

Seiji Fujimoto

Curriculum Vitae

Department of Astronomy
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Work Experience

- 2022–present **NASA Hubble Fellow**, *UT Austin, USA*
- 2021–2022 **Marie Skłodowska-Curie COFUND INTERCTIONS Fellow**, *Cosmic Dawn Center, Denmark*
- 2019–2022 **DAWN Fellow**, *Cosmic Dawn Center, Denmark*
- 2019–2019 **ALMA Project Researcher**, *NAOJ / University of Waseda, Japan*
- 2019–2019 **ICRR Project Researcher**, *University of Tokyo, Japan*

Education

- 2016–2019 **PhD in Astronomy**, *Graduate school of Science, Department of Astronomy, University of Tokyo*
Thesis: Demographics of the cold Universe with ALMA: From Interstellar and Circumgalactic Media to Cosmic Structures (advisor: Prof. M. Ouchi)
- 2014–2016 **Master of Astronomy**, *Graduate school of Science, Department of Astronomy, University of Tokyo*
Thesis: ALMA Faint-mm Sources Down to 0.02 mJy: Physical Origins and Contribution to the Extragalactic Background Light (advisor Prof. M. Ouchi)
- 2010–2014 **Bachelor of Astronomy**, *Department of Astronomy, University of Tokyo*
Thesis: Search for Dusty Starburst Galaxies at $z > 6$ (advisor: Prof. K. Kohno)

Awards & Prizes

- 2023 **The ASJ Young Astronomer Award Recipients**
- 2022 **NASA Hubble Fellowship**
- 2022 **Inoue Research Award for Young Scientists**
- 2021 **Marie Skłodowska-Curie Actions (MSCA) Seal of Excellence**
- 2019 **University of Tokyo School of Science Research Award for PhD Thesis**
- 2019 **Springer Thesis Prize**
- 2016 **University of Tokyo School of Science Research Award for Master Thesis**
- 2016 **Institute for Cosmic Ray Research President's Award for Master Thesis**¹
- 2015 **University of Tokyo President's Award**

1. Annual awards to the best Master Thesis from Prof. T. Kajita (Nobel Prizer in Physics 2015)

Research Grant & Funding

- 2023–present **NASA JWST Cycle2 PI Data Award**, USD 30,000 (anticipated)
2022–2023 **NASA Hubble Fellowship**, USD 144,517
2021–present **NASA JWST Cycle1 PI Data Award**, USD 85,945
2022–2023 **NASA Keck PI Data Award**, USD 13,975
2021–2022 **INTERACTIONS Fellowship Grant**, USD 123,000
2016–2019 **JSPS Research Fellowship Grant**, No.16J02344, USD 92,000
2015–2019 **EA ALMA PI Grant for research mobility**, No. NAOJ-ALMA-145, 164, 179, 197, 231, USD 12,000
2015–2019 **Yukio Hayakawa Fund for research mobility**, No. 89, 95, 106, USD 92,000
2017 **Graduate Research Fund for research mobility awarded by University of Tokyo**, USD 5,000

Awarded Telescope Proposals

Principal **N = 39**

Investigator **(incl. 6 DDT)**

- 1 **JWST**, *GO Cycle 1 1567*, 12.3 hrs
Early Galaxy Assembly Uncovered with ALMA and JWST: A Remarkably UV and [CII] Bright, Strongly Lensed Sub- L^* Galaxy at $z = 6.072$
- 2 **JWST**, *GO Cycle 2 4573*, 4.5 hrs
IFU Trio of ALMA, MUSE, JWST: Revealing Dynamical Interplay of Inflow/Outflow at $z = 6$ with Strong Lensing Aid
- 4 **ALMA DDT**, *2021.A.00031.S*, 1.0 hrs
The puzzling JWST object timely disentangled by ALMA: Dusty starburst at $z \sim 5$ or Ultra high- z galaxy at $z \sim 17$?
- 5 **ALMA DDT**, *2021.A.00022.S*, 4.6 hrs
Establishing the Golden Reference of Early Galaxy Studies at $z \sim 8 - 9$ with [OIII]4363 detection in JWST ERO
- 6 **ALMA DDT**, *2021.A.00006.S*, 2.8 hrs
Spectroscopic confirmation of a strongly lensed star at $z = 6$
- 7 **ALMA**, *2023.1.00149.S*, 16.7 hrs
IFU Trio of ALMA, MUSE, JWST: Revealing Dynamical Interplay of Inflow/Outflow at $z = 6$ with Strong Lensing Aid
- 8 **ALMA**, *2023.1.00802.S*, 20.4 hrs
Deep Dive into the ISM at $z=6$ with ALMA + JWST: From the Individual Lensed Star to 1-20pc Star-Forming Clumps
- 9 **ALMA**, *2022.1.00073.S*, 37 hrs
A joint ALMA and JWST public Legacy Field - Abell 2744
- 10 **ALMA**, *2022.1.00195.S*, 27 hrs
Where does [CII]158um originate? A panchromatic ~ 20 -pc scale view of ISM in a sub- L^* galaxy at $z = 6$ by ALMA and JWST
- 11 **ALMA**, *2022.1.00433.S*, 25 hrs
Golden Reference for Metallicity Measurements at $z = 6 - 7$ by ALMA+JWST

- 12 **ALMA**, 2022.1.01567.S, 20 hrs
Dust in galaxies at $z = 8 - 11$
- 13 **ALMA**, 2021.1.00055.S, 17 hrs
Comprehensive ISM view down to a ~ 100 pc scale for a sub- L^* galaxy at $z = 6$ by ALMA, JWST, and JVL A
- 14 **ALMA**, 2021.1.00236.S, 19 hrs
Golden Reference for Metallicity Measurements at $z = 6 - 7$ by ALMA+JWST
- 15 **ALMA**, 2019.2.00050.S, 42 hrs
ALMA Exploration for a Remarkable Protocluster at $z = 5.69$
- 16 **ALMA**, 2019.1.00672.S, 12 hrs
First 3D-Illustration of the Ionized+Neutral Gas Down to 300-pc Scale Surrounding a Super Massive Black Hole at $z = 6.039$
- 17 **ALMA**, 2019.1.00236.S, 10 hrs
Strongly Lensed HST-dark Object Discovered by ALMA Lensing Cluster Survey
- 18 **ALMA**, 2017.1.00531.S, 18 hrs
ALMA Exploration for $z = 5.69, 6.01, \text{ and } 6.57$ Protoclusters
- 19 **NASA Keck**, 2022B_N077, 1 night
Physical Origin of the High [OIII]88um/[CII]158um Ratios in High- z Star-forming Galaxies Uncovered with JWST+ALMA+Keck
- 20 **VLT/Xshooter**, 108.22MK, 26 hrs
Beasts in the Bubbles: Remarkably UV-bright Galaxies at $z=9-10$
- 21 **VLT/MUSE**, 109.22VV, 8.9 hrs
IFU Trio of JWST, ALMA, and MUSE: Where is $\text{Ly}\alpha$ escaping?
- 22 **Subaru/SWIMS**, S22A0094N, 3 nights
Weighing the black hole in a young quasar at $z = 7.2$
- 23 **Subaru/SWIMS**, S21B0108N, 2 nights
Beasts in the Bubbles: Remarkably UV-bright Galaxies at $z = 9 - 10$
- 24 **Subaru/FOCAS IFU**, S20A0045N, 1.5 nights
Unveiling the Connection between 10-kpc $\text{Ly}\alpha$ and [CII] Halos at $z = 6.033$
- 25 **Subaru/FOCAS**, S20B0150S, 0.5 night
Most Massive Black Hole at $z > 6$ Mimicked by Strong Lensing?
- 26 **Subaru/MOIRCS**, S16A0033N, 1.5 nights
Uncovering the New Class of ALMA Sources Assisted by Gravitational Lensing
- 27 **NOEMA DDT**, D22AC, 10 hrs
The puzzling JWST object timely distangled by ALMA: Dusty starburst at $z \sim 5$ or Ultra high- z galaxy at $z \sim 17$?
- 28 **NOEMA DDT**, E19AD, 4.6 hrs
Gas and Dust Properties in a Red Quasar Firstly Discovered at $z > 7$
- 29 **NOEMA**, E20EO, 5.0 hrs
A Vigorously Star-forming Red Quasar Firstly Discovered at $z > 7$
- 30 **NOEMA**, E20EN, 1.5 hrs
Confirming the Most Massive Submm Galaxy at the Node of Remarkable Galaxy Overdensity at $z=6.57$

- 31 **NOEMA, S21DM**, 34 hrs
Vigorously Turbulent Starburst Core in a Red Quasar Host at $z=7.2$
- 32 **NOEMA, W21EF**, 1.5 hrs
Confirming the Most Massive Submm Galaxy at the Node of Remarkable Galaxy Overdensity at $z=6.57$
- 33 **NOEMA, W21EH**, 27 hrs
A dive into the vigorously starburst core in a red quasar host at $z=7.2$
- 34 **JVLA DDT, 20A-520**, 13.2 hrs
First CO(1-0) Measurements of Strongly Lensed sub- L^* Galaxies at $z = 6$
- 35 **JVLA, 21A-145**, 22 hrs
Total Gas Content in a Vigorous Star-forming Red Quasar Discovered at $z > 7$
- 36 **JVLA, 21A-162**, 23.3 hrs
First CO(1-0) Measurements of Strongly&Multiply Lensed sub- L^* Galaxy at $z = 6.072$
- 37 **JCMT/SCUBA2, M17BP073**, 3 nights
Explore Submm Galaxy Nests in Protocluster at $z \sim 5 - 6$
- 38 **JCMT/SCUBA2, M18AP001**, 4 nights
Uncovering Obscured Star Formation in the Enormous Ly α Nebulae
- 39 **SMA, 2020B-S051**, 3 nights
A Vigorously Star-forming Red Quasar Firstly Discovered at $z > 7$

Co-Investigator **(Highlights, in the last few years)**

- 1 **JWST, GO Cycle 2 4246**, PI: A. Abdurro'uf, 16.1 hrs
Physical Properties of a Possible Galaxy Merger at $z = 10.2$
- 2 **JWST, GO Cycle 2 4212**, PI: L. Bradley, 10.1 hrs
Unveiling the Most Distant Lensed Arc at $z \sim 10$
- 3 **JWST, GO Cycle 2 3859**, PI: M. Onoue, 10.9 hrs
Full Characterization of Starlight from a $z = 6.4$ Quasar Host Galaxy
- 4 **JWST, GO Cycle 2 3567**, PI: F. Valentino, 47.1 hrs
A deep dive into the physics of the first massive quiescent galaxies in the Universe
- 5 **JWST, GO Cycle 2 3045**, PI: A. Faisst, 59.6 hrs
Witnessing the Maturing of Teenage Galaxies at $z = 4-6$ with a Comprehensive UV - Optical - Sub-mm Benchmark Sample for the Community
- 6 **JWST, GO Cycle 2 2883**, PI: F. Sun, 38.7 hrs
MAGNIF: Medium-band Astrophysics with the Grism of NIRCcam in Frontier Fields
- 7 **JWST, GO Cycle 1 2659**, PI: J. Weaver, 13.6 hrs
Beasts in the Bubbles: Characterizing ultra-luminous Galaxies at Cosmic Dawn
- 8 **JWST, GO Cycle 1 1967**, PI: M. Onoue, 52 hrs
A Complete Census of Supermassive Black Holes and Host Galaxies at $z = 6$
- 9 **Keck/MOSFIRE, NASA S21B #20**, PI: C. Casey, 2 nights
Beasts in the Bubbles: Remarkably UV-bright Galaxies at $z = 9 - 10$
- 10 **Keck/MOSFIRE, UC S22A #U190**, PI: B. Mobascher, 2 nights
Remarkably UV-bright Galaxies at $z = 9 - 10$

- 11 **Keck/DEIMOS, MOSFIRE, UH S22A #H250**, PI: D. Sanders, 3 nights
Remarkable galaxy overdensity at $z = 6$ and $z = 8$
- 12 **Keck/MOSFIRE, NASA S22A #48**, PI: C. Casey, 2 nights
A young transitionary $z = 7.2$ quasar formed < 1 Gyr after the Big Bang
- 13 **HST, 17281**, PI: G. Leung, 5 orbits
Revealing the Nature of Five Potential Bright Galaxies at $z > 10$
- 14 **ALMA, 2021.1.00225.S**, PI: C. Casey, 36.2 hrs
Mapping Obscuration to Reionization: A blank field 2mm survey in COSMOS
- 15 **ALMA, 2021.1.00018.S**, PI: R. Ivison, 30.6 hrs
Exploiting a snapshot survey of the 3,083 reddest Herschel sources to reveal distant protoclusters
- 16 **ALMA, 2021.1.00181.S**, PI: F. Valentino, 19.4 hrs
Molecular gas and obscured SFR in a typical sub- L^* galaxy at $z=6$
- 17 **ALMA, 2021.1.00211.S**, PI: R. Maiolino, 20.2 hrs
The ultimate test for quasar feedback in the early Universe: ultradeep observations of the most luminous quasar at $z > 6$
- 18 **ALMA, 2021.1.00443.S**, PI: J. Spilker, 21.2 hrs
Surveying cold quasar outflows at the highest redshifts
- 19 **ALMA, 2021.1.00389.S**, PI: T. Hashimoto, 17.8 hrs
Deep [OIII] 88 um and dust continuum observations of two remarkably luminous galaxies at $z \sim 10$
- 20 **ALMA, 2021.1.01320.S**, PI: J. Silverman, 26.2 hrs
Opening an Era of CGM-scale Study of the Most Massive Halos at $z > 6$ with ALMA
- 21 **ALMA, 2021.1.00075.S**, PI: Y. Ono, 8.8 hrs
CO spectroscopy for an L^* Lyman break galaxy at $z=8.3118$
- 22 **ALMA, 2021.1.00668.S**, PI: T. Bakx, 38.3 hrs
Answers at $z > 6$: OIII-to-CII ratio census in SFR-selected sample
- 23 **ALMA, 2021.1.01262.S**, PI: T. Izumi, 18.3 hrs
High-resolution characterization of early bulge structure and feedback in a $z=7.07$ low-luminosity quasar
- 24 **ALMA, 2021.1.01246.S**, PI: K. Kohno, 14.1 hrs
Spectroscopic identification of candidate overdensity regions of H-dropout ALMA galaxies behind two lensing clusters
- 25 **ALMA, 2021.1.00407.S**, PI: F. Bauer, 8.6 hrs
Lifting the shroud on two IRAC-dark dusty star-forming galaxies
- 26 **ALMA, 2021.1.00668.S**, PI: T. Bakx, 15.3 hrs
Molecular gas and outflows: OH119um absorption line at $z=7.13$
- 27 **ALMA, 2022.1.01139.S**, PI: E. Egami, 21.5 hrs
[C II] Scan Survey of the Most UV-Luminous Galaxies at $z \sim 7$
- 28 **ALMA, 2022.1.01356.S**, PI: E. Egami, 35.1 hrs
A Quest toward the Faint End of the Infrared Luminosity Function at $z > 4$
- 29 **ALMA, 2022.1.00230.S**, PI: Y. Fudamoto, 13.2 hrs
How hot are high-redshift galaxies?: constraining dust temperature at $z \sim 5$

- 30 **ALMA**, 2022.1.00055.S, PI: Y. Harikane, 47.2 hrs
SERENADE: Systematic Exploration at Reionization Epoch Nebula And Dust Emission
- 31 **ALMA**, 2022.1.00257.S, PI: T. Hashimoto, 16.9 hrs
Deep [O III] 88 μm and dust continuum observations of two remarkably luminous galaxies at $z \sim 10$
- 32 **NOEMA**, W20EQ, PI: F. Valentino, 25 hrs
The redshift confirmation of a bright $z=9.8$ galaxy
- 33 **NOEMA**, S21DN, PI: F. Valentino, 27 hrs
The redshift confirmation of a bright $z=9.8$ galaxy

Large Projects Involved

- 1 **ALMA Large Project**, 2017.1.00428.L, PI: O. Le Fèvre, 69 hrs
The ALMA Large Program to Investigate CII at Early times (ALPINE)
- 2 **ALMA Large Project**, 2018.1.00035.L, PI: K. Kohno, 98 hrs
ALMA Lensing Cluster Survey (ALCS)
- 3 **JWST ERS Project**, Cycle 1 1354, PI: S. Finkelstein, 65 hrs
The Cosmic Evolution Early Release Science Survey (CEERS)
- 4 **JWST Treasury Project**, GO Cycle 1 2079, PI: S. Finkelstein, 122 hrs
The Webb Deep Extragalactic Exploratory Public Survey: Feedback in Low-Mass Galaxies from Cosmic Dawn to Dusk (NGDEEP)
- 5 **JWST Treasury Project**, GO Cycle 1 1727, PIs: J. Kartaltepe & C. Casey, 218 hrs
The JWST Cosmic Origins Survey (COSMOS-Web)
- 6 **JWST Treasury Project**, GO Cycle 1 2561, PIs I. Labbe & R. Bezanson, 83.3 hrs
Ultra-deep NIRCcam and NIRSpec Observations Before the Epoch of Reionization (UNCOVER)
- 7 **JWST Large Project**, GO Cycle 2 3293, PIs H. Atek & J. Chisholm, 147.8 hrs
JWST's GLIMPSE: Gravitational lensing & NIRCcam imaging to probe early galaxy formation and sources of reionization (GLIMPSE)

Supervising & Teaching

- 2023–present **Co-supervisor of Clara Giménez-Arteaga (PhD student at DAWN)**, a *paper in preparation*
- 2021–2022 **Primary supervisor of Hollis Akins (Bachelor student at Grinnell College)**, [a paper published in ApJ](#)
- 2021–2022 **Co-supervisor of Vasily Kokorev (PhD student at DAWN)**, [a paper published in ApJ](#)
- 2021–2022 **Co-supervisor of Meghana Killi (PhD student at DAWN)**, [a paper published in MNRAS](#)
- 2016–2018 **Lecture talk in “Science Lab”**, Hikawa High School, Japan

2016–2017 **Teaching assistance for 5–6 bachelor students**, for a week-long intensive course to make them obtain practical research experience

Professional Service

- 2023 **ALMA Science Assessors (Proposal review for large programs)**
- 2020 **Committee member of DAWN PhD student selection**
- 2020 **Committee member of DAWN-IRES Scholars program Selection**
- 2019–present **Referee for telescope proposal of HST, Subaru, JCMT, ALMA (Distributed Peer Review), Gemini (Distributed Peer Review)**
- 2017–present **Referee for journal papers of ApJ, ApJL, MNRAS, A&A**

Outreach Experience

- 2023 **Press Release**, “Set of Extremely Distant Galaxies (NIRSpec MSA Emission Spectra)”, NASA, ESA, CSA
- 2022 **Press Release**, “Hubble Sheds Light on Origins of Supermassive Black Holes”, ESA/Hubble, NASA, INAF, DAWN, NAOJ
- 2021 **Press Release**, “ALMA Discovers Rotating Infant Galaxy with Help of Natural Cosmic Telescope”, NAOJ, U. Tokyo, ICRR, DAWN
- 2019 **Press Release**, “Carbon Cocoon Surrounded Growing Galaxies – ALMA Spots Earliest Environment Pollution in the Universe –”, NAOJ, U. Tokyo, ICRR, U. Osaka, SNS, DAWN, NBI
- 2016 **Press Release**, “ALMA Resolves the Cosmic Infrared Background Light”, NAOJ, U. Tokyo, ICRR
- 2023 **Public talk** in Board of Visitors Meeting, “Exploring visible and obscured sides of the early Universe”, UT Austin, USA
- 2019 **Public talk**: “The Sense of Wonder”, All Nippon Airways, Japan
- 2017 **Web Article** “Beyond Connecting Dots”, School of Science News in U. Tokyo
- 2012–2014 **Monthly star gazing event management staff**, NAOJ

International Conferences (Highlights)

- Summary **Invited (8), Peer-reviewed oral talks (>20), other oral talks (>30)**
- 2023 (invite) **Star formation within evolving galaxies: The revolution of upcoming space missions**, Bern, Switzerland
- 2022 (invite) **In Situ View of Galaxy Formation 2**, Ringberg, Germany
- 2022 (invite) **I2I: Linking galaxy physics from ISM to IGM scales**, Sesto, Italy
- 2022 (invite) **The growth of galaxies in the Early Universe - VII**, Sesto, Italy
- 2019 (invite) **Ringberg Workshop**, Ringberg, Germany
- 2019 (invite) **Revolutionary Spectroscopy of Today as Springboard to Webb**, Leiden, Netherlands
- 2019 (invite) **DAWN Summit**, Copenhagen, Denmark

- 2018 (invite) **Chili-Japan Academic Forum**, *Nikko*, Japan
- 2023 **JWST First Light Conference**, *Boston*, USA
- 2022 **COSPAR 2022 – Super Massive Black Holes at High Redshift**, *Athens*, Greece
- 2022 **COSMOS Meeting 2022**, *Paris*, France
- 2019 **ALMA 2019: Science Results and Cross-Facility Synergies**, *Cagliari*, Italy
- 2019 **Views on the ISM in galaxies in the ALMA era**, *Bologna*, Italy
- 2019 **Extremely Big Eyes on the Early Universe**, *Roma*, Italy
- 2017 **Twenty years of Submillimeter Galaxies**, *Durham*, England
- 2016 **The 6th Subaru International Conference**, *Hiroshima*, Japan

Colloquia & Seminar talks (Highlights)

- 2023 **IPMU Lunch Seminar**, *Chiba*, Japan
- 2023 **NAOJ Colloquium**, *Tokyo*, Japan
- 2023 **University of Tokyo, Colloquium**, *Tokyo*, Japan
- 2022 **INAF Bologna lunch seminar**, *Bologna*, Italy
- 2022 **FORTH/IA Seminar**, *Crete*, Greece
- 2021 **Galaxy Evolution Seminar**, *Cambridge*, UK
- 2021 **Exgal-Cosmology series**, *UT Austin*, United States
- 2021 **Special Seminar**, *UCLA*, United States
- 2020 **Lunch Seminar**, *ESO*, Germany
- 2019 **Special Visitor Seminar**, *MPIA*, Germany
- 2019 **Wednesday Colloquium**, *Caltech*, United States
- 2018 **Galaxy Seminar**, *STScI*, United States
- 2018 **Special Visitor Seminar**, *SNS*, Italy
- 2018 **Special Visitor Seminar**, *LAM*, France
- 2017 **Lunch Seminar**, *EAO*, United States
- 2016 **Special Visitor Seminar**, *University of Stockholm*, Sweden
- 2016 **Lunch Seminar**, *Geneva Observatory*, Switzerland