

HUIMIN QU

Sydney Institute for Astronomy, 423D A28, The University of Sydney

✉ huqu9381@uni.sydney.edu.au ◊ 🌎 huiminqu.github.io

Astrophysics PhD candidate experienced in Bayesian inference, gravitational lens modeling, and multi-wavelength data analysis.

EDUCATION

Ph.D. Candidate, The University of Sydney *Mar 2023 – Sep 2026 (expected submission)*
Advisor: Geraint F. Lewis
Reconstructing the dark matter properties of lensing galaxies in the strong gravitational lensing regime.

B.Sc. (Honours), Xiamen University *Sep 2018 - Jun 2022*
Major: Astronomy GPA: 3.91/4.00 Rank: 1%
Growths of Stellar-mass Black Holes in the Center of Gamma-ray Bursts and the Lower Mass Gap

SKILLS

Programming: Python, JAX, Shell, Git, C++, Fortran; experience with HPC and MPI

Quantitative Skills: Bayesian data analysis, joint modeling, optimization algorithms (PSO, SVI), sampling algorithms including HMC, machine learning algorithms

Software development: Extended Lenstronomy to enable robust multi-band modeling with astrometric offsets for large survey datasets.

PUBLICATIONS

1. **Qu H.-M.**, et al., Revealing the Mass Structure of a Galaxy-Galaxy Hyperbolic Umbilic Lens with Gravitational Lensing and Kinematics, in prep.
 2. **Qu H.-M.**, et al., Ground- to Space-Based Lens Reconstructions: Comparing HST and PISCO Inferences for Eight AGEL Systems, in prep.
 3. Salama N., Ballard D. J., **Qu H.-M.**, Lewis G. F., Microlensing² of the multiply imaged quasar in J1721+8842, the Double Source Plane Einstein Zig-Zag Gravitational Lens, to be submitted soon.
 4. **Qu H.-M.**, Ballard D. J., Lewis G. F., Glazebrook K., Stark A., et al., Multi-band Reconstruction of Sixteen Gravitational Lens Systems using PISCO data, *MNRAS* submitted.
 5. Barone T. M., Vasan G. C. K., Tran K.-V., et al. (including **Qu H.-M.**), The AGEL Survey Data Release 2: A Gravitational Lens Sample for Galaxy Evolution and Cosmology, *AJ* accepted.
 6. **Qu H.-M.**, Liu T., Revisiting black hole hyperaccretion in the center of gamma-ray bursts for the lower mass gap, *ApJ* 929, 83 (2022).
 7. Liu T., Qi Y.-Q. Cai Z.-Y., Sun M.-Y., **Qu H.-M.**, et al., Neutrino-dominated accretion flows: second nucleosynthesis factory in core-collapse supernovae and regulation of iron markets in galaxies, *ApJ* 920, 5 (2021).

CONFERENCE & SEMINAR TALKS

ASA ECR Symposium Talk	<i>RSAA, ANU, Canberra, Australia, 2026 (Accepted)</i>
44th International Workshop on Bayesian Inference and Maximum Entropy Methods in Science and Engineering (MaxEnt 2025)	<i>Auckland, New Zealand, Dec 2025 (Accepted)</i>
Visitor Talk	<i>Technical University of Munich, Garching, Germany Oct 2025</i>
1st Workshop Scaling Up Lensing	<i>Liège, Belgium Oct 2025</i>

ASA Annual Science Meeting	<i>Adelaide, Australia, Jul 2025</i>
School of Physics HDR Symposium	<i>USYD, Sydney, Australia Jun 2025</i>
Dark Matter under the Gravitational Lens	<i>Hong Kong, China Apr 2025</i>
Mount Stromlo Student Seminar	<i>Canberra, Australia Sep 2024</i>
Undergraduate Astronomy Symposium of Peking University	<i>Remote Sep 2020</i>

SELECTED HONORS & AWARDS

International Research Training Program (RTP) Scholarship <i>Approximately 30 awards per year in this category at USYD</i>	<i>Mar 2023 – Sep 2026 (expected)</i>
ASA Student Travel Grant, AUD2,500	<i>2025</i>
Outstanding Undergraduate Student Award, Xiamen University	<i>2022</i>
National Scholarship, PRC Ministry of Education, three times, total ¥24,000	<i>2019–2021</i>
Guangqi Fellowship, Shanghai Astronomical Observatory, CAS, total ¥14,000	<i>2019–2022</i>
Second Prize, 10 th China Undergraduate Physicists Tournament (CUPT) <i>(First Prize in East China Division, May 2019)</i>	<i>Aug 2019</i>

SUMMER SCHOOLS

ANITA Summer School <i>Program: Computational Multiphysics Hydrodynamics</i>	<i>Mount Stromlo Observatory, 2025</i>
HPC and Data in Astrophysics	<i>Remote, 2024</i>
CSST Summer School of Galaxy Sciences	<i>Remote, 2022</i>

TEACHING

Tutor & Demonstrator (PHYS1001–1003)	<i>USYD, Australia, 2024–2025</i>
Tutor (PHYS4123 <i>General Relativity and Cosmology</i>)	
Tutor (Modern Cosmology; High-Energy Astrophysics)	<i>XMU, China, 2021–2022</i>

REFERENCES

Prof. Geraint F. Lewis ✉ geraint.lewis@sydney.edu.au	<i>The University of Sydney, Sydney, Australia</i>
Prof. Karl Glazebrook ✉ kglazebrook@swin.edu.au	<i>Swinburne University of Technology, Melbourne, Australia</i>
Dr. Daniel J. Ballard ✉ daniel.ballard@sydney.edu.au	<i>The University of Sydney, Sydney, Australia</i>