

Seiji Fujimoto

Curriculum Vitae

Cosmic Dawn Center
Niels Bohr Institute, University of Copenhagen
☎ (+45) 4411 3296
✉ fujimoto@nbi.ku.dk

Work Experience

- 2021–present **Marie Skłodowska-Curie COFUND INTERCTIONS Fellow**, *Cosmic Dawn Center, Denmark*
- 2019–present **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

- 2021 **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

- 2021–present **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

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

- 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

- Principle **N = 27**
- Investigator **(incl. 3 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.00006.S*, 2.8 hrs
Spectroscopic confirmation of a strongly lensed star at $z=6$
 - 3 **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 JVLA
 - 4 **ALMA**, *2021.1.00236.S*, 19 hrs
Golden Reference for Metallicity Measurements at $z = 6 - 7$ by ALMA+JWST
 - 5 **ALMA**, *2019.2.00050.S*, 42 hrs
ALMA Exploration for a Remarkable Protocluster at $z = 5.69$
 - 6 **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 $z = 6.039$
 - 7 **ALMA**, *2019.1.00236.S*, 10 hrs
Strongly Lensed HST-dark Object Discovered by ALMA Lensing Cluster Survey
 - 8 **ALMA**, *2017.1.00531.S*, 18 hrs
ALMA Exploration for $z = 5.69, 6.01, \text{ and } 6.57$ Protoclusters
 - 9 **VLT/Xshooter**, *108.22MK*, 26 hrs
Beasts in the Bubbles: Remarkably UV-bright Galaxies at $z=9-10$
 - 10 **VLT/MUSE**, *109.22VV*, 8.9 hrs
IFU Trio of JWST, ALMA, and MUSE: Where is $\text{Ly}\alpha$ escaping?
 - 11 **Subaru/SWIMS**, *S22A0094N*, 3 nights
Weighing the black hole in a young quasar at $z = 7.2$
 - 12 **Subaru/SWIMS**, *S21B0108N*, 2 nights
Beasts in the Bubbles: Remarkably UV-bright Galaxies at $z = 9 - 10$
 - 13 **Subaru/FOCAS IFU**, *S20A0045N*, 1.5 nights
Unveiling the Connection between 10-kpc $\text{Ly}\alpha$ and [CII] Halos at $z = 6.033$
 - 14 **Subaru/FOCAS**, *S20B0150S*, 0.5 night
Most Massive Black Hole at $z > 6$ Mimicked by Strong Lensing?
 - 15 **Subaru/MOIRCS**, *S16A0033N*, 1.5 nights
Uncovering the New Class of ALMA Sources Assisted by Gravitational Lensing
 - 16 **NOEMA DDT**, *E19AD*, 4.6 hrs
Gas and Dust Properties in a Red Quasar Firstly Discovered at $z > 7$

- 17 **NOEMA, E20EO**, 5.0 hrs
A Vigorously Star-forming Red Quasar Firstly Discovered at $z > 7$
- 18 **NOEMA, E20EN**, 1.5 hrs
Confirming the Most Massive Submm Galaxy at the Node of Remarkable Galaxy Overdensity at $z=6.57$
- 19 **NOEMA, S21DM**, 34 hrs
Vigorously Turbulent Starburst Core in a Red Quasar Host at $z=7.2$
- 20 **NOEMA, W21EF**, 1.5 hrs
Confirming the Most Massive Submm Galaxy at the Node of Remarkable Galaxy Overdensity at $z=6.57$
- 21 **NOEMA, W21EH**, 27 hrs
A dive into the vigorously starburst core in a red quasar host at $z=7.2$
- 22 **JVLA DDT, 20A-520**, 13.2 hrs
First CO(1-0) Measurements of Strongly Lensed sub- L^* Galaxies at $z = 6$
- 23 **JVLA, 21A-145**, 22 hrs
Total Gas Content in a Vigorous Star-forming Red Quasar Discovered at $z > 7$
- 24 **JVLA, 21A-162**, 23.3 hrs
First CO(1-0) Measurements of Strongly & Multiply Lensed sub- L^* Galaxy at $z = 6.072$
- 25 **JCMT/SCUBA2, M17BP073**, 3 nights
Explore Submm Galaxy Nests in Protocluster at $z \sim 5 - 6$
- 26 **JCMT/SCUBA2, M18AP001**, 4 nights
Uncovering Obscured Star Formation in the Enormous Ly α Nebulae
- 27 **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

- 2022 **Taking teaching lectures**, organized by the University of Copenhagen
- 2022 **Taking mentoring lectures**, organized by the University of Copenhagen
- 2021–present **Primary supervisor of Hollis Akins (Bachelor student at Grinnell College)**, *a paper submitted to ApJ*
- 2021–present **Co-supervisor of Vasily Kokorev, Meghana Killi (PhD students at DAWN)**, *papers in preparation*
- 2019–2021 **Co-supervisor of Yuri Kashiwagi (Master student at University of Tokyo)**, *a paper published in PASJ*
- 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

- 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 (11), other oral talks (23)**
- 2022 (invite) **Resolving Extragalactic Universe with ALMA**, *Tokyo*, Japan
- 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
- 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 (28), Domestic institutes (10)**
- 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