

# CV

## I. EMPLOYMENT

- Apr. 2019 - Aug. 2019: Post-doc. Researcher at the University of Geneva (UniGE)  
The Swiss National Science Foundation, SNSF
- Sep. 2019 - Aug. 2020: Post-doc. Researcher at UniGE  
The Swiss Government Excellence Scholarship for a postdoc
- Sep. 2020 - Mar. 2021: Post-doc. Researcher at UniGE (SNSF)
- Apr. 2022 - Jun. 2023: Post-doc. Researcher at UniGE (JSPS Overseas Research Fellow)
- **maternity leave**
- Dec. 2022 - Mar. 2023: Post-doc. Researcher at UniGE (JSPS Overseas Research Fellow)
- Apr. 2023 - Mar. 2025: Post-doc. Researcher at NAOJ (JSPS fellow)
- Apr. 2025- Assistant professor at the University of Tokyo

## II. EDUCATION

- April 2016 - March 2019: Graduate School of Science, The University of Tokyo, Japan
- Doctor of Philosophy in Astronomy, Thesis title: The nature of Ly $\alpha$  emitters: SFR, stellar mass, and dark matter halo mass
- April 2014 - March 2016: Graduate School of Science, The University of Tokyo, Japan
- Master of Science, Astronomy, Thesis title: Star Formation Activity and Its Diversity of Low-Mass Galaxies at Cosmic Noon
- April 2010 - March 2014: Faculty of Science, The University of Tokyo, Japan,
- Bachelor of Science, Astronomy

## III. Publication list

### First author (refereed article)

1. "First Infrared-Based Implications for the Dust Attenuation and Star Formation of Typical Ly $\alpha$  Emitters", H. Kusakabe, K. Shimasaku, K. Nakajima, & M. Ouchi, ApJL, 800, 2, 2015 [DOI: 10.1088/2041-8205/800/2/L29](https://doi.org/10.1088/2041-8205/800/2/L29)
2. "The stellar mass, star formation rate and dark matter halo properties of LAEs at  $z \sim 2$ ", H. Kusakabe, K. Shimasaku, M. Ouchi, K. Nakajima, R. Goto, T. Hashimoto, A. Konno, Y. Harikane, J.D. Silverman, & P.L. Capak, PASJ, 70, 1, 2018.

[DOI:10.1093/pasj/psx148](https://doi.org/10.1093/pasj/psx148)

3. "The dominant origin of diffuse Ly  $\alpha$  halos around Ly  $\alpha$  emitters explored by spectral energy distribution fitting and clustering analysis", H. Kusakabe, K. Shimasaku, R. Momose, M. Ouchi, K. Nakajima, T. Hashimoto, Y. Harikane, J.D. Silverman, & P.L. Capak, PASJ, 71, 3, 2019. [DOI:10.1093/pasj/psz029](https://doi.org/10.1093/pasj/psz029)
4. "The MUSE Hubble Ultra Deep Field Survey. XIV. Evolution of the Ly  $\alpha$  emitter fraction from  $z = 3$  to  $z = 6$ ", H. Kusakabe, J. Blaizot, T. Garel, A. Verhamme, R. Bacon, J. Richard, T. Hashimoto, H. Inami, S. Conseil, B. Guiderdoni, A.B. Drake, E. Christian Herenz, J. Schaye, P. Oesch, J. Matthee, R. Anna Marino, K. Borello Schmidt, R. Pello, M. Maseda, F. Leclercq, J. Kerutt, & G. Mahler, A&A, 638, [DOI:10.1051/0004-6361/201937340](https://doi.org/10.1051/0004-6361/201937340)
5. "The MUSE eXtremely Deep Field: Individual detections of Ly  $\alpha$  haloes around rest-frame UV-selected galaxies at  $z \approx 2.9$ -4.4", H. Kusakabe, A. Verhamme, J. Blaizot, T. Garel, L. Wisotzki, F. Leclercq, R. Bacon, J. Schaye, S.G. Gallego, J. Kerutt, J. Matthee, M. Maseda, T. Nanayakkara, R. Pello, J. Richard, L. Tresse, T. Urrutia, & E. Vitte, A&A, 660, 2022. [DOI:10.1051/0004-6361/202142302](https://doi.org/10.1051/0004-6361/202142302)
6. "The MUSE eXtremely Deep Field: Detections of circumgalactic SII\* emission at  $z > 2$ ", H. Kusakabe, V. Mauerhofer, A. Verhamme, T. Garel, J. Blaizot, L. Wisotzki, J. Richard, L.A. Boogaard, F. Leclercq, Y. Guo, A. Claeysens, T. Contini, E.C. Herenz, J. Kerutt, M.V. Maseda, L. Michel-Dansac, T. Nanayakkara, M. Ouchi, I. Pessa, & J. Schaye, A&A, 691, 255, 2024. [DOI:10.1051/0004-6361/202451009](https://doi.org/10.1051/0004-6361/202451009)

#### Other articles

7. "The extreme starburst J1044+0353 blows kiloparsec-scale bubbles", E. Herenz, H. Kusakabe, S. Maulick, PASJ, 77. 4, L63-69, 2025
8. "RIDEN pilot survey: broad-band selection of candidate quasars with extended Lyman- $\alpha$  nebulae using CLAUDS-HSC-SSP-DUNES2 joint data", R. Shimakawa, S. Kikuta, H. Kusakabe, M. Sawicki, Y. Liang, R. Momose, S. Gwyn, G. Desprez, MNRAS, 540(4) 3565-3582, 2025
9. "SILVERRUSH. XIV. Ly  $\alpha$  Luminosity Functions and Angular Correlation Functions from 20,000 Ly  $\alpha$  Emitters at  $z \sim 2.2$ -7.3 from up to 24 deg<sup>2</sup> HSC-SSP and CHORUS Surveys: Linking the Postreionization Epoch to the Heart of Reionization", H. Umeda, M. Ouchi, S. Kikuta, Y. Harikane, Y. Ono, T. Shibuya, A. Inoue, K. Shimasaku, Y. Liang, A. Matsumoto, S. Saito, H. Kusakabe, Y. Kageura, M. Nakane, ApJS, 277,2, 2025
10. "The MUSE eXtremely Deep Field: Classifying the spectral shapes of Ly  $\alpha$ -emitting galaxies," E. Vitte, A. Verhamme, P. Hibon, F. Leclercq, B. Alcalde Pampliega, J. Kerutt, H. Kusakabe, J. Matthee, Y. Guo, R. Bacon, M. Maseda, J. Richard, J. Pharo, J. Schaye, L. Boogaard, T. Nanayakkara, T. Contini, A&A, 694, 100, 2025
11. "A galactic outflow traced by its extended Mg II emission out to a  $\sim 30$  kpc radius in the Hubble Ultra Deep Field with MUSE", I. Pessa, L. Wisotzki, T. Urrutia, J. Pharo, R. Augustin, N.F. Bouche, A.

- Feltre, Y. Guo, D. Kozlova, D. Krajnovic, H. Kusakabe, F. Leclercq, H. Salas, J. Schaye, & A. Verhamme, *A&A*, 691, 66 2024
12. "Median surface-brightness profiles of Lyman- $\alpha$  haloes in the MUSE Extremely Deep Field", Y. Guo, R. Bacon, L. Wisotzki, T. Garel, J. Blaizot, J. Schaye, J. Richard, Y. Herrero Alonso, F. Leclercq, L. Boogaard, H. Kusakabe, J. Pharo, & E. Vitte, *A&A*, 688, 2024
  13. "EMPRESS. XIV. Strong High-ionization Lines of Young Galaxies at  $z = 0-8$ : Ionizing Spectra Consistent with the Intermediate-mass Black Holes with  $M_{\text{BH}} \sim 10^3-10^6 M_{\odot}$ ", S. Hatano, M. Ouchi, H. Umeda, K. Nakajima, T. Kawaguchi, Y. Isobe, S. Aoyama, K. Watanabe, Y. Harikane, H. Kusakabe, A. Matsumoto, T.J. Moriya, M. Nishigaki, Y. Ono, M. Onodera, Y. Sugahara, A. Suzuki, Y. Xu, & Y. Zhang, *ApJ*, 966, 2, 2024
  14. "Large-scale excess H I absorption around  $z \sim 4$  galaxies detected in a background galaxy spectrum in the MUSE eXtremely deep field", J. Matthee, C. Gollong, R. Mackenzie, G. Pezzulli, S. Lilly, J. Schaye, R. Bacon, H. Kusakabe, T. Urrutia, L. Boogaard, J. Brinchmann, M.V. Maseda, T. Garel, N.F. Bouche, & L. Wisotzki, *MNRAS*, 529, 3, 2024 .
  15. "Lyman continuum leaker candidates at  $z \sim 3-4$  in the HDUV based on a spectroscopic sample of MUSE LAEs", J. Kerutt, P.A. Oesch, L. Wisotzki, A. Verhamme, H. Atek, E.C. Herenz, G.D. Illingworth, H. Kusakabe, J. Matthee, V. Mauerhofer, M. Montes, R.P. Naidu, E. Nelson, N. Reddy, J. Schaye, C. Simmonds, T. Urrutia, & E. Vitte, *A&A*, 684, 2024
  16. "Linking UV spectral properties of MUSE Ly $\alpha$  emitters at  $z < 3$  to Lyman continuum escape", I.G. Kramarenko, J. Kerutt, A. Verhamme, P.A. Oesch, L. Barrufet, J. Matthee, H. Kusakabe, I. Goovaerts, & T.T. Thai, *MNRAS*, 527, 4, 2024
  17. "EMPRESS. XIII. Chemical Enrichment of Young Galaxies Near and Far at  $z \sim 0$  and 4-10: Fe/O, Ar/O, S/O, and N/O Measurements with a Comparison of Chemical Evolution Models", K. Watanabe, M. Ouchi, K. Nakajima, Y. Isobe, N. Tominaga, A. Suzuki, M.N. Ishigaki, K. Nomoto, K. Takahashi, Y. Harikane, S. Hatano, H. Kusakabe, T.J. Moriya, M. Nishigaki, Y. Ono, M. Onodera, & Y. Sugahara, *ApJ*, 962, 1, 2024
  18. "EMPRESS. XII. Statistics on the Dynamics and Gas Mass Fraction of Extremely-Metal Poor Galaxies", Y. Xu, M. Ouchi, Y. Isobe, K. Nakajima, S. Ozaki, N.F. Bouche, J.H. Wise, E. Emsellem, H. Kusakabe, T. Hattori, T. Nagao, G. Chiaki, H. Fukushima, Y. Harikane, K. Hayashi, Y. Hirai, J.H. Kim, M.V. Maseda, K. Nagamine, T. Shibuya, Y. Sugahara, H. Yajima, S. Aoyama, S. Fujimoto, K. Fukushima, S. Hatano, A.K. Inoue, T. Ishigaki, M. Kawasaki, T. Kojima, Y. Komiyama, S. Koyama, Y. Koyama, C.-H. Lee, A. Matsumoto, K. Mawatari, T.J. Moriya, K. Motohara, K. Murai, M. Nishigaki, M. Onodera, Y. Ono, M. Rauch, T. Saito, R. Sasaki, A. Suzuki, T.T. Takeuchi, H. Umeda, M. Umemura, K. Watanabe, K. Yabe, & Y. Zhang, *ApJ*, 961, 1, 2024 .
  19. "Bipolar outflows out to 10 kpc for massive galaxies at redshift  $z \sim 1$ ", Y. Guo, R. Bacon, N.F. Bouche, L. Wisotzki, J. Schaye, J. Blaizot, A. Verhamme, S. Cantalupo, L.A. Boogaard, J. Brinchmann, M. Cherrey, H. Kusakabe, I. Langan, F. Leclercq, J. Matthee, L. Michel-Dansac, I. Schroetter, & M. Wendt, *Natur*, 624, 7990, 2023 .

20. "JWST/NIRSpec Measurements of Extremely Low Metallicities in High Equivalent Width Ly  $\alpha$  Emitters", M.V. Maseda, Z. Lewis, J. Matthee, J.F. Hennawi, L. Boogaard, A. Feltre, T. Nanayakkara, R. Bacon, A. Barger, J. Brinchmann, M. Franx, T. Hashimoto, H. Inami, H. Kusakabe, F. Leclercq, L. Rowland, A.J. Taylor, C. Tremonti, T. Urrutia, J. Schaye, C. Simmonds, & E. Vitte, *ApJ*, 956, 1, 2023 .
21. "Spatially-resolved Spectroscopic Analysis of Ly  $\alpha$  Haloes: Radial Evolution of the Ly  $\alpha$  Line Profile out to 60 kpc", Y. Guo, R. Bacon, L. Wisotzki, T. Garel, J. Blaizot, J. Schaye, J. Matthee, F. Leclercq, L. Boogaard, J. Richard, A. Verhamme, J. Brinchmann, L. Michel-Dansac, & H. Kusakabe, *A&A* in press., arXiv:2309.06311, 2023
22. "SILVERRUSH. XIII. A Catalog of 20,567 Ly  $\alpha$  Emitters at  $z = 2-7$  Identified in the Full-depth Data of the Subaru/HSC-SSP and CHORUS Surveys", S. Kikuta, M. Ouchi, T. Shibuya, Y. Liang, H. Umeda, A. Matsumoto, K. Shimasaku, Y. Harikane, Y. Ono, A.K. Inoue, S. Yamanaka, H. Kusakabe, R. Momose, N. Kashikawa, Y. Matsuda, & C.-H. Lee, *ApJS*, 268, 1, 2023
23. "EMPRESS. XI. SDSS and JWST Search for Local and  $z = 4-5$  Extremely Metal-poor Galaxies (EMPGs): Clustering and Chemical Properties of Local EMPGs", M. Nishigaki, M. Ouchi, K. Nakajima, Y. Ono, M. Rauch, Y. Isobe, Y. Harikane, K. Narita, F. Zahedy, Y. Xu, H. Yajima, H. Fukushima, Y. Hirai, J.H. Kim, S. Inoue, H. Kusakabe, C.-H. Lee, T. Nagao, & M. Onodera, *ApJ*, 952, 1, 2023 .
24. "EMPRESS. IX. Extremely Metal-poor Galaxies are Very Gas-rich Dispersion-dominated Systems: Will the James Webb Space Telescope Witness Gaseous Turbulent High- $z$  Primordial Galaxies?", Y. Isobe, M. Ouchi, K. Nakajima, S. Ozaki, N.F. Bouche, J.H. Wise, Y. Xu, E. Emsellem, H. Kusakabe, T. Hattori, T. Nagao, G. Chiaki, H. Fukushima, Y. Harikane, K. Hayashi, Y. Hirai, J.H. Kim, M.V. Maseda, K. Nagamine, T. Shibuya, Y. Sugahara, H. Yajima, S. Aoyama, S. Fujimoto, K. Fukushima, S. Hatano, A.K. Inoue, T. Ishigaki, M. Kawasaki, T. Kojima, Y. Komiyama, S. Koyama, Y. Koyama, C.-H. Lee, A. Matsumoto, K. Mawatari, T.J. Moriya, K. Motohara, K. Murai, M. Nishigaki, M. Onodera, Y. Ono, M. Rauch, T. Saito, R. Sasaki, A. Suzuki, T.T. Takeuchi, H. Umeda, M. Umemura, K. Watanabe, K. Yabe, & Y. Zhang, *ApJ*, 951, 2, 2023 .
25. "Clustering dependence on Ly  $\alpha$  luminosity from MUSE surveys at  $3 < z < 6$ ", Y. Herrero Alonso, T. Miyaji, L. Wisotzki, M. Krumpke, J. Matthee, J. Schaye, H. Aceves, H. Kusakabe, & T. Urrutia, *A&A*, 671, 2023 .
26. "A  $\sim 15$  kpc outflow cone piercing through the halo of the blue compact metal-poor galaxy SBS 0335-052E", E.C. Herenz, J. Inoue, H. Salas, B. Koenigs, C. Moya-Sierralta, J.M. Cannon, M. Hayes, P. Papaderos, G. Ostlin, A. Bik, A. Le Reste, H. Kusakabe, A. Monreal-Ibero, & J. Puschignig, *A&A*, 670, 2023
27. "The MUSE Hubble Ultra Deep Field surveys: Data release II", R. Bacon, J. Brinchmann, S. Conseil, M. Maseda, T. Nanayakkara, M. Wendt, R. Bacher, D. Mary, P.M. Weilbacher, D. Krajnovic, L. Boogaard, N. Bouche, T. Contini, B. Epinat, A. Feltre, Y. Guo, C. Herenz, W. Kollatschny, H. Kusakabe, F. Leclercq, L. Michel-Dansac, R. Pello, J. Richard, M. Roth, G. Salvignol, J. Schaye, M. Steinmetz, L. Tresse, T. Urrutia, A. Verhamme, E. Vitte, L. Wisotzki, & S.L. Zoutendijk, *A&A*, 670, 2023 .

28. ``EMPRESS. VIII. A New Determination of Primordial He Abundance with Extremely Metal-poor Galaxies: A Suggestion of the Lepton Asymmetry and Implications for the Hubble Tension'', A. Matsumoto, M. Ouchi, K. Nakajima, M. Kawasaki, K. Murai, K. Motohara, Y. Harikane, Y. Ono, K. Kushibiki, S. Koyama, S. Aoyama, M. Konishi, H. Takahashi, Y. Isobe, H. Umeda, Y. Sugahara, M. Onodera, K. Nagamine, H. Kusakabe, Y. Hirai, T.J. Moriya, T. Shibuya, Y. Komiyama, K. Fukushima, S. Fujimoto, T. Hattori, K. Hayashi, A.K. Inoue, S. Kikuchihara, T. Kojima, Y. Koyama, C.-H. Lee, K. Mawatari, T. Miyata, T. Nagao, S. Ozaki, M. Rauch, T. Saito, A. Suzuki, T.T. Takeuchi, M. Umemura, Y. Xu, K. Yabe, Y. Zhang, & Y. Yoshii, *ApJ*, 941, 2, 2022 .
29. ``The Lensed Lyman-Alpha MUSE Arcs Sample (LLAMAS). I. Characterisation of extended Lyman-alpha halos and spatial offsets'', A. Claeysens, J. Richard, J. Blaizot, T. Garel, H. Kusakabe, R. Bacon, F.E. Bauer, L. Guaita, A. Jeanneau, D. Lagattuta, F. Leclercq, M. Maseda, J. Matthee, T. Nanayakkara, R. Pello, T.T. Thai, P. Tuan-Anh, A. Verhamme, E. Vitte, & L. Wisotzki, *A&A*, 666, 2022 .
30. ``EMPRESS. V. Metallicity Diagnostics of Galaxies over  $12 + \log(\text{O}/\text{H}) \approx 6.9\text{--}8.9$  Established by a Local Galaxy Census: Preparing for JWST Spectroscopy'', K. Nakajima, M. Ouchi, Y. Xu, M. Rauch, Y. Harikane, M. Nishigaki, Y. Isobe, H. Kusakabe, T. Nagao, Y. Ono, M. Onodera, Y. Sugahara, J.H. Kim, Y. Komiyama, C.-H. Lee, & F.S. Zahedy, *ApJS*, 262, 1, 2022
31. ``The MUSE eXtremely deep field: first panoramic view of an Mg II emitting intragroup medium'', F. Leclercq, A. Verhamme, B. Epinat, C. Simmonds, J. Matthee, N.F. Bouche, T. Garel, T. Urrutia, L. Wisotzki, J. Zabl, R. Bacon, V. Abril-Melgarejo, L. Boogaard, J. Brinchmann, S. Cantalupo, T. Contini, J. Kerutt, H. Kusakabe, M. Maseda, L. Michel-Dansac, S. Muzahid, T. Nanayakkara, J. Richard, & J. Schaye, *A&A*, 663, 2022
32. ``SILVERRUSH. XII. Intensity Mapping for Ly  $\alpha$  Emission Extending over 100-1000 Comoving Kpc around  $z=2\text{--}7$  LAEs with Subaru HSC-SSP and CHORUS Data'', S. Kikuchihara, Y. Harikane, M. Ouchi, Y. Ono, T. Shibuya, R. Itoh, R. Kakuma, A.K. Inoue, H. Kusakabe, K. Shimasaku, R. Momose, Y. Sugahara, S. Kikuta, S. Saito, N. Kashikawa, H. Zhang, & C.-H. Lee, *ApJ*, 931, 2, 2022
33. ``EMPRESS. VI. Outflows Investigated in Low-mass Galaxies with  $M^* = 10^4\text{--}10^7$  Msun: Weak Feedback in Low-mass Galaxies?', Y. Xu, M. Ouchi, M. Rauch, K. Nakajima, Y. Harikane, Y. Sugahara, Y. Komiyama, H. Kusakabe, S. Fujimoto, Y. Isobe, J.H. Kim, Y. Ono, & F.S. Zahedy, *ApJ*, 929, 2, 2022
34. ``Deciphering stellar metallicities in the early Universe: case study of a young galaxy at  $z = 4.77$  in the MUSE eXtremely Deep Field'', J. Matthee, A. Feltre, M. Maseda, T. Nanayakkara, L. Boogaard, R. Bacon, A. Verhamme, F. Leclercq, H. Kusakabe, T. Urrutia, & L. Wisotzki, *A&A*, 660, 2022 .
35. ``Equivalent widths of Lyman  $\alpha$  emitters in MUSE-Wide and MUSE-Deep'', J. Kerutt, L. Wisotzki, A. Verhamme, K.B. Schmidt, F. Leclercq, E.C. Herenz, T. Urrutia, T. Garel, T. Hashimoto, M. Maseda, J. Matthee, H. Kusakabe, J. Schaye, J. Richard, B. Guiderdoni, V. Mauerhofer, T. Nanayakkara, & E. Vitte, *A&A*, 659, 2022 .
36. ``EMPRESS. IV. Extremely Metal-poor Galaxies Including Very Low-mass Primordial Systems with  $M^*$

$=10^4\text{--}10^5$   $M_{\text{sun}}$  and 2%–3% (O/H): High (Fe/O) Suggestive of Metal Enrichment by Hypernovae/Pair-instability Supernovae", Y. Isobe, M. Ouchi, A. Suzuki, T.J. Moriya, K. Nakajima, K. Nomoto, M. Rauch, Y. Harikane, T. Kojima, Y. Ono, S. Fujimoto, A.K. Inoue, J.H. Kim, Y. Komiyama, H. Kusakabe, C.-H. Lee, M. Maseda, J. Matthee, L. Michel-Dansac, T. Nagao, T. Nanayakkara, M. Nishigaki, M. Onodera, Y. Sugahara, & Y. Xu, *ApJ*, 925, 2, 2022 .

37. ``EMPRESS. III. Morphology, Stellar Population, and Dynamics of Extremely Metal-poor Galaxies (EMPGs): Are EMPGs Local Analogs of High- $z$  Young Galaxies?", Y. Isobe, M. Ouchi, T. Kojima, T. Shibuya, K. Hayashi, M. Rauch, S. Kikuchihara, H. Zhang, Y. Ono, S. Fujimoto, Y. Harikane, J.H. Kim, Y. Komiyama, H. Kusakabe, C.-H. Lee, K. Mawatari, M. Onodera, Y. Sugahara, & K. Yabe, *ApJ*, 918, 2, 2021 .
38. ``SILVERRUSH. IX.  $\text{Ly } \alpha$  Intensity Mapping with Star-forming Galaxies at  $z = 5.7$  and  $6.6$ : A Possible Detection of Extended  $\text{Ly } \alpha$  Emission at  $<\sim 100$  Comoving Kiloparsecs around and beyond the Virial-radius Scale of Galaxy Dark Matter Halos", R. Kakuma, M. Ouchi, Y. Harikane, Y. Ono, A.K. Inoue, Y. Komiyama, H. Kusakabe, C.-H. Lee, Y. Matsuda, Y. Matsuoka, K. Mawatari, R. Momose, T. Shibuya, & Y. Taniguchi, *ApJ*, 916, 1, 2021 .
39. ``Constraining the cosmic UV background at  $z < 3$  with MUSE Lyman- $\alpha$  emission observations", S.G. Gallego, S. Cantalupo, S. Sarpas, B. Duboef, S. Lilly, G. Pezzulli, R.A. Marino, J. Matthee, L. Wisotzki, J. Schaye, J. Richard, H. Kusakabe, & V. Mauerhofer, *MNRAS*, 504, 1, 2021
40. ``Subaru Hyper Suprime-Cam excavates colossal over- and underdense structures over  $360 \text{ deg}^2$  out to  $z = 1$ ", R. Shimakawa, Y. Higuchi, M. Shirasaki, M. Tanaka, Y.-T. Lin, M. Hayashi, R. Momose, C.-H. Lee, H. Kusakabe, T. Kodama, & N. Yamamoto, *MNRAS*, 503, 3, 2021
41. ``EMPRESS. II. Highly Fe-enriched Metal-poor Galaxies with  $\sim 1.0$  (Fe/O) $_{\text{sun}}$  and  $0.02$  (O/H) $_{\text{sun}}$ : Possible Traces of Supermassive ( $<300 M_{\text{sun}}$ ) Stars in Early Galaxies", T. Kojima, M. Ouchi, M. Rauch, Y. Ono, K. Nakajima, Y. Isobe, S. Fujimoto, Y. Harikane, T. Hashimoto, M. Hayashi, Y. Komiyama, H. Kusakabe, J.H. Kim, C.-H. Lee, S. Mukae, T. Nagao, M. Onodera, T. Shibuya, Y. Sugahara, M. Umemura, & K. Yabe, *ApJ*, 913, 1, 2021
42. ``Catch Me if You Can: Biased Distribution of  $\text{Ly } \alpha$ -emitting Galaxies according to the Viewing Direction", R. Momose, K. Shimasaku, K. Nagamine, I. Shimizu, N. Kashikawa, M. Ando, & H. Kusakabe, *ApJL*, 912, 2, 2021
43. ``ALMA Lensing Cluster Survey: Bright [C II]  $158 \mu\text{m}$  Lines from a Multiply Imaged Sub-Lstar Galaxy at  $z = 6.0719$ ", S. Fujimoto, M. Oguri, G. Brammer, Y. Yoshimura, N. Laporte, J. Gonzalez-Lopez, G.B. Caminha, K. Kohno, A. Zitrin, J. Richard, M. Ouchi, F.E. Bauer, I. Smail, B. Hatsukade, Y. Ono, V. Kokorev, H. Umehata, D. Schaerer, K. Knudsen, F. Sun, G. Magdis, F. Valentino, Y. Ao, S. Toft, M. Dessauges-Zavadsky, K. Shimasaku, K. Caputi, H. Kusakabe, K. Morokuma-Matsui, K. Shotaro, E. Egami, M.M. Lee, T. Rawle, & D. Espada, *ApJ*, 911, 2, 2021
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46. "Environmental Dependence of Galactic Properties Traced by  $\text{Ly}\alpha$  Forest Absorption: Diversity among Galaxy Populations", R. Momose, K. Shimasaku, N. Kashikawa, K. Nagamine, I. Shimizu, K. Nakajima, Y. Terao, H. Kusakabe, M. Ando, K. Motohara, & L. Spitler, *ApJ*, 909, 2, 2021
47. "The MUSE Extremely Deep Field: The cosmic web in emission at high redshift", R. Bacon, D. Mary, T. Garel, J. Blaizot, M. Maseda, J. Schaye, L. Wisotzki, S. Conseil, J. Brinchmann, F. Leclercq, V. Abril-Melgarejo, L. Boogaard, N.F. Bouche, T. Contini, A. Feltre, B. Guiderdoni, C. Herenz, W. Kollatschny, H. Kusakabe, J. Matthee, L. Michel-Dansac, T. Nanayakkara, J. Richard, M. Roth, K.B. Schmidt, M. Steinmetz, L. Tresse, T. Urrutia, A. Verhamme, P.M. Weilbacher, J. Zabl, & S.L. Zoutendijk, *A&A*, 647, 2021
48. "CHORUS. I. Cosmic HydrOgen Reionization Unveiled with Subaru: Overview", A.K. Inoue, S. Yamanaka, M. Ouchi, I. Iwata, K. Shimasaku, Y. Taniguchi, T. Nagao, N. Kashikawa, Y. Ono, K. Mawatari, T. Shibuya, M. Hayashi, H. Ikeda, H. Zhang, Y. Liang, C.-H. Lee, M. Hilmi, S. Kikuta, H. Kusakabe, H. Furusawa, T. Hayashino, M. Kajisawa, Y. Matsuda, K. Nakajima, R. Momose, Y. Harikane, T. Saito, T. Kodama, S. Kikuchihara, M. Iye, & T. Goto, *PASJ*, 72, 6, 2020
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50. "The nature of CR7 revealed with MUSE: a young starburst powering extended  $\text{Ly}\alpha$  emission at  $z = 6.6$ ", J. Matthee, G. Pezzulli, R. Mackenzie, S. Cantalupo, H. Kusakabe, F. Leclercq, D. Sobral, J. Richard, L. Wisotzki, S. Lilly, L. Boogaard, R. Marino, M. Maseda, & T. Nanayakkara, *MNRAS*, 498, 2, 2020
51. "The MUSE Hubble Ultra Deep Field Survey. XV. The mean rest-UV spectra of  $\text{Ly}\alpha$  emitters at  $z < 3$ ", A. Feltre, M.V. Maseda, R. Bacon, J. Pradeep, F. Leclercq, H. Kusakabe, L. Wisotzki, T. Hashimoto, K.B. Schmidt, J. Blaizot, J. Brinchmann, L. Boogaard, S. Cantalupo, D. Carton, H. Inami, W. Kollatschny, R.A. Marino, J. Matthee, T. Nanayakkara, J. Richard, J. Schaye, L. Tresse, T. Urrutia, A. Verhamme, & P.M. Weilbacher, *A&A*, 641, 2020
52. "ALMA twenty-six arcmin<sup>2</sup> survey of GOODS-S at one millimeter (ASAGAO): Millimeter properties of stellar mass selected galaxies", Y. Yamaguchi, K. Kohno, B. Hatsukade, T. Wang, Y. Yoshimura, Y. Ao, J.S. Dunlop, E. Egami, D. Espada, S. Fujimoto, N.H. Hayatsu, R.J. Ivison, T. Kodama, H. Kusakabe, T. Nagao, M. Ouchi, W. Rujopakarn, K.-ichi . Tadaki, Y. Tamura, Y. Ueda, H. Umehata, & W.-H. Wang, *PASJ*, 72, 4, 2020.

53. "Extremely Metal-poor Representatives Explored by the Subaru Survey (EMPRESS). I. A Successful Machine-learning Selection of Metal-poor Galaxies and the Discovery of a Galaxy with  $M^* < 10^6 M_{\odot}$  and  $0.016 Z_{\odot}$ ", T. Kojima, M. Ouchi, M. Rauch, Y. Ono, K. Nakajima, Y. Isobe, S. Fujimoto, Y. Harikane, T. Hashimoto, M. Hayashi, Y. Komiyama, H. Kusakabe, J.H. Kim, C.-H. Lee, S. Mukae, T. Nagao, M. Onodera, T. Shibuya, Y. Sugahara, M. Umemura, & K. Yabe, *ApJ*, 898, 2, 2020 .
54. "Elevated ionizing photon production efficiency in faint high-equivalent-width Lyman- $\alpha$  emitters", M.V. Maseda, R. Bacon, D. Lam, J. Matthee, J. Brinchmann, J. Schaye, I. Labbe, K.B. Schmidt, L. Boogaard, R. Bouwens, S. Cantalupo, M. Franx, T. Hashimoto, H. Inami, H. Kusakabe, G. Mahler, T. Nanayakkara, J. Richard, & L. Wisotzki, *MNRAS*, 493, 4, 2020.
55. "CHORUS. III. Photometric and Spectroscopic Properties of Ly  $\alpha$  Blobs at  $z = 4.9-7.0$ ", H. Zhang, M. Ouchi, R. Itoh, T. Shibuya, Y. Ono, Y. Harikane, A.K. Inoue, M. Rauch, S. Kikuchihara, K. Nakajima, H. Yajima, S. Arata, M. Abe, I. Iwata, N. Kashikawa, S. Kawanomoto, S. Kikuta, M.A.R. Kobayashi, H. Kusakabe, K. Mawatari, T. Nagao, K. Shimasaku, & Y. Taniguchi, *ApJ*, 891, 2, 2020 .
56. "The MUSE Hubble Ultra Deep Field Survey. XIII. Spatially resolved spectral properties of Lyman  $\alpha$  haloes around star-forming galaxies at  $z < 3$ ", F. Leclercq, R. Bacon, A. Verhamme, T. Garel, J. Blaizot, J. Brinchmann, S. Cantalupo, A. Claeysens, S. Conseil, T. Contini, T. Hashimoto, E.C. Herenz, H. Kusakabe, R.A. Marino, M. Maseda, J. Matthee, P. Mitchell, G. Pezzulli, J. Richard, K.B. Schmidt, & L. Wisotzki, *A&A*, 635, 2020
57. "ALMA 26 arcmin<sup>2</sup> Survey of GOODS-S at 1 mm (ASAGAO): Near-infrared-dark Faint ALMA Sources", Y. Yamaguchi, K. Kohno, B. Hatsukade, T. Wang, Y. Yoshimura, Y. Ao, K.I. Caputi, J.S. Dunlop, E. Egami, D. Espada, S. Fujimoto, N.H. Hayatsu, R.J. Ivison, T. Kodama, H. Kusakabe, T. Nagao, M. Ouchi, W. Rujopakarn, K.-ichi . Tadaki, Y. Tamura, Y. Ueda, H. Umehata, W.-H. Wang, & M.S. Yun, *ApJ*, 878, 1, 2019 .
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59. "SILVERRUSH. VI. A simulation of Ly  $\alpha$  emitters in the reionization epoch and a comparison with Subaru Hyper Suprime-Cam survey early data", A.K. Inoue, K. Hasegawa, T. Ishiyama, H. Yajima, I. Shimizu, M. Umemura, A. Konno, Y. Harikane, T. Shibuya, M. Ouchi, K. Shimasaku, Y. Ono, H. Kusakabe, R. Higuchi, & C.-H. Lee, *PASJ*, 70, 3, 2018
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61. "SILVERRUSH. III. Deep optical and near-infrared spectroscopy for Ly  $\alpha$  and UV-nebular lines of bright Ly  $\alpha$  emitters at  $z = 6-7$ ", T. Shibuya, M. Ouchi, Y. Harikane, M. Rauch, Y. Ono, S. Mukae,



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63. "First data release of the Hyper Suprime-Cam Subaru Strategic Program", H. Aihara, R. Armstrong, S. Bickerton, J. Bosch, J. Coupon, H. Furusawa, Y. Hayashi, H. Ikeda, Y. Kamata, H. Karoji, S. Kawanomoto, M. Koike, Y. Komiyama, D. Lang, R.H. Lupton, S. Mineo, H. Miyatake, S. Miyazaki, T. Morokuma, Y. Obuchi, Y. Oishi, Y. Okura, P.A. Price, T. Takata, M.M. Tanaka, M. Tanaka, Y. Tanaka, T. Uchida, F. Uraguchi, Y. Utsumi, S.-Y. Wang, Y. Yamada, H. Yamanoi, N. Yasuda, N. Arimoto, M. Chiba, F. Finet, H. Fujimori, S. Fujimoto, J. Furusawa, T. Goto, A. Goulding, J.E. Gunn, Y. Harikane, T. Hattori, M. Hayashi, K.G. He{\tiny{Y}}miniak, R. Higuchi, C. Hikage, P.T.P. Ho, B.-C. Hsieh, K. Huang, S. Huang, M. Imanishi, I. Iwata, A.T. Jaelani, H.-Y. Jian, N. Kashikawa, N. Katayama, T. Kojima, A. Konno, S. Koshida, H. Kusakabe, A. Leauthaud, C.-H. Lee, L. Lin, Y.-T. Lin, R. Mandelbaum, Y. Matsuoka, E. Medezinski, S. Miyama, R. Momose, A. More, S. More, S. Mukae, R. Murata, H. Murayama, T. Nagao, F. Nakata, M. Niida, H. Niikura, A.J. Nishizawa, M. Oguri, N. Okabe, Y. Ono, M. Onodera, M. Onoue, M. Ouchi, T.-S. Pyo, T. Shibuya, K. Shimasaku, M. Sime{\tiny{t}}, J. Speagle, D.N. Spergel, M.A. Strauss, Y. Sugahara, N. Sugiyama, Y. Suto, N. Suzuki, P.J. Tait, M. Takada, T. Terai, Y. Toba, E.L. Turner, H. Uchiyama, K. Umetsu, Y. Urata, T. Usuda, S. Yeh, & S. Yuma, PASJ, 70, 2018
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65. "A Hard Ionizing Spectrum in  $z = 3-4$  Ly  $\alpha$  Emitters with Intense [O III] Emission: Analogs of Galaxies in the Reionization Era?", K. Nakajima, R.S. Ellis, I. Iwata, A.K. Inoue, H. Kusakabe, M. Ouchi, & B.E. Robertson, ApJL, 831, 1, 2016
66. "Bright and Faint Ends of Ly  $\alpha$  Luminosity Functions at  $z = 2$  Determined by the Subaru Survey: Implications for AGNs, Magnification Bias, and ISM H I Evolution", A. Konno, M. Ouchi, K. Nakajima, F. Duval, H. Kusakabe, Y. Ono, & K. Shimasaku, ApJ, 823, 1, 2016

## IV. INVITED/CONTRIBUTED TALKS IN INTERNATIONAL CONFERENCES

67. "First detections of circumgalactic SII\* emission at  $z > 2$ ", Baryons Beyond Galactic Boundaries 2024, India, 2024. 12
68. "The general presence of a Ly  $\alpha$  halo around high- $z$  galaxies and its high incidence rate", Kochel CLAW, Germany, 2024. 10
69. "Search for metal-enriched haloes of  $z > 2$  galaxies with SII\*", 25th MUSE Busy Week, France, 2023. 06
70. "MXDF: Significant amount of hydrogen gas in the CGM around UV-selected galaxies at  $z=3-4$  traced by Ly  $\alpha$  haloes", The production and escape of Lyman photons through time and space, Online, 2022.01
71. "The general presence of a Ly  $\alpha$  halo around high- $z$  galaxies and its high incidence rate", SAZERAC, Online, 2021.06
72. "Late or patchy reionization suggested by the LAE fraction measured with HST and MUSE", EAS2020 S13d, Online, 2020.07
73. "The origin of diffuse Ly  $\alpha$  halos around LAEs", Tokyo Spring Cosmic Lyman Alpha Workshop, Japan, 2018. 03
74. "Mass Assembly Efficiency of LAEs at  $z \sim 2$ : Stellar & Halo Properties", The Snowbird Cosmic Lyman-Alpha Workshop, US, 2017.03
75. "Dark matter halo and stellar properties of extremely low-mass galaxies at  $z \sim 2$ ", The 6th Subaru International Conference, Japan, 2016.12 [invited]

+17 oral presentations and five poster presentations

## V. INVITED TALKS in SEMINARS

76. “CGM observations in emission” , 東京大学天文学教育研究センター談話会, 2023 年 11 月
  77. “Gaseous hydrogen envelope of high- $z$  galaxies observed with MUSE through Ly $\alpha$  emission” , 早稲田大学 Obsap コロキウム, 2021 年 5 月
  78. “Constraining the reionization history with the LAE fraction measured with HST and MUSE” , ExGal/Cosmology Seminar at UT Austin, アメリカ(remote), 2020 年 10 月
  79. “The nature of Ly $\alpha$  emitters: SFR, stellar mass, and dark matter halo mass” , 東北大学談話会, 2019 年 2 月
  80. “The nature of LAEs at  $z \sim 2$ : star formation activity and the origin of bright Ly $\alpha$  halos”, Durham University 談話会, イギリス, 2018 年 6 月
- 他. 国内外で 12 回のセミナー招待講演あり

## VI. FELLOWSHIPS AND GRANTS

81. University of Tokyo Research Restart and Work-Life Balance Support Program FY2025 50 万円
82. JSPS 若手研究 25K17444 (2025.04-2028.03) 370 万円  
“電波 21cm 線と可視光分光で探る銀河の形成初期”
83. JSPS 特別研究員 PD, 研究奨励費 23KJ2148 (2023.04-2026.03) 2083.2 万円  
“広視野面分光装置による極金属欠乏銀河の銀河周辺物質の力学・電離状態の解明”
84. JSPS 海外特別研究員 202300224 (2021.04-2023.03) 1255.6 万円
85. The Swiss Society for Astrophysics and Astronomy MERAC funding award 2020 5000 Euro
86. Swiss Travel support from Society Academic of Geneva 2020 1450 CHF
87. Swiss Government Excellence Scholarship for postdocs (2019.09-2020.08) 36000 CHF
88. JSPS 特別研究員 DC1 (2016.04-2019.03) 約 1000 万円
89. JSPS 若手研究者海外挑戦プログラム (2018 年, リヨン天文台長期滞在) 約 160 万円
90. 第 88 回、90 回、127 回 早川基金 旅費支援 合計約 89 万円

## VII. TELESCOPE TIME

91. ALMA (PI)、``Do there exist mini-SMGs at cosmic noon", 6.5 時間、2017.1.01618.S
92. Subaru/SWIMS (PI)、``Triple NB mapping of HI ¥& AGNs associated to HS1700 protocluster filaments", 2.5 夜、S22A0031N
93. VLT/MUSE (PI)、``Outflows and ionized circumgalactic medium of extremely metal-poor galaxies: the MUSE view", 24 時間、110.23S1
94. VLT/MUSE (PI)、``Outflows and ionized circumgalactic medium of extremely metal-poor galaxies:

the MUSE view", 14 時間、111.24HB

- 95. MeerKAT (PI), ``MeerKAT confirmation of rich gas content of extremely metal-poor galaxies", 38.6 時間、MKT-24047
- 96. GMRT (PI) "GMRT mapping of rich gas content of extremely metal-poor galaxies" 30 hours, 20250316, 30 時間、48\_023
- 97. Subaru/FOCAS IFU, ``Probing local metallicity environments of fast radio bursts with FOCAS IFU'', 1 夜、S25B0057N

## VIII. AWARD

- 98. 東京大学 2013 年度理学部長賞受賞 (理学部学生選抜海外派遣プログラム)
- 99. 2014 年度天文・天体物理若手夏の学校 銀河・銀河団セッション オーラルアワード 2 位受賞

## IX. TEACHING EXPERIENCE

- 100. 東京大学総合文化研究科 2025 年度 A ターム「基礎システム学輪講 III」週 1 コマ
- 101. 東京大学総合文化研究科 2025 年度 S ターム「基礎システム学輪講 III」週 1 コマ
- 102. 東京大学前期教養課程 2024 年度 S ターム「宇宙科学実習 II」週 4 コマ
- 103. ジュネーブ大学理学部天文学専攻 2020-2022 年度「星間物質」演習 2 コマ
- 104. 東京大学理学系研究科天文学専攻 「木曾観測実習」「計算天文学」「物理実験」TA
- 105. Taiwan Astronomical Research Alliance: TARA summer student program 2025 2 名  
"Revealing the origins of fast radio bursts by mapping their host galaxies"  
Mr. Ryan Chuan-Keng Chuang (2025 年 7-8 月)  
Ms. Sherry Jie Shiuan Gong (2025 年 7-8 月)
- 106. ジュネーブ大学大学院天文学専攻 修士 1 年生研究指導 (Astrophysics Lab I+II) 2 名  
Mr. Bastien Lacave (2021 年 9 月-2022 年 1 月)  
Mr. Nikita Smolnikov (2021 年 2 月-7 月)
- 107. ジュネーブ大学天文学科 学部 3 年生研究指導 (TP3) 3 名  
Mr. Laurent Dalla Pola (2021 年 2-4 月)  
Mr. Bastien Lacave (2020 年 9-11 月)  
Mr. Yannick Arthur Eyholzer (2019 年 9 月-11 月)

## X. Service Activity

- 108. 日本天文学会 Code of Conduct/ハラスメント防止ガイドライン策定タスクフォース 2024 年~

- 109. 論文査読 ApJ, ApJS, ApJL, MNRAS, A&A, 2019 年~
- 110. 観測提案査読 (Subaru, ESO) 2019 年~
- 111. SOC, 10<sup>th</sup>-11<sup>th</sup> Galaxy evolution workshop, 台湾, 2024 年 8 月 , 名古屋 2025 年 8 月
- 112. SOC, 銀河研究者のオープンフォーラム (Galaxy Evolution Community Knowledge-sharing Opportunity, GECKO) 2024 年 9 月~
- 113. SOC, the 52nd Saas-Fee advanced course “The Circumgalactic Medium across cosmic time: an observational and modeling challenge” , スイス, 2023 年 3 月
- 114. Editor, springer 社 “The Circumgalactic Medium across cosmic time: an observational and modeling challenge” (出版準備中)
- 115. LOC, Tokyo Spring Cosmic Lyman-alpha workshop (Sakura CLAW) 2018 年 3 月