Jianhao Wu

JianhaoWu.com • Machine Learning for Astrophysics • Dark Matter Substructure

Education

University of Wisconsin-Madison (UW–Madison) Sep. 2025 – Jun. 2030
JIANHAO.WU@WISC.EDU WI, USA
- Doctor of Philosophy in Physics, 2030 (expected). Advisor: Prof. Mariel Pettee

The Chinese University of Hong Kong (CUHK) Aug. 2022 – Jul. 2025
JIANHAO.WU@LINK.CUHK.EDU.HK NT, HKSAR
- Master of Philosophy in Physics, 2025. Advisor: Prof. T. K. CHAN
- Master of Science in Physics, 2023.

Wuhan University (WHU) Sep. 2018 – Jun. 2022
JIANHAO.WU@WHU.EDU.CN Hubei, China
- Bachelor of Engineering in Computer Science and Technology, 2022.

Academic Employment

Graduate Research Assistant
Department of Physics, University of Wisconsin–Madison Summer 2026–present

Graduate Teaching Assistant, Physics 202: General Physics
Department of Physics, University of Wisconsin–Madison Fall 2025, Spring 2026

Graduate Teaching Assistant, UGEB 2411: Astronomy – A Short Introduction
Department of Physics, The Chinese University of Hong Kong Fall 2023, Spring/Fall 2024, Spring 2025

Publications

†indicates my research advisor for the corresponding project.

Cosmological zoom-in simulations of Milky Way host mass dark matter halos with a blue-tilted primordial power spectrum **[P2]**

- **Jianhao Wu**, Tsang Keung Chan†, Victor J. Forouhar Moreno. *Phys. Rev. D* 112 (2025) 023512
  DOI | arXiv 2412.16072 | astro-ph.CO | GitHub · btmw | Zenodo Code | Zenodo Data
- **Award:** Third Prize at The 11th Hong Kong University Student Innovation and Entrepreneurship Competition.
- **Featured by:** CUHK Physics News (June 19, 2025); Official Instagram of CUHK Faculty of Science (July 7, 2025); CUHK Physics Newsletter 40th Issue (Oct. 2025).
- **Related presentations:** Conferences [C3]–[C8]; seminars [S1]–[S2].

Cosmic-ray electrons and the magnetic field of the North Polar Spur **[P1]**

- Guobin Mou†, **Jianhao Wu**, Yoshiaki Sofue. *Astronomy & Astrophysics* 676, L3 (2023)
  DOI | arXiv 2212.04306 | astro-ph.HE
- **Award:** Best Presentation Award at International Symposium on Cosmology and Particle Astrophysics (CosPA 2024).
- **Featured by:** CUHK Physics Newsletter 38th Issue (Oct. 2024).
- **Related presentations:** Conferences [C1]–[C2].

Conference Presentations

[C10] Probe Combination for Dark Matter Physics in the Era of Large Surveys Poster; in prep
Kavli Institute for Cosmological Physics (KICP), University of Chicago United States, Sep. 2026

[C9] 7th China-Chile Bilateral Conference for Astronomy Poster; in prep
The University of Hong Kong Hong Kong SAR, Jan. 2026

[C8] Workshop on the Physics and the Mathematics of the Universe (W(I)PMU) Oral & Poster [P2]
Kavli IPMU, The University of Tokyo Japan, Jul. 2025

[C7] International Symposium on Cosmology and Particle Astrophysics: CosPA 2025 Oral [P2]
Asia Pacific Organization of Cosmology and Particle Astrophysics (APCosPA) Korea, Jul. 2025

[C6] Expanding the Boundaries of Dark Matter Halo Oral [P2]
Shanghai Jiao Tong University China Mainland, May. 2025

[C5] The 2nd LHAASO Symposium Poster [P2]
Dept. of Phys., The Chinese University of Hong Kong Hong Kong SAR, Mar. 2025

[C4] IAS Program on Fundamental Physics (FP 2025) Oral [P2]
Institute for Advanced Study, The Hong Kong University of Science and Technology Hong Kong SAR, Jan. 2025

[C3] 2024 Joint Annual Conference of Physical Societies in Guangdong-HK-Macao Greater Bay Area — Poster [P2]
Guangdong Physics Society; Physical Society of Macao; Physical Society of HK — Macau SAR, Aug. 2024

[C2] International Symposium on Cosmology and Particle Astrophysics (CosPA 2024) — Oral [P1]
Hosted by Ningbo University; CosPA series organized by APCosPA — China Mainland, Jun. 2024

- **Best Presentation Award**.

[C1] International Conference on Resolving Galaxy Ecosystems Across All Scales — Oral [P1]
Dept. of Phys. & Institute of Theoretical Physics, The Chinese University of Hong Kong — Hong Kong SAR, Dec. 2023

Seminar Presentations

[S2] CUHK Cosmology Journal Club — Journal Club [P2]
Dept. of Phys., The Chinese University of Hong Kong — Hong Kong SAR, Feb. 2025

[S1] OSU CCAPP AstroParticle Lunch — Seminar [P2]
Center for Cosmology and AstroParticle Physics (CCAPP), Ohio State University — United States, Jan. 2025

Selected Awards

Honors & Merit Awards

Third Prize, The 11th Hong Kong University Student Innovation and Entrepreneurship Competition — 2025
Hong Kong New Generation Cultural Association; 3K HKD / 400 USD

Reaching Out Award for Overseas Academic Activities — 2025
HKSAR Government & CUHK; declined; 10K HKD / 1.3K USD

Best Presentation Award, CosPA Symposium 2024 — 2024
Asia-Pacific Organization of Cosmology and Particle-Astrophysics; 1.5K RMB / 200 USD

Finland Scholarship for Master's Program — 2023
Finland Government & University of Helsinki; declined; tuition waived (15K EUR/year) + 5K EUR/year stipend

Excellent Performance Award, MSc in Physics — 2023
CUHK; 1K HKD / 130 USD

International Master's Scholarship — 2022
University of L'Aquila; declined; 7.8K EUR/year stipend

Fellowships & Graduate Funding

Graduate Assistantship (GTA/RA) — 2025–2030
UW–Madison; 36K USD/year + tuition waived

Incoming Student Scholarship — 2025
UW–Madison; 5K USD

Research Postgraduate Studentship — 2023–2025
CUHK; 220K HKD (28K USD)/year gross stipend

Research Postgraduate Grant for Overseas Academic Activities — 2023
CUHK; 10K HKD / 1.3K USD

Professional Services

Reviewer
Machine Learning & the Physical Sciences (ML4PS) — 2026
ICLR Workshop on Foundation Models for Science (FM4Science) — 2026

Standardized Tests

GRE Subject Physics: 940; 87% percentile — Oct. 2024

IELTS Academic: Overall 7.5 — May 2024