Jiashu Han

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EDUCATION

Ph.D. in Physics, University of California, San Diego September 2026
Advisor: Daniel Green

B.A. in Physics and Astrophysics, University of California, Berkeley May 2019
with high distinction in general scholarship

TEACHING EXPERIENCE

Associate Instructor June 2026 — September 2026
University of California, San Diego

PHYS 1A: Mechanics (Summer Sessions I and II, 2026)

- Served as instructor of record for two offerings of introductory calculus-based mechanics intended for life science majors.
- Designed and delivered lectures covering kinematics, Newtonian mechanics, energy, momentum, and rotational motion.
- Developed instructional materials, assignments, and in-class assessments aligned with course learning objectives.
- Incorporated active-learning and formative-assessment strategies, including in-class conceptual questions and collaborative problem solving, to promote student engagement and conceptual understanding.
- Held regular office hours and provided individualized academic support to students with diverse levels of physics preparation, across two courses with total enrollment of more than 80 students.

Academic Associate / Lab Course Coordinator September 2021 — December 2025
University of California, San Diego

PHYS 1AL: Mechanics Laboratory (Winter 2022 — Fall 2025, instructors: A. Yagil, P. Tsai, J. Arlett, G. Bal, A. Frano)
PHYS 1CL: Waves, Optics, and Modern Physics Laboratory (Fall 2021, instructors: A. Yagil, P. Tsai)

- Supervised and trained more than 50 graduate teaching assistants and 60 undergraduate graders over 4 years.
- Coordinated more than 20 laboratory sections during each quarter and resolved instructional and administrative issues.
- Developed and revised laboratory manuals, assignments, and grading rubrics.
- Led regular instructional-team meetings to ensure consistency in lab instruction, grading, and assessment.

Teaching Assistant September 2019 — June 2026
University of California, San Diego

PHYS 1C: Waves, Optics, and Modern Physics (Winter 2026, instructor: P. Tsai)
PHYS 1AL: Mechanics Laboratory (Fall 2020)
PHYS 1BL: Electricity and Magnetism Laboratory (Winter 2020; Winter 2021)
PHYS 1CL: Waves, Optics, and Modern Physics Laboratory (Fall 2021)
PHYS 2A: Physics – Mechanics (Spring 2020, instructor: A. Burgasser)
PHYS 2B: Physics – Electricity and Magnetism (Spring 2021, instructor: O. Shpyrko)
PHYS 2C: Physics – Fluids, Waves, Thermodynamics, and Optics (Fall 2019, instructor: B. Shotwell)
PHYS 4B: Physics for Majors – Fluids, Waves, Statistical and Thermal Physics (Spring 2026, instructor: J. Hirsch)
PHYS 12: Energy and Environment (Winter 2026, instructor: V. Sharma)

- Independently led discussion sections and held office hours.
- Held substantial instructional responsibilities across multiple courses, including developing and grading homework assignments and exams.

Tutor / Academic Intern September 2017 — May 2018
University of California, Berkeley

COMPSCI 61B: Data Structures (Fall 2017)
PHYSICS 137A: Quantum Mechanics (Spring 2018)

TEACHING AWARDS AND RECOGNITION

Distinguished Senior Graduate Teaching Award, Department of Physics, UC San Diego Spring 2026
Scholar in Student-Centered College Teaching, UC San Diego Teaching and Learning Commons Summer 2026

PEDAGOGICAL TRAINING AND PROFESSIONAL DEVELOPMENT

Practitioner in Student-Centered College Teaching Fall 2025
UC San Diego Teaching and Learning Commons

- 30 hours of pedagogical training in the Introduction to College Teaching (ICT) course on the use of evidence-based teaching practices and strategies to create an equitable learning experience for students.

SciCom Training February 2026
UC San Diego MRSEC & Fleet Science Center

- A 3-hour professional development workshop on science communication for informal audiences, emphasizing tools to create impactful, curiosity-driven science and engineering experiences at public engagement and outreach events.

Specialist in Student-Centered College Teaching Spring 2026
UC San Diego Teaching and Learning Commons

- 40 hours of advanced pedagogical training in the Advanced College Teaching (ACT) course focused on student-centered teaching practices and course design for instructors of record.
- Applied and reflected on evidence-based teaching practices through an independent instructor-of-record experience, with support from a community of scholarly instructors.

RESEARCH EXPERIENCE

Graduate Student Researcher May 2020 — September 2026
Department of Physics, University of California, San Diego

- Derived the likelihoods of primordial non-Gaussian signatures in the galaxy power spectrum, and demonstrated the practicality of using sample variance cancellation to significantly improve constraints on the signal amplitude in realistic experimental settings.
- Developed computational models and statistical inference tools to investigate the signatures of field interactions during the early universe using observational data from galaxy surveys.
- Examined previously unexplored parameter space of primordial non-Gaussianity and studied the sensitivity of current and future galaxy surveys to these novel signatures.

Summer Research Assistant June 2018 — August 2018
Center for Computational Astrophysics, Flatiron Institute

- Computed the cross-correlation between the *Planck* CMB gravitational lensing signal and the SDSS-IV/eBOSS quasars, and placed constraints on the SDSS-IV/eBOSS quasar bias while ruling out systematic effects.

Research Affiliate October 2016 — June 2018
Lawrence Berkeley National Laboratory

- Performed statistical inference on *Planck* CMB lensing and SDSS-III/BOSS galaxies and quasars.

PUBLICATIONS

- D. Green, **J. Han**, B. Wallisch, "Extending the Cosmological Collider: New Scaling Regimes and Constraints from BOSS," arXiv:2602.12232 [astro-ph.CO].
- D. Green, Y. Guo, **J. Han**, B. Wallisch, "Light Fields during Inflation from BOSS and Future Galaxy Surveys," *JCAP* **05** (2024) 090, arXiv:2311.04882 [astro-ph.CO].
- **J. Han**, S. Ferraro, E. Giusarma, S. Ho, "Probing Gravitational Lensing of the CMB with SDSS-IV Quasars," *Monthly Notices of the Royal Astronomical Society* **485** (2019) 2, 1720-1726, arXiv:1809.04196 [astro-ph.CO].

SKILLS

- Programming: Python (proficient), Java, C/C++, IDL, R
- Scientific computing: numerical modeling, simulation, optimization
- Data analysis: statistical modeling, parameter estimation, quantitative forecasting

RESEARCH INTERESTS

- Large-scale structure, cosmic microwave background
- Primordial non-Gaussianity, inflation