

Eileen C. Gonzales

Assistant Professor | San Francisco State University, Department of Physics & Astronomy, Thornton Hall
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Education

- 08/2015–08/2020 PhD in Physics, CUNY Graduate Center, NY, Advisor: Dr. Jackie Faherty
Understanding Atmospheres Across the Stellar-Substellar Boundary
(M.A. 2019- Hunter College, MPhil 2019- Graduate Center)
- 08/2011–12/2014 M.S. Physics concentration in Astronomy, San Francisco State University, CA
Advisor: Dr. Adrienne Cool, Thesis: *Commissioning the refurbished 30-inch Leuschner telescope and its capabilities to detect transiting exoplanets*
- 08/2006–05/2010 B.S. Astrophysics (Dual Major in German), Michigan State University, MI
Advisor: Horace Smith, Senior Thesis: *RR Lyrae and the Blazhko Effect*

Related Work Experience

- 2023–present **Assistant Professor**, San Francisco State University, San Francisco, CA
- 2020–2023 **51 Pegasi b Postdoctoral Fellow**, Cornell University, Ithaca, NY
- 2019–2020 **Non-Teaching Adjunct**, Macaulay Honors College, New York, NY
- 2018–2019 **Non-Teaching Adjunct**, College of Staten Island, Staten Island, NY
- 2017–2019 **Research Mentor**, American Museum of Natural History, New York, NY
- Fall 2017 **Adjunct Lecturer**, Hunter College, New York, NY
- Spring 2016 **Physics Tutor**, Self Employed, New York, NY
- Spring 2015 **Lecturer**, San Francisco State University, San Francisco, CA
- 2011–2014 **Graduate Teaching Associate**, San Francisco State University, San Francisco, CA
- 2013–2014 **Telescope Workshop Instructor**, San Francisco State University, San Francisco, CA
- Sum. 2008 **Intern**, Institute for Experimental and Applied Physics, University of Kiel, Kiel, Germany

Honors and Awards

- 2023 **SF State Faculty Hub Fellow**, San Francisco State University
- 2023 **CEETL Equity Fellow**, San Francisco State University
- 2022 **Postdoc Achievement Award for Excellence in Leadership**, Cornell University
- 2021 **ExoExplorer**, NASA ExoExplorers Program inaugural cohort
- 2020 **51 Pegasi b Fellowship in Planetary Astronomy**, Heising-Simons Foundation
(Three-year, \$375,000 grant)
- 2019 **Mina Rees Dissertation Fellowship in the Sciences**, City University New York Graduate Center
(Dissertation Year support, \$25,000)
- 2019 **Ford Dissertation Fellowship Honorable Mention**, Ford Foundation
- 2018 **Beth Brown Memorial Award**, National Society of Black Physicists 2018 Conference
(Best oral presentation in astronomy: *Is TRAPPIST-1 a Unique M-dwarf Host Star*)
- 2018 **Third Place Prize Graduate Student Poster Competition**, Cool Stars 20
- 2018 **Graduate Student Prize**, Astronomical Society of New York
- 2018 **Chambliss Honorable Mention**, AAS 231st Meeting
(Poster: *Examining Cloud, Metallicity, and Gravity signatures in Brown Dwarfs*)
- 2017 **NSF AGEP**, National Science Foundation Supplemental Award
(\$36,000/year salary support, renewed for a total of 3 years)
- 2017 **LSSTC Data Science Fellow**, Large Synoptic Survey Telescope Corporation
Two-year program of 6 week-long intensive data science workshops

- 2016 **NIGMS RISE Fellowship**, National Institute of Health
(\$30,000/year salary, \$1,500/year travel funds, \$1,500/year research allowance, full tuition)
- 2015 **CUNY Science Scholar**, City University of New York Graduate Center
(AY 2015-2016: \$25,000 stipend and tuition, AY16-17, AY 17-18, AY 18-19, AY19-20: tuition)
- 2014 **Honorable Mention**, College of Science and Engineering Showcase San Francisco State Uni.
(Poster: *Calibration and first images from the refurbished Leuschner 30-inch Telescope*)

Refereed Publications

1. Phillips, C.L., Faherty, J. K., Burningham, B., Vos, J., **Gonzales, E.C.** et al., *Retrieving Young Cloudy L-Dwarfs: A Nearby Planetary-Mass Companion BD+60 1417B and Its Isolated Red Twin W0047*, ApJ, 2024, in press.
2. Petrus, S., Whiteford, N., Patapis, P., (several authors), **Gonzales, E.C.** et al., *The JWST Early Release Science Program for Direct Observations of Exoplanetary Systems V: Do Self-Consistent Atmospheric Models Represent JWST Spectra? A Showcase with VHS 1256-1257 b*, ApJL, 2024, 966, L11. [arXiv:2312.03852](https://arxiv.org/abs/2312.03852)
3. Faherty, J. K., Burningham, B., Gagné, J., (several authors), **Gonzales, E.C.** et al., *Methane Emission in one of the Coldest Brown Dwarfs*, Nature, 2024, 628, 511F. [arXiv:2404.10977](https://arxiv.org/abs/2404.10977)
4. Kirkpatrick, J.D., Marco, F., Gelino, C.R., (several authors), **Gonzales, E.C.** et al., *The Initial Mass Function Based on the Full 20-pc Census of ~3600 Stars and Brown Dwarfs*, ApJS, 2024, 271, 55. [arXiv:2312.03639](https://arxiv.org/abs/2312.03639)
5. Ray, S., Sallum, S., Hinkley, S., (several authors), **Gonzales, E.C.** et al., *The JWST Early Release Science Program for Direct Observations of Exoplanetary Systems III: Aperture Masking Interferometric Observations of the star HIP 65426 at 3.8 μ m*, under review, ApJL. [arXiv:2310.11508](https://arxiv.org/abs/2310.11508)
6. Sallum, S., Ray, S., Kammerer, J., (several authors), **Gonzales, E.C.** et al., *The JWST Early Release Science Program for Direct Observations of Exoplanetary Systems IV: NIRISS Aperture Masking Interferometry Performance and Lessons Learned*, ApJL, 2024, 963, 2S. [arXiv:2310.11499](https://arxiv.org/abs/2310.11499)
7. Hom, J., Patience, J., Chen, C.H., Duchêne, G., Mayzoyer, J., Millar-Blanchaer, M.A., Espoitio, T.M., Kalas, P., Crotts, K.A., **Gonzales, E.C.** et al., *A Uniform Analysis of Debris Disks with the Gemini Planet Imager II: Constraints on Dust Density Distribution Using Empirically-Informed Scattering Phase Functions*, under review, MNRAS, 2024, 528, 4. [arXiv:2402.00214](https://arxiv.org/abs/2402.00214)
8. Katie Crotts, K.A., Matthews, B.C., Duchêne, G., (several authors), **Gonzales, E.C.** et al., *A Uniform Analysis of Debris Disks with the Gemini Planet Imager I: An Empirical Search for Perturbations from Planetary Companions in Polarized Light Images*, ApJ, 2024, 961, 245. [arXiv:2311.14599](https://arxiv.org/abs/2311.14599)
9. Hood, C., E., (several authors), **Gonzales, E.C.** et al., *High-Precision Atmospheric Constraints for a Cool T Dwarf from JWST Spectroscopy*, in review, Nature Astronomy. [arXiv:2402.05345](https://arxiv.org/abs/2402.05345)
10. Theissen, C.A., Bardalez Gagliuffi, D., Newton, E., (several authors), **Gonzales, E.C.** et al., *The 30 Parsec Project (30PP) I: Near-Infrared Spectra of Ultracool Dwarfs—Sample Definition, Spectral Characterization, and Data Release 1*, submitted, AJ
11. Thompson, W., Laurence, J., Blakely, D., (several authors), **Gonzales, E.C.** et al., *Octofitter: Fast Flexible, and Accurate Orbit Modeling to Detect Exoplanets*, AJ, 2023, 166,164. [arXiv:2402.01971](https://arxiv.org/abs/2402.01971)
12. Vos, J., Burningham, B., Faherty, J. K., Alejandro, S., **Gonzales, E.C.**, Calamari, E., Bardalez Gagliuffi, D., Visscher, C., Tan, X., Morley, C.V., Marley, M., Gemma, M.E., & Whiteford, N. *Patchy Forsterite Clouds in the Atmospheres of Two Highly Variable Exoplanet Analogs*, ApJ, 2023,944,138. [arXiv:2212.07399](https://arxiv.org/abs/2212.07399)
13. Calamari, E., Faherty, J.K., Burningham, B., **Gonzales, E.C.**, Bardalez-Gagliuffi, D., Vos, J., Whiteford, N., Gaarn, J., & Gemma, M. *An Atmospheric Retrieval of the Brown Dwarf Gliese 229B*, ApJ, 2022, 940, 164. [arXiv:2210.13614](https://arxiv.org/abs/2210.13614)

14. **Gonzales, E.C.**, Burningham, B., Faherty, J. K., Lewis, N.K., Visscher, C., & Marley, M. *A Comparative L-dwarf Sample Exploring the Interplay Between Atmospheric Assumptions and Data Properties*, ApJ, 2022, 938, 56. [arXiv:2209.02754](https://arxiv.org/abs/2209.02754)
15. Carter, A.L., Hinkley, S., Kammerer, J., (several authors), **Gonzales, E.C.** et al., *The JWST Early Release Science Program for Direct Observations of Exoplanetary Systems I: High Contrast Imaging of the Exoplanet HIP 65426 b from 2-16 μm* , ApJL, 2023, 951, 20. [arXiv:2208.14990](https://arxiv.org/abs/2208.14990)
16. Gaarn, J., Burningham, B., Faherty, J. K., Visscher, C., Marley, M., **Gonzales, E.C.**, Bardalez-Gagliuffi, D., Lupu, R., & Freedman, R. *The Puzzle of the formation of T8 dwarf Ross-458c*, MNRAS, 2023, 521, 4 [arXiv:2303.16863](https://arxiv.org/abs/2303.16863)
17. Miles, B.E., Biller, B.A., Patapis, P., (several authors), **Gonzales, E.C.** et al., *The JWST Early Release Science Program for Direct Observations of Exoplanetary Systems II: A 1 to 20 Micron Spectrum of the Planetary-Mass Companion VHS 1256-1257 b*, ApJL, 2023, 946, 6. [arXiv:2209.00620](https://arxiv.org/abs/2209.00620)
18. **Gonzales, E.C.**, Burningham, B., Faherty, J. K., Visscher, C., Marley, M., Lupu, R., Freedman, R., & Lewis, N.K. *The first retrieval of a substellar subdwarf: A cloud-free SDSS J125637.13-022452.4*, ApJ, 2021, 923, 19. [arXiv:2109.11000](https://arxiv.org/abs/2109.11000)
19. Faherty, J. K., Gagné, J., Popinchalk, M., (several authors), **Gonzales, E.C.** et al., *A Wide Planetary Mass Companion Discovered Through the Citizen Science Project Backyard Worlds: Planet 9*, ApJ, 2021, 923, 48. [arXiv:2112.04678](https://arxiv.org/abs/2112.04678)
20. Schneider, A. C., Meisner, M.A., Gagné, J., (several authors), **Gonzales, E.C.** et al., *Ross 19B: An Extremely Cold Companion Discovered via the Backyard Worlds: Planet 9 Citizen Science Project*, ApJ, 2021, 921, 140. [arXiv:2108.05321](https://arxiv.org/abs/2108.05321)
21. Burningham, B., Faherty, J. K., **Gonzales, E. C.**, Marley, M., Visscher, C., Lupu, R., Gaarn, J., Bieger, M.F., Freedman, R., & Saumon, D. *Cloud Busting: enstatite and quartz clouds in the atmosphere of 2M2224-0158*, MNRAS, 2021, 506, 1944. [arXiv:2105.0426](https://arxiv.org/abs/2105.0426)
22. Cubillos, P. E.; Keating, D.; Cowan, N. B.; Vos, J. M.; Burningham, B.; Ygouf, M.; Karalidi, T.; Zhou, Y.; **Gonzales, E. C.** *Longitudinally Resolved Spectral Retrieval (ReSpect) of WASP43b*, ApJ, 2021, 915, 45. [arXiv:2105.06353](https://arxiv.org/abs/2105.06353)
23. Kirkpatrick, J.D., Gelino, C.R., Faherty, J.K., (several authors), **Gonzales, E.C.** et al., *The Field Substellar Mass Function Based on the Full-sky 20 pc Census of 525 L, T, and Y Dwarfs*, ApJS, 2021, 253, 7. [arXiv:2011.11616](https://arxiv.org/abs/2011.11616)
24. **Gonzales, E.C.**, Burningham, B., Faherty, J. K., Cleary, C., Visscher, C., Marley, M., Lupu, R., & Freedman, R. *Retrieval of the d/sdL7+T7.5p binary SDSS J14162408+1348263AB*, ApJ, 2020, 905, 46. [arXiv:2010.01224](https://arxiv.org/abs/2010.01224)
25. Faherty, J.K., Goodman, S., Caselden, D., Colin, G., Kuchner, M. J., Meisner, A. M., Gagné, J., Schneider, A. C., **Gonzales, E. C.**, Bardalez Gagliuffi, D., Logsdon, S. E., Allers, K., Burgasser, A.J., & The Backyard Worlds: Planet 9 Collaboration, *WISE2150-7250AB: A very low mass, wide co-moving brown dwarf system discovered through the citizen science project Backyard Worlds: Planet 9*. ApJ, 2020, 889, 176. [arXiv:1911.04600](https://arxiv.org/abs/1911.04600)
26. **Gonzales, E.C.**, Faherty, J. K., Gagné, J., Teske, J., McWilliam, A., & Cruz, K. L. *A Reanalysis of the Fundamental Parameters and Age of TRAPPIST-1*. ApJ, 2019, 886, 131. [arXiv:1909.13859](https://arxiv.org/abs/1909.13859)
27. **Gonzales, E.C.**, Faherty, J. K., Gagné, J., Artigau, É., & Bardalez Gagliuffi, D. *Understanding Fundamental Properties and Atmospheric features of subdwarfs via a case study of SDSS J125637.13-022452.4*. ApJ, 2018, 864, 100. [arXiv:1807.04794](https://arxiv.org/abs/1807.04794)
28. Faherty, J.K., Gagné, J., Burgasser, A.J., Mamajek, E.E., **Gonzales, E.C.**, Bardalez Gagliuffi, D. C., & Marocco, F. *A Late-type L Dwarf at 11 pc Hiding in the Galactic Plane Characterized Using Gaia DR2*. ApJ, 2018, 868, 44. [arXiv:1805.01573](https://arxiv.org/abs/1805.01573)

Non-refereed Publications

29. 2030STEM Collaboration: Jennifer D. Adams, Carlotta A. Berry, Ruth Cohen, Alonso Delgado, Jacqueline K. Faherty, **Eileen Gonzales**, Mandë Holford, Ariangela J Kozik, Lydia Jennings, Alfred Mays, Louis J. Muglia, Nikea Pittman, and Patricia Silveryra. *#Change: How Social Media is Accelerating STEM Inclusion*. <https://arxiv.org/abs/2212.03245>
30. Brown, C.D. & **Gonzales, E.** *Excellence and power in the Black physics community*. *Nature Physics*. 17, 3-4 (2021). <https://doi.org/10.1038/s41567-020-01140-9> Equal co-authors.
31. Gagné, J., **Gonzales, E.C.**, & Faherty, J.K. *A Gaia DR2 Confirmation that 2MASS J12074836–3900043 is a Member of the TW HYA Association*. *RN AAS*, 2018, 2, 2. [arXiv:1804.09625](https://arxiv.org/abs/1804.09625)

Invited Talks, Seminars, and Panels

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| July 2024 | <i>Interpreting Photometry & Spectroscopy From A Modeling Perspective</i> , 2024 Sagan Summer Workshop on Advances in Direct Imaging, Pasadena, CA |
| June 2024 | <i>Clouds and Chemistry of Small Nearby Worlds</i> , California Academy of Sciences, Benjamin Dean Astronomy Lecture, San Francisco, CA |
| Feb. 2024 | Speaker at <i>Stanford Black In Physics Black History Month Panel</i> , Stanford University, Palo Alto, CA |
| Mar. 2023 | <i>Read Between the Spectral Lines: Characterizing Substellar Atmospheres</i> , University of Colorado Boulder, Department of Astrophysical & Planetary Sciences Colloquium, Boulder, CO |
| Feb. 2023 | <i>Read Between the Spectral Lines: Characterizing Substellar Atmospheres</i> , Cornell, Department of Astronomy Colloquium, Ithaca, NY |
| Feb. 2023 | <i>Peering Through the Clouds: Investigating Substellar Atmospheres</i> , San Francisco State University, Department of Physics & Astronomy Colloquium, San Francisco, CA |
| Feb. 2023 | <i>Read Between the Spectral Lines: Characterizing Substellar Atmospheres</i> , University of Washington, Department of Astronomy Colloquium, Seattle, WA |
| Jan. 2023 | Review Talk: <i>Cloud Models in Brown Dwarf* Retrievals (*and Directly-Imaged Exoplanets)</i> , Cloud Zwei Con, Ringberg Castle, Tegernsee, Germany |
| Dec. 2022 | <i>Peering Through the Clouds: Investigating Substellar Atmospheres</i> , Wellesley College, Department of Astronomy Colloquium, Wellesley, MA |
| Oct. 2022 | <i>Read Between the Spectral Lines: Characterizing Substellar Atmospheres</i> , San Francisco State University, Physics & Astronomy Department Colloquium, San Francisco, CA |
| Sept. 2022 | <i>Read Between the Spectral Lines: Characterizing Substellar Atmospheres</i> , The Ohio State University, Astrophysics Colloquium, Columbus, OH |
| June 2022 | Speaker on <i>Astroworld: Grad School/ Postdoc Panel</i> , #BlackInAstro/ #BlackInSpaceWeek 2022, Virtual |
| June 2022 | Speaker on <i>UCSD Black Studies Project Panel</i> , University of California, San Diego, Virtual |
| May 2022 | <i>Read Between the Spectral Lines: Characterizing Substellar Atmospheres</i> , NASA Goddard, Astrophysics Colloquium, Virtual |
| Apr. 2022 | <i>Read Between the Spectral Lines: Characterizing Substellar Atmospheres</i> , University of Michigan, Beth Brown Memorial Award Colloquium , Ann Arbor, MI |
| Feb. 2022 | <i>Peering Through the Clouds: Investigating Substellar Atmospheres</i> , University of Maryland, Astronomy Colloquium, Virtual |
| Feb. 2022 | <i>Peering Through the Clouds: Investigating Substellar Atmospheres</i> , Amherst College, Physics & Astronomy Colloquium, Amherst, MA |

- Jan. 2022 *Black In Physics: From Movement to Organization*, STEM2030 Salon- How Social Media is Accelerating STEM Inclusion, Virtual
- Dec. 2021 *Investigating Substellar Atmospheres*, Boston University Astronomy Colloquium, Boston, MA
- Aug. 2021 *Read Between the Lines: Retrievals of Substellar Objects*, 51 Pegasi b Virtual Summit
- June 2021 *Why Brown Dwarfs Should Be Your Friends: Lessons Learned From Their Atmospheric Retrievals*, ExoExplorers Science Series Talk, Virtual
- May 2021 *Characterizing Atmospheres of Low-Metallicity Brown Dwarfs*, University of California San Diego-San Diego State University Astronomy Seminar, Virtual
- Apr. 2021 Speaker on *Answering the Call for Diverse & Inclusive Voices in STEM* panel, Advanced Science Research Center, The Graduate Center City University of New York, Virtual
- Apr. 2021 *A Deep Dive into Exploring Substellar Atmospheres*, University of Washington, Astronomy Colloquium, Virtual
- Apr. 2021 Speaker on *Coll-G 133-STEM Careers Panel*, Group Scholars Program, Indiana University Bloomington, Virtual
- Mar. 2021 *Characterizing Atmospheres of Ultracool Subdwarfs*, Howard University, **Beth Brown Award Physics Colloquium**, Virtual
- Mar. 2021 *Understanding Atmospheres Across the Stellar-Substellar Boundary*, Rochester Institute of Technology, Astronomy Colloquium, Virtual
- Feb. 2021 *Understanding Atmospheres Across the Stellar-Substellar Boundary*, University of Delaware Department of Physics and Astronomy Seminar, Virtual
- Dec. 2020 *Understanding Atmospheres Across the Stellar-Substellar Boundary*, JILA/ University of Colorado Boulder Astrophysics Seminar, Virtual
- Nov. 2020 *Understanding Atmospheres Across the Stellar-Substellar Boundary*, Cornell Planetary Lunch Seminar, Ithaca, NY
- Oct. 2020 Speaker on the *How to Organize a Movement Panel*, Yale, Virtual panel
- Aug 2020 Speaker on the *Women+ of Color Project 2019 Reunion: The Path to Graduate School Panel*, Virtual panel
- Feb. 2020 *Understanding Atmospheres Across the Stellar-Substellar Boundary*, Center for Space & Habitability (CSH) Symposium, University of Bern, Bern Switzerland
- Jan. 2019 *A Reanalysis of the Age of TRAPPIST-1*, **Beth Brown Memorial Prize talk**, AAS 233, Seattle, WA
- Dec. 2018 *Is TRAPPIST-1 A Unique M-dwarf Host Star?*, Queensborough Community College Physics department Seminar, New York, NY
- Nov. 2018 Speaker on Women and Gender Minorities Panel Session at National Society of Black Physicists 2018 Conference, Columbus, OH
- July 2018 *Understanding Atmospheres of Subdwarfs via SDSS J1256-0224*, **Graduate Student Prize Talk**, Astronomical Society of New York 50th Meeting, New York, NY
- Feb. 2017 *Understanding Atmospheres of Subdwarfs via a case study of SDSS J1256-0224*, Harvard CfA Planets and Stars Seminar, Cambridge, MA
- Nov. 2017 *Understanding Atmospheres of Low-mass Stars, Brown Dwarfs, and Giant Exoplanets*, SACNAS, Salt Lake City, UT

Contributed Talks and Posters

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- June 2024 Poster: *Retrieving the Atmosphere of WISE 2150AB, a rare widely-separated L+T binary system*, Cool Stars 22, San Diego, CA

- Aug. 2022 Talk: *Highlighting the Past Year of Black In Physics*, 51 Pegasi b Summit 2022, Cavallo Point, CA
- Aug. 2022 Talk: *Peering Through the Clouds: Comparative Retrievals of L-dwarfs*, 51 Pegasi b Summit 2022, Cavallo Point, CA
- July 2022 Talk: *Lessons Learned From Comparative Retrievals of Brown Dwarfs*, OWL Exoplanet Summer Program, University of California, Santa Cruz, Santa Cruz, CA
- May 2022 Talk: *Lessons Learned From Comparative Retrievals of Brown Dwarfs*, Exoplanets IV, Brown Dwarf to Exoplanet Commotion in the Era of JWST Splinter, Las Vegas, NV
- Jan. 2021 Talk: *Insights Discovered From Comparative Retrievals of Substellar Objects*, AAS 237, id. 314.04, Virtual
- Jan. 2021 Poster: *The Atmospheric Retrieval of the Brown Dwarf Gl229B*, co-author, AAS 237, id. 339.10, Virtual
- Aug. 2020 Talk: *Brewster Retrievals: From Brown Dwarfs and Directly-Imaged Exoplanets*, 51 Pegasi b Virtual Summit 2020
- Jan. 2020 Talk: *Understanding Atmospheres Across the Stellar-Substellar Boundary*, Dissertation Talk, AAS 235, Honolulu, HI
- Nov. 2019 Talk: *Spectral Retrieval of the binary 2MASS J1416+1348AB*, National Society of Black Physicists 2019, Providence, RI
- Oct. 2019 Talk: *Atmospheric Retrieval of the d/sdL7+T7.5p binary 2MASS J1416+1348AB*, BDEXOCON III, Newark, DE
- Sept. 2019 Talk: *Atmospheric Retrieval of the d/sdL7+T7.5p binary 2MASS J1416+1348AB*, Center for Computational Astrophysics GothamFest, New York, NY
- June 2019 Talk: *A Reanalysis of the Age of TRAPPIST-1*, TRAPPIST-1 Toward the comparative study of temperate terrestrial worlds- Liège, Belgium
- Jan. 2019 Poster: *Is TRAPPIST-1 a Unique M-dwarf Host Star?*, AAS 233, id#259.01, Seattle, WA
- Nov. 2018 Talk: *Is TRAPPIST-1 a Unique M-dwarf Host Star?*, National Society of Black Physicists 2018, Columbus, OH
- July 2018 Poster: *Is TRAPPIST-1 a Unique M-dwarf Host Star?*, Cool Stars 20, Poster #111, Cambridge, MA, DOI:[10.5281/zenodo.1420451](https://doi.org/10.5281/zenodo.1420451)
- July 2018 Poster: *The BDNYS Database of low-mass stars, brown dwarfs, and planetary mass companions*, co-author, Cool Stars 20, Cambridge, MA, DOI:[10.5281/zenodo.1478145](https://doi.org/10.5281/zenodo.1478145)
- Jan. 2018 Poster: *Examining Cloud, Metallicity, and Gravity signatures in Brown Dwarfs*, AAS 231 id.#347.37, National Harbor, MD
- Jan. 2018 Poster: *The BDNYS Database of low-mass stars, brown dwarfs, and planetary mass companions*, co-author, AAS 231, id.#349.33, National Harbor, MD
- Nov. 2017 Talk: *Understanding Atmospheres of Low-mass Stars, Brown Dwarfs, and Giant Exoplanets*, National Society of Black Physicists 2017, Moorehouse College, Atlanta, GA
- Oct. 2017 Talk: *Understanding Atmospheres of Low-mass Stars, Brown Dwarfs, and Giant Exoplanets*, BDEXOCON II, University of Delaware, Newark, DE (Oct)
- Sept. 2017 Talk: *Understanding Atmospheres of Low-mass Stars, Brown Dwarfs, and Giant Exoplanets*, Astrofest, Columbia University, New York, NY
- June 2017 Poster: *Examining Cloud, Metallicity, and Gravity signatures in Brown Dwarfs*, Women in Astronomy IV, Austin TX and ERES III, Yale University, New Haven, CT
- Oct. 2016 Poster: *Examining gravity, clouds and metallicity signatures in young and old brown dwarfs*, National Society of Black Physicists Fall Workshop, Femi Lab

- Feb. 2015 Poster: *Testing the refurbished Leuschner 30-inch Telescope and its capabilities to detect transiting exoplanets*, AAS 225, id.#258.04, Seattle, WA (Jan) and National Society of Black Physicists 2015, Baltimore, MD (Feb)
- Jan. 2015
- May 2014 Poster: *Testing the refurbished Leuschner 30-inch Telescope and its ability to detect planets around other stars*, San Francisco State University College of Science and Engineering (COSE) Project Showcase (May) and San Francisco State University Graduate Research and Creative Works Showcase (April), San Francisco, CA
- Apr. 2014
- May 2014 Poster: *Calibration and first images from the refurbished Leuschner 30-inch Telescope*, co-author, COSE Showcase, San Francisco State University, San Francisco, CA
- Dec. 2008 Poster: *TNS - A compact, light-weight sensor for thermal neutrons*, co-author, AGU Fall 2008 Meeting, id.#P53C-1458

Grants and Telescope Proposals

Raised nearly 1.5 million dollars to support research over the last 9 years.

- 2024 **JWST Cycle 3-** \$TBD, 59.3 hours, (Co-I, PI: Adam Burgasser), ID# 4668
Arcana of the Ancients: A Spectral Metallically Survey of the Lowest-Mass Stars and Brown Dwarfs
- 2024 **JWST Cycle 3-** \$TBD, 23.9 hours, (Co-I, PI: Yifan Zhou)
From Day to Season: Constraining the Rotation Period and Obliquity of Beta Pic b with Time-resolved High-contrast Imaging
- 2023 **Heising-Simons Foundation Grant-** \$1,499,943, (Co-I, PI Adrienne Cool).
Renovating San Francisco State's Planetarium to Fuel STEM Education & Outreach in the Bay Area
- 2023 **Heising-Simons Foundation Grant-** \$130,726, (PI)
Walk This Way: Brown Dwarfs and Directly Imaged Exoplanets as Stepping Stones to the Next Plane Blue Dot,
- 2023 **JWST Cycle 2-** \$TBD, 19 hours, (Co-I, PI Ben Burningham), ID. #3670
Sinking Silicates: Tracing Rainout Across the LT Transition
- 2023 **JWST Cycle 2-** \$TBD, 8.99 hours, (Co-I, PI Johanna Vos), ID. #3548
Exometeorology: Weather on an Isolated World Beyond Our Own
- 2023 **JWST Cycle 2-** \$TBD, 7.66 hours, (Co-I, PI Aaron Meisner), ID. #3558
The First Spectrum of the Coldest Halo Brown Dwarf
- 2021 **NASA ROSES XRP-** \$513,931, (Science-PI, PI Jackie Faherty)
Read Between the Lines: Determining Atmosphere and Bulk Compositions for Planetary Mass Objects Using Special Retrievals
- 2021 **HST Cycle 29-** \$121,592, 6 orbits, (Co-I, PI Johanna Vos)
Atmospheric Structure and Spin Axis Alignment of an Overlooked Planetary-Mass Companion
- 2021 **JWST Cycle 1-** \$TBD, 5.2 Hours, (Co-I, PI Kielan Wilcomb), ID. #2044
Direct Imaging Spectroscopy of two Jovian Exoplanets: Characterization of the TYC 8998-760-1 Multi-Planetary System
- 2021 **JWST Cycle 1-** \$440,080, 24.6 Hours, (Co-I, PI Jackie Faherty), ID. #2124
Explaining the Diversity of Cold Worlds
- 2020 **51 Pegasi b Fellowship-** Heising-Simons Foundation three-year, PI, \$375,000 grant
- 2019 **Amie James Science Travel Award-** \$1000 to support presentation at Cloud Academy II
- 2019 **Physics Tithe Fellowship-** \$509 AY 2019–2020 support at CUNY Graduate Center
- 2019 **Mina Rees Dissertation Fellowship in the Sciences-** Dissertation Year support, \$25,000

2019	Cool Stars Travel Grant- Covered registration (\$500) for Cool stars 20 conference
2019	Doctoral Student Research Grant Round 13- \$900 to attend Cool Stars 20 Conference
2017–2019	NSF AGEP- \$36,000/year salary support, supplemental award to PI:Emily Rice’s NSF
2018	Physics Tithe Fellowship- \$374 AY 2018–2019 support at CUNY Graduate Center
2018	Sigma Xi Grant-In-Aid of Research- \$3178 travel funds for observing run
2018	AAS FAMOUS Travel Grant - \$500 toward the attendance of the 231 st AAS Meeting
2018A–2019	NOAO Observing Proposal- <i>Weather and aurorae on one of the Sun’s nearest neighbours</i> , (PI: J. Faherty), Co-I, 1 Night on SOAR Spartan
2017	PSC-CUNY Research Award 2017- (PI: Emily Rice), \$6,000 for observing trips
2016	NIGMS RISE Fellowship- \$30,000/year salary, \$1,500/year travel funds, \$1,500/year research allowance, full tuition
2015	CUNY Science Scholar- AY 2015–2016: \$25,000 stipend and full tuition AY 2016–2017, AY 2017–2018, AY 2018–2019, and AY 2019–2020: full tuition
2015	AAS FAMOUS Travel Grant- \$1000 toward the attendance of the 225 th AAS Meeting

Observing Experience

2019	IRTF/Spex	1/2 night
2016–2018	Magellan/FIRE	9 nights
2016–2018	Magellan/ FOURSTAR	9 nights
2017	DuPont/CAPScam	1 night

Scientific Collaborations

- Backyard Worlds: Planet 9 extended science team
- Gemini Planet Imager Collaboration
- ERS Direct Imaging Science Team

Teaching Experience

Courses Taught at San Francisco State:

ASTR 115- Introduction to Astronomy, general education lecture course

ASTR 116- Astronomy Lab for non-majors, general education lab course

Fall 2017	Adjunct Lecturer , Astro 102 (Laboratory Experiments in Astronomy), Hunter College Taught one section of introductory astronomy lab for non-science majors, 20 students.
Spring 2015	Lecturer , ASTR 116 (Astronomy Laboratory), San Francisco State University Taught one section of Introductory Astronomy Lab for non-science majors, ~30 students Prepared short lectures and activities to be done in the SFSU planetarium. Developed and graded quizzes, homework, and exams.
Spring 2015	Lecturer , PHYS 112 (General Physics I Laboratory), San Francisco State University Taught one section of Introductory Physics Lab for science majors, ~30 students. Developed and graded quizzes and homework.
2013–2014	Leuschner Telescope Workshop Instructor , San Francisco State University San Francisco, CA. Taught students how to operate the Leuschner 30-inch Telescope
Fall 2011– Fall 2014	Graduate Teaching Associate , ASTR 116 (Astronomy Laboratory), San Francisco State University. Taught two sections per semester of Introductory Astronomy Lab for non-science majors, ~30 students. Prepared short lectures and activities to be done in the

SFSU planetarium. Developed and graded quizzes, homework, and exams. Part of group rewriting labs to be inquiry based.

Advising/Mentoring Experience

Spring 2024	Advisor of Darren Brodowy (SF State graduate student) on a brown dwarf project
2024- present	Advisor of Hansica Ganta (SF State graduate student) on a brown dwarf retrieval project
Spring 2024	Advisor of Spencer Kirkman (SF State undergraduate) on a brown dwarf SED project
2023- present	Thesis Advisor of Gabriel Munoz Zarazua (SF State graduate student) on Master's Thesis
2023- present	Advisor of Anuranj Roy (SF State undergraduate) on a brown dwarf retrieval project
2023	Mentored Kiresten Boley (OSU grad student, now Hubble Fellow) and Quang Tran (UT Austin grad student, now 51 Pegasi b Fellow) on Postdoctoral Fellowship applications
2021- present	Mentor to Caprice Phillips on Atmospheric Retrievals project
2021–2022	Research Credits Advisor of Celia Toral, Cornell Undergraduate
2021–2022	Cornell Astronomy REU Co-Advisor for Jasmine Ramirez (UConn)
2020-2021	Mentor to a small cohort of students in Cornell Multicultural Academic Council (MAC) Mentoring Program
2019–present	Mentored Emily Calimari (CUNY GC graduate student) on atmospheric retrievals of brown dwarfs
2018–2019	Co-Advisor of AMNH Helen Fellow (postbac) Colleen Cleary on subdwarf retrievals
2018–2019	Advisor of Makenzi Fischbach (HS Senior), Science Mentoring Research Program
2018–2019	Advisor of Dillion Murugesan (HS Junior), Science Mentoring Research Program
2018–2019	Advisor of Summer Williams (HS Junior), Science Mentoring Research Program
2017–2018	Advisor of Tony Zhu (HS Senior), Science Mentoring Research Program
2017–2018	Advisor of Nina Christenson (HS Junior), Science Mentoring Research Program
2017–2018	Advisor of Zephan D'Cruz (HS Junior), Science Mentoring Research Program
2017	Mentored Danya AbdelHameid (undergraduate), GradSpark Accelerator Program

K-12 Teaching and Mentoring Experience

2017–2019	Research Mentor , Science Research Mentoring Program, American Museum of Natural History New York, NY. Advised high school students during a year-long research project.
2018	Instructor , American Museum of Natural History, New York, NY. Co-taught two sessions of Wonderful Universe, an after school introductory astronomy class for sophomore, junior, and senior high school students.
2014–2015	Lego Engineer Instructor , Play-Well TEKnologies, San Francisco/ San Mateo Area, CA Taught K-5 th graders engineering through play with Legos as an after school program or birthday party. Created lesson plans to cover engineering concepts and building skills.
Summers 2012–2014	Lead Science Instructor , Camp Galileo, Woodside, CA Taught 3 rd -5 th graders science projects related to weekly camp themes. Helped campers to develop inquiry based learning skills using Galileo Innovation Approach.
2010–2011	Guest Experience Team Member , Impression 5 Science Center Lansing, MI Taught science workshops for general public, school groups and birthday parties. Engaged with visitors on the floor by answering questions about exhibits and running small activities.

2008–2010 **America Reads Tutor**, Woodcreek Elementary, Lansing, MI
Worked with Kindergarten, 1st, 3rd and 4th graders to improve their reading and math skills. Read aloud in small groups and worked on math worksheets.

Professional Development and Trainings

Spring 2024 **Faculty Career Development Workshop Series.** Monthly professional development workshop on time management and other skills for faculty.

AY2023-24 **NSF ADVANCE Hub Fellow.** Attended monthly Hub fellow meetings to develop professional scholarship and community, navigate career challenges, and create community to support advancement amongst new faculty at SF State

Nov. 2023 **AAPT Faculty Teaching Institute.** Attended the AAPT Faculty Teaching Institute which focused on numerous active learning techniques for teaching physics and astronomy courses, inclusive teaching, building community to improve teaching beyond the institute

Fall 2023 **CEETL Equity Fellow.** A 5 module Equity-Minded Pedagogy Professional Development course from the Center for Equity and Excellence in Teaching and Learning

AY2023-24 **Learning Assistant Program Learning Community.** A bi-weekly learning community of faculty focused on the LA program. Discussions on teaching professional development, pedagogy best practices and how to utilize LAs in the classroom.

AY2023-24 **CEETL New Faculty Professional Learning Community.** A monthly learning community of first and second-year tenure track faculty focused on discussing issues related to teaching.

Oct. 2022 **Combating Misinformation and Disinformation Training Series.** A three session series by Spitfire Strategies focusing on 1) Disinformation and the News Media, 2) Disinformation and Audience Analysis, and 3) Analyst, then Activate.

June 2022 **Teaching and Learning in the Diverse Classroom.** A four-week, online course through the Cornell Center for Teaching and Learning that explore strategies for inclusive course design, social identity and self-reflection, and pedagogical practices that effectively support student engagement and a sense of belonging across difference. Paired with optional weekly Learning Community discussion group.

Winter 2022 **Culturally Mindful Mentoring Workshop.** A three-part workshop series by Kelly Mack for 51 Pegasi b fellows on developing tools to mentor marginalized students.

July 2021 **Sagan Summer Workshop.** Focused on Circumstellar Disks and Young Planets.

Spring 2021 **Building Mentorship Skills for Academic Careers Training series.** Develop essential research mentoring skills, learn best practices for mentoring undergraduate, graduate, and postdoctoral researchers, and develop advising and communication skills needed to lead a research team.

2020-2021 **NextGen Professor Program.** 2020-2021 Cohort. Engaged in monthly meetings on topics related to professional and career development. Culminated in the Future Professors Institute.

2017-2019 **LSSTC Data Science Fellowship Program.** Two-year program of 6 week-long intensive data science workshops on topics of (1) Bayesian statistics, (2) image processing, (3) time-domain analysis and interactive visualizations, (4) machine learning and software engineering, and (5) scalable software and data storage with a focus on software engineering and databases.

Professional Service

Ongoing Reviewer for Nature and ApJ.

2023-2024 Cool Stars 22 SOC member

Fall 2023 SF State Physics & Astronomy Department Colloquium organizer

- 2022–present Advisory Board Member 2030STEM. Provide input to drive the direction of the organizations goal to increase the representation of Black, Latino/a/x, Indigenous, and people of color in STEM. <https://2030stem.org/>
- 2020–present Black In Physics Co-founder, Director, and Treasurer. Lead organizer of #BlackInPhysics Week events yearly Oct. 25-31 with professional panels, social events, articles, and community engagement via Twitter [@BlackInPhysics](https://twitter.com/BlackInPhysics) and blackinphysics.org. Head of fundraising. Helped raise \$8,000 for our 2020 events and ~\$85,000 for 2021 and 2022 events.
- 2020–2022 NSBP ASTRO Committee Member, NSBP 2020 and 2021 Conference session organization.
- 2018–present Women and Gender Minorities Committee Member, National Society of Black Physicists
- July 2019 Executive Secretary, NASA XRP Panel
- 2017–2019 AMNH Astrophysics Department Seminar Committee, New York, NY
- Jan. 2019 Recruitment for CUNY Graduate Center Physics Program at Undergraduate Women in Physics Conference, Amherst College, Amherst, MA.
- Nov. 2017 Recruitment for CUNY Graduate Center Physics Program at National Society of Black Physicists 2017 Conference, Atlanta, GA.
- Apr. 2017 Bench Sciences Recruitment Video (Physics), CUNY Graduate Center. New York, NY
- 2013–2015 ASTR 116 Curriculum Revamp Committee, San Francisco State University, San Francisco CA. Rewrote astronomy lab curriculum to have an inquiry based focus.

Professional Service Grants and Awards

- 2022 **EXCEL-** Gold Award for Diversity & Inclusion Microsite #BlackInPhysics Week 2021 Essay Series in partnership with AIP (<https://siaa.net/excel/2022-excel-winners/>)
- 2021 **Heising-Simons-** \$74,732, PI
#BlackInPhysicsWeek: A week dedicated to connecting, celebrating, and highlighting the work of Black Physicist, Funding to support 2021 and 2022 #BlackInPhysicsWeek programming.

Outreach

- June 2024 *Clouds and Chemistry of Small Nearby Worlds*, California Academy of Sciences, Benjamin Dean Astronomy Lecture, San Francisco, CA
- April & June 2023 BIP Leadership Workshop Series. Organized two leadership workshops hosted by the National Center for Faculty Development and Diversity on time management, goal setting and long term planning.
- Oct. 2022 #BlackInPhysicsWeek2022. Finance Lead for week. Provided advisement and training to other organizers.
- April–June 2022 Black In Physics Juneteenth Essay Contest. Hosted an essay contest in partnership with the American Institute of Physics and the National Girls Collaborative for middle school students to write about a notable Black physicist and how their contributions have shaped how they see themselves represented in STEM.
- Mar. 2022 Black In Physics and Princeton University Press Book Publishing Workshop. Helped organize workshop
- Jan. 2022 VanguardSTEM Guerrilla Mentoring. Mentored students on a speed rounds on mentoring.
- Oct. 2021 #BlackInPhysics Week 2021. Partnerships Advisor and Lead organizer. Helped raise nearly \$85,000 for this year and the following year's events.

- June 2021 APS and Black In Physics Juneteenth Freedom Day Edit-a-thon. Created Wikipedia pages to highlight Black physicists in partnership with the American Physical Society.
- Feb. 2021 Black In Physics Wikithon. Created Wikipedia pages to highlight Black physicists in partnership with the American Institute of Physics.
- Oct. 2020 #BlackInPhysics Week. Helped organizer professional and social events, as well as community engagement via Twitter.
- Sept. 2020 Field Trip: Constellations. American Museum of Natural History's Youtube chat responder.
- Aug. 2020 AAS Journal Author Series Chat on *Reanalysis of the Fundamental Parameters and Age of TRAPPIST-1*. Youtube presentation.
- Aug. 2020 Morrison Planetarium "Cosmic Conversation", California Academy of Sciences. Virtual presentation on Morrison Planetarium's Facebook page.
- Sept. 2019 Career Panel for Science Research Mentoring Program at the American Museum of Natural History. New York, NY
- May 2019 Panel Presentation to Kingsbridge High School astronomy class. New York, NY
- Jan. 2019 Astronaut Training, an adult comedy outreach game show at The Caveat. New York, NY
- July 2018 Built solar powered cars with children and solar telescope observing at Bloomberg Summer Picnic. New York, NY
- June 2018 Answered astronomy questions and Open Space planetarium software demonstrations at American Museum of Natural History ID Day. New York, NY
- July 2017 Career Panel with American Museum of Natural History MEEP (college) and Saltz (high school) interns. New York, NY
- June 2017 NRAO Facebook Live poster presentation at Women in Astronomy IV
- Oct. 2014 Partial Solar Eclipse Event. Solar telescope observing and comet making with the general public. San Francisco State University, CA.
- Fall 2012 Observatory Docent, San Francisco State University San Francisco, CA
- Fall 2010 Volunteer, Impression 5 Science Center Lansing, MI
- Fall 2009 Science Theatre Presenter, Michigan State University, East Lansing MI.

In the Media

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- April 2024 SF State: [Astronomer & collaborators report methane emission from a brown dwarf](#)
 - Sept. 2022 Cornell: [NASA releases first Webb Telescope image of exoplanet](#)
 - Jan. 2021 Nature Physics: [Shining a Light on the Excellence and Power of the Black Physics Community](#)
 - Nov. 2020 Astrobites: [#BlackInPhysics week — meet the organizers](#)
 - Oct. 2020 Physics Today: [Meet the Organizers of #BlackInPhysics Week](#)
 - Oct. 2020 Physics World: [#BlackInPhysics Week set to celebrate Black Physicists](#)
 - Oct. 2020 Symmetry Magazine: [#BlackInPhysics week to build community, increase visibility](#)
 - Aug. 2020 AAS Journal Author Series Chat on *Reanalysis of the Fundamental Parameters and Age of TRAPPIST-1*. [Youtube presentation](#).