Curriculum Vitae

Dr. Takuya Hashimoto

Affiliation:	Osaka-Sangyo University, National Astronomical Observatory of Japan (NAOJ)
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Education:

Mar 2015	Ph.D. Astronomy, The University of Tokyo ▷ Dissertation: "Outflows in Distant Galaxies Probed by Lyα Spectra" ▷ Comittee : K. Motohara (chair), N. Kashikawa, R. Kawabe, K. Kohno, T. Yamada ▷ Supervisors : K. Shimasaku, M. Ouchi
Mar 2012	M.S. Astronomy, The University of Tokyo
Mar 2010	B.A. Astronomy, Tohoku University

Experience:

Jan 2017 – present	Osaka-Sangyo University, NAOJ, Post-doctral Researcher (ALMA designated researcher) ▷ Advisor : A. K. Inoue
Apr 2016	Observatoire de Lyon, Centre de Recherche Astrophysique de Lyon (CRAL), Post-doctral Researcher ▷ Advisor : B. Guiderdoni • Resignation due to disease
Apr 2015 – Mar 2016	JSPS fellowship, Observatoire de Lyon, Centre de Recherche Astrophysique de Lyon (CRAL), Post-doctral Researcher ▷ Advisor : B. Guiderdoni

Grants and Awards:

Apr 2014 – Mar 2016	JSPS DC2 fellowship, $\sim$ 8500000 JPY
Apr 2012 – Mar 2014	Japan Ikuei-kai Scholorship (JASSO), $\sim$ 2000000 JPY
2013	Travel Grant from *Takuetsu-Hojokin*, 500000 JPY
2013	Travel Grant from *Hayakawa-Yukio fund*, 200000 JPY

Contributions in International Conferences:

2018 "The MUSE Hubble Ultra Deep Field Survey X: Lyα Equivalent Widths at $2.9 < z < 6.6$", Contributed poster at Tokyo Spring Cosmic Lymag-Alpha Workshop (Sakura-CLAW), Hongo, Japan

2018 "Kinematics in a z=7.15 Lyman Alpha Emitter Revealed by the [OIII] 88 micron and [CII] 158 micron Lines Detected with ALMA", Contributed talk at Tokyo Spring Cosmic Lymag-Alpha Workshop (Sakura-CLAW), Hongo, Japan

2017 "ALMA fellow program report", Invited talk at ALMA/45m/ASTE Users Meeting 2017, Mitaka, Japan

2017 "Kinematics in a z=7.15 Lyman Alpha Emitter Revealed by the [OIII] 88 micron and [CII] 158 micron Lines Detected with ALMA", Contributed talk at East-Asia ALMA Science Workshop 2017, KASI, Daejeon, Korea

(2016) "Lyman-Alpha Emitters in the MUSE UDF", Contributed talk at EWASS 2016 (Symposium–MUSE first year science and beyond), Athens, Greece, *presented by Dr. A. B. Drake because of my absence from the conference due to a disease*

(2016) "Lyα EW distribution and LAE fraction in UDF10", Contributed talk at the workshop: 11th MUSE busy week, Corsica, France, *presented by Dr. B. Guiderdoni because of my absence from the conference due to a disease*

2016 "A close comparison between observed and modeled Lyα lines for $z \sim 2$ Lyman Alpha Emitters", Contributed poster at the Saas-Fee Advanced Course (Lyman-alpha as an astrophysical and cosmological tool), Saas-Fee, Switzerland

2015 "Lyα Equivalent Width Distribution and LAE fraction at $2.8 < z < 6.6$ in HDFS and UDF" Contributed talk at the workshop: 10th MUSE busy week, Goslar, Germany

2015 "Lyα Equivalent Width in UDF10", Contributed talk at the workshop: MUSE UDF meeting, Lyon, France

2014 "The statistical spectroscopic properties in high-z Lyman-Alpha Emitters and close comparison between observed and modelled Lyα line", Contributed talk at EWASS 2014 (Symposium–From local galaxies to the reionisation epoch: the Universe as seen in Lyman α), Geneva, Switzerland

2013 "Gas Motion Study of Lyα Emitters at $z \sim 2$ Using FUV and Optical Spectral Lines", Invited talk at the workshop: Lyman Alpha as an Astrophysical Tool, Stockholm, Sweden

2013 "Gas Motion Study of Lyα Emitters at $z \sim 2$ Using FUV and Optical Spectral Lines", Contributed poster at the workshop: 2013 COSMOS Team Meeting, Kyoto, Japan

2012 "Can Gas Outflows Explain The Strong Lyα Emission Of Lyman Alpha Emitters?", Contributed poster at AAS (American Astronomical Society), Anchorage, Alaska, USA

Contributions in Domestic Conferences:

2018 "Kinematics in a $z = 7.15$ Lyman Alpha Emitter Revealed by the [OIII] 88 micron and [CII] 158 micron Lines Detected with ALMA", Talk at the 2018 Spring Meeting of the Astronomical Society of Japan, Chiba, Japan

2017 "The MUSE Hubble Ultra Deep Field Survey: Lyα Equivalent Widths at $2.9 < z < 6.6$", Talk at the 2017 Autumn Meeting of the Astronomical Society of Japan, Hokkaido, Japan

2017 "Lyα Emitters with Very Large Lyα Equivalent Widths, $EW_0(Ly\alpha) \simeq 200\Gamma400$ Å" , Talk at the 2017 Spring Meeting of the Astronomical Society of Japan, Fukuoka, Japan

2015 "A close comparison between observed and modeled Lyα lines for $z \sim 2$ Lyman Alpha Emitters", Poster at the 2015 Autumn Meeting of the Astronomical Society of Japan, Hyogo, Japan

2014 "Statistical spectroscopic properties in high-z Lyman-Alpha Emitters and close comparisons between observed and modelled Lyα lines", Talk at the 2014 Autumn Meeting of the Astronomical Society of Japan, Yamagata, Japan

2012 "Gas Motion Statistics of Lyα Emitters and their Lyα Escape Mechanisms", Talk at the workshop: Theory of the Large-Scale Structure of the Universe in the ALMA-era, Hokkaido, Japan

2012 "Gas Motion Statistics of Lyα Emitters at $z \sim 2$ Using UV and Optical Emission Lines", Poster at the GCOE International Symposium, Tokyo, Japan

2012 "Observational Properties of Lyα Emitters Revealed by Rest-frame FUV and Optical Spectroscopy", Talk at the RESCUE Observational Cosmology Workshop, Tokyo, Japan

2012 "Gas Motion Statistics of Lyα Emitters at $z \sim 2$ Using UV and Optical Emission Lines", Poster at the 2012 Autumn Meeting of the Astronomical Society of Japan, Oita, Japan

2011 "Near-Infrared Spectroscopy of $z \sim 2.2$ LAEs 2: Gas Motion Study of LAEs Using Spectral Lines", Talk at the 2011 Autumn Meeting of the Astronomical Society of Japan, Kagoshima, Japan

2011 "Near-Infrared Spectroscopy of $z \sim 2.2$ LAEs: Detections of Nebular Emission Lines", Talk at the 2011 Spring Meeting of the Astronomical Society of Japan, Tsukuba, Japan

Observing Experiences:

Dec 2013 Magellan/MagE 2 nights (PI: Michael Rauch)
Dec 2012 Subaru/FMOS 3 nights (PI: Kimihiko Nakajima)
Apr 2012 Subaru/IRCS + AO188 2 nights (PI: Masami Ouchi)
Feb 2011 Keck/NIRSPEC 2 nights (PI: Kimihiko Nakajima)
Jan 2011 Subaru/Suprime-Cam 3 nights (PI: Masami Ouchi)
Oct 2010 Magellan/MagE 2 nights (PI: Masami Ouchi)

Publication List (Refereed publications):

– 6 PI papers (150 citations in total by 2018 June. 22.)

- **Hashimoto, T.**, Inoue, A.K., Mawatari, K., Tamura, Y., Matsuo, H., Furusawa, H., Harikane, Y., Shibuya, T., Knudsen, K. K., Kohno, K., Ono, Y., Zackrisson, E., Okamoto, T., Kashikawa, N., Oesch, P. A., Ouchi, M., Ota, K., Shimizu, I., Taniguchi, Y., Umehata, H., and Watson, D.
"Big Three Dragons": a z = 7.15 Lyman BreakGalaxy Detected in [OIII] 88 μm, [CII] 158 μm, and Dust Continuum with ALMA", Submitted to *Publication of Astronomical Society of Japan*, (22 pp) (2018b).
▷ **1 citations**

- **Hashimoto, T.**, Laporte, N., Mawatari, K., Ellis, R. S., Inoue, A. K., Zackrisson, E., Roberts-Borsani, G., Zheng, W., Tamura, Y., Bauer, F. E., Fletcher, T., Harikane, Y., Hatsukade, B., Hayatsu, N. H., Matsuda, Y., Matsuo, H., Okamoto, T., Ouchi, M., Pelló, R., Rydberg, C. E., Shimizu, I., Taniguchi, Y., Umehata, H., and Yoshida, N.
"The onset of star formation 250 million years after the Big Bang", *Nature* , 557, 392-395 (2018a).
▷ **2 citations**

- **Hashimoto, T.**, Garel, T., Guiderdoni, B., Drake, A. B., Bacon, R., Blaizot, J., Richard, J., Leclercq, F., Inami, H., Verhamme, A., Bouwens, R., Brinchmann, J., Cantalupo, S., Carollo, M., Caruana, J., Herenz, E. C., Kerutt, J., Marino, R. A., Mitchell, P., Schaye, J.
"The MUSE Hubble Ultra Deep Field Survey. X. Lyα Equivalent Widths at $2.9 < z < 6.6$", *Astronomy & Astrophysics*, 608, A10, (20 pp) (2017b).
▷ **11 citations**

- **Hashimoto, T.**, Ouchi, M., Shimasaku, K., Schaerer, D., Nakajima, K., Shibuya, T., Ono, Y., Rauch, M., and Goto, R.
"Lyα emitters with very large Lyα equivalent widths, $\mathrm{EW}_0(\mathrm{Ly}\alpha) \simeq 200 - 400$ Å, at $z \sim 2$", *Monthly Notices of the Royal Astronomical Society*, 465, 2, 1543-1562 (20pp) (2017a).
▷ **11 citations**

- **Hashimoto, T.**, Verhamme, A., Ouchi, M., Shimasaku, K., Schaerer, D., Nakajima, K., Shibuya, T., Rauch, M., Ono, Y., and Goto, R.
"A Close Comparison between Observed and Modeled Lyα Lines for $z \sim 2.2$ Lyα Emitters", *The Astrophysical Journal*, 812, 2, 157 (22pp) (2015).
▷ **41 citations**

- **Hashimoto, T.**, Ouchi, M., Shimasaku, K., Ono, Y., Nakajima, K., Rauch, M., Lee, J., and Okamura, S.
"Gas Motion Study of Lyα Emitters at $z \sim 2$ Using FUV and Optical Spectral Lines", *The Astrophysical Journal*, 765, 1, 70 (15pp) (2013).
▷ **84 citations**

– 12 CoI papers (218 citations in total by 2018 June 22.)

- Verhamme, A. Garel, T., Ventou, E.,Contini, T., Bouché, N., Herenz, EC, Richard, J., Bacon, R., Schmidt, K. B, Maseda, M., Marino, R. A, Brinchmann, J., Cantalupo, S., Caruana, J., Clément, B., Diener, C., Drake, A. B, **Hashimoto, T.**, Inami, H., Kerutt, J., Kollatschny, W., Leclercq, F., Patrício, V., Schaye, J., Wisotzki, L., and Zabl, J.
"Recovering the systemic redshift of galaxies from their Lyman alpha line profile", *Monthly Notices of the Royal Astronomical Society: Letters*, 478, 1, 60-65 (5pp) (2018)
▷ **0 citations**.

- Tamura, Y., Mawatari, K., **Hashimoto, T.**, Inoue, A. K., Zackrisson, E., Christensen, L., Binggeli, C., Matsuda, Y., Matsuo, H., Takeuchi, T. T., Asano, R. S., Shimizu, I., Okamoto, T., Yoshida, N., Lee, M., Shibuya, T., Taniguchi, Y., Umehata, H., Hatsukade, B., Kohno, K., and Ota, K.

"Detection of the Far-infrared [O III] and Dust Emission in a Galaxy at Redshift 8.312: Early Metal Enrichment in the Heart of the Reionization Era", submitted to *The Astrophysical Journal*, (17pp) (2018)
▷ **0 citations**.

- Moriwaki, K., Yoshida, N., Shimizu, I., Harikane, Y., Matsuda, Y., Matsuo, H., **Hashimoto, T.**, Inoue, A. K., Tamura, Y., and Nagao, T.
"The distribution and physical properties of high-redshift [OIII] emitters in a cosmological hydrodynamics simulation", submitted to *Monthly Notices of the Royal Astronomical Society*, (5pp) (2018)
▷ **0 citations**.

- Kusakabe, H., Shimasaku, K., Momose, R., Ouchi, M., Nakajima, K., **Hashimoto, T.**, Harikane, Y., Silverman, J. D., and Capak, P. L.
"The dominant origin of diffuse Lyα halos around LAEs explored by SED fitting and clustering analysis", submitted to *Publications of the Astronomical Society of Japan*, (34pp) (2018)
▷ **0 citations**.

- Kusakabe, H., Shimasaku, K., Ouchi, M., Nakajima, K., Goto, R., **Hashimoto, T.**, Konno, A., Harikane, Y., Silverman, J. D., and Capak, P. L.
"The stellar mass, star formation rate and dark matter halo properties of LAEs at $z \sim 2$", *Publications of the Astronomical Society of Japan*, 70, 1, id4, (29pp) (2018)
▷ **4 citations**.

- Leclercq, F., Bacon, R., Wisotzki. L., Mitchell. P., Garel. T., Verhamme. A., Blaizot. J., **Hashimoto. T.**, Herenz. E. C., Conseil. S., Cantalupo. S., Inami. H., Contini. T., Richard. J., Maseda. M., Schaye. J., Marino. R. A., Akhlaghi. M., Brinchmann. J., and Carollo. M.
"The MUSE Hubble Ultra Deep Field Survey. VIII. Extended Lyman-α haloes around high-z star-forming galaxies", *Astronomy & Astrophysics (MUSE UDF Series PaperVIII)*, 608, A8 (25pp) (2017)
▷ **15 citations**.

- Drake, A. B., Garel, T., Wisotzki, L., Leclercq, F., **Hashimoto, T.**, Richard, J., Bacon, R., Blaizot, J., Caruana, J., Conseil, S., Contini, T., Guiderdoni, B., Herenz, E. C., Inami, H., Lewis, J., Mahler, G., Marino, R. A., Pelló. R., Schaye, J., Verhamme, A., Ventou, E., and Weilbacher, P. M.
"The MUSE Hubble Ultra Deep Field Survey. VI. The faint-end of the Ly α luminosity function at $2.91 < z < 6.64$ and implications for reionisation", *Astronomy & Astrophysics (MUSE UDF Series PaperVI)*, 608, A6 (15pp) (2017)
▷ **9 citations**.

- Inami, H., Bacon, R., Brinchmann, J., Richard, J., Contini, T., Conseil, S., Hamer, S., Akhlaghi, M., Bouché, N., Clément, B., Desprez, G., Drake, A. B., **Hashimoto, T.**, Leclercq, F., Maseda, M., Michel-Dansac, L., Paalvast, M., Tresse, L., Ventou, E., Kollatschny, W., Boogaard, L. A., Finley, H., Marino, R. A., Schaye, J., and Wisotzki, L.
"The MUSE Hubble Ultra Deep Field Survey. II. Spectroscopic redshifts and comparisons to color selections of high-redshift galaxies", *Astronomy & Astrophysics (MUSE UDF Series Paper II)*, 608, A2 (26pp) (2017)
▷ **15 citations**.

- Drake, A. B., Guiderdoni, B., Blaizot, J., Wisotzki, L., Herenz, E. C., Garel, T., Richard, J., Bacon, R., Bina, D., Cantalupo, S., Contini, T., den Brok, M., **Hashimoto, T.**, Marino, R. A., Pelló, R., Schaye, J., and Schmidt, K. B.
"MUSE deep-fields: the Lyα luminosity function in the Hubble Deep Field-South at $2.91 < z < 6.64$", *Monthly Notices of the Royal Astronomical Society*, 471, 1, 267-278 (12pp) (2017)
▷ **16 citations**.

- Shibuya, T., Ouchi, M., Nakajima, K., **Hashimoto, T.**, Ono, Y., Rauch, M., Gauthier, J. R., Shimasaku, K., Goto, R., Mori, M., and Umemura., M.
"What is the Physical Origin of Strong Lyα Emission? II. Gas Kinematics and Distribution of Lyα Emitters", *The Astrophysical Journal*, 788, 74 (14pp) (2014)
▷ **66 citations**.

- Shibuya, T., Ouchi, M., Nakajima, K., Yuma, S., **Hashimoto, T.**, Shimasaku, K., Mori, M., and Umemura, M.
"What is the Physical Origin of Strong Lyα Emission? I. Demographics of Lyα Emitter Structures", *The Astrophysical Journal*, 785, 64 (12pp) (2014)
▷ **25 citations**.

- Nakajima, K., Ouchi, M., Shimasaku, K., **Hashimoto, T.**, Ono, Y., and Lee, J. C. "First Spectroscopic Evidence for High Ionization State and Low Oxygen Abundance in Lyα Emitters", *The Astrophysical Journal*, 769, 3 (18pp) (2013),
  ▷ **68 citations**.

Professional Service:

- 2013-present: reviewer for the Astrophysical Journal.