








# Minghao Guo

## PERSONAL INFORMATION

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## EDUCATION

<b>Princeton University</b> Graduate Student, Department of Astrophysical Sciences	Princeton, US Sep. 2021 – Expected 2026
<b>Peking University</b> Bachelor of Science in Physics, Yuanpei College • Thesis: A Numerical Study of Scalar-tensor Gravity Theory	Beijing, CN Sep. 2016 – July 2021

## RESEARCH INTERESTS

- Black hole (BH) physics, high energy astrophysics, accretion disks, active galactic nuclei (AGN)
- Galaxy dynamics and evolution, galaxy structure
- Modified gravity, neutron stars, pulsars, gravitational waves, dark matter
- Numerical simulations, Numerical methods, New numerical techniques

## PUBLICATIONS

1. **Guo, Minghao**, James M. Stone, Eliot Quataert, and Chang-Goo Kim, “Magnetized Accretion onto and Feedback from Supermassive Black Holes in Elliptical Galaxies,” [arXiv e-prints](#), [arXiv:2405.11711](#) (2024), [arXiv:2405.11711 \[astro-ph.HE\]](#) .
2. Rebecca Diesing, **Guo, Minghao**, Chang-Goo Kim, James Stone, and Damiano Caprioli, “Nonthermal Signatures of Radiative Supernova Remnants,” [arXiv e-prints](#), [arXiv:2404.15396](#) (2024), [arXiv:2404.15396 \[astro-ph.HE\]](#) .
3. **Guo, Minghao**, James M. Stone, Chang-Goo Kim, and Eliot Quataert, “Toward Horizon-scale Accretion onto Supermassive Black Holes in Elliptical Galaxies,” [ApJ](#) **946**, 26 (2023), [arXiv:2211.05131 \[astro-ph.HE\]](#) .
4. **Guo, Minghao**, Junjie Zhao, and Lijing Shao, “Extended reduced-order surrogate models for scalar-tensor gravity in the strong field and applications to binary pulsars and gravitational waves,” [PhRvD](#) **104**, 104065 (2021), [arXiv:2106.01622 \[gr-qc\]](#) .
5. **Guo, Minghao**, Kohei Inayoshi, Tomonari Michiyama, and Luis C. Ho, “Hunting for Wandering Massive Black Holes,” [ApJ](#) **901**, 39 (2020), [arXiv:2006.08203 \[astro-ph.HE\]](#) .
6. **Guo, Minghao**, Min Du, Luis C. Ho, Victor P. Debattista, and Dongyao Zhao, “A New Channel of Bulge Formation via the Destruction of Short Bars,” [ApJ](#) **888**, 65 (2020), [arXiv:1911.07002 \[astro-ph.GA\]](#) .

## REFERENCES

<b>Charles A. Young Professor of Astronomy, Eliot Quataert</b> <a href="mailto:quataert@princeton.edu">quataert@princeton.edu</a>	Princeton University
<b>Professor James M. Stone</b> <a href="mailto:jmstone@ias.edu">jmstone@ias.edu</a>	Institute for Advanced Study
<b>Director, Chair Professor Luis C. Ho</b> <a href="mailto:lho.pku@gmail.com">lho.pku@gmail.com</a>	Peking University
<b>Professor Kohei Inayoshi</b> <a href="mailto:inayoshi.pku@gmail.com">inayoshi.pku@gmail.com</a>	Peking University
<b>Professor Lijing Shao</b> <a href="mailto:lshao@pku.edu.cn">lshao@pku.edu.cn</a>	Peking University

## HONORS AND AWARDS

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Weiming Bachelor	June 2021
<a href="#">Yuanpei Outstanding Young Scholars</a>	Dec 2020
Lin-bridge First Prize for Undergraduate Research	Sep. 2020
<a href="#">Yuanpei College First Award for Undergraduate Research</a>	June 2020
Xingcheng Award for Undergraduate Research	May 2019
National Undergraduate Research & Training Program	May 2019
Peking University Scholarship for Outstanding Freshmen	Sep. 2016

## CONFERENCE & WORKSHOP

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Harvard BHI Workshop: Bridging Scales in the Black Hole Accretion-Feedback Problem (Invited talk) <i>Multi-Scale Simulations of Galaxy-SMBH Feeding</i>	May 2024
KITP Program: Turbulence in Astrophysical Environments (Oral talk) <i>Toward Horizon-scale Accretion onto Supermassive Black Holes in Elliptical Galaxies</i>	Jan. 2024
Black Holes on Broadway: The Next Generation of AGN Models in Galaxy Formation (Oral talk) <i>Toward Horizon-scale Accretion onto Supermassive Black Holes in Elliptical Galaxies</i>	Dec. 2023
Galaxy Formation in Hangzhou: Observations and Physics of AGN Feedback (Oral talk) <i>Toward Horizon-scale Accretion onto Supermassive Black Holes in Elliptical Galaxies</i>	Oct. 2023
CCA Fluid Dynamics Summer School (Oral talk) <i>GPU Computing using AthenaK: Black Hole Accretion and Supernova Remnants</i>	Aug. 2023
The Second Athena++ Workshop (Oral talk) <i>Toward Horizon-scale Accretion onto Supermassive Black Holes in Elliptical Galaxies</i>	May 2023
Learning the Universe Annual Meeting (Oral talk) <i>Accretion of Supermassive Black Holes in Elliptical Galaxies</i>	Sep. 2022
The 240th Meeting of the AAS (Poster presentation) <i>Accretion of Supermassive Black Holes in Elliptical Galaxies</i>	June 2022
2020 PKU-DoA Undergraduate Astronomy Symposium (Oral talk) <i>Hunting for Wandering Massive Black Holes</i>	Sep. 2020
2019 PKU-DoA Undergraduate Astronomy Symposium (Oral talk) <i>A New Channel of Bulge Formation via the Destruction of Short Bars</i>	Sep. 2019
2019 Annual Meeting of Chinese Astronomical Society (Oral talk) <i>A New Channel of Bulge Formation via the Destruction of Short Bars</i>	Sep. 2019
IAU Symposium 353: Galactic Dynamics in the Era of Large Surveys (Poster presentation) <i>The Role of Short Bar Destruction in Regulating the Co-evolution of Black Holes and Bulges</i>	June 2019

## TECHNICAL SKILLS

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**Programming:** Proficient in Python, C/C++, L<sup>A</sup>T<sub>E</sub>X, Mathematica, Git; Basic knowledge of Matlab and Fortran.

**Software and Packages:** AthenaK, Athena++, MPI, OMP, cuda, SymPy, yt, emcee, VisIt, ParaView, PLUTO, IRAF, GALFIT

**Techniques:** Massive parallel computing on supercomputer, dataset analyzing and visualization.