

# CURRICULUM VITAE

## PERSONAL INFORMATION

NAME Rieko Momose  
NATIONALITY Japan  
INSTITUTE The University of Tokyo  
ADDRESS (Office) 7-3-1 Hongo, Bunkyo-ku, Tokyo 113-0033, JAPAN  
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## EDUCATION

2009 - 2012 Ph.D. in Department of Astronomy, Graduate School of Science,  
The University of Tokyo, Tokyo, Japan  
“ Environmental effect of star formation activities among nearby disk  
galaxies ” (adviser: Prof. Sachiko Okumura)

2007 - 2009 M.S. in Department of Astronomy, Graduate School of Science,  
The University of Tokyo, Tokyo, Japan  
“ Higher resolution study of star formation activity over bars and  
spiral structures in NGC 4303 ” (adviser: Prof. Sachiko Okumura)

2003 - 2007 B.S. in Natural and Environmental Science,  
Course for Environmental Science and Education,  
Faculty of Education,  
Tokyo Gakugei University, Tokyo, Japan  
“ Synchrotron radiation by relativistic electron from compact  
source ” (adviser: Prof. Hideo Nitta)

## EXPERIENCE

April 2018 - Present JSPS fellow,  
The University of Tokyo

November 2015 - March 2018 Assistant Research Scholar (MOST fellow),  
National Tsing Hua University, Taiwan

April 2015 - October 2015 Research Experts,  
National Astronomical Observatory of Japan

April 2014 - March 2015 Project Researcher,  
Institute for Cosmic Ray Research, The University of Tokyo

April 2012 - March 2014 ICRR Fellow,  
Institute for Cosmic Ray Research, The University of Tokyo

April 2009 - March 2012 Research Assistant, Graduate School of Science,  
The University of Tokyo

## MEMBERSHIP OF PROFESSIONAL SOCIETIES

2007 - Present      Astronomical Society of Japan

## LANGUAGE SKILLS

NATURAL      Japanese (native), English (working)

## TELESCOPE TIME AWARDED

### \* PI

- *Large-scale intensity mapping of Lyman-alpha emission around 7 QSOs at  $z=2.2$*   
2 nights on Subaru telescope, S17A-136
- *Large-scale intensity mapping of Lyman-alpha emission around 7 QSOs at  $z=2.2$*   
3.6 hours on CFHT, 16BT003
- *Pilot CO Follow-up of the MaNGA Survey*  
48 hours on Nobeyama 45 m single dish telescope, CG141028
- *Shedding light on the completion of reionization by ALMA [CII] observations*  
4.3 hours on ALMA, 2012.1.00602.S
- *$^{12}\text{CO}(J=1-0)$  mapping of one of the nearest Luminous Infrared barred spiral Galaxy NGC 1365*  
29 hours on Mopra, M422
- *$^{12}\text{CO}(J=1-0)$  mapping of one of the nearest Luminous Infrared barred spiral Galaxy NGC 1365*  
30 hours on Nobeyama 45 m single dish telescope, 081023
- *What makes the difference of star formation activity in bar, arm, nucleus?*  
20 hours on Nobeyama 45 m single dish telescope, 078014

### \* CoI

- many hours including Nobeyama 45 m single dish telescope, ASTE, CARMA, ALMA, JCMT, CSO, IRAM 30m, Subaru telescope

## RESEARCH FUNDS

### \* PI

- *Galaxy Formation and Evolution Traced by Diffuse Lyman-alpha Emission around Star-forming Galaxies*  
MOST fellow, 104-2112-M-007-021-MY3, 2015

## Publication List

### Refereed publications:

- (1) *Surface density: a new parameter in the fundamental metallicity relation of star-forming galaxies*  
Hashimoto, T., Goto, T., & **Momose, R.**, 2018, MNRAS, 475, 4424
- (2) *A 16 deg<sup>2</sup> survey of emission-line galaxies at  $z < 1.5$  in HSC-SSP PDR1*  
Hayashi, M., Tanaka, M., Shimakawa, R., Furusawa, H., **Momose, R.**, Toyama, Y., Silverman, J. D., Kodama, T., Komiyama, Y., Leauthaud, A., Lin, Y.-T., Miyazaki, S., Nagao, T., Nishizawa, A. J., Ouchi, M., Shibuya, T., Tadaki, K., & Yabe, K., 2018, PASJ, 70, 17
- (3) *SILVERRUSH. III. Deep Optical and Near-Infrared Spectroscopy for Ly $\alpha$  and UV-Nebular Lines of Bright Ly $\alpha$  Emitters at  $z=6-7$*   
Shibuya, T., Ouchi, M., Harikane, Y., Rauch, M., Ono, Y., Mukae, S., Higuchi, R., Kojikma, T., Yuma, S., Lee, C.-H., Furusawa, H., Konno, A., Martin, C. L., Shimasaku, K., Taniguchi, Y., Komabashi, M. A. R., Kajisawa, M., Nagao, T., Goto, T., Kashikawa, N., Kusakabe, H., **Momose, R.**, Nakajima, K., Tanaka, M., & Wang, S.-Y., 2018, PASJ, 70, 15
- (4) *SILVERRUSH. II. First Catalogs and Properties of  $\sim 2,000$  Ly $\alpha$  Emitters and Blobs at  $z \sim 6-7$  Identified over the 14-21 deg<sup>2</sup> Sky*  
Shibuya, T., Ouchi, M., Konno, A., Higuchi, R., Harikane, Y., Ono, Y., Shimasaku, K., Taniguchi, Y., Komabashi, M. A. R., Kajisawa, M., Nagao, T., Furusawa, H., Goto, T., Kashikawa, N., Komiyama, Y., Kusakabe, H., Lee, C.-H., **Momose, R.**, Nakajima, K., Tanaka, M., Wang, S.-Y., & Yuma, S., 2018, 70, 14
- (5) *First Data Release of the Hyper Suprime-Cam Subaru Strategic Program*  
Aihara et al (another 107 co-authors including **Momose, R.**), 2018, PASJ, 70, 8
- (6) *The Hyper Suprime-Cam SSP Survey: Overview and Survey Design*  
Aihara et al (another 142 co-authors including **Momose, R.**), 2018, PASJ, 70, 4
- (7) *Small-scale Intensity Mapping: Extended Ly $\alpha$ , H $\alpha$ , and Continuum Emission as a Probe of Halo Star Formation in High-redshift Galaxies*  
Mas-Ribas, R., Dijkstra, M., Hennawi, J. F., Trenti, M., **Momose, R.**, & Ouchi, M., 2017, ApJ, 841, 19

- (8) *Statistical Properties of Diffuse Ly $\alpha$  Halos around Star-forming Galaxies at  $z \sim 2$*   
**Momose, R.**, Ouchi, M., Nakajima, K., Ono, Y., Shibuya, T., Shimasaku, K., Yuma, S., Mori, M., & Umemura, M., 2016, MNRAS, 457, 2318
- (9) *ALMA Census of Faint 1.2 mm Sources Down to  $\sim 0.02$  mJy: Extragalactic Background Light and Dust-poor, High- $z$  Galaxies*  
Fujimoto, S., Ouchi, M., Ono, Y., Shibuya, T., Ishigaki, M., Nagai, H., & **Momose, R.**, 2016, ApJS, 222, 1
- (10) *Sensitivity for 21 cm bispectrum from Epoch of Reionization*  
Yoshiura, S., Shimabukuro, H., Takahashi, K., **Momose, R.**, Nakanishi, & H., Imai, H., 2015, MNRAS, 451, 266
- (11) *On the Diffuse Ly $\alpha$  Halo Around Ly $\alpha$  Emitting Galaxies*  
Lake, E. A., Zheng, Z., Cen, R., Sadoun, R., **Momose, R.**, & Ouchi, M., 2015, ApJ, 806, 226
- (12) *Accelerated Evolution of Lyman-alpha Luminosity Function at  $z > 7$  Revealed by the Subaru Ultra-Deep Survey for Lyman-alpha Emitters at  $z = 7.3$*   
Konno, A., Ouchi, M., Ono, Y., Shimasaku, K., Shibuya, T., Furusawa, H., Nakajima, K., Naito, Y., **Momose, R.**, Suraphong, Y., & Iye, M., 2014, ApJ, 797, 16
- (13) *Faint Submillimeter Galaxies Revealed by Multifield Deep ALMA Observations: Number Counts, Spatial Clustering, and Dark Submillimeter Emitters*  
Ono, Y., Ouchi, M., Kurono, Y., & **Momose, R.**, 2014, ApJ, 795, 5
- (14) *Diffuse Lyman-alpha Halos around Galaxies at  $z=2.2-6.6$ : Implications for Galaxy Formation and Cosmic Reionization*  
**Momose, R.**, Ouchi, M., Nakajima, K., Ono, Y., Shibuya, T., Shimasaku, K., Yuma, S., Mori, M., & Umemura, M., 2014, MNRAS, 442, 110
- (15) *First Systematic Search for Oxygen-Line Blobs at High Redshift: Uncovering AGN Feedback and Star-Formation Quenching*  
Yuma, S., Ouchi, M., Drake, A. B., Simpson, C., Shimasaku, K., Nakajima, K., Ono, Y., **Momose, R.**, Akiyama, M., Mori, M., & Umemura, M., 2013, ApJ, 779, 53

- (16) *An Intensely Star-Forming Galaxy at  $z \sim 7$  with Low Dust and Metal Content Revealed by Deep ALMA and HST Observations*  
Ouchi, M., Ellis, R., Ono, Y., Nakanishi, K., Kohno, K., **Momose, R.**, Kurono, Y., Ashby, M. L. N., Shimasaku, K., Wilner, S. P., Fazio, G. G., Tamura, Y., & Iono, D., 2013, *ApJ*, 778, 102
- (17) *Resolved Giant Molecular Clouds in Nearby Spiral Galaxies I Insights from the CANON CO(1-0) Survey*  
Donovan Meyer, J., Koda, J., **Momose, R.**, Mooney, T., Egusa, F., Carty, M., Kennicutt, R. C., Jr., Kuno, N., Rebolledo, D., Sawada, T., Scoville, N. Z., & Wong, T., 2013, *ApJ*, 772, 107
- (18) *Star Formation on Subkiloparsec Scale Triggered by Non-linear Processes in Nearby Spiral Galaxies*  
**Momose, R.**, Koda, J., Kennicutt, R. C., Jr., Egusa, F., Calzetti, D., Liu, G., Donovan Meyer, J., Okumura, S. K., Scoville, N. Z., Sawada, T., & Kuno, N., 2013, *ApJL*, 772, 13
- (19) *A Water Maser and NH<sub>3</sub> Survey of GLIMPSE Extended Green Objects*,  
Cyganowski, C. J., Koda, J., Rosolowsky, E., Towers, S., Donovan Meyer, J., Egusa, F., **Momose, R.**, & Robitaille, T. P., 2013, *ApJ*, 764, 41
- (20) *Physical Conditions in Molecular Clouds in the Arm and Interarm Regions of M51*,  
Koda, J., Scoville, N. Z., Hasegawa, T., Calzetti, D., Donovan Meyer, J., Egusa, F., Kennicutt, R. C., Jr., Kuno, N., Louie, M., **Momose, R.**, Sawada, T., Sorai, K., & Umei, M., 2012, *ApJ*, 761, 41
- (21) *Resolved Measurements of X<sub>CO</sub> in NGC 6946*,  
Donovan Meyer, J., Koda, J., **Momose, R.**, Fukuhara, M., Mooney, T., Towers, S., Egusa, F., Kennicutt, R. C., Jr., Kuno, N., Carty, M., Sawada, T., & Scoville, N. Z., 2012, *ApJ*, 744, 42
- (22) *The Super-linear Slope of the Spatially Resolved Star Formation Law in NGC 3521 and NGC 5194 (M51a)*,  
Liu, G., Koda, J., Calzetti, D., Fukuhara, M., & **Momose, R.**, 2011, *ApJ*, 735, 63
- (23) *Star Formation Efficiency in the Barred Spiral Galaxy NGC 4303*,  
**Momose, R.**, Okumura, S. K., Koda, J., & Sawada, T., 2010, *ApJ*, 721, 383

## Non-refereed publications:

- (24) *Cosmic star formation history revealed by AKARI and Hyper Suprime-Cam*,  
Goto, T., Oi, N., Kilerci Ecer, E., **Momose, R.**, Huang, T-C., Utsumi, Y., Matsuhara, H., Toba, Y., Ohshima, Y., Takagi, T., Wada, T., Malkan, M., Nakagawa, T., Kim, S. J., & the AKARI NEP team, 2017, Proceedings of the “The Cosmic Wheel and the Legacy of the AKARI archive: from galaxies and stars to planets and life”
- (25) *Surface density: a new parameter in the fundamental metallicity relation of star-forming galaxies*,  
Hashimoto, T., Goto, T., & **Momose, R.**, 2017, Proceedings of the “The Cosmic Wheel and the Legacy of the AKARI archive: from galaxies and stars to planets and life”
- (26) *North Ecliptic Pole multi-wavelength survey : new optical data with Hyper Suprime-Cam and near-future prospects with eROSITA*,  
Oi, N., Matsuhara, H., Goto, T., Utsumi, Y., **Momose, R.**, Huang, T-C., Toba, Y., Im, M., Lee, H. K., O Kim, S. J., Miyaji, T., Krumpke, M., Murata, K., Ohshima, Y., Serjeant, S., Pearson, C., Nakagawa, T., Wada, T., Takagi, T., Matsuura, S., Shogaki, A., & NEP team, 2017, Proceedings of the “The Cosmic Wheel and the Legacy of the AKARI archive: from galaxies and stars to planets and life”
- (27) *The Resolved Kennicutt-Schmidt Law in Nearby Galaxies*  
**Momose, R.**, Koda, J., Kennicutt, R. C., Jr., Egusa, F., Okumura, S. K., Calzetti, D., Liu, G., Meyer, J. D., Scoville, N. Z., Sawada, T., & Kuno, N., 2012, IAUS, 292, 335
- (28) *FAZZ, a FITS Cube/Image Browsing and Analyzing Tool in IDL*,  
Ikeda, N., Kitamura, Y., Yoshida, A., Tatei, H., Onodera, S., & **Momose, R.**, 2010, ASPC, 434, 297

## International Conferences:

- (29) **Momose, R.**, et al. “*Statistical properties of diffuse Ly $\alpha$  haloes around star-forming galaxies at  $z\sim 2$* ”, Tokyo Spring Cosmic Lyman-Alpha Workshop (Sakura CLAW), Tokyo, Japan, March, 2018 (Oral)
- (30) **Momose, R.**, Koda, J., Kennicutt, R. C., Jr., Egusa, F., Okumura, S. K., Calzetti, D., Liu, G., Donovan Meyer, J., Scoville, N. Z., Sawada, T., & Kuno, N., “*Star Formation Activities Among Structures in Nearby Disc Galaxies*”, The Impact of Galactic Structure on Star Formation, Sapporo, February, 2014 (Oral)

- (31) **Momose, R.**, Ouchi, M., Nakajima, K., Ono, Y., Shimasaku, K., & S. Yuma., “*Evolution of Diffuse Ly $\alpha$  Halos Around Star-forming Galaxies at  $z=2-7$* ”, Lyman Alpha as an Astrophysical Tool, Stockholm, September, 2013 (Oral)
- (32) **Momose, R.**, Koda, J., Kennicutt, R. C., Jr., Egusa, F., Okumura, S. K., Calzetti, D., Liu, G., Donovan Meyer, J., Scoville, N. Z., Sawada, T., & Kuno, N., “*Superlinear Slope of the Resolved Kennicutt-Schmidt Law in Nearby Galaxies*”, IAU Symposium 292, Beijing, August, 2012 (Poster)
- (33) **Momose, R.**, Koda, J., Kennicutt, R. C., Jr., Egusa, F., Okumura, S. K., Calzetti, D., Liu, G., Donovan Meyer, J., Scoville, N. Z., Sawada, T., & Kuno, N., “*The Resolved Kennicutt-Schmidt Law in Nearby Galaxies*”, Galactic Scale Star Formation, Heidelberg, Germany, July, 2012 (Poster)
- (34) **Momose, R.**, Okumura, S. K., Koda, J., & Sawada, T., “*Star Formation Efficiency in the Barred Spiral Galaxy*”, Molecules in Galaxies, Oxford, the United Kingdom, July, 2010 (Oral)
- (35) **Momose, R.**, Okumura, S. K., Koda, J., & Sawada, T., “*High resolution study of star formation activity in NGC 4303*” Millimeter and Submillimeter Astronomy at High Angular Resolution, Taipei, Taiwan, June, 2009 (Poster)

### **Domestic Conferences (Japan):**

- (36) **Momose, R.**, et al. “*Diffuse Ly $\alpha$  Halos around High- $z$  Star-Forming Galaxies*”, Astronomical Society of Japan (ASJ) Annual Meeting, Kobe, Japan, September, 2015 (Oral)
- (37) **Momose, R.**, et al. “*Mapping Nearby Galaxies at APO (MaNGA)*”, JCMT Workshop, Tokyo, Japan, September, 2014 (Poster)
- (38) **Momose, R.**, et al. “*Evolution of Lyman-alpha Emitters Traced by Lyman-alpha Halos*”, Workshop of Galaxy Evolution 2014, Tokyo, Japan, June, 2014 (Oral)
- (39) **Momose, R.**, et al. “*Evolution of Diffuse Ly $\alpha$  Halos around Star-Forming Galaxies*”, Observation Cosmology Workshop 2013, Tokyo, Japan, December, 2013 (Oral)
- (40) **Momose, R.**, et al. “*Star Formation On Sub-kpc Scale Triggered By Non-linear Processes In Nearby Spiral Galaxies*”, Meeting of the Program for Younger Researcher Overseas Visits, Chiba, Japan, April, 2013 (Oral)

- (41) **Momose, R.**, Okumura, S. K., Koda, J., Kennicutt, R. C., Jr, Donovan Meyer, J., Calzetti, D., Liu, G., & Egusa, F., “*Star formation activities among galactic structures*”, Astronomical Society of Japan (ASJ) Annual Meeting, Oita, Japan, September, 2012 (Poster)
- (42) **Momose, R.**, “*The Resolved Kennicutt-Schmidt Law in Nearby Galaxies*”, Mini-Workshop for “Kinematics, ISM and Star Formation in Galaxies”, Tokyo, Japan, August, 2012 (Oral)
- (43) **Momose, R.**, Okumura, S. K., Koda, J., Kennicutt, R. C., Jr., Donovan Meyer, J., Calzetti, D., Liu, G., & Egusa, F., “*Superlinear slope of the resolved Kennicutt-Schmidt law*”, ASJ Annual Meeting, Kyoto, Japan, March, 2012 (Oral)
- (44) **Momose, R.**, Koda, J., Kennicutt, R. C., Jr., Donovan Meyer, J., Egusa, F., Kurono, Y., & Okumura, S. K., “*Combining method for mosaic observation with CARMA and NRO45m telescope*”, GCOE Research Assistant Camp, Shizuoka, Japan, February, 2011 (Poster)
- (45) **Momose, R.**, Koda, J., Kennicutt, R. C., Jr., Donovan Meyer, J., Egusa, F., Kurono, Y., & Okumura, S. K., “*Combining method for mosaic observation with CARMA and NRO45m telescope*”, ALMA User’s Meeting, Tokyo, Japan, January, 2011 (Poster)
- (46) **Momose, R.**, “*Proposal for NGC 1365*”, Nobeyama Radio Observatory (NRO) Workshop: Nearby Galaxies, Tokyo, Japan, September, 2010 (Oral)
- (47) **Momose, R.**, “*Star formation efficiency in the Barred Spiral Galaxy NGC 4303*”, Summer School for Young Astronomers, Aichi, Japan, August, 2010 (Poster)
- (48) **Momose, R.**, Okumura, S. K., Koda, J., & Sawada, T., “*High resolution study of star formation activity in NGC 4303*”, ALMA User’s Meeting, Tokyo, Japan, December, 2009 (Poster)
- (49) **Momose, R.**, Okumura, S. K., Koda, J., & Sawada, T., “*Star formation and gas kinematics in NGC 4303*”, NRO Workshop: Studies of Nearby Galaxies by High Resolution Observations of sub-mm/mm Wavelength and Latest Theoretical Model, Kagoshima, Japan, November, 2009 (Oral)
- (50) **Momose, R.**, Okumura, S. K., Koda, J., & Sawada, T., “*Star formation activities in the barred spiral galaxy, NGC 4303 - II -*”, ASJ Annual Meeting, Yamaguchi, Japan, September, 2009 (Poster)



- (51) **Momose, R.**, “*Capabilities of observations to high-z objects using NRO 45 m telescope*”, NRO User’s Meeting, Nagano, Japan, July, 2009 (Oral)
- (52) **Momose, R.**, Okumura, S. K., Muraoka, K., Tosaki, T., & Kohno, K., “*12CO(J=1-0) observation of nearby LIRG NGC 1365*”, NRO User’s Meeting, Nagano, Japan, July, 2009 (Poster)
- (53) **Momose, R.**, Okumura, S. K., Koda, J., & Sawada, T., “*Star formation activities in the barred spiral galaxy, NGC 4303 - I -*”, ASJ Annual Meeting, Okayama, Japan, September, 2008 (Oral)
- (54) **Momose, R.**, Okumura, S. K., Koda, J., & Sawada, T., “*Comparison of star formation activities in NGC 4303*”, NRO User’s Meeting, Nagano, Japan, July, 2008 (Poster)

### **Domestic Conferences (the United States):**

- (55) **Momose, R.**, Okumura, S. K., Koda, J., & Sawada, T., “*High resolution study of star formation activity in NGC 4303*”, Tri-State Astronomy Conference, New York, the United States, October, 2009 (Poster)

### **Domestic Conferences (the Republic of China):**

- (56) **Momose, R.**, et al. “*Diffuse Ly $\alpha$  Halos around High-redshift Star-Forming Galaxies*”, Annual Meeting of the Physical Society of the Republic of China, Kaohsiung, the Republic of China, January, 2016 (Oral)

### **Public Talk:**

- (57) **Momose, R.**, “*Lets’s trip in the Universe!*”, ABI-STA special class, Tokyo, June, 2016
- (58) **Momose, R.**, “*Talks about Gas around Galaxies*”, Hongo Uchjyuku, Tokyo, June, 2014
- (59) **Momose, R.**, “*Galaxies in the Universe*”, Spring Science Program For Female High-school Students, Chiba, March, 2014
- (60) **Momose, R.**, “*How to study “star formation” in galaxies*”, Marunouchi Uchjyuku, Tokyo, September, 2012
- (61) **Momose, R.**, “*Astronomy Astronomer*”, Science Fair, Ibaraki, August, 2007