# Rohan Naidu (he/him)

website: rohannaidu.github.io
email: rnaidu@mit.edu
address: 37-685, 70 Vassar St.,
Cambridge, MA 02139, USA

## Research Interests

first stars & galaxies, cosmic reionization, galaxy formation & evolution;
Galactic archaeology, near-field cosmology, dark matter

## Education

**Harvard University, U.S.A.**, Ph.D. in Astronomy 2017–2022
Advisor: Prof. Charlie Conroy
Thesis: *The Milky Way – An Immigrant Story: Unraveling the Galactic Halo with the H3 Survey*

**Yale-NUS College, Singapore**, B.S. in Physical Sciences 2013–2017
*magna cum laude*, inaugural class of 150 of "Asia's first liberal arts college"
Capstone Advisor: Prof. Pascal Oesch, Capstone: *Insights into Cosmic Reionization*

## Professional Appointments

NASA Hubble Fellow, Massachusetts Institute of Technology, U.S.A. 2022–2025

Pappalardo Fellow, Massachusetts Institute of Technology, U.S.A. 2025–2027

## Academic Honors

IOP Publishing Top Cited Paper Award ×3 2023, 2024
*awarded annually to the "ten most cited papers published across the entire IOP Publishing journal portfolio (ApJ, ApJL, AJ) within the past 3 years"*

- Rapid Reionization by the Oligarchs: The Case for Massive, UV-Bright, Star-Forming Galaxies with High Escape Fractions, ApJ, 892, 109, 2020 [266 citations]
- Evidence from the H3 Survey that the Stellar Halo is Entirely Comprised of Substructure, ApJ, 901, 48, 2020 [310 citations]
- Two Remarkably Luminous Galaxy Candidates at $z \approx 10 - 12$ Revealed by JWST, ApJ, 940L, 14N, 2022 [365 citations]

Fireman Prize, Astronomy Department, Harvard University 2022
*awarded to a graduating student for "superlative work on their Ph.D. thesis"*

Certificate of Distinction in Teaching, Harvard University 2021
*for a "special contribution to undergraduate teaching"*
*based on student evaluations for courses taught during the pandemic*

Ashford Fellowship, Harvard University 2017-2022
*awarded to six incoming students who are "highly likely to make a substantial impact in their chosen field of study, as well as in society"*

Peirce Fellowship, Astronomy Department, Harvard University 2017-2020
*awarded to 1-3 incoming graduate students who "possess significant promise as researchers"*

Chambliss Astronomy Student Achievement Award, American Astronomical Society 2017

Outstanding Capstone Project in Physical Sciences, Yale-NUS College 2017

## Select Observing Programs as Principal Investigator

Total funding from approved *JWST* and *HST* observing programs as PI: $927,000

JWST, NIRSpec (co-PI with Seiji Fujimoto) 39 hours, 2025
*Let There Be Light: Directly Witnessing the Birth of Metal-Free Pop III Stars in an Ultra-Faint Galaxy at* $z = 6.5$

JWST, NIRSpec (co-PI with Pascal Oesch) 33 hours, 2024-25
*Mirage or Miracle? Spectroscopic Confirmation of Remarkably Luminous Galaxies at* $z > 10$

JWST, NIRSpec (co-PI with Christina Eilers, Jorryt Matthee, Fred Davies) 21 hours, 2025
*MASQUERADE: Mapping a Super-luminous Quasar's Extended Radiative Emission*

JWST, NIRCam grism (co-PI with Jorryt Matthee) 47+29 hours, 2023
*All the Little Things: Pop III Signatures & the Ionizing Budget of Dwarf Galaxies in the Epoch of Reionization*

JWST, NIRSpec (co-PI with Christina Eilers, Jorryt Matthee, Fred Davies) 21 hours, 2024
*Mapping Quasar Light Echoes with Lyman-alpha Forest Tomography during the Epoch of Reionization*

JWST, NIRCam grism 7 hours, 2023
*Where Cosmic Dawn Breaks First: Mapping the Primordial Overdensity Powering a* $z \sim 9$ *Ionized Bubble*

JWST, NIRCam grism (co-PI with Jorryt Matthee) 18 hours, 2023
*Anatomy of an Ionized Bubble at* $z = 6.6$*: Which Galaxies Reionized the Universe?*

Hubble Space Telescope, WFC3/UVIS 5 orbits, 2018
*Confirming Extreme Lyman Continuum Emission in a* $z = 3.27$ *Star-Forming Galaxy*

Magellan, MagE (co-PI with Vedant Chandra) 27 nights, 2022-
*To 100 kpc and Beyond: Bringing the Gaia Revolution to the Brink of the Galaxy*

Magellan, MIKE (co-PI with Alex Ji) 20 nights, 2021-23
*Extending the Chemical Reach of the H3 Survey of the Galactic Halo*

Magellan, FIRE — 10 nights, 2019-20
*Rest-UV Spectroscopy of Galaxies Reionizing the Universe at $z = 6 - 7$*

Magellan, IMACS — 4 nights, 2018
*A Ly$\alpha$ Survey to Harvest Lyman Continuum and Prepare for JWST*

## Select Observing Programs as Co-Investigator

PIs: Charlie Conroy, Dennis Zaritsky, MMT, Hectochelle — 200+ nights, 2018-24
*The H3 Spectroscopic Survey of the Stellar Halo*

PI: Pascal Oesch, JWST, NIRCam — 53 hours, 2022-23
*FRESCO: The First Reionization Epoch Spectroscopic COmplete Survey*

PI: Sirio Belli, JWST, NIRSpec — 46+35.7 hours, 2022-23
*The Stellar and Gas Content of Galaxies at Cosmic Noon*

PIs: Hakim Atek & John Chisholm, JWST, NIRCam — 148 hrs, 2024
*JWST's GLIMPSE: gravitational lensing & NIRCam imaging to probe early galaxy formation and sources of reionization*

PI: Wren Suess, JWST, NIRCam — 50 hrs, 2023
*Medium bands, Mega Science: spatially-resolved $R \sim 15$ spectrophotometry of 50,000 sources at $z = 0.3 - 12$*

PI: Anna de Graaff, JWST, NIRSpec — 59 hrs, 2023-24
*A complete census of the rare, extreme and red: a NIRCam-selected extragalactic community survey with JWST/NIRSpec*

PI: Jorryt Matthee, JWST, NIRSpec — 45 hrs, 2024-25
*Dissecting Little Red Dots: the connection between early SMBH growth and cosmic reionization*

PI: Seiji Fujimoto, JWST, NIRSpec/NIRCam/MIRI — 18 hrs, 2025
*Panchromatic characterization of the super-Eddington accretion black hole, host, and environment: Epicenter of red dots, mergers, and dusty starbursts at $z = 7.2$*

PI: Mengyuan Xiao, JWST, NIRSpec — 17 hrs, 2025
*Red Monsters: Kinematics of Two 'Universe Breaking', Ultra-Massive Galaxies in the First Gyr*

PI: Rob Simcoe, JWST, NIRCam grism — 21 hrs, 2025
*Emergence of the Baryon Cycle in the First Billion Years*

PI: Vedant Chandra, VLT, FLAMES — 75 hrs, 2023-24
*A Chemical Survey of the Milky Way's Ancient Heart*

PI: Charlotte Mason, MMT, Binospec — 15.5 nights, 2019-21
*BLAS: The Binospec Ly$\alpha$ Survey*

PI: Sandro Tacchella, MMT, MMIRS — 12 nights, 2019-21
*Consensus on low-mass galaxies: how do low-mass galaxies grow?*

## Publication Record

26 primary author (first/second author) papers, 2300+ citations, h-index 19, ADS library.
97 total papers, 5600+ citations, h-index 39, ADS library.
† marks student-led papers.

### Primary Author Papers

26. S. Fujimoto & **R.P. Naidu** et al., *GLIMPSE: An Ultra-faint* $\simeq 10^5\,M_\odot$ *Pop III Galaxy Candidate and First Constraints on the Pop III UV Luminosity Function at* $z \simeq 6$*–7*, arXiv, submitted to ApJ.
25. J. Matthee, **R.P. Naidu**, G. Brammer, et al., *Little Red Dots: An Abundant Population of Faint Active Galactic Nuclei at* $z \sim 5$ *Revealed by the EIGER and FRESCO JWST Surveys* , ApJ, 963, 129M, 2024.
24. †K. Sharpe, **R.P. Naidu**, C. Conroy, *What is Missing from the Local Stellar Halo?*, ApJ, 963, 162S, 2024.
23. J. Matthee, **R.P. Naidu**, G. Kotiwale et al., *Environmental Evidence for Overly Massive Black Holes in Low Mass Galaxies and a Black Hole - Halo Mass Relation at* $z \sim 5$, arXiv, submitted to ApJ.
22. **R.P. Naidu** & J. Matthee et al., *All the Little Things in Abell 2744:* $>1000$ *Gravitationally Lensed Dwarf Galaxies at* $z = 0 - 9$ *from JWST NIRCam Grism Spectroscopy*, arXiv, submitted to OJA.
21. †V. Chandra, **R.P. Naidu**, C. Conroy, et al., *All-Sky Kinematics of the Distant Halo: The Reflex Response to the LMC*, arXiv, submitted to ApJ.
20. †V. Chandra, **R.P. Naidu**, C. Conroy, et al., *Discovery of the Magellanic Stellar Stream Out to 100 kpc*, ApJ, 956, 110C, 2023.
19. †V. Chandra, **R.P. Naidu**, C. Conroy, et al., *Distant Echoes of the Milky Way's Last Major Merger*, ApJ, 951, 26C, 2023.
18. A. P. Ji, **R.P. Naidu**, K. Brauer et al., *Chemical abundances of the Typhon Stellar Stream*, MNRAS, 519, 4467J, 2023.
17. **R.P. Naidu**, P. A. Oesch, P. G. van Dokkum et al., *Two Remarkably Luminous Galaxy Candidates at* $z \approx 10 - 12$ *Revealed by JWST*, ApJ, 940L, 14N, 2022.
16. †J. J. Han, **R.P. Naidu**, C. Conroy et al., *A Tilt in the Dark Matter Halo of the Galaxy*, ApJ, 934, 14, 2022.
15. **R.P. Naidu**, A.P. Ji, C. Conroy, et al., *Evidence from Disrupted Halo Dwarfs that r-process Enrichment via Neutron Star Mergers is Delayed by* $> 500$ *Myrs*, ApJL, 926, 32, 2022.
14. **R.P. Naidu** & J. Matthee et al., *The Synchrony of Production and Escape: Half the Bright Ly*$\alpha$ *Emitters at* $z \approx 2$ *have Lyman Continuum Escape Fractions* $\approx 50\%$, MNRAS, 510, 4582, 2022.
13. J. Matthee & **R.P. Naidu** et al., *(Re)Solving Reionization with Ly*$\alpha$*: How Bright Ly*$\alpha$ *Emitters Account for the* $z \approx 2 - 8$ *Cosmic Ionizing Background*, MNRAS, 512, 5960, 2022.
12. **R.P. Naidu**, C. Conroy, A. Bonaca, et al., *Reconstructing the Last Major Merger of the Milky Way with the H3 Survey*, ApJ, 923, 92, 2022.
11. **R.P. Naidu**, P. A. Oesch, D. Setton et al., *Schrodinger's Galaxy Candidate: Puzzlingly Luminous at* $z \approx 17$*, or Dusty/Quenched at* $z \approx 5$*?*, arXiv, submitted to ApJ.

10. **R.P. Naidu**, C. Conroy, A. Bonaca, et al., *Live Fast, Die $\alpha$-Enhanced: The Mass-Metallicity-$\alpha$ Relation of the Milky Way's Disrupted Dwarf Galaxies*, arXiv, submitted to ApJ.
9. C. Conroy, **R.P. Naidu**, N. Garavito-Camargo, et al., *All-Sky Dynamical Response of the Galactic Halo to the Magellanic clouds*, Nature, 592, 534–536, 2021.
8. †M.T. Gialluca, **R.P. Naidu**, A. Bonaca, *Velocity Dispersion of the GD-1 Stellar Stream*, ApJL, 911, 32, 2021.
7. A. Bonaca, **R.P. Naidu**, C. Conroy, et al., *Orbital Clustering Identifies the Origins of Galactic Stellar Streams*, ApJL, 909, 26, 2021.
6. **R.P. Naidu**, C. Conroy, A. Bonaca, et al., *Evidence from the H3 Survey That the Stellar Halo Is Entirely Comprised of Substructure*, ApJ, 901, 48, 2020.
5. **R.P. Naidu**, S. Tacchella, C.A. Mason, et al., *Rapid Reionization by the Oligarchs: The Case for Massive, UV-bright, Star-forming Galaxies with High Escape Fractions*, ApJ, 892, 109, 2020.
4. C.A. Mason, **R.P. Naidu**, S. Tacchella, J.R. Leja, *Model-independent constraints on the hydrogen-ionizing emissivity at $z > 6$*, MNRAS, 489, 2669, 2019.
3. C. Conroy, **R.P. Naidu**, D. Zaritsky, et al., *Resolving the Metallicity Distribution of the Stellar Halo with the H3 Survey*, ApJ, 887, 237, 2019.
2. **R.P. Naidu**, B. Forrest, P. A. Oesch, et al., *A low Lyman Continuum escape fraction of $< 10\%$ for extreme [OIII] emitters in an overdensity at $z \sim 3.5$*, MNRAS, 478, 791, 2018.
1. **R.P. Naidu**, P.A. Oesch, N. Reddy, et al., *The HDUV Survey: Six Lyman Continuum Emitter Candidates at $z \sim 2$ Revealed by HST UV Imaging*, ApJ, 847, 12, 2017.

### Contributing Author Papers

71. P.A. Oesch, G. Brammer, **R.P. Naidu** et al., *The JWST FRESCO survey: legacy NIRCam/grism spectroscopy and imaging in the two GOODS fields*, MNRAS, 525, 2864O, 2023.
70. G. Limberg, A.P. Ji, **R.P. Naidu** et al., *Extending the Chemical Reach of the H3 Survey: Detailed Abundances of the Dwarf-galaxy Stellar Stream Wukong/LMS-1*, MNRAS, 530, 2512, 2024.
69. A. Torralba-Torregrosa, J. Matthee, **R.P. Naidu** et al. *Anatomy of an ionized bubble: NIRCam grism spectroscopy of the $z = 6.6$ double-peaked Lyman-$\alpha$ emitter COLA1*, A&A, 689, A44, 2024.
68. K.E. Heintz et al., *Strong damped Lyman-$\alpha$ absorption in young star-forming galaxies at redshifts 9 to 11*, Science, 384, 890, 2024.
67. S. Belli et al., *Star formation shut down by multiphase gas outflow in a galaxy at a redshift of 2.45*, Nature, 630, 54, 2024.
66. M. Xiao et al., *Accelerated Formation of Ultra-Massive Galaxies in the First Billion Years*, Nature, in press.
65. A. de Graaff et al., *Efficient formation of a massive quiescent galaxy at redshift 4.9*, Nature Astronomy, in press.
64. K.E. Heintz et al., *A massive, neutral gas reservoir permeating a galaxy proto-cluster after the reionization era*, Nature, under review.
63. A. Adamo et al., *The First Billion Years, According to JWST*, Nature, under review.

62. M. Park et al., *Widespread rapid quenching at cosmic noon revealed by JWST deep spectroscopy*, ApJ in press.
61. K.A. Suess et al., *Medium Bands, Mega Science: a JWST/NIRCam Medium-Band Survey of Abell 2744*, ApJ in press.
60. R.A. Meyer et al., *JWST FRESCO: A comprehensive census of Hβ+[O III] emitters at 6.8 < z < 9.0 in the GOODS fields*, MNRAS in press.
59. R. Bordoloi et al., *EIGER IV: The cool $10^4$K circumgalactic environment of high-z galaxies*, ApJ in press.
58. J.E. Greene et al., *UNCOVER Spectroscopy Confirms the Surprising Ubiquity of AGN in Red Sources at z > 5*, ApJ, 964, 39, 2024.
57. X. Shen et al., *Early galaxies and early dark energy: a unified solution to the hubble tension and puzzles of massive bright galaxies revealed by JWST*, MNRAS, 533, 3923, 2024.
56. B. Wang et al., *RUBIES: Evolved Stellar Populations with Extended Formation Histories at z 7-8*, ApJL, 969, L13, 2024.
55. Y. Li et al., *No Top-heavy Stellar Initial Mass Function Needed: The Ionizing Radiation of GS9422*, ApJL, 969, L5, 2024.
54. E. Pizzati et al., *A unified model for the clustering of quasars and galaxies at $z \approx 6$*, MNRAS, 534, 3155, 2024.
53. A-C. Eilers et al., *EIGER. VI. The Correlation Function, Host Halo Mass, and Duty Cycle of Luminous Quasars at z > 6*, ApJ, 974, 275, 2024.
52. X. Ou et al., *The Rise of the r-process in the Gaia-Sausage/Enceladus Dwarf Galaxy*, ApJ, 974, 232, 2024.
51. I. Shivaei et al., *A new census of dust and polycyclic aromatic hydrocarbons at $z = 0.7 - 2$ with JWST MIRI*, A&A, 690, A89, 2024.
50. C. Conroy et al., *Detection of Accretion Shelves Out to the Virial Radius of a Low-Mass Galaxy with JWST*, ApJ, 968, 129C, 2024.
49. J. Matharu et al., *A first look at spatially resolved star formation at $4.8 < z < 6.5$ with JWST FRESCO NIRCam slitless spectroscopy*, A&A, 690, A64, 2024.
48. A. Weibel et al., *Galaxy build-up in the first 1.5 Gyr of cosmic history: insights from the stellar mass function at $z \approx 4 - 9$*, MNRAS, 533, 1808, 2024.
47. C. Neufeld et al., *FRESCO: The Paschen-α Star-forming Sequence at Cosmic Noon*, ApJ, 972, 156, 2024.
46. V. Chandra et al., *The Three-phase Evolution of the Milky Way*, ApJ, 972, 112, 2024.
45. J. Kerutt et al., *Lyman continuum leaker candidates at $z \sim 3 - 4$ in the HDUV based on a spectroscopic sample of MUSE LAEs*, A&A, 684, A42, 2024.
44. J.S. Speagle et al., *Mapping the Milky Way in 5D with 170 Million Stars*, ApJ, 970, 121, 2024.
43. R. Gottumukkala et al., *Unveiling the hidden Universe with JWST: dust-obscured galaxies at $z \sim 3 - 8$*, MNRAS, 530, 966, 2024.
42. M. Yue et al., *EIGER. V. Characterizing the Host Galaxies of Luminous Quasars at z > 6*, ApJ, 966, 176, 2024.
41. R.A. Meyer et al., *NOEMA reveals the true nature of luminous red JWST z > 10 galaxy candidates*, A&A, 681, L3, 2024.

40. R.L. Davies et al., *JWST reveals widespread AGN-driven neutral gas outflows in massive $z \sim 2$ galaxies*, MNRAS, 528, 4976, 2024.
39. L. Bugiani et al., *AGN Feedback in Quiescent Galaxies at Cosmic Noon Traced by Ionized Gas Emission*, arXiv, submitted to ApJ.
38. B. Wang et al., *RUBIES: JWST/NIRSpec Confirmation of an IR-luminous, Broad-line Little Red Dot*, arXiv, submitted to ApJ.
37. A. Covelo-Paz et al., *An H$\alpha$ view of galaxy build-up in the first 2 Gyr: luminosity functions at $z \sim 4-6.5$ from NIRCam/grism spectroscopy*, arXiv, submitted to MNRAS.
36. A. de Graaff et al., *RUBIES: a complete census of the bright and red distant Universe with JWST/NIRSpec*, arXiv, submitted to ApJ.
35. T. Woody et al., *The Rapid Formation of the Metal Poor Milky Way*, arXiv, submitted to ApJ.
34. A. Weibel et al., *RUBIES Reveals a Massive Quiescent Galaxy at z=7.3*, arXiv, submitted to ApJ.
33. M.A. Marshall et al., *GA-NIFS & EIGER: A merging quasar host at z=7 with an overmassive black hole*, arXiv, submitted to ApJ.
32. A. Claeyssens et al., *Tracing star formation across cosmic time at tens of parsec-scales in the lensing cluster field Abell 2744*, arXiv, submitted to A&A.
31. K.E. Heintz et al., *The JWST-PRIMAL Legacy Survey: A JWST/NIRSpec reference sample for the physical properties and Lyman-$\alpha$ absorption and emission of $\sim 500$ galaxies at $z = 5.5-13.4$*, arXiv, submitted to A&A.
30. E.J. Nelson et al., *FRESCO: An extended, massive, rapidly rotating galaxy at $z = 5.3$*, arXiv, submitted to ApJ.
29. T. Herard-Demanche et al., *Mapping dusty galaxy growth at $z > 5$ with FRESCO: Detection of H$\alpha$ in submm galaxy HDF850.1 and the surrounding overdense structures* , arXiv, submitted to MNRAS.
28. I. Labbe et al., *UNCOVER: Candidate Red Active Galactic Nuclei at $3 < z < 7$ with JWST and ALMA*, arXiv, submitted to ApJ.
27. C. Conroy et al., *Birth of the Galactic Disk Revealed by the H3 Survey*, arXiv, submitted to OJA.
26. K. El-Badry et al., *The fastest stars in the Galaxy*, OJA, 6, 28, 2023.
25. J. Johnson et al., *Dwarf galaxy archaeology from chemical abundances and star-formation histories*, MNRAS, 526, 5084J, 2023.
24. R.J. Bouwens et al., *Evolution of the UV LF from $z \sim 15$ to $z \sim 8$ using new JWST NIRCam medium-band observations over the HUDF/XDF*, MNRAS, 523, 1036B, 2023.
23. R.J. Bouwens et al., *UV luminosity density results at $z > 8$ from the first JWST/NIRCam fields: limitations of early data sets and the need for spectroscopy*, MNRAS, 523, 1009B, 2023.
22. L. Barrufet et al., *Unveiling the Nature of Infrared Bright, Optically Dark Galaxies with Early JWST Data*, MNRAS, 522, 449B, 2023.
21. H. Rix et al., *The Poor Old Heart of the Milky Way*, ApJ, 941, 45R, 2022.
20. V. Chandra et al., *A Ghost in Boötes: The Least Luminous Disrupted Dwarf Galaxy*, ApJ, 940, 127C, 2022.
19. J. J. Han et al., *The Stellar Halo of the Galaxy is Tilted & Doubly Broken*, AJ, 164, 249, 2022.

18. M. Hasheminia et al., *No Evolution in the Half-mass Radius of Milky Way-type Galaxies over the Last 10 Gyr* , ApJ, 932, 23, 2022.
17. D. Schaerer et al., *First look with JWST spectroscopy: Resemblance among $z \sim 8$ galaxies and local analogs* , A&A, 665, L4, 2022.
16. E. Leonova et al., *The prevalence of galaxy overdensities around UV-luminous Lymanα emitters in the Epoch of Reionization*, MNRAS, 515, 5790, 2022.
15. J. Shen et al., *The Mass of the Milky Way from the H3 Survey*, ApJ, 925, 1S, 2022.
14. Y. Qin et al., *Dark-ages Reionization and Galaxy Formation Simulation XX. The Lyα IGM transmission properties and environment of bright galaxies during the Epoch of Reionization*, MNRAS, 510, 3858, 2022.
13. J. Matthee et al., *The X-SHOOTER Lyman-α survey at $z = 2$ (XLS-z2) I: What makes a galaxy a Lyα emitter?*, MNRAS, 505, 1382M, 2021.
12. R. Bouwens et al., *New Determinations of the UV Luminosity Functions from $z \sim 9$ to $z \sim 2$ Show a Remarkable Consistency with Halo Growth and a Constant Star Formation Efficiency*, AJ, 162, 47B, 2021.
11. C. Carter et al., *Ancient Very Metal-poor Stars Associated with the Galactic Disk in the H3 Survey*, ApJ, 908, 208, 2021.
10. D. Zaritsky et al., *Discovery of Magellanic Stellar Debris in the H3 Survey*, ApJL, 905, 3, 2020.
9. B.D. Johnson et al., *A Diffuse Metal-poor Component of the Sagittarius Stream Revealed by the H3 Survey*, ApJ, 900, 103, 2020.
8. A. Bonaca et al., *Timing the Early Assembly of the Milky Way with the H3 Survey*, ApJL, 897, 18, 2020.
7. A. Bonaca et al., *High-resolution Spectroscopy of the GD-1 Stellar Stream Localizes the Perturber near the Orbital Plane of Sagittarius*, ApJL, 892, 37, 2020.
6. D. Zaritsky et al., *A Lower Limit on the Mass of Our Galaxy from the H3 Survey*, ApJ, 888, 114, 2020.
5. C. Conroy et al., *Mapping the Stellar Halo with the H3 Spectroscopic Survey*, ApJ, 883, 107, 2019.
4. X. Fan et al., *The Discovery of a Gravitationally Lensed Quasar at $z = 6.51$*, ApJL, 870, 11, 2019.
3. L.H. Jones et al., *$z \sim 2.5 - 3$ Ionizers in the GOODS-N Field*, ApJ, 862, 142, 2018.
2. P.A. Oesch et al., *HDUV: The Hubble Deep UV Legacy Survey*, ApJS, 237, 12, 2018.
1. C. Conroy et al., *They Might Be Giants: An Efficient Color-based Selection of Red Giant Stars*, ApJL, 861, 16, 2018.

## Select Coverage in Popular Media

- On JWST work (Luminous $z > 10$ Galaxies, Little Red Dots, Early Black Holes)
  - *The Biggest Discoveries in Physics in 2023,* Quanta
  - *Early dark energy could resolve cosmology's two biggest puzzles,* MIT News
  - *JWST may have found the most ancient starlight we've ever seen—and it's only the beginning*, The Atlantic

  - *JWST's First Glimpses of Early Galaxies Could Break Cosmology*, Scientific American cover story
  - *Standard Model of Cosmology Survives a Telescope's Surprising Finds*, Quanta
  - *JWST Discovers a Galaxy That Could Break Physics*, 1.5 million views on Secrets of The Universe YouTube channel

- On Milky Way work (Farthest Surveys of the Galactic Halo out to $> 100$ kpc)
  - *Our Milky Way Galaxy's Most Recent Major Collision*, SciTech Daily
  - *A mysterious river of gas flowing into the Milky Way has stars inside after all*, Space.com
  - *Astronomers Find Stars Cast Away from Galactic Neighbors*, Sky & Telescope
  - *Stars found hidden in huge cloud wrapped around the Milky Way*, New Scientist
  - *Astronomers chart ocean of dark matter swirling outside the Milky Way*, Live Science
  - *Dark matter could be powering a galaxy that orbits the Milky Way*, SYFY

## Invited Talks

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| Toledo, *Galaxy Origins with JWST* | High-$z$ Review Talk for Conference, 2025 |
| Ascona, *Galaxy Evolution in the JWST Era* | High-$z$ Review Talk for Conference, 2024 |
| ISSI Bern, *The Early Universe According to JWST* | Review Meeting, 2024 |
| Yale, *All the Little Things: Dwarf Galaxies from* $z \approx 0-9$ | Tinsley Workshop, 2024 |
| U. of Florida, *Into the First Billion Years with JWST* | Colloquium, 2025 |
| Hawaii, *Into the First Billion Years with JWST* | Colloquium, 2024 |
| Brandeis, *Into the First Billion Years with JWST* | Colloquium, 2024 |
| Carnegie, *Into the First Billion Years with JWST* | Colloquium, 2024 |
| Caltech, *The First Glimpse of the The First Galaxies with JWST* | Colloquium, 2023 |
| Chicago, *The First Glimpse of the The First Galaxies with JWST* | Colloquium, 2023 |
| Harvard, *The First Glimpse of the The First Galaxies with JWST* | Colloquium, 2023 |
| MIT, *The First Glimpse of the The First Galaxies with JWST* | Colloquium, 2023 |
| Yale, *The First Glimpse of the The First Galaxies with JWST* | Colloquium, 2023 |
| UTRGV, *The First Glimpse of the The First Galaxies with JWST* | Colloquium, 2023 |
| Carnegie, *The First Glimpse of the The First Galaxies with JWST* | Colloquium, 2022 |
| ANU, *The First Glimpse of the The First Galaxies with JWST* | Colloquium, 2022 |
| UMass Amherst, *The First Glimpse of the The First Galaxies with JWST* | Colloquium, 2022 |
| Minnesota, *Unraveling the Galactic Halo with the H3 Survey* | Colloquium, 2020 |
| Tufts, *All the Little Things: Dwarf Galaxies from* $z \approx 0-9$ | Seminar, 2024 |
| STScI, *All the Little Things* | Seminar, 2024 |
| IIT Hyderabad, *The First Glimpse of the The First Galaxies with JWST* | Seminar, 2023 |
| MIT, *The First Glimpse of the The First Galaxies with JWST* | Seminar, 2023 |

Tufts, *The First Glimpse of the The First Galaxies with JWST* Seminar, 2022
Sao Paulo, *The First Glimpse of the The First Galaxies with JWST* Seminar, 2022
U. of Washington, *The First Glimpse of the The First Galaxies with JWST* Seminar, 2022
CfA, *(Very) Early Results from JWST* Seminar, 2022
DAWN, *Solving Reionization with Resolved Lyα* Seminar, 2022
TIFR, *Solving Reionization with Resolved Lyα* Seminar, 2022
Max Planck Institute, Heidelberg, *Reconstructing the Last Major Merger* Seminar, 2021
Chicago, *Unraveling the Galactic Halo with the H3 Survey* Seminar, 2021
UC Santa Cruz, *Unraveling the Galactic Halo with the H3 Survey* Seminar, 2021
Carnegie, *Unraveling the Galactic Halo with the H3 Survey* Seminar, 2021
NYU, *Unraveling the Galactic Halo with the H3 Survey* Seminar, 2021
CfA, *Solving Reionization with Resolved Lyα* Seminar, 2021
Surrey, *Unraveling the Galactic Halo* Astrophysics Seminar, 2021
UT Austin, *Solving Reionization with Resolved Lyα* Extragalactic Seminar, 2021
Cambridge, *Reconstructing the Last Major Merger* Seminar, 2021
Tufts, *Rapid Reionization by the Oligarchs* Astronomy seminar, 2021
AIP Potsdam, *Reconstructing the Last Major Merger* Milky Way seminar, 2021
IAS, Princeton, *Unraveling the Galactic Halo with the H3 Survey* Astro Coffee, 2020
Flatiron CCA, *Reconstructing the Last Major Merger* Dynamics meeting, 2020
Arizona, *Unraveling the Galactic Halo with the H3 Survey* Galaxy Crawl seminar, 2020
Max Planck Institute, Heidelberg, *Unraveling the Galactic Halo* Galaxy Coffee, 2020
Harvard, *Connecting the Milky Way to High-z Galaxy Evolution* HiGEM seminar, 2020
Arizona, *Rapid Reionization by the Oligarchs* EURECA seminar, 2020
ESO Chile, *Rapid Reionization by the Oligarchs* Thirty Minutes Talk, 2019

## Conference Talks

Galaxy Origins in the JWST Era, Toledo, *Invited Review* 2025
Observing & Simulating Galaxy Evolution in the Era of JWST, Ascona, *Invited Review* 2024
Cosmic Odysseys, Crete, *Seeking the Photons for Reionization* 2024
The Early Universe according to JWST, ISSI Bern *Seeking the Photons for Reionization* 2024
Reionization & Cosmic Dawn, Berkeley *Solving Reionization with Resolved Lyα* 2022
SAZERAC2, *Double Bubble Lyman Trouble: Indirect tracers of LyC for the JWST Era* 2021
Streams21, *The Accretion Origins of Stellar Streams* 2021
AAS Winter Meeting, *Unraveling the Galactic Halo with the H3 Survey* 2021
Harvard-Heidelberg Star-Formation Meeting, *Starburst (Sgrburst) in our Backyard* 2020
SAZERAC, *Rapid Reionization by the Oligarchs* 2020
Early Galaxy Evolution in the ALMA & JWST Era, *Rapid Reionization by the Oligarchs* 2019
Escape of Lyman Radiation, OAC Crete, *LyC at* $z \approx 2-3$ *with the HDUV Survey* 2018

## Teaching & Advising

### Teaching

Head Teaching Fellow, *Stellar & Planetary Astronomy*, Harvard University — Spring 2021
Instructor: Prof. John Johnson

Teaching Fellow, *Galaxies & Cosmology*, Harvard University — Fall 2019
Instructor: Prof. Charlie Conroy

Teaching Assistant, *Intro. to Observational Astronomy*, Yale-NUS College — Spring 2017
Instructor: Prof. Bryan Penprase

### Advising

Kate Leonova (Amsterdam) — 2022-
adviser on ongoing reionization projects with JWST; two papers in prep.

Vedant Chandra (Harvard Astronomy) — 2021-
adviser with Prof. Charlie Conroy on ongoing halo survey; three papers published

Katherine Sharpe (Harvard College → UC Berkeley) — 2021-23
advised with Prof. Charlie Conroy on one published paper and Harvard Jr. Thesis

Steve Diaz (UMass Lowell, SAO Latino Initiatives Program) — 2021
mentored on all aspects of research life during 3 month internship

Megan Gialluca (Northern Arizona University, SAO REU student) — 2020-21
advised with Dr. Ana Bonaca on one published paper

Lavonna Mark (Yale-NUS College) — 2020-21
advised on PhD applications & interviews, Stanford PhD on prize fellowship

Jerrick Wee (Yale-NUS College) — 2017-18
mentored on all aspects of astronomy research, published two papers

## Diversity, Equity, Inclusion

- Lead Member, NASA Hubble Fellowship DEI Group (2023-)
  - One of nine lead members of DEI group focused on diversifying the fellowship and using the program's privileged position to bring positive change in the community.
  - One of two fellows with overall responsibility for the annual postdoc fellowship application feedback program (e.g., recruiting team of current/former fellows, matching students with suitable mentors, publicity).
  - Served $\approx$ 75 students, primarily from under-served backgrounds, with feedback on their fellowship applications.
- Survey Representative, Harvard Graduate Student Mental Health Survey (2021)
  - One of five Astronomy Dept. point-persons for the Harvard-wide initiative.
  - Coordinated 95% participation from department and helped disseminate results.
- Python instructor & STEM Mentor, SAO's Latino Initiatives Program (2021)
  - Three month program for students from communities under-represented in STEM.

  - Introduced students to python with a focus on scientific computing.
  - Held weekly one-to-one mentoring meetings.

- Volunteer, Harvard Banneker Institute summer program (2018, 2020)
  - Ten week research-study experience to prepare students of color for graduate school.
  - Held weekly office hours on all aspects of research, provided catch-all programming assistance.

- Department Point-Person & Volunteer, Harvard Graduate Students Union (2017-19)
  - Fair pay, affordable healthcare, and protection from abuse are core goals of the union.
  - Canvassed STEM departments (≈200 calls + in-person conversations) and international students (e.g., Harvard Crimson Op-Ed) for union formation election.
  - Organized action with a focus on international student issues (e.g., Muslim ban, visa-related travel reimbursements, pandemic pay).

- Science communication and outreach across diverse communities
  - Enthusiastic public speaker committed to making astronomy accessible to everyone.
  - Recent engagements include: Ask MIT! series for school students (what does space really look like?), Astronomy on Tap Los Angeles (*The Milky Way: A Galaxy of Immigrants*), Kainaat Astronomy (JWST results on first galaxies in the Urdu language).

## Professional Service

- Panelist for an NSF review (2025)
- Panelist on the Hubble Space Telescope time allocation committee (2024)
- Subject-matter expert reviewer for a NASA peer review (2024)
- Subject-matter expert reviewer for a NASA time allocation committee (2024)
- Scientific & Local Organizing Committees, First Light Conference, Boston (2023)
  - One of five SOC members, and one of six LOC members for $>150$ person conference focused on early Universe results from the first year of JWST.
  - Designed scientific program, organized logistics, coordinated social events, assisted with overall responsibilities for smooth conduct of the event.
- Journal referee for the Astrophysical Journal (ApJ, ApJL), Monthly Notices of the Royal Astronomical Society (MNRAS), and Astronomy & Astrophysics (A&A, A&AL)
- Chief Coordinator, Harvard Astronomy's Recruitment Week (2019)
  - One of two grad students in-charge of every aspect of recruitment (e.g., designing the overall program, travel/restaurant arrangements, liaising with faculty/admin).
  - Developed new programming (e.g., closed-door student panel with anonymous questions) and produced a detailed report for faculty identifying areas of weakness (e.g., CfA web portals) that spurred action.

## Other Interests

- Quizzing/Trivia/Quiz-bowl
  - Won several national & international events – youngest gold medalist at the Asia-Pacific Quizzing Championships and four-time national champion (Singapore), one-time international champion of the Tata Crucible campus quiz (among the world's largest university tournaments with 38 cities, 5000+ teams).
  - Wrote/presented 1000+ questions for TV shows, pub quizzes, and community events.
- Poetry
  - Published in journals including Helter Skelter Magazine's New Indian Writing, the Quarterly Literary Review Singapore, and Softblow. Shortlisted/longlisted for prizes including the Poetry Society of India's All-India Prize, University of Canberra's International Poetry Prize, and the Wingword Poetry Prize.
- Data-science for social good
  - Led the team behind the viral electoral literacy website, electionaire.info (>500,000 unique hits, > 10% of Singapore's population). Conceptualized the project, recruited team, oversaw research on stances of political parties, handled press.
  - Data miner for studies focused on domestic maids' rights in Singapore. Studies based on these data revealed live-in domestic maids from the Philippines, Indonesia and India who work in 1-of-4 households often enter contracts with zero off days per month.