

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

- 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**

Research Grant & Funding

- 2022–2023 **NASA Hubble Fellowship**, USD 144,517

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

- 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 Investigator **N = 35**
(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 **ALMA DDT**, *2021.A.00031.S*, 1.0 hrs
The puzzling JWST object timely distangled by ALMA: Dusty starburst at $z \sim 5$ or Ultra high- z galaxy at $z \sim 17$?
- 3 **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
- 4 **ALMA DDT**, *2021.A.00006.S*, 2.8 hrs
Spectroscopic confirmation of a strongly lensed star at $z = 6$
- 5 **ALMA**, *2022.1.00073.S*, 37 hrs
A joint ALMA and JWST public Legacy Field - Abell 2744
- 6 **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
- 7 **ALMA**, *2022.1.00433.S*, 25 hrs
Golden Reference for Metallicity Measurements at $z = 6 - 7$ by ALMA+JWST
- 8 **ALMA**, *2022.1.01567.S*, 20 hrs
Dust in galaxies at $z = 8 - 11$
- 9 **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
- 10 **ALMA**, *2021.1.00236.S*, 19 hrs
Golden Reference for Metallicity Measurements at $z = 6 - 7$ by ALMA+JWST
- 11 **ALMA**, *2019.2.00050.S*, 42 hrs
ALMA Exploration for a Remarkable Protocluster at $z = 5.69$
- 12 **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 $z = 6.039$

- 13 **ALMA**, 2019.1.00236.S, 10 hrs
Strongly Lensed HST-dark Object Discovered by ALMA Lensing Cluster Survey
- 14 **ALMA**, 2017.1.00531.S, 18 hrs
ALMA Exploration for $z = 5.69, 6.01, \text{ and } 6.57$ Protoclusters
- 15 **NASA Keck**, 2022B_N077, 1 night
Physical Origin of the High $[\text{OIII}]\lambda 88\mu\text{m}/[\text{CII}]\lambda 158\mu\text{m}$ Ratios in High- z Star-forming Galaxies Uncovered with JWST+ALMA+Keck
- 16 **VLT/Xshooter**, 108.22MK, 26 hrs
Beasts in the Bubbles: Remarkably UV-bright Galaxies at $z=9-10$
- 17 **VLT/MUSE**, 109.22VV, 8.9 hrs
IFU Trio of JWST, ALMA, and MUSE: Where is $\text{Ly}\alpha$ escaping?
- 18 **Subaru/SWIMS**, S22A0094N, 3 nights
Weighing the black hole in a young quasar at $z = 7.2$
- 19 **Subaru/SWIMS**, S21B0108N, 2 nights
Beasts in the Bubbles: Remarkably UV-bright Galaxies at $z = 9 - 10$
- 20 **Subaru/FOCAS IFU**, S20A0045N, 1.5 nights
Unveiling the Connection between 10-kpc $\text{Ly}\alpha$ and $[\text{CII}]$ Halos at $z = 6.033$
- 21 **Subaru/FOCAS**, S20B0150S, 0.5 night
Most Massive Black Hole at $z > 6$ Mimicked by Strong Lensing?
- 22 **Subaru/MOIRCS**, S16A0033N, 1.5 nights
Uncovering the New Class of ALMA Sources Assisted by Gravitational Lensing
- 23 **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 $z \sim 17$?
- 24 **NOEMA DDT**, E19AD, 4.6 hrs
Gas and Dust Properties in a Red Quasar Firstly Discovered at $z > 7$
- 25 **NOEMA**, E20EO, 5.0 hrs
A Vigorously Star-forming Red Quasar Firstly Discovered at $z > 7$
- 26 **NOEMA**, E20EN, 1.5 hrs
Confirming the Most Massive Submm Galaxy at the Node of Remarkable Galaxy Overdensity at $z=6.57$
- 27 **NOEMA**, S21DM, 34 hrs
Vigorously Turbulent Starburst Core in a Red Quasar Host at $z=7.2$
- 28 **NOEMA**, W21EF, 1.5 hrs
Confirming the Most Massive Submm Galaxy at the Node of Remarkable Galaxy Overdensity at $z=6.57$
- 29 **NOEMA**, W21EH, 27 hrs
A dive into the vigorously starburst core in a red quasar host at $z=7.2$
- 30 **JVLA DDT**, 20A-520, 13.2 hrs
First $\text{CO}(1-0)$ Measurements of Strongly Lensed sub- L^* Galaxies at $z = 6$
- 31 **JVLA**, 21A-145, 22 hrs
Total Gas Content in a Vigorous Star-forming Red Quasar Discovered at $z > 7$

- 32 **JVLA**, 21A-162, 23.3 hrs
First CO(1-0) Measurements of Strongly&Multiply Lensed sub- L^* Galaxy at $z = 6.072$
- 33 **JCMT/SCUBA2**, M17BP073, 3 nights
Explore Submm Galaxy Nests in Protocluster at $z \sim 5 - 6$
- 34 **JCMT/SCUBA2**, M18AP001, 4 nights
Uncovering Obscured Star Formation in the Enormous Ly α Nebulae
- 35 **SMA**, 2020B-S051, 3 nights
A Vigorously Star-forming Red Quasar Firstly Discovered at $z > 7$

Co-Investigator **(Highlights: S. Fujimoto made key contributions in the last year)**

- 1 **JWST**, GO Cycle 1 2659, PI: J. Weaver, 13.6 hrs
Beasts in the Bubbles: Characterizing ultra-luminous Galaxies at Cosmic Dawn
- 2 **JWST**, GO Cycle 1 1967, PI: M. Onoue, 52 hrs
A Complete Census of Supermassive Black Holes and Host Galaxies at $z = 6$
- 3 **ALMA**, 2021.1.00225.S, PI: C. Casey, 36.2 hrs
Mapping Obscuration to Reionization: A blank field 2mm survey in COSMOS
- 4 **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
- 5 **ALMA**, 2021.1.00181.S, PI: F. Valentino, 19.4 hrs
Molecular gas and obscured SFR in a typical sub- L^* galaxy at $z=6$
- 6 **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 $z > 6$
- 7 **ALMA**, 2021.1.00443.S, PI: J. Spilker, 21.2 hrs
Surveying cold quasar outflows at the highest redshifts
- 8 **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 $z \sim 10$
- 9 **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
- 10 **ALMA**, 2021.1.00075.S, PI: Y. Ono, 8.8 hrs
CO spectroscopy for an L^* Lyman break galaxy at $z=8.3118$
- 11 **ALMA**, 2021.1.00668.S, PI: T. Bakx, 38.3 hrs
Answers at $z > 6$: OIII-to-CII ratio census in SFR-selected sample
- 12 **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
- 13 **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
- 14 **ALMA**, 2021.1.00407.S, PI: F. Bauer, 8.6 hrs
Lifting the shroud on two IRAC-dark dusty star-forming galaxies

- 15 **ALMA**, *2021.1.00668.S*, PI: T. Bakx, 15.3 hrs
Molecular gas and outflows: OH119um absorption line at $z=7.13$
- 16 **Keck/MOSFIRE**, *NASA S21B #20*, PI: C. Casey, 2 nights
Beasts in the Bubbles: Remarkably UV-bright Galaxies at $z = 9 - 10$
- 16 **Keck/MOSFIRE**, *UC S22A #U190*, PI: B. Mobascher, 2 nights
Remarkably UV-bright Galaxies at $z = 9 - 10$
- 17 **Keck/DEIMOS, MOSFIRE, UH S22A #H250**, PI: D. Sanders, 3 nights
Remarkable galaxy overdensity at $z = 6$ and $z = 8$
- 18 **Keck/MOSFIRE**, *NASA S22A #48*, PI: C. Casey, 2 nights
A young transitional $z = 7.2$ quasar formed < 1 Gyr after the Big Bang
- 19 **NOEMA**, *W20EQ*, PI: F. Valentino, 25 hrs
The redshift confirmation of a bright $z=9.8$ galaxy
- 20 **NOEMA**, *S21DN*, PI: F. Valentino, 27 hrs
The redshift confirmation of a bright $z=9.8$ galaxy

Large Projects Involved

(Highlights: S. Fujimoto made or will make key contributions)

- 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 (WDEEP)
- 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, 68 hrs
Ultra-deep NIRCам and NIRSpec Observations Before the Epoch of Reionization (UNCOVER)

Supervising & Teaching

- 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 submitted to A&A](#)
- 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

- 2020 **Committee member of DAWN PhD student selection**
2020 **Committee member of DAWN-IRES Scholars program Selection**
2019–present **Referee for telescope proposal of JCMT, ALMA (Distributed Peer Review), Gemini (Distributed Peer Review)**
2017–present **Referee for journal papers of ApJ, MNRAS, A&A**

Outreach Experience

- 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*
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 (last 5 years, Highlights)

- Summary **Invited (7), Peer-reviewed oral talks (13), other oral talks (23)**
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*
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 (last 5 years, Highlights)

- Summary **Overseas institutes (29), Domestic institutes (10)**
- 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