

Namrata Roy

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Studies galaxy formation, star formation triggering and quenching, multi-phase gas in galaxies, outflows, radio galaxies, active galactic nuclei (AGN) feedback, and high redshift galaxies using observations. Experienced in using spatially resolved IFU spectroscopy and multi-wavelength studies of galaxies and AGNs ranging from γ -ray to radio wavelengths. Extensive experience in working with space-based (HST and JWST) as well as ground-based spectroscopic (Keck, SDSS-MaNGA, MUSE) data. Interested in getting involved with ALMA data.

Academic Positions held

- **Johns Hopkins University (& Space Telescope Science Institute)** **Baltimore, MD**
Post-Doctoral Fellow *September 2022 - Present*
- **CCA, Flatiron Institute** **New York city, NY/ Remote**
Pre-Doctoral Fellow (Remote) *September 2021 - May 2022*
- **University of California, Santa Cruz** **Santa Cruz, CA**
Graduate Student Researcher *September 2016- June 2022*
- **University of California, Santa Cruz** **Santa Cruz, CA**
Osterbrock Fellow *September 2019- June 2022*
- **Harish Chandra Research Institute** **Allahabad, India**
Summer Research Fellow *2015*

Education

- **University of California, Santa Cruz** **Santa Cruz, CA**
PhD, Astronomy/Astrophysics *June 2022*
Thesis: Star formation suppression and feedback in nearby galaxies
- **Presidency University** **Kolkata, India**
M.Sc., Physics *2016*
- **Presidency University** **Kolkata, India**
B.Sc., Physics *2014*

Refereed Publications — 29 publications, 400+ citations, 7 1st author

1. **2024: Roy, N.**, Heckman, T., et al. 2024, *JWST Reveals Powerful Feedback from Radio Jets in a Massive Galaxy at $z = 4.1$* , arXiv:2401.11612, accepted in ApJ (in press as of May 2024)
2. **2023: Roy, N.**, Henry, A., Heckman, T., et al. 2023, *Early Results from GLASS-JWST XXII. Rest-frame UV-Optical Spectral Properties of Ly α Emitting Galaxies at $3 < z < 6$* , ApJL, 952, 14
3. **2021: Roy, N.**, Moravec, E., Bundy, K., et al. 2021, *Radio Morphology of Red Geysers*, ApJ, 922, 230
4. **2021: Roy, N.**, Bundy, K., et al. 2021, *Signatures of inflowing gas in red geyser galaxies hosting radio-AGN*, ApJ, 919, 145
5. **2021: Roy, N.**, Bundy, K., et al. 2021, *Evidence of Wind Signatures in the Gas Velocity Profiles of Red Geysers*, ApJ, 913 33

6. **2019:** Roy, N., Chatterjee, R., et al. 2019, *Probing the jets of blazars using the temporal symmetry of their multiwavelength outbursts*, MNRAS, 482, 743
7. **2018:** Roy, N., Bundy, K., et al. 2018, *Detecting Radio AGN Signatures in Red Geysers*, ApJ, 869, 117
8. **2024:** Roy, N., Henry. A., et al. 2024, *A new class of massive, compact, low-ionization Lyman Continuum leakers*, in prep
9. **2024:** Roy, N., Henry. A., et al. 2024, *Testing Slit Stepping technique: Characterizing resolved emission line ratios at Cosmic Noon*, in prep
10. **2024:** Saxena, A., et al. 2024 (incl. Roy, N), *Widespread AGN feedback in a forming brightest cluster galaxy at $z=4.1$ unveiled by JWST*, MNRAS, 531, 4391
11. **2024:** Comerford, J., et al. 2024 (incl Roy, N), *An Excess of Active Galactic Nuclei Triggered by Galaxy Mergers in MaNGA Galaxies of Stellar Mass $10^{11} M_{\odot}$* , ApJ, 963, 53
12. **2024:** Boyett. K., et al. 2024 (incl Roy, N), *A massive interacting galaxy 510 million years after the Big Bang*, NatAs, 8, 657
13. **2023:** Frank, E., et al. 2023 (incl. Roy, N), *HI content of the red geyser galaxies*, MNRAS, 519, 3312
14. **2023:** Rao, V., et al. 2023 (incl N. Roy), *AGN Feedback Through Multiple Jet Cycles in the Seyfert Galaxy NGC 2639*, MNRAS, 524, 1615
15. **2023:** Castanello. M., et al. 2023 (incl N. Roy), *Early Results from GLASS-JWST. XIX. A High Density of Bright Galaxies at $z \sim 10$ in the A2744 Region*, ApJ, 948, L14
16. **2023:** Vulcani. B., et al. 2023 (incl N. Roy), *Early Results from GLASS-JWST. XX. Unveiling a Population of "Red Excess" Galaxies in Abell2744 and in the Coeval Field*, ApJ, 948, L15
17. **2023:** Hu. W., et al. 2023 (incl Roy, N), *CLASSY VII LyA Profiles: The Structure and Kinematics of Neutral Gas and Implications for LyC Escape in Reionization-era Analogs*, ApJ, 956, 39
18. **2023:** Prieto-Lyon, G., et al. 2023 (incl. Roy, N), *Early Results from GLASS-JWST. XXIII. The Transmission of LyA from UV-faint $z = 3-6$ Galaxies*, ApJ, 956, 136
19. **2023:** Prieto-Lyon, G., et al. 2023 (incl. Roy, N), *The production of ionizing photons in UV-faint $z \sim 3 - 7$ galaxies*, A& A, 672, 186
20. **2023:** Mascia, S et al. 2023 (incl N. Roy), *Closing in on the sources of cosmic reionization: first results from the GLASS-JWST program*, A&A, 672, 155
21. **2023:** Abdurro'uf et al. 2023 (incl N. Roy), *Spatially Resolved Stellar Populations of $0.3 < z < 6.0$ Galaxies in WHL 0137-08 and MACS 0647+70 Clusters as Revealed by JWST: How Do Galaxies Grow and Quench over Cosmic Time?*, ApJ, 945, 117
22. **2023:** Bergamini, P., et al. 2023 (incl N. Roy), *The GLASS-JWST Early Release Science Program. III. Strong-lensing Model of Abell 2744 and Its Infalling Regions*, ApJ, 952, 84
23. **2022:** Bizyaev, D., et al. 2022 (incl Roy, N), *SDSS IV MaNGA - star-formation driven biconical outflows in face-on galaxies*, MNRAS, 516, 3092
24. **2022:** Roberts-Borsani, G., et al. 2022 (incl Roy, N), *The nature of an ultra-faint galaxy in the cosmic dark ages seen with JWST*, Nature, 618, 480
25. **2022:** Bizyaev, D., et al. 2022 (incl Roy, N), *SDSS IV MaNGA - star-formation driven biconical outflows in face-on galaxies*, MNRAS, 516, 3092
26. **2022:** Bundy. K., et al. 2022 (incl N. Roy), *The Stability of Fiber Spectrographs in the Faint-source Regime*, AJ, 164, 94
27. **2021:** Mulcahey, C.-R., et al. 2021 (incl Roy, N), *Star Formation and AGN Feedback in the Local Universe: Combining LOFAR and MaNGA*, A&A, 665A, 144

28. **2021:** Ilha, G., et al. 2021 (incl. **Roy, N**), *Active Galactic Nuclei signatures in Red Geyser galaxies from Gemini GMOS-IFU observations*, MNRAS, 516, 1442
29. **2020:** Comerford, J., et al. 2020 (incl **Roy, N**), *A Catalog of 406 AGNs in MaNGA: A Connection between Radio-mode AGNs and Star Formation Quenching*, ApJ 901, 159
30. **2019:** Riffel. R., et al. 2019 (incl **Roy, N**), *Precessing winds from the nucleus of the prototype Red Geyser?*, MNRAS, 485, 5590
31. **2019:** Bizyaev. D., et al. 2019 (incl **Roy, N**), *SDSS IV MaNGA: Star-formation-driven Biconical Outflows in the Local Universe*, ApJ, 882, 145

Successful Proposals

- **2024:** Co-I — JWST Cycle: 3 GO_5293
Galactic Winds in the Early Universe: observing outflows in emission and absorption in a typical $z \sim 6$ galaxy
- **2024:** Co-I — JWST Cycle: 3 GO_6074
The First Measurement of AGN Feedback in Action in the First Billion Years
- **2023:** PI — HST Cycle: 31 GO_17485
Dissecting Red geyser winds: low luminosity AGNs with large scale outflows in the ionized phase
- **2023:** Co-I — HST Cycle: 31 GO_17559
Galactic Winds Unveiled: Leveraging Cloud Simulations with Radiative Transfer to Constrain Feedback
- **2023:** Co-I — HST Cycle: 30 GO_17042
Are Galactic Outflows Seen in Absorption and Emission Lines Tracing the Same Gas?
- **2022:** Co-PI — Keck OSIRIS 2022B_U051
Probing feedback in the nuclear region of low luminosity AGN host “red geysers”
- **2020:** Co-I — GBT 19B-336
Exploratory Observations of CO(1-0) 115.271 GHz Emission in MaNGA Galaxies
- **2019:** Co-I — GMRT 36_022
A Study of Radio Mode Feedback in Red Geysers from SDSS IV's MaNGA Survey
- **2018:** Co-I — Keck KCWI 2018B_U081
Towards the first measurement of gas-phase metallicity in early type LINER galaxies
- **2018:** Co-I — UCO Mini Grant
Modeling Fiber Performance for Ultra-faint Spectroscopy
- **2018:** Co-PI — NSF Proposal A18_0759
Red geysers and the suppression of star formation

Broader Impacts

- **2024:** Scientific Organizing Committee of STScI Spring Symposium 2024
- **2024 - :** Joint JHU & STScI colloquium committee member
- **2024 - :** Organizer of AGN & Galaxies Journal club at Space Telescope Science Institute
- **2023-2024:** Organizer of Johns Hopkins University Bi-Weekly AstroCoffee discussions
- **2023-Present:** Mentor: Johns Hopkins University Physics and Astronomy mentoring program
- **2023-Present:** Organizer of CARINAs colloquium series (an initiative to highlight Astronomy research by Indian Women Astronomers)
- **2023-Present:** Member, NASA's Science Analysis group on “Astrophysics with Equity: Surmounting Obstacles to Membership” (AWESOM)
- **2020-Present:** Referee: MNRAS, ApJ

- **2021-Present:** Panelist, Time Allocation Committee panel on various telescopes
- **2021:** Python Instructor, Lamat: Summer Tech training
Goal: to introduce community college and under-represented students to Astrophysical research
- **2021:** Invited Panelist, Precision (undergraduate symposium) at Presidency University, India
Goal: To advise and guide undergraduate Physics students of India on choosing career paths
- **2021:** Mentor, Society of Physics Students and Women in Physics & Astronomy mentoring
Goal: Advise a woman undergraduate student on graduate school, research, and career paths
- **2019-2022:** Organizer of various leadership events as an Osterbrock Fellow.
Goal: Organize the Mini-grants Program to enable graduate students to carry on leadership-based projects, and host career advice panels with distinguished faculty and alumni
- **2016-2017:** UCSC Women in Physics & Astronomy
- **2016-2017:** Lead of Ask-an-astronomer
Goal: To answer basic questions about astronomy from interested citizens

Teaching & Mentoring

- **2024-Present:** Mentor of an undergraduate student under the Rowland Summer Research fellowship (student: Arian Moghni)
AGN feedback in low luminosity AGN host galaxies
- **2023-Present:** Mentor of Master's thesis, Presidency University (student: Anuroop Dasgupta)
Metallicity gradients in dwarf galaxies (paper in prep)
- **2022:** Mentor of Undergraduate research thesis, IISER Pune (student: Anand Sharma)
AGNs in passive elliptical galaxies
- **2018:** Teaching Assistant, UC Santa Cruz (class of ~ 150 undergraduates)
ASTR 5: Overview of the Universe
- **2017:** Teaching Assistant, UC Santa Cruz (class of ~ 150 undergraduates)
ASTR 2 : The formation and Evolution of the Universe
- **2017:** Primary research mentor, Science Internship Program (3 students: Atirath Dhara, Kaela McConnell, Jurij Waite) *A study of Galaxies and Quasars in the background of Andromeda Galaxy*

Awards and Honors

- **2022:** Space Telescope Science Institute (STScI) Prized Postdoctoral Fellowship (declined).
- **2022:** Waterloo Center for Astrophysics Prized Postdoctoral Fellowship (declined).
- **2021:** UC Dissertation Year Chancellor's Fellowship.
- **2019-2022:** AAS National Osterbrock Fellowship, UC Santa Cruz
- **2015:** Summer Research Fellowship, Harish Chandra Research Institute, India
- **2011-2016:** INSPIRE scholarship, Department of Science & Technology, Govt. of India

Seminars & Conference presentations — 39 talks, several invited

- **March 2024:** (*invited*) CTC seminar, University of Maryland College Park
- **October 2023:** 2023 JSI Conference: Winds throughout the Universe
- **August 2023:** (*invited*) 2023 Santa Cruz Galaxy Workshop
- **August 2022:** (*invited*) Colloquium at the School of Astrophysics, Presidency University, India
- **August 2022:** (*invited*) Colloquium at the Raman Research Institute, India
- **August 2022:** (*invited*) Colloquium at the Indian Institute of Science Education and Research Kolkata (IISER-Kolkata), India

- **May 2022:** University of California Santa Cruz Public Talk
- **November 2021:** Steward / NOIRLab Galaxy Group meeting
- **September 2021:** UC Berkeley Thursday short talk series
- **September 2021:** Harvard Center for Astrophysics (CfA) colloquium
- **August 2021:** SDSS Collaboration meeting
- **November 2020:** Center for Computational Astrophysics, Flatiron, Friday Seminar
- **October 2020:** Young Astronomers on Galactic Nuclei (yAGN) meeting, 2020
- **September 2020:** Keck Science meeting, 2020
- **August 2020:** Alumni Lecture Series, Presidency University, India

Conference Preceedings

1. **2018: Roy, N.**, Bundy, K., et al. 2018, *Red geyser: A new class of galaxy with large scale AGN driven winds*, American Astronomical Society Meeting Abstracts, 231, 250.46
2. **2018: Dhara, A.**, et al. 2018 (incl **Roy, N**), *A study of Galaxies and Quasars in the background of Andromeda Galaxy*, American Astronomical Society Meeting Abstracts, 231, 351.11
3. **2018: Bundy, K.**, et al. 2018 (incl **Roy, N**) *WFOS instrument trade study: slicer vs. fiber instrument concept designs and results*, Proc. SPIE 10702, Ground-based and Airborne Instrumentation for Astronomy VII, 1070220 (9 July 2018)