




Minghao Guo

PERSONAL INFORMATION

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EDUCATION

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

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

Charles A. Young Professor of Astronomy, Eliot Quataert	Princeton University
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Professor James M. Stone	Institute for Advanced Study
jmstone@ias.edu	
Director, Chair Professor Luis C. Ho	Peking University
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Professor Kohei Inayoshi	Peking University
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Professor Lijing Shao	Peking University
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HONORS AND AWARDS

Weiming Bachelor	June 2021
Yuanpei Outstanding Young Scholars	Dec 2020
Lin-bridge First Prize for Undergraduate Research	Sep. 2020
Yuanpei College First Award for Undergraduate Research	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 & WORKSHO

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

MENTORING EXPERIENCE

TECHNICAL SKILLS

Programming: Proficient in Python, C/C++, \LaTeX , 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.