Anika Kumar

| website | ak8532@rit.edu

Education

2024 - present MS (Astrophysical Sciences and Technology) at **Rochester Institute of Technology**
2021 - 2024 B.S. (Physics & Astronomy, Computer Science Minor) at **University of Pittsburgh** (Cum Laude, Departmental Honors)

Research

- My research interests lie in studying the evolution of galaxies through cosmic time. I combine SPS modeling codes with photometric and spectroscopic observations to derive the star-formation histories of galaxies.
- **1. POPPIES Survey**

  The Public Observation Pure Parallel Infrared Emission-Line Survey, is a large area NIRCam wide-field slitless spectroscopy (WFSS) program (POPPIES) designed to study the distance Universe. As the lead data reduction scientist for this survey, I am reducing $\sim$ 150 different fields (each with 3-8 filters), creating mosaics, and producing photometric catalogs.

- **2. SQuIGG$\vec{L}$E Survey**

  the Studying QUenching in Intermediate-redshift Galaxies: Gas, angu$\vec{L}$ar Momentum, and Evolution (SQuIGG$\vec{L}$E) survey is a multi-wavelength study of post-starburst galaxies (PSBs) at $z \sim 0.7$. My work focuses on studying the environments of these PSBs, specifically targeting the gas-rich "buddy galaxies" that live within the dark matter halos of the massive PSBs.

Teaching and Outreach

Graduate Teaching Assistant, RIT Aug 2024 - Present

- Observtional Astronomy TA Spring 2026
- Galactic Astrophysics TA Fall 2025
- College Physics 1 TA Spring 2025
- College Physics 1 TA Fall 2024

ImagineRIT Coordinator, RIT Jan 2025-Present

- ImagineRIT is an annual and university wide public outreach event targeting all ages. As coordinator, I plan and organize RIT's Astrophysics exhibit.

Research Group Leader for STEPUP, University of Pittsburgh Sep 2021-July 2024

- STEPUP (Survey of Transiting Extrasolar Planets at the University of Pittsburgh) is an undergraduate led research group at the University of Pittsburgh.
- Recruit and mentor students to join undergraduate research.
- Teach students how to use telescopes at Allegheny Observatory, collect data, process images, create light curves, make sense of their findings, and explore other areas of exoplanet research.

Allegheny Observatory Outreach Aug 2023-April 2024

- Astrophysicist for a Day: Panelist and guest lecturer for high school students interested in pursuing a career in astrophysics. developed inquiry-based activities using real astronomical datasets, enabling students to carry out analyses similar to professional astrophysical research and produce meaningful results.
- Allegheny Observatory Open House: Ran exhibit for STEPUP

Publications

Kumar, Anika et al. (Sept. 2025). "Meet the Neighbors: Gas Rich "Buddy Galaxies" are Common around Recently Quenched Massive Galaxies in the SQuIGG$\vec{L}$E Survey". In: *Research Notes of the American Astronomical Society* 9.9, 243, p. 243. DOI: 10.3847/2515-5172/ae0469.

Setton, David J. et. al (incl **Kumar, Anika**) (Dec. 2025). "SQuIGGL→E: Buried Star Formation Cannot Explain the Rapidly Fading CO(21) Luminosity in Massive, z ∼ 0.7 Post-starburst Galaxies". In: 170.6, 351, p. 351. DOI: 10.3847/1538-3881/ae1607. arXiv: 2509.00148 [astro-ph.GA].

D'Onofrio, Vincenzo R. et. al (incl **Kumar, Anika**) (Feb. 2026). "Molecular Gas Excitation in z ~0.7 Gas-Rich Post-starburst Galaxies from SQuIGGLE". In: *arXiv e-prints*, arXiv:2602.17766, arXiv:2602.17766. DOI: 10.48550/arXiv.2602.17766. arXiv: 2602.17766 [astro-ph.GA].

Presentations

1. *Meet the Neighbors: Gas Rich "Buddy Galaxies" are Common around Recently Quenched Massive Galaxies in the SQuIGG$\vec{L}$E Survey Survey* Anika Kumar, David Setton, Rachel Bezanson, Talk, End of Star Formation meeting, Spring 2026, University of Illinois Urbana-Champaign, Urbana, IL.

2. *The Despicable SFR: A Minion's Take on the Star Forming Main Sequence with POPPIES* Anika Kumar, Jeyhan Kartaltepe, Marc Rafelski, POPPIES Collaboration, Talk, AST Halloween Jamboree, *awarded best talk*, Fall 2025, RIT, Rochester, NY

3. *Characterizing the Star-Forming Main Sequence of Low-Mass, High-Redshift Galaxies in the POPPIES Survey* Anika Kumar, Jeyhan Kartaltepe, Marc Rafelski, POPPIES Collaboration, Talk, Infrared Spectroscopy from Space Symposium, Fall 2025, Caltech, Pasedena, CA

4. *Gas Rich "Buddy Galaxies" Found Near Recently Quenched Galaxies at z .6* Anika Kumar, Rachel Bezanson, David Setton, Poster, CUWiP, Spring 2024, Undergraduate Poster Session Fall 2023, University of Pittsburgh, Pittsburgh, PA.

5. *Gas Rich "Buddy Galaxies" Found Near Recently Quenched Galaxies at z .6* Anika Kumar, Rachel Bezanson, David Setton, Poster, CUWiP, Spring 2024, West Point Academy, West Point, NY.

6. *Gas Rich Neighbors are Common Around Recently Quenched Galaxies in the SQuIGGLE survey* Anika Kumar, Rachel Bezanson, David Setton, iPoster, 243th AAS meeting, New Orleans, LA

7. *Gas Rich "Buddy Galaxies" Found Near Recently Quenched Galaxies at z .6* Anika Kumar, Rachel Bezanson, David Setton, Poster, Undergraduate Poster Session Fall 2023, University of Pittsburgh, Pittsburgh, PA.

8. *Gas Abundances in Post-Starburst Galaxies* Anika Kumar, Rachel Bezanson, David Setton, Justin Spilker, Poster, Undergraduate Poster Session Spring 2023, University of Pittsburgh, Pittsburgh, PA.

9. *Incidence Rate of Neighboring Gas-Rich Galaxies* Anika Kumar, Rachel Bezanson, David Setton, Justin Spiker, Poster, CUWiP, Spring 2023, Penn State University, State College PA.

10. *Gas Abundances in Post-Starburst Galaxies* Anika Kumar, Rachel Bezanson, David Setton, Justin Spilker, Poster, Duquesne Summer Research Symposium, Summer 2022, Duquesne University, Pittsburgh PA.

Scholarships and Awards

James Webb Space Telescope

Cycle 5 AR #11320; PIs: A. Kumar, J. Kartaltepe

NAASC and RAS Travel Support

March 2026, Travel support for the End of Star Formation meeting ($700)

AST New York Space Grant

Spring 2026 ($5000 total)

NASA Pennsylvania Space Grant Consortium

Fall 2023, Spring 2023, Fall 2022, Summer 2022, Spring 2022 ($12000 total)

Programming Experience

Languages

– Python, Java, MIPS Assembly, Matlab

Image Processing/Reduction

– AstroimageJ, AsTAP, MIRA, JWST Science Calibration Pipeline, JHAT, Photutils, SExtractor

SPS modeling

– Bagpipes, Prospector, LePHARE

Last updated: March 25, 2026