Yuzo Ishikawa

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EDUCATION

Ph.D. Astronomy and Astrophysics, Johns Hopkins University | 2024

M.Sc. Physics (Astronomy), San Francisco State University | 2019

B.A. Astrophysics and B.A. Physics, University of California, Berkeley | 2014

RESEARCH APPOINTMENTS

2024 - present: Postdoctoral Associate, Cosmic Dawn Group
MIT Kavli Institute for Astrophysics and Space Research | Cambridge, MA, USA
Supervisor: Prof. Anna-Christina Eilers

2019 - 2024: Graduate Research Assistant
Johns Hopkins University | Baltimore, MD, USA
Thesis Advisor: Prof. Nadia L. Zakamska
Rotation Advisors (2020-2021): Dr. Massimo Stiavelli and Dr. Takahiro Morishita

2017 - 2019: Graduate Research Assistant
San Francisco State University | San Francisco, CA, USA
Advisor: Prof. Andy Mahdavi

2015 - 2019: Staff Research Associate II
University of California, Berkeley - Space Sciences Laboratory | Berkeley, CA, USA
Advisors: Dr. Steven R. Gibson and Dr. Jerry Edelstein

TELESCOPE PROGRAMS AWARDED

***Atacama Large Millimeter/Submillimeter Array**, Cycle 9, **PI** (2022.1.01427.S)
First look of a close-separation, $z \sim 2$ dual quasar with ALMA

***James Webb Space Telescope**, Cycle 1, **PI** (GO-2654)
Kpc-scale Dual Supermassive Black Holes and Their Impact on Galaxy Formation at Cosmic Noon

Magellan Baade Telescope, Co-I (2025A)
ALPAQA: A Llamas Program of Ancient QuAsars

James Webb Space Telescope, Cycle 4, Co-I (GO-7492)
MILAN - MIRI LRS Program of AGN at Cosmic Noon

James Webb Space Telescope, Cycle 2, Co-I (GO-4204)
A census of high-redshift kpc-scale dual quasars

James Webb Space Telescope, Cycle 2, Co-I (GO-3807)
Deep grism spectroscopy of the complex environment around an extremely red quasar within an ultramassive host at $z = 3$

Refereed Publications

1. C. Bertemes et al. [including **Y. Ishikawa**]. "A cosmic collision in the making: JWST/NIRISS reveals a merging and maturing protocluster core at $z \sim 3$ around a red quasar." *A&A*, 714, A239 (Oct., 2026)
2. G. Leung et al. [including **Y. Ishikawa**]. "Discovery of quasar variability and early accretion disk signa tures at cosmic dawn." *Nature Astronomy.* 10, 1364 (Sept, 2026)
3. M. Liu et al. [including **Y. Ishikawa**]. "Varstrometry for Off-nucleus and Dual Subkiloparsec Active Galactic Nuclei (VODKA): Three Quadruply Lensed Quasars at Cosmic Noon in the Hubble Space Telescope and JWST." *ApJ.* 1006, 252 (Aug., 2026)
4. Y.-C. Chen, et al. [including **Y. Ishikawa**]. "JWST Integral Field Unit Observations Uncover Host Galaxy Continua in Extremely Red and Obscured Quasars" *ApJ.* 1006, 76 (July, 2026)
5. ***Y. Ishikawa**, A.-C. Eilers, et al. "Spatial decomposition of Little Red Dots with JWST/NIRSpec IFU into broad-line red cores and narrow-line blue host galaxies." arXiv. 2607.09647 (July, 2026)
6. ***Y. Ishikawa**, A.-C. Eilers, et al. "BEES: Ionization and gas dynamics around $z \sim 6$ quasars with the JWST NIRSpec Integral Field Unit." (Submitted, 2026)
7. D. Ďurovčíková, A.-C. Eilers, **Y. Ishikawa**, et al. "BEES: Quasar Lifetime Measurements from Extended Rest-optical Emission Line Nebulae at $z \sim 6$" *ApJ.* 1003, 17 (May, 2026)
8. J. Matthee, et al. [including **Y. Ishikawa**], "The Engine and its Flows: Little Red Dot spectra are shaped by the column densities of their gas envelopes" arxiv.2603.17667. (March, 2026)
9. Y. Jiang, et al. [including **Y. Ishikawa**]. "Galactic-scale Quasar Pairs from the Sloan Digital Sky Survey and Gaia DR3" *ApJ.* 998, 80 (Feb., 2026)
10. A. Torralba, et al. [including **Y. Ishikawa**], "The warm outer layer of a little red dot as the source of [Fe II] and collisional Balmer lines with scattering wings" *A&A.* 707, A75 (Feb., 2026)
11. A. Torralba, et al. [including **Y. Ishikawa**], "A weak Ly halo for an extremely bright little red dot: Indications of enshrouded supermassive black hole growth" *A&A.* 705, A147 (Jan., 2026)
12. B. Wang, **Y. Ishikawa**, et al. " Luminous mid-IR selected obscured quasars at cosmic noon in SDSS Stripe82 II: spectroscopic diversity and broad Hα emissions" *MNRAS.* 544, 687 (Nov., 2025)
13. S. Sankar, et al. [including **Y. Ishikawa**]. "JWST Q3D Program: Active Galactic Nucleus Photoionization and Shock Ionization in a Red Quasar at $z = 0.4$" *ApJ.* 991, 227 (Oct., 2025)
14. A. Gross, et al. [including **Y. Ishikawa**]. "Varstrometry for Off-nucleus and Dual Sub-Kpc AGN (VODKA): A Mix of Singles, Lenses, and True Duals at Cosmic Noon" *ApJ.* 989, 112 (Aug., 2025)
15. ***Y. Ishikawa**, N. L. Zakamska, et al. "VODKA: Complex molecular gas dynamics in a kpc-separation $z = 2.17$ dual quasar with ALMA." arXiv. 2502.05327. (Submitted, 2025)
16. B. Wang, et al. [including **Y. Ishikawa**]. "Luminous mid-IR-selected type 2 quasars at cosmic noon in SDSS Stripe 82 I. Selection, composite photometry, and spectral energy distributions" *MNRAS.* 539, 1562 (May, 2025)

17. ***Y. Ishikawa**, N. L. Zakamska, et al. "VODKA-JWST: Synchronized Growth of Two Supermassive Black Holes in a Massive Gas Disk? A 3.8 kpc Separation Dual Quasar at Cosmic Noon with the NIRSpec Integral Field Unit." *ApJ.* 982, 22 (March, 2025)

18. W. Liu, et al., [including **Y. Ishikawa**]. "First Results from the JWST Early Release Science Program Q3D: The Fast Outflow in a Red Quasar at z = 0.44." *ApJ.* 980, 31 (Feb. 2025)

19. C. Bertemes, et al., [including **Y. Ishikawa**]. "JWST ERS Program Q3D: The pitfalls of virial black hole mass constraints shown for a $z \sim 3$ quasar with an ultramassive host." *A&A.* 693, A176 (Jan., 2025)

20. Y-C. Chen, **Y. Ishikawa**, N. L. Zakamska, et al. "VODKA-JWST: A 3.8 kpc Dual Quasar at Cosmic Noon in a Powerful Starburst Galaxy with JWST/MIRI Integral Field Unit." *ApJ.* 968, 92 (June, 2024)

21. A. Vayner, N. L. Zakamska, **Y. Ishikawa**, et al. "First results from the JWST Early Release Science Program Q3D: Powerful quasar-driven galactic scale outflow at $z = 3$." *ApJ.* 960, 126 (Jan., 2024)

22. A. Vayner, N. L. Zakamska, **Y. Ishikawa**, et al. "First results from the JWST Early Release Science Program Q3D: Ionization cone, clumpy star formation and shocks in a $z = 3$ extremely red quasar host." *ApJ.* 955, 92 (Sept., 2023)

23. D. Rupke, et al. [including **Y. Ishikawa**], "First Results from the JWST Early Release Science Program Q3D: Benchmark Comparison of Optical and Mid-infrared Tracers of a Dusty, Ionized Red Quasar Wind at $z = 0.435$." *ApJ.* 953, L26 (Aug. 2023)

24. S. Veilleux, et al. [including **Y. Ishikawa**], "First Results from the JWST Early Release Science Program Q3D: The Warm Ionized Gas Outflow in $z \sim 1.6$ Quasar XID 2028 and Its Impact on the Host Galaxy." *ApJ.* 953, 56 (Aug. 2023)

25. ***Y. Ishikawa**, B. Wang, N. L. Zakamska, et al. "Infrared spectroscopic confirmation of $z \sim 2$ photometrically selected obscured quasars." *MNRAS.* 522, 350 (June, 2023)

26. A. Vayner, et al. [including **Y. Ishikawa**], "Cold mode gas accretion on two galaxy groups at $z \sim 2$." *MNRAS.* 519, 961 (Feb., 2023)

27. D. Wylezalek, et al. [including **Y. Ishikawa**], "First Results from the JWST Early Release Science Program Q3D: Turbulent Times in the Life of a $z \sim 3$ Extremely Red Quasar Revealed by NIRSpec IFU." *ApJ.* 940, L7 (Nov., 2022)

28. ***Y. Ishikawa**, T. Morishita, M. Stiavelli, et al. "Unresolved $z \sim 8$ Point Sources and Their Impact on the Bright End of the Galaxy Luminosity Function." *ApJ.* 936, 167 (Sept., 2022)

29. ***Y. Ishikawa**, A. Goulding, N. L. Zakamska, et al. "X-ray analysis of SDSS J165202.60+172852.4, an obscured quasar with outflows at peak galaxy formation epoch." *MNRAS.* 502, 3769 (April 2021)

30. T. Morishita, et al. [including **Y. Ishikawa**], "SuperBoRG: Exploration of Point Sources at $z \sim 8$ in HST Parallel Fields." *ApJ.* 904, 50 (Nov., 2020)

31. ***Y. Ishikawa**, M. M. Sirk, J. Edelstein, P. Jelinsky, D. Brooks, G. Tarle. "Comprehensive measurements of the volume-phase holographic gratings for the Dark Energy Spectroscopic Instrument." *ApJ* 869, 24 (Oct. 2018)

32. M. M. Sirk, E. Korpela, **Y. Ishikawa**, et al. Design and Performance of the ICON EUV Spectrograph." *Space Sciences Review*. 10702, 107026F (July 2017)

33. D. J. Erskine, et al. [including **Y. Ishikawa**]. "High resolution broad-band spectroscopy using externally dispersed interferometry at the Hale telescope: Part 1, Data Analysis & Results." *Journal of Astronomical Telescopes, Instruments, and Systems*. 2, 025004 (May 2016)

Conference Proceedings & Technical Publications

32. S. R. Gibson, et al. [including **Y. Ishikawa**], "System design of the Keck Planet Finder," *Proc SPIE* Vol. 13096, (July 2024)

33. A. D. Baker, et al. [including **Y. Ishikawa**], "A UV double pass spectrograph for monitoring stellar activity for the Keck Planet Finder," *Proc SPIE* Vol. 12184, (Aug. 2022)

34. S. R. Gibson, et al. [including **Y. Ishikawa**], "Keck Planet Finder: design updates," *Proc SPIE* Vol. 11447, (Aug. 2020)

35. S. R. Gibson, et al. [including **Y. Ishikawa**], "Keck Planet Finder: preliminary design," *Proc SPIE* Vol. 10702. (Dec. 2018)

36. M. M. Sirk, et al. [including **Y. Ishikawa**]. "A optical fiber double scrambler and mechanical agitator system for the Keck planet finder spectrograph," *Proc SPIE* Vol. 10702 (July 2018)

37. DESI Collaboration, et al. [including **Y. Ishikawa**], "The DESI Experiment Part I: Science, Targeting, and Survey Design." *arXiv*. 1611.0036. (2016)

38. DESI Collaboration, et al. [including **Y. Ishikawa**], "The DESI Experiment Part II: Instrument Design." *arXiv*. 1611.0037. (2016)

39. ***Y. Ishikawa**, et al. "Calibration techniques for NASA ICON Extreme Ultraviolet Spectrograph (EUV)." *Proc SPIE* Vol. 9972. (Sept. 2016)

40. C. L. Poppett, J. Edelstein, **Y. Ishikawa**, et al. "Optical fiber termination method for the Dark Energy Spectroscopic Instrument (DESI)." *Proc. SPIE* Vol. 9908. (Aug. 2016)

41. D. J. Erskine, et al. [including **Y. Ishikawa**]. "High resolution broad-band spectroscopy in the NIR using the Triplespec externally dispersed interferometer at the Hale telescope." *Proc. SPIE* Vol. 914717. (July 2014).

Software

42. D. Rupke, et al., [including **Y. Ishikawa**]. "`q3dfit`: PSF decomposition and spectral analysis for JWST-IFU spectroscopy." Astrophysics Source Code Library. ascl:2310.004. (Oct., 2014).

OBSERVATIONAL & FACILITY EXPERTISE

James Webb Space Telescope
- NIRSpec IFU, MIRI MRS, NIRCam Imaging, NIRCam WFSS

Atacama Large Millimeter/submillimeter Array
- Continuum and spectral-line interferometry

Magellan Baade Telescope
- LLAMAS IFU (newly commissioned): lead observer, data reduction, and analysis.

Gemini South Telescope
- GNIRS near-infrared spectroscopy

Hubble Space Telescope
- Archival imaging and slitless grism spectroscopy (CANDELS, 3D-HST)

XMM-Newton
- X-ray imaging and spectroscopy

NuSTAR
- Hard X-ray spectroscopy

INVITED & CONFERENCE TALKS

2026 **Center for Astrophysics | Harvard & Smithsonian**
UMBRELLA Dialogue Seminar, September 29, 2026
Cambridge, MA, USA

Supermassive Black Holes & Blue Notes
Contributed Talk, June 28 – July 3, 2026
Université de Montréal, Montréal, Canada

2025 **Unveiling a Universe of Black Holes**
Contributed Talk, March 23 – April 4, 2025
Munich Institute for Astro-, Particle and Biophysics, Garching, Germany

Institute of Science and Technology Austria
Department Seminar, March 19, 2025
Klosterneuburg, Austria

Center for Astrophysics | Harvard & Smithsonian
JWST High-Redshift Meeting, April 30, 2025
Cambridge, MA, USA

2024 **243rd American Astronomical Society Meeting**
Dissertation Talk, January 7–11, 2024
New Orleans, LA, USA

2023 **ELT Science in Light of JWST**
Contributed Talk, December 11–15, 2023
University of California, Los Angeles, CA, USA

The First Year of JWST Science Conference
Contributed Talk, September 11–14, 2023
Space Telescope Science Institute, Baltimore, MD, USA

PROFESSIONAL SERVICE

NASA Review Panel Member (2026)

Journal Referee
- Astronomy & Astrophysics
- Monthly Notices of the Royal Astronomical Society
- Nature Astronomy
- The Astrophysical Journal

STUDENT MENTORING

2025-2026: Matthew Nunez (undergraduate) | Massachusetts Institute of Technology
- Spectral fitting of rest-frame UV and optical emission lines in galaxies observed with JWST.

2023 summer: Ronald Garcia (undergraduate) | Johns Hopkins University
- Gravitational lens modeling of a quadruply lensed quasar using HST imaging data.

LEADERSHIP EXPERIENCE

2025 - present: Monday Afternoon Talks (MAT) seminar organizer | MIT Kavli Institute

2023 - 2024: 2024 Spring Symposium, Local Organizing Committee (LOC) | STScI

2022 - 2024: Galaxy/AGN Journal Club organizer | JHU & STScI

2022 - 2024: Space@Hopkins Space Fellow | Johns Hopkins University

TEACHING EXPERIENCE

2019 - 2020: Johns Hopkins University | Graduate Teaching Assistant
- Courses in introductory astronomy and space science, and practical data science

2016 - 2018: San Francisco State University | Graduate Teaching Assistant
- Courses in astronomy laboratories, stellar astrophysics, and calculus-based physics.

AWARDS

2025 - MKI Spot Award | MIT Kavli Institute for Astrophysics and Space Research

2024 - AAS Rodger Doxsey Travel Prize | American Astronomical Society

2023 - Kupperman Family Travel Award | Johns Hopkins University

2021 - Builder Award | The Dark Energy Spectroscopic Instrument Collaboration