

# Junsup Shim | Curriculum Vitae

Dept. of Earth Science Education, Pusan National University  
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## Academic Positions

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

## Education & Degrees

<b>Ph.D. in Astronomy</b> , Seoul National University, Korea <i>Advisor: Prof. Joung-hun Lee</i> <i>Thesis: Cosmological Applications of Filamentary Structures in the Universe</i>	<i>Aug 2018</i>
<b>B.S. in Mechanical and Aerospace Engineering</b> , 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**Unpublished Manuscripts:** 2 articles (on arXiv) with 12 citations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

<b>PRL paper featured as Synopsis in Physics Magazine</b> Synopsis title: "Cosmic Handedness Might Show Up in Galaxy Spins" Publisher: American Physical Society ( <a href="#">Physics 18, s126</a> )	<i>2025</i>
<b>Publications in Premier Journals</b> First author papers in PRL (IF: 9.0) and ApJL (IF: 11.7)	<i>2025</i>
<b>National Junior Research Fellowship</b> 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

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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

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- 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

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- Master & Undergraduate Student Supervision
    - **Byoungjo Yu** (Master Y2) – Chungnam National Univ., Korea  
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  
*Project title: Probing cosmic alignments: Investigating shape correlations beyond galaxies*
- Aug 2024 – present*  
*Jul 2025 – Dec 2025*

## Teaching Experience

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- (**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

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- Korean: Native
- English: Fluent

## Academic Referees

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| ○ <b>Prof. Christophe Pichon</b><br><a href="mailto:pichon@iap.fr">pichon@iap.fr</a><br>Institut d'astrophysique de Paris<br>Sorbonne Universite & CNRS, France                  | ○ <b>Prof. Dmitri Pogosyan</b><br><a href="mailto:pogosyan@ualberta.ca">pogosyan@ualberta.ca</a><br>Physics Department, Faculty of Science<br>University of Alberta, Canada         |
| ○ <b>Prof. Jounghun Lee</b><br><a href="mailto:cosmos.hun@gmail.com">cosmos.hun@gmail.com</a><br>Department of Physics and Astronomy<br>Seoul National University, Korea         | ○ <b>Dr. Teppei Okumura</b><br><a href="mailto:tokumura@asiaa.sinica.edu.tw">tokumura@asiaa.sinica.edu.tw</a><br>Institute of Astronomy and Astrophysics<br>Academia Sinica, Taiwan |
| ○ <b>Prof. Ue-Li Pen</b><br><a href="mailto:director@asiaa.sinica.edu.tw">director@asiaa.sinica.edu.tw</a><br>Institute of Astronomy and Astrophysics<br>Academia Sinica, Taiwan |   |