

# Yongjung Kim | CV

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## Positions

<b>Sejong Science Fellow</b> <i>Kyungpook National University</i> Advisor: Prof. Minjin Kim	<b>Daegu, Korea</b> 2021.09 – present
<b>KIAA Fellow</b> <i>Kavli Institute for Astronomy and Astrophysics at Peking University</i> Advisor: Prof. Linhua Jiang	<b>Beijing, China</b> 2019.11 – 2021.09
<b>Postdoctoral Fellow</b> <i>Research Institute for Basic Sciences at Seoul National University</i> Advisor: Prof. Myungshin Im	<b>Seoul, Korea</b> 2019.09 – 2019.10

## Education

<b>Seoul National University</b> <i>Ph.D. in Astronomy</i> Thesis title: Survey of Faint Quasars at High Redshifts Supervisor: Prof. Myungshin Im	<b>Seoul, Korea</b> 2013.03 – 2019.08
<b>Seoul National University</b> <i>B.S. in Astronomy</i> Minor: Physics	<b>Seoul, Korea</b> 2009.03 – 2013.02

## Research Interests

### Observational Cosmology with Quasars.....

- High-redshift Quasar Survey with Infrared Medium-deep Survey (IMS)
- Contribution of faint quasars to the cosmic reionization and ionizing backgrounds
- Growth of the supermassive black holes with their host galaxies at various redshifts
- Demography of quasars along the cosmic time
- Multi-wavelength surveys (participating in IMS, DESI, CSST & SPHEREx)

## Research Grants

<b>The Sejong Science Fellowship</b> <i>Funded by National Research Foundation of Korea (\$420,000)</i> Subject: Cosmic Evolution of Quasar-Galaxy by developing an Integrated Analysis Model for the Observational Big Data	2021-2026
<b>The 2020 China Postdoc Science Special Grant</b> <i>Funded by China Postdoctoral Science Foundation (\$26,000)</i> Subject: Quasar and Host Galaxy Properties with the Newest Large Survey Data	2020
<b>The 2020 China Postdoc Science General Grant</b> <i>Funded by China Postdoctoral Science Foundation (\$12,000)</i> Subject: Quasar and Host Galaxy Properties with the Newest Large Survey Data	2020
<b>Top 100 Fellowship</b> <i>Postdoc International Exchange Program at PKU (\$7,000)</i> Subject: Enhanced Studies on High-redshift Quasars	2019

## Honors and Awards

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### Scholarship for Creative Academic Performance

*Brain Korea 21 Program for Leading Universities and Students as a BK fellow (\$ 58,000)* 2013 – 2019  
awarded by National Research Foundation of Korea

### Academic Excellence Scholarship

*Partial tuition scholarship (\$2,000)* 2014, 2015  
awarded by Seoul National University

### SNU in Global Research Awards

*2nd place* 2013  
awarded by Office of International Affairs at Seoul National University

### Best Poster Presentation Awards at the 2012 Fall KAS Meeting

*1st place* 2012  
awarded by Korean Astronomical Society

### Lotte Scholarship

*Full tuition scholarship (\$5,000)* 2012  
awarded by Lotte Foundation

### Presidential Science Scholarship

*Full tuition scholarship (\$10,000)* 2009 – 2010  
awarded by National Research Foundation of Korea

## Observational Experience

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### Classical/Remote Observations

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#### Palomar 200 inch Telescope

*DBSP (Remote)* Palomar Observatory  
(Telescope Access Program)

2 nights in 2020B, 2 nights in 2021A

#### Magellan Baade 6.5 m Telescope

Las Campanas Observatory

*IMACS & FIRE*

2015 January 18-19, September 11-13; 2016 December 3-5; 2018 September 9-10 (10 nights)

#### Otto Struve 2.1 m Telescope

McDonald Observatory

*SQUEAN & CQUEAN*

2014 June 3-8, November 3-9; 2015 June 19-28; 2016 July 25-28; 2017 February 1-11, April 19-26, September 16-24, December 26-31; 2018 April 16-25; 2019 February 5-14 (81 nights)

#### Maidanak 1.5 m Telescope

Maidanak Observatory

*SNUCAM*

2013 August 2-7 (6 nights)

### Observations awarded as PI

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#### James Clerk Maxwell Telescope

East Asian Observatory

*SCUBA-2*

9.00 hr in 2018A

#### Gemini 8 m Telescopes

Gemini Observatory

*GMOS-N, GMOS-S, & FLAMINGOS-2*

(K-GMT Science Program)

9.00 hr in 2016B; 13.00 hr in 2017B; 7.92 hr in 2018A; 14.00 hr in 2018B; 10.14 hr in 2019A; 6.9 hr in 2020A

#### Atacama Large Millimeter/submillimeter Array

*12m Arrays*

3.6 hr in Cycle 4; 2.6 hr in Cycle 5

### Observations awarded as Co-PI

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#### Gemini 8 m Telescope

Gemini Observatory

*GMOS-S*

(K-GMT Science Program)

1 night in 2015A; 6.70 hr in 2016A; 24.00 hr in 2017A (for thesis; PI: Myungshin Im)

## Outreach and Other Experiences

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### KIAA-DoA Seminar Committee

Organizing seminar talks at KIAA & DoA at PKU 2021

### PKU Lunch Talk Committee

Organizing lunch talks at PKU 2020

### Technical Research Personnel

Serving duty on Korean military service 2016 – 2019

### Lecturer for International Astronomy Olympiad (IAO) students in Korea

Subject: Basic and Application of Observational Astronomy 2017

### Teaching assistant & lecturer for undergraduate class

Astronomical Observation and Lab (1 semester); Astronomy Lab (1 year) 2013 – 2014

### Undergraduate internship

Center for the Exploration of the Origin of the Universe (CEOI) at SNU 2012 – 2013

Subject: The Red Objects in the GRB 100205A Field

Supervisor: Prof. Myungshin Im

## Computer Skills

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**Programming:** IDL (fluent), PYTHON (fluent), R (basic)

**Data Analysis:** IRAF, SExtractor, SWARP, SCAMP, CASA, GALFIT, TOPCAT, etc.

**Others:** L<sup>A</sup>T<sub>E</sub>X, Microsoft Office, Adobe Photoshop, etc.

## Academic References

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### Professor Myungshin Im

◦ [mim@astro.snu.ac.kr](mailto:mim@astro.snu.ac.kr), +82-2-880-6585

◦ Department of Physics and Astronomy, Seoul National University, Korea

### Professor Linhua Jiang

◦ [jiangKIAA@pku.edu.cn](mailto:jiangKIAA@pku.edu.cn), +86-10-62755783

◦ Kavli Institute for Astronomy and Astrophysics, Peking University, China

### Professor Minjin Kim

◦ [mkim@knu.ac.kr](mailto:mkim@knu.ac.kr), +82-53-950-7136

◦ Department of Astronomy and Atmospheric Sciences, Kyungpook National University, Korea

## Publications

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### Refereed Publications

- 19 in total (1 submitted, 8 as first author, and 11 as co-author) [Link to ADS Library](#)

19. **Kim, Y., Im, M., et al.** 2022, AJ, accepted: *The Infrared Medium-deep Survey. IX. Discovery of Two New  $z \sim 6$  Quasars and Space Density down to  $M_{1450} \sim -23.5$  mag*
18. **Kim, Y. & Im, M.,** 2021, ApJL, 910, 11: *Pure Density Evolution of the Ultraviolet Quasar Luminosity Functions at  $2 \lesssim z \lesssim 6$*
17. **Kim, Y., Im, M., et al.** 2020, ApJ, 904,111: *The Infrared Medium-deep Survey. VIII. Quasar Luminosity Function at  $z \sim 5$*
16. **Kim, Y., & Im, M.** 2019, ApJ, 879, 117: *High Star Formation Rates of Low Eddington Ratio Quasars at  $z \gtrsim 6$*
15. **Kim, Y., Im, M., et al.** 2019, ApJ, 870, 86: *The Infrared Medium-deep Survey. VI. Discovery of Faint Quasars at  $z \sim 5$  with a Medium-band-based Approach*
14. **Kim, Y., Im, M., et al.** 2018, ApJ, 855, 138: *The Infrared Medium-deep Survey. IV. The Low Eddington Ratio of A Faint Quasar at  $z \sim 6$ : Not Every Supermassive Black Hole is Growing Fast in the Early Universe*
13. **Kim, Y., Im, M., et al.** 2015, ApJL, 813, 35: *Discovery of a Faint Quasar at  $z \sim 6$  and Implications for Cosmic Reionization*

12. **Kim, Y.**, Im, M., et al. 2015, PKAS, 30, 463: *Newly Discovered Footprints of Galaxy Interaction around Seyfert 2 Galaxy NGC 7743*
11. Shin, S., Im, M., **Kim, Y.** & Jiang, L. 2022, JKAS, accepted: *Newly Discovered  $z \sim 5$  Quasars via Deep Learning and Bayesian Information Criterion*
10. Lee, B., Wang, J., ..., **Kim, Y.** et al. 2022, ApJS, accepted: *ALMA/ACA CO Survey of the IC 1459 and NGC 4636 Groups: Environmental Effects on the Molecular Gas of Group Galaxies*
9. Taak, Y.-C., Im, M., **Kim, Y.**, et al. 2022, A&A, accepted: *High- $z$  Universe probed via Lensing by QSOs (HULQ) II. Deep GMOS Spectroscopy of a QSO Lens Candidate*
8. Shin, S., Im, M., & **Kim, Y.** 2021, ApJ, submitted: *The quasar luminosity function at  $z \sim 5$  via deep learning and Bayesian information criterion*
7. Shin, S., Im, M., **Kim, Y.**, et al. 2020, ApJ, 893, 45: *The Infrared Medium-deep Survey. VII. Faint Quasars at  $z \sim 5$  in the ELAIS-N1 Field*
6. Lee, S.-K., Im, M., ..., and **Kim, Y.** 2019, MNRAS, 490, 135: *More connected, more active: galaxy clusters and groups at  $z \sim 1$  and the connection between their quiescent galaxy fractions and large-scale environments*
5. Im, M., Choi, C., ..., **Kim, Y.**, et al. 2019, JKAS, 52, 11: *Intensive Monitoring Survey of Nearby Galaxies (IMSNG)*
4. Jeon, Y., Im, M., Kim, D., **Kim, Y.** et al. 2017, ApJS, 231, 16: *The Infrared Medium-deep Survey. III. Survey of Luminous Quasars at  $4.7 \leq z \leq 5.4$*
3. Kim, J.-W., Im, M., ..., **Kim, Y.** et al. 2016, ApJ, 821, 10: *Discovery of a Supercluster at  $z \sim 0.91$  and Testing the  $\Lambda$ CDM Cosmological Model*
2. Jeon, Y., Im, M., ..., **Kim, Y.** et al. 2016, JKAS, 49, 25: *The Infrared Medium-Deep Survey. V. A New Selection Strategy for Quasars at  $z > 5$  Based on Medium-Band Observations with SQUEAN*
1. Karouzos, M., Im, M., ..., **Kim, Y.** et al. 2014, ApJ, 797, 26: *The Infrared Medium-Deep Survey. II. How to Trigger Radio AGNs? Hints from their Environments*

## Conferences

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### Invited Talks

- "Hunting for Faint High-redshift Quasars with Infrared Medium-deep Survey", K-GMT Science Program Users Meeting 2020, On-line, 2020, November 19-20.
- "Discoveries and Properties of High-redshift Quasars with IMS", Science and Evolution of Gemini Observatory 2018, San Francisco (USA), 2018, July 22-26.

### Selected Talks

- "Quasar Luminosity Function at  $z \sim 5$  with IMS", Summer All Zoom Epoch of Reionization Astronomy Conference (SAZERAC), On-line, 2020, July 6-9.
- "High Star Formation Rates of Low Eddington Ratio Quasars at  $z \gtrsim 6$ ", Cosmic Evolution of Quasars: from the First Light to Local Relics, Beijing (China), 2019, October 21-25.
- "IMS J2204+0112, a Low Eddington Ratio in the Epoch of Reionization", Extremely Big Eyes on the Early Universe at Kavli IPMU, Tokyo (Japan), 2019, March 25-29.
- "The Low Eddington Ratio of IMS J2204+0112, a Faint Quasar at  $z \sim 6$ ", Extremely Big Eyes on the Early Universe at UCLA, Los Angeles (USA), 2019, January 28 - February 1.
- "Discovery and Properties of IMS J2204+0112, a Faint Quasar with Low Eddington Ratio at  $z \sim 6$ ", K-GMT Science Program Users Meeting 2018, Daejeon (Korea), 2018, February 26-27.
- "High- $z$  Quasar Survey with IMS: Are Quasars Growing Fast in the Early Universe?", East-Asia AGN Workshop 2017, Kagoshima (Japan), December 4-6.