David J. Setton

Curriculum Vitae

3941 O'Hara St
Pittsburgh, PA 15213
602-459-4897
davidsetton@pitt.edu
davidjsetton.github.io

Research focus: observational galaxy formation and evolution through cosmic time

Education

June 2023 **Ph.D in Physics**, University of Pittsburgh.
Advisor: Professor Rachel Bezanson
Thesis: Understanding Quenching With Spectroscopic Studies of Post-Starburst Galaxies

May 2019 **M.S. in Physics**, University of Pittsburgh.

May 2017 **B.S. in Physics and Astronomy**, University of Arizona.
Advisor: Professor Gurtina Besla
Thesis: Characterizing the Bow Shock of the Large Magellanic Cloud

Research Positions

Sep. 2023 - Present **Brinson Prize Fellow**.
Department of Astrophysical Sciences, Princeton University

Summer 2023 **Zaccheus Daniel Fellow**.
Department of Astrophysical Sciences, Princeton University

Fall 2021; Spring 2023 **PITT PACC Graduate Fellow**.
Department of Physics and Astronomy, University of Pittsburgh

May 2018-Aug. 2023 **Graduate Student Researcher**.
University of Pittsburgh Department of Physics and Astronomy

July - Nov. 2016 **Undergraduate Research Assistant**.
Mt. Stromlo Observatory, Australian National University

May. 2015 - July 2017 **Undergraduate Research Assistant**.
Steward Observatory, University of Arizona

Sep. 2014 - May 2015 **NASA Space Grant Intern**.
Steward Observatory, University of Arizona

Accepted Telescope Programs/Observing

Hubble Space Telescope

Principle Investigator **SNAP (409 Orbits)**, Cycle 30: 17110, Total budget: $202,893.
"Post-starbursts from DESI: Timing quenching and morphological transformation at $1 < z < 1.3$"

Atacama Large Millimeter/submillimeter Array

Principle Investigator **12.1 hours**, Cycle 10: 2023.1.01012.S.
"Does Molecular Gas Survive Quenching Near Cosmic Noon?"

Principle Investigator **27.9 hours**, Cycle 9: 2022.1.00604.S.
"Timing the Disappearance of Molecular Gas in Post-Starburst Galaxies"

Principle Investigator **37.6 hours**, Cycle 8: 2021.1.01535.S.
"Timing the Disappearance of Molecular Gas in Post-Starburst Galaxies"

Principle Investigator **14.4 hours**, Cycle 8: 2021.1.00988.S.
"Tracing the molecular gas in tidal tails of recently quenched galaxies"

Co- Investigator **14.5 hours**, Cycle 8: 2021.1.00761.S.
"Quantifying the molecular gas reservoirs of post-starburst AGN hosts"

James Webb Space Telescope

Co- Investigator **48 hours**, Cycle 2: 4111.
"Medium bands, Mega Science: spatially-resolved R 15 spectrophotometry of 50,000 sources at z=0.3-12"

Co- Investigator **11.2 hours**, Cycle 2: 4318.
"Is there Evidence of alpha-Enhancement in Massive Quiescent Galaxies at z $>$ 3?"

Co- Investigator **47.9 hours**, Cycle 2: 4233.
"A complete census of the rare, extreme and red: a NIRCam-selected extragalactic community survey with JWST/NIRSpec"

Other facilities

Co- Investigator **48 hours**, *CHANDRA*, Cycle 24: 24700092.
"A CHANDRA View of Massive Post-Starburst Galaxies"

Co- Investigator **45 hours**, *VLA*, Semester 2022A: VLA/22A-362.
"Timing the Onset of Radio-Mode Feedback with High-z Post-starbursts"

Observing Experience

3 Nights **Magellan/FIRE**.

1 Night **Keck/NIRES**.

Scholarships, Honors, and Grants

Summer 2023 **Zaccheus Daniel Fellow**, $\sim \$13,000$.

Spring 2023 **PITT PACC Graduate Fellow**, $\sim \$13,000$.

2023-2025 **HST-GO #17110 Grant**, $\$202,893$.

Fall 2022 **ALMA Student Observing Support**, $\sim \$35,000$.

Fall 2021 **PITT PACC Graduate Fellow**, $\sim \$12,000$.

Mar. 2021 **Thomas-Lain Fund Scholarship Essay Competition**, $\$2000$.

Feb. 2020 **Martin and Beate Block Winter Award**, $\$500$.

Acad. Year 16-17 **Cubic Corporation Scholarship**, $\sim \$2000$.

Acad. Year 16-17 **Krane Scholarship**, $\sim \$2000$.

Acad. Year 16-17 **Phi Beta Kappa Travel Grant**, $\sim \$1000$.

Acad. Year 16-17 **Glenn C. Purviance Scholarship**, $\sim \$3500$.

Acad. Year 15-16 & 16-17 **Galileo Circle Scholarship**, $\sim \$5000$.

Acad. Year 14-15 **Angelos C. Langadas Scholarship**, $\sim \$2000$.

Acad. Year 14-15 **Arizona Space Grant Internship**, $\sim \$3500$.

Talks and Presentations

May 2023 **AstroPGH Data Science Bootcamp**, *Guest Lectures*, University of Pittsburgh.

April 2023 **ASTR 0413 Graduate Research Series**, *Invited Guest Lecturer*, University of Pittsburgh.

January 2023 **241st Meeting of the American Astronomical Society**, *Thesis Talk*, Seattle, Washington.

December 2022 **DESI Collaboration Meeting**, *Invited Plenary Speaker*, Cancun, Mexico.

November 2022 **DESI Research Forum**, *Invited Speaker*, Online.

November 2022 **NOIRLab FLASH Talk**, *Invited Speaker*, Tucson, Arizona.

October 2022 **HSC+PFS+Rubin Meeting**, *Invited Speaker*, Princeton University.

October 2022 **Extragalactic Seminar**, *Invited Speaker*, Texas A&M.

October 2022 **Extragalactic Seminar**, *Invited Speaker*, University of Texas Austin.

September 2022 **Galaxy Group Seminar**, *Invited Speaker*, University of Michigan.

September 2022 **Epoch of Galaxy Quenching 2022**, *Speaker*, Cambridge, U.K..

July 2022 **A Holistic View of Stellar Feedback and Galaxy Evolution**, *Speaker*, Collegio Papio, Ascona, Switzerland.

May 2022 **AstroPGH Data Science Bootcamp**, *Guest Lecture*, University of Pittsburgh.

Nov 2021 **KooGiG-Junior Workshop**, *Speaker*, Kavli Institute for Astronomy and Astrophysics.

May 2021 **STSci Multi-Object Spectroscopy Workshop**, *Speaker*, Space Telescope Institute.

April 2021 **Galaxy Lunch**, *Invited Speaker*, UMass Amherst.

March 2021 **McWilliams Computing Seminar**, *Invited Speaker*, Carnegie Mellon University.

October 2020 **Intro to Astronomy Seminar Series**, *Invited Speaker* , Bridgewater State University.

May+June 2020 **AstroPGH Data Science Bootcamp**, *Guest Lectures*, University of Pittsburgh.

Feb. 2020 **Aspen Galaxy Quenching Workshop**, *Poster*, Aspen Center for Physics.
Awarded "Martin and Beate Block Winter Award for Promising Young Physicists"

Feb. 2020 **3 Minute Thesis Competition**, *Talk*, University of Pittsburgh.
Department Competition Winner

Jan. 2017 **229th Meeting of the American Astronomical Society**, *Poster*, Grapevine, TX.

May 2016 **Lucy Engal Undergraduate Physics Symposium**, *Talk*, University of Arizona.

Mar. 2016 **2nd Magellanic Clouds Workshop**, *Talk*, University of Arizona.

May 2015 **Lucy Engal Undergraduate Physics Symposium**, *Talk*, University of Arizona.
Awarded "Best Undergraduate Talk"

Apr. 2015 **Arizona Space Grant Symposium**, *Talk*, Arizona State University.

Teaching Experience

Acad. Year 19-20 **AP Physics C: Mechanics + Electricity & Magnetism**, *Tutor*.

Acad. Year 18-19 **Deitrich School of Arts and Sciences Teaching Assistant Mentor**, *Pitt*.

Spring 2018 **ASTRON 0089: Stars, Galaxies, and Cosmos**, *Teaching Assistant*, Pitt.
Received Myron P. Garfunkel Excellence in Graduate Student Teaching Award

Fall 2017 **ASTRON 0088: Stonehenge to Hubble**, *Teaching Assistant*, Pitt.

Fall 2017 **ASTRON 0087: Basics of Spaceflight**, *Teaching Assistant*, Pitt.

Spring 2017 **PHYS 141: Introduction to Mechanics**, *Preceptor*, U.Arizona.

Spring 2017 **PHYS 241: Introduction to Electricity & Magnetism**, *Preceptor*, U.Arizona.

Students Supervised

Mar. 2020-Aug. 2022 **Maggie Verrico**, *University of Pittsburgh Undergraduate*.
Studying the Sizes and Structures of z∼0.7 Post-Starburst Galaxies
Now a graduate student at the University of Illinois Urbana-Champaign
First author publication in the Astrophysical Journal

May 2022-Present **Anika Kumar**, *University of Pittsburgh Undergraduate*.
Studying the Source Properties of the Gas Rich Companions of Post-Starburst Galaxies

July 2022-Present **Erin Stumbaugh**, *University of Pittsburgh Undergraduate*.
Studying the Environments of Post-Starburst Galaxies Using HSC Imaging

Service

Referee: **ALMA Distributed TAC**, *Proposal Reviewer*.

Astrophysical Journal, *Referee*.

Aug. 2019-July 2021 **Association of Physics and Astronomy Graduate Students**, *Co-President*.

Summers 19, 20, 21 **Pitt Galaxy Journal Club**, *Founding Organizer*.
Graduate student led journal club focused on seminal galaxy papers

Outreach and Science Communication

March 2023 **Continuing Education Speaker**, Sherwood Oaks Retirement Community.
"Peering into the distant Universe with the new James Webb Space Telescope"

Apr. 2022 **ACCelerate Festival Presenter**, *Smithsonian National Museum of American History*.
Presenter: "Making the Largest Maps of the Universe"

Apr. 2019 & 2020 **Pittsburgh Public School Research Symposium Judge**, *Taylor Allderdice High School*.
2020: Chair of Judging Committee

Nov. 2018 **Astronomy on Tap Pittsburgh**, *Franktuary*, Speaker.
"The Puzzling Counter Intuitiveness of Special Relativity"

Aug. 2015 - May 2017 **College of Science Ambassador**, *University of Arizona*.
Recruitment and outreach events to recruit STEM undergraduates from Arizona high schools

Sep. 2014 - May 2017 **Steward Observatory Telescope Operator**, *University of Arizona*.
Operated the 21" telescope on campus for undergraduate classes and public visit nights

References

Graduate Thesis Advisor **Rachel Bezanson**, *Associate Professor, University of Pittsburgh*.
rachel.bezanson@pitt.edu

Graduate Thesis Committee Member **Jenny E. Greene**, *Professor, Princeton University*.
jgreene@astro.princeton.edu

Graduate Thesis Committee Member **Jeffrey A. Newman**, *Professor, University of Pittsburgh*.
janewman@pitt.edu

Undergraduate Thesis Advisor **Gurtina Besla**, *Associate Professor, University of Arizona*.
gbesla@email.arizona.edu

Publications

Publications in each are listed in reverse chronological order in each section. Papers led by a student under close supervision by D.S. indicated with an asterisk (*)

Lead Author:

4. The Large Magellanic Cloud's ∼30 Kiloparsec Bow Shock and its Impact on the Circumgalactic Medium
Setton, David J.; Besla, Gurtina; Patel, Ekta; Hummels, Cameron; Zheng, Yong; Schneider, Evan et al. 2023
Submitted to ApJ Letters

3. DESI Survey Validation Spectra Reveal an Increasing Fraction of Recently Quenched Galaxies at $z \sim 1$
Setton, David J.; Dey, Biprateep; Khullar, Gourav; Bezanson, Rachel; Newman, Jeffrey A.; et al. 2023
The Astrophysical Journal, 947, L31

2. The Compact Structures of Massive $z \sim 0.7$ Post-Starburst Galaxies in the SQuIGG$\vec{L}$E Survey
Setton, David J.; Verrico, Margaret; Bezanson, Rachel; Greene, Jenny E.; Suess, Katherine A.; Feldmann, Robert; Goulding, Andy D.; Hall-Hooper, Khalil; Kado-Fong, Erin; Kriek, Mariska; Narayanan; Desika; Spilker, Justin S. 2022
The Astrophysical Journal, 931, 51

1. SQuIGG$\vec{L}$E Survey: Massive z$\sim$0.6 Post-Starburst Galaxies Exhibit Flat Age Gradients
Setton, David J.; Bezanson, Rachel; Suess, Katherine A.; Hunt, Qiana; Greene, Jenny E.; Kriek, Mariska; Spilker, Justin S.; Feldmann, Robert; Narayanan, Desika 2020
The Astrophysical Journal, 905, 79

Second and Third Author:

5. UNCOVER: The growth of the first massive black holes from JWST/NIRSpec – spectroscopic confirmation of an X-ray luminous AGN at z=10.1
Goulding, Andy D.; Greene, Jenny E.; **Setton, David J.**; Labbe, Ivo; Bezanson, Rachel; Miller, Tim B.; Atek, Hakim; Bogdan, Akos; et al. 2023
Submitted to ApJ Letters

4. *Merger Signatures are Common, but not Universal, in Massive, Recently-Quenched Galaxies at $z \sim 0.7$
Verrico, Margaret; **Setton, David J.**; Bezanson, Rachel; Greene, Jenny E.; Suess, Katherine A.; Goulding, Andy; Spilker, Justin S.; Kriek, Mariska; Feldmann, Robert; Narayanan, Desika 2022
The Astrophysical Journal, 949, 5

3. Schrodinger's Galaxy Candidate: Puzzlingly Luminous at $z \sim 17$, or Dusty/Quenched at $z \sim 5$?
Naidu, Rohan P.; Oesch, Pascal A.; **Setton, David J.**; Matthee, Jorryt; Conroy, Charlie; Johnson, Benjamin D.; Weaver, John R.; Bouwens, Rychard J.; Brammer, Gabriel B.; Dayal, Pratika; et al. 2022
Submitted to the Astrophysical Journal (arXiv:2208.02794)

2. Star Formation Suppression by Tidal Removal of Cold Molecular Gas from an Intermediate-Redshift Massive Post-Starburst Galaxy
Spilker, Justin S.; Suess, Katherine A.; **Setton, David J.**; Bezanson, Rachel; Feldmann, Robert; Greene, Jenny E.; Kriek, Mariska; Lower, Sidney; Narayanan, Desika; Verrico, Margaret 2022
The Astrophysical Journal, 936, L11

1. The Role of Active Galactic Nuclei in the Quenching of Massive Galaxies in the SQuIGG$\vec{L}$E Survey
Greene, Jenny E.; **Setton, David J.**; Bezanson, Rachel; Suess, Katherine A.; Kriek, Mariska; Spilker, Justin S.; Goulding, Andy D.; Feldmann, Robert 2020
The Astrophysical Journal, 899, L9

Contributing Author:

13. UNCOVER: A NIRSpec Identification of a Broad Line AGN at z = 8.50
Kokorev, Vasily; Fujimoto, Seiji; Labbe, Ivo; Greene, Jenny E.; Bezanson, Rachel; Dayal, Pratika; Nelson, Erica J.; et al. 2023 (including **Setton, David J.**)
Submitted to ApJ Letters (arXiv:2308.11610)

12. UNCOVER: A NIRSpec Census of Lensed Galaxies at z=8.50-13.08 Probing a High AGN Fraction and Ionized Bubbles in the Shadow
Fujimoto, Seiji; Wang, Bingjie; Weaver, John; Kokorev, Vasily; Atek, Hakim; Bezanson, Rachel; Labbe, Ivo; Brammer, Gabriel; Greene, Jenny E.; et al. 2023 (including **Setton, David J.**)
Submitted to ApJ Letters (arXiv:2308.11609)

11. First spectroscopic observations of the galaxies that reionized the Universe
Atek, Hakim; Labbé, Ivo; Furtak, Lukas J.; Chemerynska, Iryna; Fujimoto, Seiji; Setton, David J.; Miller, Tim B.; Oesch, Pascal; Bezanson, Rachel; et al. 2023
Pre-print: arXiv:2308.08540

10. A supermassive black hole in the early universe growing in the shadows
Furtak, Lukas J.; Labbé, Ivo; Zitrin, Adi; Greene, Jenny E.; Dayal, Pratika; Chemerynska, Iryna; Kokorev, Vasily; Miller, Tim B.; et al. 2023 (including **Setton, David J.**)
Pre-print: arXiv:2308.05735

9. UNCOVER: Illuminating the Early Universe – JWST/NIRSpec Confirmation of z>12 Galaxies
Wang, Bingjie; Fujimoto, Seiji; Labbe, Ivo; Furtak, Lukas J.; Miller, Tim B.; **Setton, David J.**; Zitrin, Adi; Atek, Hakim; Bezanson, Rachel;
Submitted to ApJ Letters (arXiv:2308.03745)

8. The JWST UNCOVER Treasury survey: Ultradeep NIRSpec and NIRCam ObserVations before the Epoch of Reionization
Bezanson, Rachel; Labbe, Ivo; Whitaker, Katherine E.; Leja, Joel; Price, Sedona H.; Franx, Marijn; Brammer, Gabe; Marchesini, Danilo; et al. 2022 (including **Setton, David J.**)
Submitted to the Astrophysical Journal (arXiv:2212.04026)

7. The JWST UNCOVER Treasury survey: Ultradeep NIRSpec and NIRCam ObserVations before the Epoch of Reionization
Antwi-Danso, Jacqueline; Papovich, Casey; Esdaile, James; Nanayakkara, Themiya; Glazebrook, Karl; Hutchison, Taylor A.; Whitaker, Katherine E.; 2023 (including **Setton, David J.**)
Submitted to the Astrophysical Journal (arXiv:2307.09590)

6. JWST reveals a population of ultra-red, flattened disk galaxies at 2<z<6 previously missed by HST
Nelson, Erica J.; Suess, Katherine A.; Bezanson, Rachel; Price, Sedona H.; van Dokkum, Pieter; Leja, Joel; Whitaker, Bingjie Wang Katherine E.; Labbé, Ivo; et al. 2022 (including **Setton, David J.**)
The Astrophysical Journal, 948, L18

5. Two Remarkably Luminous Galaxy Candidates at $z \approx 11 - 13$ Revealed by JWST
Naidu, Rohan P.; Oesch, Pascal A.; van Dokkum, Pieter; Nelson, Erica J.; Suess, Katherine A.; Whitaker, Katherine E.; Allen, Natalie; Bezanson, Rachel; et al. 2022 (including **Setton, David J.**)
The Astrophysical Journal, 940, L14

4. Rest-frame near-infrared sizes of galaxies at cosmic noon: objects in JWST's mirror are smaller than they appeared
Suess, Katherine A.; Bezanson, Rachel; Nelson, Erica J.; **Setton, David J.**; Price, Sedona H.; van Dokkum, Pieter ; Brammer, Gabriel; Labbe, Ivo; Leja, Joel; Miller, Tim B.; Robertson, Brant; et al. 2022
The Astrophysical Journal, 937, L33

3. Recovering the star formation histories of recently-quenched galaxies: the impact of model and prior choices
Suess, Katherine A.; Leja, Joel; Johnson, Benjamin D.; Bezanson, Rachel; Greene, Jenny E.; Kriek, Mariska; Lower, Sidney; Narayanan, Desika; **Setton, David J.**; Spilker, Justin S. 2022
The Astrophysical Journal, 935, 146

2. SQuIGG$\vec{L}$E: Studying Quenching in Intermediate-z Galaxies: Gas, Angular Momentum, and Evolution
Suess, Katherine A.; Kriek, Mariska; Bezanson, Rachel; Greene, Jenny E.; **Setton, David J.**; Spilker, Justin S.; Feldmann, Robert F.; Goulding, Andy D.; Johnson, Benjamin D.; Leja, Joel; Narayanan, Desika; Hall-Hooper, Khalil; Hunt, Qiana; Lower, Sidney; Verrico, Margaret 2022
The Astrophysical Journal, 926, 89

1. Now you see it, now you don't: H_2 in massive post-starburst galaxies at $z \sim 0.6$ 2022
Bezanson, Rachel; Spilker, Justin S.; Suess, Katherine A.; **Setton, David J.**; Feldmann, Robert; Greene, Jenny E.; Kriek, Mariska; Narayanan, Desika; Verrico, Margaret 2022
The Astrophysical Journal, 925, 153

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