB | |
| 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: 10
- » Papers as Lead/Significant Author: 8
- » Total Citations: 1249, H-Index: 19

Lead/Co-Lead Author

4

- » **Cleri, N. J.**, Olivier, G. M., Hutchison T. A., et al. 2023, *Using [Ne VI]/[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 VI] λ 3426 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 NIRCам-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 NIRCам 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 $H\alpha$ Emission Line Maps*, ApJ, 937, 16
- » Jung, I. et al. 2022, *CLEAR: Boosted $Ly\alpha$ Transmission of the Intergalactic Medium in UV bright Galaxies*, ApJ, 933, 97
- » 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

10

- » 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 $H\alpha$ 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: $7.7 \mu\text{m}$ 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 NIRCам 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

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|-------------------|--|--------|
| 11 September 2023 | <i>Emission Line Ratio Diagnostics of AGN, Black Hole Seeds and Population III Stars with JWST</i> at the First Year of JWST Science Conference, Space Telescope Science Institute, Baltimore, Maryland, USA | Poster |
| 17 August 2023 | <i>Diagnostics of Exotic Ionizing Sources with JWST</i> at Texas A&M Astrosymposium, College Station, Texas, USA | Talk |
| 10 May 2023 | <i>Diagnostics of Exotic Ionizing Sources Across Cosmic Time - High-Ionization Emission-Line Ratios: Ne53</i> at University of Texas, Austin, Texas, USA | Talk |
| 12 January 2023 | <i>High-Ionization [Ne VI] Emission-Line Galaxies at Cosmic Noon and the Epoch of Reionization</i> at AAS 241st Meeting, Seattle, Washington, USA | Poster |
| 2 December 2022 | <i>Using [Ne VI] to Constrain the Sources of Highly-Energetic Photoionization Across Cosmic Time: Exploring the "Mystery of Neon" with HST and JWST</i> at Texas A&M University, College Station, Texas, USA | Talk |
| 18 August 2022 | <i>Extreme High-Ionization Emission-Line Galaxies at Cosmic Noon and the Epoch of Reionization: Exploring the "Mystery of Neon" with HST and JWST</i> at Texas A&M University, College Station, Texas, USA | Talk |
| 22 July 2022 | <i>The Evolution of Spectroscopy from HST to JWST: Implications for the Epoch of Reionization</i> at Texas A&M University, College Station, Texas, USA | Talk |
| 14 June 2022 | <i>HST Grism Observations of Paschen-Line Star-Formation and Dust Attenuation: A Precursor to the JWST Era</i> at AAS 240th Meeting, Pasadena, California, USA | Poster |
| 27 August 2021 | <i>Paschen-β Star Formation Rates and Dust Attenuation with HST and JWST</i> at Texas A&M Astrosymposium, College Station, Texas, USA | Talk |
| 13 January 2021 | <i>CLEAR: Paschen-β Star Formation Rates and Dust Attenuation in Low Redshift Galaxies</i> at AAS 237th Meeting, Virtual | Poster |
| 9 January 2019 | <i>Modeling ^8B Solar Neutrino Detection with CEνNS</i> at AAS 233rd Meeting, Seattle, Washington, USA | Poster |
| 1 August 2018 | <i>Modeling ^8B Solar Neutrino Detection with CEνNS</i> at TAMU Undergraduate Research Poster Session, College Station, Texas, USA | Poster |

Outreach and Professional Development Presentations

6

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| 28 July 2023 | <i>How to Get Into Grad School</i> at Texas A&M University, College Station, Texas, USA | Panel |
| 11 November 2022 | <i>Data Visualization in Astronomy: More Important than the Science Itself?</i> at Texas A&M University, College Station, Texas, USA | Talk |
| 29 July 2022 | <i>How to Get Into Grad School</i> at Texas A&M University, College Station, Texas, USA | Panel |
| 2 June 2022 | <i>Data Visualization in Astronomy: More Important than the Science Itself?</i> at Texas A&M University, College Station, Texas, USA | Talk |
| 2 June 2022 | <i>Matplotlib: The Champion of Plotting in Python</i> at Texas A&M University, College Station, Texas, USA | Workshop |
| 1 June 2022 | <i>pandas: Your Best Friend for Data Analysis in Python</i> at Texas A&M University, College Station, Texas, USA | Workshop |

»»» References

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

- » Mitchell Institute for Fundamental Physics and Astronomy, 4242 TAMU, College Station, TX 77843-4242
- » papovich@tamu.edu

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

- » University of Connecticut Department of Physics, 196A Auditorrium Road, Unit 3046, Storrs, CT, 06269-3046
- » jonathan.trump@uconn.edu

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

- » Mitchell Institute for Fundamental Physics and Astronomy, 4242 TAMU, College Station, TX 77843-4242
- » rck@tamu.edu