

# Intae Jung

**JWST Postdoc (Sponsor: CUA in CRESST II) at NASA's Goddard Space Flight Center**

Astrophysics Science Division, Code 665, 8800 Greenbelt Rd, Greenbelt, MD, 20771  
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## Employment

JWST Postdoc at NASA's Goddard Space Flight Center (Sponsor: CUA) 09/2019 – Present  
(Host: Dr. Amber Straughn)

## Education

**Ph.D.** in Astronomy, **University of Texas at Austin**, Austin, Texas, USA 2013 – 2019  
Dissertation: *Constraining the End of Reionization with Ly $\alpha$  Spectroscopy*  
Advisor: Prof. Steven L. Finkelstein

**M.S.** in Astronomy, Graduate School of **Yonsei University**, Seoul, Korea 2010 – 2012  
Thesis: *Large-scale environmental effects on the formation and evolution of dark matter halos*  
Advisor: Prof. Sukyoung K. Yi

**B.S.** in Astronomy and Physics (double major), **Yonsei University**, Seoul, Korea 2004 – 2010

## Research Interests

Ly $\alpha$  emitters as a probe of reionization  
High-redshift galaxy evolution (spatially resolved star formation)

## Honors, Scholarships, Grants

NASA/Keck Observing Grant 2021A (\$16,100) 2021 Spring

**The NASA Earth and Space Science Fellowship** (\$45,000/year) 2017 – 2019

University Graduate School Continuing Fellowship, UT Austin, TX, USA (~\$25,000) 2017 – 2018

The Global Internship Program, The National Research Foundation of Korea (~\$21,200) 2011 – 2012

BK21 Participation Scholarship, Yonsei University, Seoul, Korea (~\$6,000) 2010 – 2012

National Science & Technology Scholarship, Korea (~\$27,100) 2004 – 2009

## Awarded Telescope Time

**PI: I. Jung**, NASA Keck 2021A: 2 nights of Keck + MOSFIRE 2021 Spring  
Title: *A Comprehensive View of Reionization:*  
*Probing Inhomogeneity of Reionization with a Deep and Wide Lyman-Alpha Emission Survey at  $z > 7$*

**PI: I. Jung**, Gemini North + GNIRS (6.2 hr) 2021 Spring  
Title: *Near-infrared Spectroscopy of an Extremely-Large Equivalent-width Lyman-alpha Emitter at  $z=7.608$*

**PI: I. Jung**, HET + LRS2 (~13hr) 2017 Spring  
Title: *A spectroscopic search for galaxies in the epoch of reionization*

As Co-Investigator

James Webb Space Telescope Cycle 1: 2022 - 2023  
4 GO programs – PIs: John Chisholm, James Dunlop, Steven Finkelstein, Susan Kassim

Keck Telescopes:

NASA Keck Key Strategic Mission Support program 2022 - 2023

\*39 nights with MOSFIRE and LRIS (PIs: Caitlin Casey & Jeyhan Kartaltepe)

DEIMOS 5.5 nights (PI: Michael Cooper) 2020 - 2021

MOSFIRE 8+ nights (PIs: Taylor Hutchison, Rebecca Larson) 2018 - 2020

Hubble Space Telescope:

Cycle 27 14 orbits (PI: Steven Finkelstein) 2019 - 2020

Cycle 26 2 orbits (PI: Steven Finkelstein) 2018 - 2019

ALMA: Cycle 7 Band7 24.7 hr (PI: Takuya Hashimoto) 2019

## Collaborations

HST-**CANDELS** (Co-PIs: S. Faber & H. Ferguson), HST-**CLEAR** (PI: C. Papovich), VLT-**VANDELS** (Co-PIs: R. McLure, & L. Pentericci), JWST-**CEERS** (PI: S. Finkelstein), JWST-**PRIMER** (PI: J. Dunlop), JWST-**WDEEP** (PI: S. Finkelstein)

## Service Experience / Public Outreach

**Subject Matter Expert\* for NASA's Webb Space Telescope Community Events** 2021 - 2022  
\*Speaker at the JWST Public Talk at Cape Fear Museum of History and Science on 10/15/2021

**Scientist Featured in a NASA JWST Astronomy Day Q&A in Social Media** 05/2021

**Proposal Review External Panel** for HST (Cycle 28 & 29) & ALMA (Cycle 8) 2020 - Present

**Journal Referee** for ApJ, A&A, MNRAS 2019 - Present

**Grant Review Panel** for the NASA FINESST Program 2021

Development Team of Exemplar Key Science Programs For GMT and TMT 2018 Fall

Graduate student committee for the 2017 Dept external review self-study, UT Austin, TX 2017

Representative to the Graduate Student Assembly, UT Austin, TX 2016 - 2017

Seminar speaker to the TAURUS undergrad summer research program, UT Austin 2016 Summer

Student Representative at the Astronomy department, Yonsei University, Seoul, Korea 2007 - 2008

Military Service, the Military Police in Republic of Korea Army, Hwacheon, Korea 2005 - 2007

## Teaching & Mentoring Experience

**Graduate Student Mentoring:** Seonwoo Kim at Yonsei University, Seoul, Korea 2021 - Present

**Training in Teaching & Mentorship**

Completion of *Concentration in Teaching and Mentoring Courses\*\**, UT Austin, TX 08/2018

\*\*Three courses for PhD and postdoctoral fellows for improving teaching and mentoring abilities

**Guest lecture** in *Galaxies and the Universe* class, UT Austin, TX 04/2017

TA for 7 astronomy courses at UT Austin, TX & Yonsei University, Korea 2010 - 2017

## Colloquia/Seminar Talks

Seminar Talk, Arizona State University, Tempe, AZ, USA 11/2021

Seminar Talk, Georgia Tech, Atlanta, GA, USA 11/2021

EURECA Seminar Talk, University of Arizona, Tucson, AZ, USA 09/2021

Seminar Talk, Seoul National University, Seoul, Korea 07/2021

Seminar Talk, Yonsei University, Seoul, Korea 06/2021

Seminar Talk, Director's Seminar, SED, NASA GSFC, Greenbelt, MD 03/2021

Colloquium, Department of Physics and Astronomy, University of Louisville 02/2021

Seminar Talk, Galaxies & AGN Journal Club at STSci/JHU 02/2021

Colloquium, Astrophysics Science Division Colloquium, NASA GSFC, Greenbelt, MD 05/2020

Seminar Talk, University of California - Riverside, Riverside, CA 10/2018

Seminar Talk, Yonsei University, Seoul, Korea 04/2018

Best Paper Award Talk, Korean-American Scientists & Engineers Association-Austin, TX 02/2017

Seminar Talk, Korea Astronomy Space Science Institute, Daejeon, Korea 12/2016

## Other Presentations

Contributed Talk, Summer All Zoom Epoch of Reionization Astronomy Conference 2.0 06/2021

Contributed Talk, Summer All Zoom Epoch of Reionization Astronomy Conference 07/2020

Contributed Talk, AAS 235th Meeting, Honolulu, HI, USA 01/2020

Contributed Talk, Extremely Big Eyes ... UCLA, Los Angeles, CA, USA 01/2019

Contributed Talk, Special session talk, AAS 233th Meeting, Seattle, WA, USA 01/2019

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| Poster, Tokyo Spring Cosmic Lyman-Alpha Workshop, Tokyo, Japan                      | 03/2018 |
| Contributed Talk, The growth of galaxies in the Early Universe – IV, Sesto, Italy   | 01/2018 |
| Dissertation Talk, 231st AAS Meeting, Washington DC, USA                            | 01/2018 |
| Poster, BashFest 2017, Austin, TX, USA  | 10/2017 |
| Contributed Talk, 5 <sup>th</sup> GMT Community Science Meeting, Tarrytown, NY, USA | 09/2017 |
| Poster, AAS 230th Meeting, Austin, TX, USA  | 06/2017 |
| Contributed Talk, Snowbird Cosmic Lyman-Alpha Workshop, Snowbird, UT, USA           | 03/2017 |
| Contributed Talk, 2016 Santa Cruz Galaxy Workshop, Santa Cruz, CA, USA              | 08/2016 |
| Contributed Talk, Signals from the Deep Past, Valletta, Malta                       | 07/2016 |
| Poster, AAS 227th Meeting, Kissimmee, FL, USA                                       | 01/2016 |
| Contributed Talk, 2015 CANDELS Team Meeting, Santa Cruz, CA, USA                    | 07/2015 |
| Defense talk, Qualifying exam/2nd-year Defense, Austin, TX, USA                     | 05/2015 |
| Poster, South by High Redshift, Austin, TX, USA                                     | 04/2015 |
| Contributed Talk, Sussing Merger Trees, Midhurst, West Sussex, UK                   | 07/2013 |

## References

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| <b>Dr. Amber N. Straughn</b><br>Tel: +1 301 286-7098       | NASA's Goddard Space Flight Center, Greenbelt, MD<br>E-mail: amber.n.straughn@nasa.gov |
| <b>Prof. Steven L. Finkelstein</b><br>Tel: +1 512 471-1483 | University of Texas at Austin, Austin, TX<br>E-mail: stevenf@astro.as.utexas.edu       |
| <b>Prof. Casey Papovich</b><br>Tel: +1 979 862 2704        | Texas A&M University, College Station, TX<br>E-mail: papovich@tamu.edu                 |
| Dr. Mark E. Dickinson<br>Tel: +1 520 318 8531              | NSF's NOIRLab, Tucson, AZ<br>E-mail: mark.dickinson@noirlab.edu                        |
| Prof. Sukyoung K. Yi<br>Tel: +82 (0)2 2123 2680            | Yonsei University, Seoul, South Korea<br>E-mail: yi@yonsei.ac.kr                       |

## List of Publications

Also available on the ADS Public Library below:

<https://ui.adsabs.harvard.edu/public-libraries/VqKK7ngHQv2hTnwD6ULVrQ>

### As 1st/2nd Author

1. **Jung et al. 2021, submitted to ApJ, arXiv:2111.14863**, *CLEAR: Boosted Ly $\alpha$  Transmission of the Intergalactic Medium in UV bright Galaxies*
2. H. Park, **I. Jung**, et al. 2021, Accepted for publication in ApJ, **arXiv:2105.10770**, *Crucial Factors of Lyman-alpha Transmission in the Reionizing Intergalactic Medium: Infall Motion, HII Bubble Size, and Self-shielded Systems*
3. **Jung et al. 2020, ApJ, 904, 144**, *Texas Spectroscopic Search for Ly $\alpha$  Emission at the End of Reionization III. the Ly $\alpha$  Equivalent-width Distribution and Ionized Structures at  $z > 7$*
4. **Jung et al. 2019, ApJ, 877, 146**, *Texas Spectroscopic Search for Ly $\alpha$  Emission at the End of Reionization II. The Deepest Near-infrared Spectroscopic Observation at  $z \gtrsim 7$*
5. **Jung et al. 2018, ApJ, 864, 103**, *Texas Spectroscopic Search for Ly $\alpha$  Emission at the End of Reionization I. Constraining the Ly $\alpha$  Equivalent-width Distribution at  $6.0 < z < 7.0$*
6. **Jung et al. 2017, ApJ, 834, 81**, *Evidence for reduced specific star formation rates in the centers of massive galaxies at  $z = 4$*
7. **Jung et al. 2014, ApJ, 749, 74**, *Effects of Large-scale Environment on the Assembly History of Central Galaxies*
8. S. Peirani, **I. Jung**, J. Silk, and C. Pichon, **2012, MNRAS, 427, 2625**, *Evolution of the baryon fraction in the Local Group: accretion versus feedback at low and high  $z$*

### As Co-Author

1. Tacchella et al. (including **I. Jung**), submitted to ApJ, arXiv: 2111.05351, *On the Stellar Populations of Galaxies at  $z=9-11$ : The Growth of Metals and Stellar Mass at Early Times*
2. Backhaus et al. (including **I. Jung**), submitted to ApJ, arXiv: 2109.08147, *CLEAR: Emission Line Ratios at Cosmic High Noon*
3. Finkelstein et al. (including **I. Jung**), submitted to ApJ, arXiv: 2106.13813, *A Census of the Bright  $z=8.5-11$  Universe with the Hubble and Spitzer Space Telescopes in the CANDELS Fields*
4. Simons et al. (including **I. Jung**), accepted for publication in ApJ, arXiv:2011.03553, *CLEAR: The Gas-Phase Metallicity Gradients of Star-Forming Galaxies at  $0.6 < z < 2.6$*
5. Cleri et al. (including **I. Jung**), submitted to ApJ, arXiv:2009.00617, *CLEAR: Paschen- $\beta$  Star Formation Rates and Dust Attenuation of Low Redshift Galaxies*
6. Garilli et al. (including **I. Jung**), 2021, A&A, 647, 150, *The VANDELS ESO public spectroscopic survey. Final data release of 2087 spectra and spectroscopic measurements*
7. Yang et al. (including **I. Jung**), 2021, ApJ, 908, 144, *JWST/MIRI Simulated Imaging: Insights into Obscured Star-Formation and AGN for Distant Galaxies in Deep Surveys*
8. Estrada-Carpenter et al. (including **I. Jung**), 2020, ApJ, 898, 171, *CLEAR. II. Evidence for Early Formation of the Most Compact Quiescent Galaxies at High Redshift*
9. Hutchison et al. (including **I. Jung**), 2019, ApJ, 879, 70, *Near-infrared Spectroscopy of Galaxies During Reionization: Measuring C III] in a Galaxy at  $z = 7.5$*
10. Broussard et al. (including **I. Jung**), 2019, ApJ, 873, 74, *Star Formation Stochasticity Measured from the Distribution of Burst Indicators*
11. Hong et al. (including **I. Jung**), 2019, MNRAS, 483, 3950, *Statistics of Two-point Correlation and Network Topology for Lyman Alpha Emitters at  $z \approx 2.67$*
12. McLure et al. (including **I. Jung**), 2018, MNRAS, 479, 25, *The VANDELS ESO public spectroscopic survey*
13. Pentericci et al. (including **I. Jung**), 2018, A&A, 616, A174, *The VANDELS ESO public spectroscopic survey: Observations and first data release*
14. Larson, et al. (including **I. Jung**) with the FIGS Team, 2018, ApJ, 858, 94, *Discovery of a  $z = 7.452$  High Equivalent Width Lyman- $\alpha$  Emitter from the Hubble Space Telescope Faint Infrared Grism Survey*
15. Wang, et al. (including **I. Jung**), 2016, MNRAS, 459, 1554W, *Sussing Merger Trees: stability and convergence*
16. Lee, et al. (including **I. Jung**), 2014, MNRAS, 445, 4197, *Sussing Merger Trees: the impact of halo merger trees on galaxy properties in a semi-analytic model*
17. Srisawat, et al. (including **I. Jung**), 2013, MNRAS, 436, 150, *Sussing Merger Trees: the merger trees comparison project*
18. S. K. Yi, J. Lee, **I. Jung**, I. Ji, and Y.-K. Sheen, 2013, A&A, 554, A122, *Merger relics of cluster galaxies*

### In Preparation

1. **Jung et al., to be submitted**, *Selection Bias in Ly $\alpha$  Observations: Continuum Selection vs. Emission-line Selection*
2. **Jung et al., in preparation**, *The VANDELS Survey: Ly $\alpha$  Equivalent-width Distribution at  $z \sim 3 - 5$*