

MING-FENG HO (何銘峰)

 jibancat.github.io |  mfho@umich.edu |  Google Scholar |  orcid.org/0000-0002-4457-890X
 +1(909)525-6731 |  450 Church Street Ann Arbor, MI 48109-1040

CURRENT POSITION

- Postdoctoral Fellow in the Leinweber Center for Theoretical Physics, University of Michigan 2024 Sept -
Probabilistic modeling for cosmological surveys: DESI, LSST
Mentor: Camille Avestruz

EDUCATION

- Ph.D. student in Physics & Astronomy, University of California, Riverside 2018 - 2024 Sept
Research advisor: Prof. Simeon Bird
Thesis: Model-driven cosmology with Bayesian machine learning and population inference
- M.S. in Astrophysics, National Taiwan University 2016 - 2018
- B.S. in Physics, National Taiwan University 2010 - 2014

RESEARCH INTERESTS


- **Bayesian statistics:** Probabilistic graphical models (PGMs) , hierarchical Bayesian modeling.
- **Uncertainty quantification:** Multi-fidelity methods, emulation, Gaussian processes (GPs).
- **Cosmology:** Lyman- α forest, N-body (hydro) simulations.
- **Black holes:** gravitational waves, primordial black holes (PBHs).

AWARDS AND GRANTS

1. Robert Poe (浦大邦) Memorial Scholarship, UC Riverside 2024
2. NASA FINESST Fellowship 2021 - 2024
3. Anne Kernan Award (Outstanding Senior Graduate Student Researcher), UC Riverside 2023
4. Provost's Scholars Fellowship (honored), UC Riverside 2021
5. Benjamin C. Shen Award (Outstanding Junior Graduate Student Researcher), UC Riverside 2021
6. GSA Conference Travel Award, UC Riverside 2019
7. Student Thesis Award, Physics Society of Taiwan 2019
8. Dean's Fellowship, UC Riverside 2018
9. Laureate for Philosophical Treatise (哲學桂冠), National Taiwan University 2012

RESEARCH MENTORSHIP

Advisor for UCR/UCLA undergraduates advised by Prof. Simeon Bird

- Kevin Hong (co-advised with Sum Qezlou): Animating the evolution of universe using Blender  Video 2022
- Ryan Tsaio: Automated detection of Lyman limit systems 2023

Research advisor for King's high school students

- Emma Shah (now UC Berkeley; co-advised with Phoebe R. Upton Sanderbeck): DLA spatial separation on the detection pipeline 2020 - 2021

- Emma Shah and Rafael Rosales: A better prior for QSO redshift estimation ( jibanCat/gpy_dla_detection, Gold medal in the county-level science fair) 2021 - 2022

Team Lead for Data Science Challenge, Lawrence Livermore National Laboratory

- Adhith Karthikeyan, Alex Chen, Matthew Lee: Deep learning for galaxy/asteroid 2021

PUBLICATION

Summary

- 20 publications (224 total citations; Google scholar 04/29/2025).
- 5 first-author publications (107 total citations).

First-authored papers

- **Ming-Feng Ho**, Scott Ellis Perkins, Simeon Bird, William Dawson, Nathan Golovich, Jessica R. Lu, Peter McGill, *Investigating the mixing between two black hole populations in LIGO-Virgo-KAGRA GWTC-3*, *Phys. Rev. D* **110**, 063031, September 2024 [2408.09024].
- **Ming-Feng Ho**, Simeon Bird, Martin A. Fernandez, Christian R. Shelton, *MF-Box: Multi-fidelity and multi-scale emulation for the matter power spectrum*, *MNRAS*, **526**(2):2903–2919, December 2023 [2306.03144].
- **Ming-Feng Ho**, Simeon Bird, Christian R. Shelton, *Multi-Fidelity Emulation for the Matter Power Spectrum using Gaussian Processes*, *MNRAS*, **509**(2):2551–2565, January 2022 [2105.01081].
- **Ming-Feng Ho**, Simeon Bird, and Roman Garnett, *Damped Lyman-alpha Absorbers from Sloan Digital Sky Survey DR16Q with Gaussian processes*, *MNRAS*, **507**(1):704–719, October 2021 [2103.10964].
- **Ming-Feng Ho**, Simeon Bird, and Roman Garnett, *Detecting multiple DLAs per spectrum in SDSS DR12 with Gaussian processes*, *MNRAS*, **496**(4):5436–5454, August 2020 [2003.11036].

SCIENTIFIC PRESENTATIONS

Summary

- 20 talks, posters and presentations since 2019
- 6 remote talks, 8 in-person seminar talks, 1 poster, 5 conference talks

Selected Talks


- *Invited Talk: OSU CCAPP Seminar (topic: DESI GP Damped Lyman alpha absorbers)* Mar 2025
- *Invited Talk: CfA Seminar (topic: Multi-fidelity emulators and cosmological constraints)* Nov 2023
- *Invited Talk: IPMU APEC seminar (topic: PRIYA emulator using Astrid simulations)* Oct 2023
- *Invited Talk: KICP seminar (topic: MF emulator)* Jan 2023

SERVICE

Selected service

- Referee for Physical Review D, Astrophysical Journal, and MNRAS 2021 - present
- P&A PeER Mentorship (PAPER) Leader 2023 - present
- P&A Student Seminar (PASS) Founder 2022 - 2023
- Head Steward (Riverside), UAW 2865 2021 - 2022
- UC Astronomy Osterbrock Sierra Conference Co-I 2021

PUBLIC OUTREACH

1. UCR's Stargazing Series Presenter and Moderator (× many times) ( Video) 2020 - 2021

WORKING EXPERIENCE

Research Assistant for Digital Humanities

Taipei, Taiwan

- Text mining for digital humanities, working at Academia Sinica, Chinese literature and Philosophy 2018

Magazine Editor/Freelance Writer

Taipei, Taiwan

- Editing for Little Newton, and also writing literature, receiving the nation-wide Hakka literature award 2015

Taiwanese Military Service

Keelung, Taiwan

- Digitalize historical court records 2014 - 2015

OTHER SKILLS

- Languages: Mandarin (native), English, Japanese (limited listening/reading), Taiwanese (limited listening)