

Junsup Shim | Curriculum Vitae

Dept. of Earth Science Education, Pusan National University
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✉ jsshim@pusan.ac.kr

Academic Positions

Assistant Professor <i>Pusan National University, Korea</i>	<i>Mar 2026 – present</i>
Distinguished Postdoctoral Fellow <i>Academia Sinica Institute of Astronomy and Astrophysics, Taiwan</i>	<i>Jul 2022 – Feb 2026</i>
Visiting Scientist <i>Korea Institute for Advanced Study, Korea</i>	<i>Oct 2023 – Oct 2023</i>
Visiting Scientist <i>Canadian Institute for Theoretical Astrophysics, Canada</i>	<i>Jul 2023 – Aug 2023</i>
Research Fellow <i>Korea Institute for Advanced Study, Korea</i>	<i>Sep 2018 – Jun 2022</i>

Education & Degrees

Ph.D. in Astronomy , Seoul National University, Korea <i>Advisor: Prof. Jounghun Lee</i> <i>Thesis: Cosmological Applications of Filamentary Structures in the Universe</i>	<i>Aug 2018</i>
B.S. in Mechanical and Aerospace Engineering , Seoul National University, Korea <i>Cum laude</i>	<i>Aug 2011</i>

Publication Summary (Source: [NASA Astrophysics Data System](#))

Total Publications: 11 papers in peer-reviewed journals with 104 citations

- └ **First Author Publications:** 10 papers with 81 citations
- └ **Coauthor Publication:** 1 paper with 23 citations

Unpublished Manuscripts: 2 articles (on arXiv) with 12 citations

Research Excellence

PRL paper featured as Synopsis in Physics Magazine Synopsis title: “Cosmic Handedness Might Show Up in Galaxy Spins” Publisher: American Physical Society (Physics 18, s126)	<i>2025</i>
Publications in Premier Journals First author papers in PRL (IF: 9.0) and ApJL (IF: 11.7)	<i>2025</i>
National Junior Research Fellowship Funded as PI (44,220 USD/yr) by National Research Foundation of Korea Project title: “Identifying the Ultimate Cosmology by utilizing Supercluster Straightness”	<i>2014 – 2018</i>

Research Interests

- Parity symmetry of the Universe
- Gravity on cosmological scales
- Nature of dark energy and dark matter
- Large-scale structure of the Universe

Talks at International Meetings, Colloquia, and Seminars in 3 years

19. [**Seminar, invited**] Institute of Physics at National Yang Ming Chiao Tung University, Taiwan, Dec 3, 2025, *"Probing Cosmic Parity Symmetry with Large-Scale Structure of the Universe"*
18. [**Conference**] Reconstructing the Universe, Taiwan, Dec 15 - 18, 2025, *"Improving cosmological constraints using galaxy intrinsic alignment in full-shape analysis"*
17. [**Conference**] The 3rd Shanghai Assembly on Cosmology and Structure Formation, China, Nov 16 - 21, 2025: *"Tightening Dynamical Dark Energy Constraints with Intrinsic Galaxy Alignments"*
16. [**Colloquium, invited**] Institute of Astronomy at National Central University, Taiwan, Oct 17, 2025: *"Tracing the Universe's Handedness Through Galaxy Spins"*
15. [**Colloquium, invited**] Institute of Astronomy at National Tsing Hua University, Taiwan, Oct 3, 2025: *"The Handed Cosmos: What Galaxies Reveal About Symmetry Breaking"*
14. [**Seminar**] Department of Physics at University of Seoul, Korea, Sep 24, 2025: *"The Handed Universe: What Galaxy Spins Can Tell Us"*
13. [**Conference**] CosKASI Conference 2025, Korea Astronomy and Space Science Institute, Korea, Sept 15 - 19, 2025: *"Tightening Dynamical Dark Energy Constraints with Full-shape Intrinsic Alignment of Galaxies"*
12. [**Conference**] International Symposium on Cosmology and Particle Astrophysics CosPA 2025, Institute for Basic Science, Korea, Jul 7 - 11, 2025: *"Tightening Dark Energy Constraints with Intrinsic Galaxy Shape Alignments"*
11. [**Conference, invited**] Parity Violation from Home (online conference), Nov 19 - 22, 2024: *"Probing Parity Violation in the Early Universe using Galaxy Spins"*
10. [**Colloquium**] Department of Astronomy at Yonsei University, Korea, Nov 8, 2024: *"Probing Parity Violation in the Early Universe using Galaxy Spins"*
9. [**Colloquium**] Korea Astronomy and Space Science Institute, Korea, Nov 6, 2024: *"Probing Parity Violation in the Early Universe using Galaxy Spins"*
8. [**Seminar**] Department of Physics and Astronomy at Seoul National University, Korea, Nov 5, 2024: *"Probing Parity Violation using Galaxy Spins"*
7. [**Workshop**] 11th KIAS Workshop on Cosmology and Structure Formation, Korea Institute for Advanced Study, Korea, Oct 27 - Nov 2, 2024: *"Probing Parity Violation in the Early Universe using Galaxy Spins"*
6. [**Conference**] COSMO'24, Kyoto University, Japan, Oct 21 - 25, 2024: *"Probing Parity Violation in the Early Universe using Galaxy Spins"*
5. [**Conference**] International Symposium on Cosmology and Particle Astrophysics CosPA 2024, Ningbo University, China, Jun 14 - 18, 2024: *"Probing Vectorial Parity Violation in the Early Universe"*
4. [**Workshop**] Large-scale Parity Violation Workshop, Academia Sinica Institute of Astronomy and Astrophysics, Taiwan, Dec 4 - 7, 2023: *"Detectability of Helical Vector Fossils in Galaxy Spin Maps"*
3. [**Seminar, invited**] Academia Sinica Institute of Physics, Taiwan, Jul 31, 2023: *"Cosmic Voids as Counterparts of Massive Clusters"*
2. [**Seminar, invited**] Canadian Institute for Theoretical Astrophysics, Canada, Jul 31, 2023: *"Cosmic Voids: Cluster Counterparts?"*
1. [**Seminar, invited**] Leung Center for Cosmology and Particle Astrophysics, Taiwan, May 3, 2023: *"Cosmic Voids: Cluster Counterparts?"*

Professional Service

- Reviewer, Journal of Cosmology and Astroparticle Physics, Nov 2025 - present

- Reviewer, Astrophysics and Space Science, Aug 2023 – present
- SOC, Parity Violation From Home, Nov 2025
- ASIAA Colloquium Committee, Aug 2022 – Oct 2024
- ASIAA Lunch Talk Organizing Committee, Aug 2022 – Oct 2024
- Journal Club Organizer, KIAS Astrophysics Group, Mar 2021 – Aug 2021
- Organizing Committee, 2020 Korea Astrophysics Workshop, Nov 2020
- Organizing Committee, 9th KIAS workshop on Cosmology and Structure formation, Nov 2020
- Organizing Committee, Survey Science Group Workshop, Feb 2020
- Organizing Committee, 2019 KIAS Astrophysics Group Workshop, Nov 2019

Mentoring Experience

- Master & Undergraduate Student Supervision
 - **Byoungjo Yu** (Master Y2) – Chungnam National Univ., Korea *Aug 2024 – present*
Co-supervision with Prof. Hyunmi Song
Project title: Boosting the sensitivity to primordial parity violation with optimally selected halos
 - **Yu-Chien Hung** (Undergraduate Y3) – National Taiwan Univ., Taiwan *Jul 2025 – Dec 2025*
Project title: Probing cosmic alignments: Investigating shape correlations beyond galaxies

Teaching Experience

- **(Invited)** Lecturer at ASIAA Summer School, “Intro. to Modern Cosmology”, 2024 & 2025
- Teaching Assistant at Seoul Nat’l. Univ., “Intro. to Astrophysics 2”, Spring 2014
- Teaching Assistant at Seoul Nat’l. Univ., “Intro. to Modern Cosmology”, Fall 2013
- Teaching Assistant at Seoul Nat’l. Univ., “Man and the Universe”, Spring 2012 & 2013

Language Proficiency

- Korean: Native
- English: Fluent

Academic Referees

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| <ul style="list-style-type: none"> ○ Prof. Christophe Pichon
pichon@iap.fr
Institut d’astrophysique de Paris
Sorbonne Universite & CNRS, France | <ul style="list-style-type: none"> ○ Prof. Dmitri Pogosyan
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Physics Department, Faculty of Science
University of Alberta, Canada |
| <ul style="list-style-type: none"> ○ Prof. Jounghun Lee
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Department of Physics and Astronomy
Seoul National University, Korea | <ul style="list-style-type: none"> ○ Dr. Teppei Okumura
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Institute of Astronomy and Astrophysics
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| <ul style="list-style-type: none"> ○ Prof. Ue-Li Pen
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