Rongjun Huang (黄镕钧)

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EDUCATION

The University of Western Australia, The International Centre for Radio Astronomy Research, Crawley, WA, Australia

PhD student - **The Doctor of Philosophy**, 2025-2029.

Thesis: Environmental effects on Spatially-resolved Star Formation and Interstellar Medium Properties in the Virgo Cluster.
Supervisor: Prof. Luca Cortese

The Australian National University, Research School of Astronomy & Astrophysics, Weston Creek, ACT, Australia

M.Sc - **Master of Science (Advanced) - Astronomy and Astrophysics**, GPA - 7/7 With **Commendation,** June 2024.

Thesis: Negative Metallicity Gradient in Galactic Outflows Based on QED Simulations.
Supervisor: Prof. Mark Krumholz

The Australian National University, Research School of Astronomy & Astrophysics, Weston Creek, ACT, Australia

H.Sc - **Bachelor of Science (Honours) - Astronomy and Astrophysics**, **First Class Honours** (H1, 82/100), December 2022.

Thesis: Exploring the Intrinsic Scatter of the Star-Forming Galaxy Main Sequence at Redshift 0.5 to 3.0.
Supervisor: Dr. Andrew Battisti

The Australian National University, Research School of Astronomy & Astrophysics, Acton, ACT, Australia

B.Sc - **Bachelor of Science - Astronomy and Astrophysics**, GPA - 5.6/7, June 2021.

Thesis: Using `MAGPHYS+photo-z` to Characterise the Properties of Star-Forming Galaxies.
Supervisor: Dr. Andrew Battisti

FIRST-AUTHOR PUBLICATIONS

1. ***MAUVE–MUSE: The Origin of Spatially-resolved Mass–Metallicity Relation's Secondary Dependence on Star Formation Rate Surface Density***

   Rongjun Huang, Luca Cortese, Barbara Catinella, Luke J. M. Davies, Toby Brown, Andrei Ristea, Alessandro Boselli, Andrew J. Battisti, Vicente Villanueva, Kristine Spekkens, Sara L. Ellison, Daniel A. Dale, Sabine Thater & Amirnezam Amiri. **2026**.
   (submitted).

2. **Quokka-*based understanding of outflows (QED) - IV. Limitations of Hα as an outflow diagnostic***

   Rongjun Huang, Aditi Vijayan, Mark R. Krumholz. **2026**.
   MNRAS (Accepted). **DOI: 10.1093/mnras/stag185**.

3. **Quokka-*based understanding of outflows (QED) - II. X-ray metallicity gradients as a signature of galactic wind metal loading***

   Rongjun Huang, Aditi Vijayan, Mark R. Krumholz. **2025**.
   MNRAS (Published, Volume 539, Issue 2, May 2025, Pages 1723–1737). **DOI: 10.1093/mnras/staf593**. Citations: 1 (per NASA/ADS)

4. ***Exploring the Intrinsic Scatter of the Star-Forming Galaxy Main Sequence at Redshift 0.5 to 3.0***

Rongjun Huang, Andrew J. Battisti, Kathryn Grasha, Elisabete da Cunha, Claudia del P Lagos, Sarah K. Leslie & Emily Wisnioski. **2023**.
MNRAS (Published, Volume 520, Issue 1, March 2023, Pages 446–460). **DOI: 10.1093/mnras/stad108**. Citations: 11 (per NASA/ADS)

GRANTED OBSERVATION

Anatomy of a fall: Dissecting the environment-driven transformation of late-type Virgo cluster galaxies with HST UV-optical imaging of star clusters, associations, and HII regions
Co-PI – Hubble Space Telescope (HST) – 145 orbits (∼108.8 hr).

OBSERVATION EXPERIENCE

Extremely Metal Poor Stars in Milky Way
ANU 2.3m Telescope, Siding Spring Observatory (SSO), NSW, Australia
September 2019; 3 nights

The GALactic Archaeology with HERMES (GALAH) survey in 2024A
Anglo-Australian Telescope (AAT), Siding Spring Observatory (SSO), NSW, Australia
July 2024 [remote observing through Mount Stromlo Observatory (MSO) observation room]

HPC EXPERIENCE

NCI / Gadi
Star Formation and Feedback in a Turbulent Interstellar Medium (Project jh2; PI: Mark Krumholz). 2023-present.

Pawsey / Setonix
Multiphase Astrophysics to Unveil the Virgo Environment (Pawsey1308; PI: Luca Cortese). 2026-present.

Star Formation and Feedback in a Turbulent Interstellar Medium (Pawsey0807; PI: Mark Krumholz). 2023-present.

Swinburne / OzSTAR
IFS Data Analysis (oz084; PI: Luca Cortese). 2025-present.

Anita Summer School (oz978; PI: Mark Krumholz). 2025-2026.

CADC / CANFAR
Multiphase Astrophysics to Unveil the Virgo Environment (MAUVE; PI: Toby Brown). 2025-present.

SOFTWARE DEVELOPMENT

The nGIST Pipeline: A galaxy IFS analysis pipeline for modern IFS data
https://github.com/geckos-survey/ngist

Post-processing pipeline for Quokka simulation code as part of the `yt` frontend
https://github.com/chongchonghe/yt/tree/Rongjun-ANUquokka-frontend

INTERNSHIP

The Stability of the WiFeS Instrument on the ANU 2.3-Metre Robotic Telescope
Supervisor: A/Prof. Chris Lidman

ANU 2.3m Telescope, Siding Spring Observatory (SSO), NSW, Australia
01/29/2024–02/16/2024

PROFESSIONAL AFFILIATIONS

Member (Student) – ARC Centre of Excellence for All Sky Astrophysics in 3 Dimensions (ASTRO 3D), Australia 2020-2024

CONFERENCE TALKS

When metallicity follows or fights star formation: a resolved inversion in Virgo spirals from MAUVE–MUSE

R. Huang. Astronomical Society of Australia (ASA) Annual Scientific Meeting 2026, Canberra, ACT, Australia (Talk; July 2026).

R. Huang. European Astronomical Society (EAS) Annual Meeting 2026 — SS7, Lausanne, Switzerland (Contributed Talk; June–July 2026).

MAUVE-MUSE: When Metallicity Follows or Fights Star Formation –A Mass Dependent Inversion in Virgo Spirals

R. Huang. Australian-Chinese Astronomical Research (ACAMAR) 11 Workshop, Geraldton, WA, Australia (Sparkler Talk; Local Organising Committee; March 2026).

Exploring the Intrinsic Scatter of the Star-Forming Galaxy Main Sequence at Redshift 0.5 to 3.0

R. Huang. 2022 ASTRO 3D Science Meeting, Burnley, VIC, Australia (Talk; June 2022).

Sparkler Talk (1-min): Intrinsic Scatter of the Star-Forming Galaxy Main Sequence

R. Huang. 2023 ASTRO 3D Science Meeting, Freemantle, WA, Australia (Talk; June 2023).

GRANTS AND AWARDS

UWA Data Institute Awards 2025 Travel Grants: 2000 AUD Decemember 2025
ASTRO 3D travel funds: 1500 AUD June 2023
ASTRO 3D travel funds: 100 AUD June 2022

SCHOLARSHIP

The Australian Government Research Training Program (RTP) scholarship
The University of Western Australia. 2025-2028

LANGUAGE SKILLS

Pearson Test of English (PTE) Academic
Overall score 81: Listening 83, Reading 74, Speaking 90, Writing 80. Australia, 03 Jul 2024

PROFESSIONAL SKILLS

- Advanced experience with large astrophysical datasets (integral-field spectroscopy, simulations) and statistical modelling.
- Daily user of Python (NumPy, SciPy, Astropy, Matplotlib, Jupyter), plus experience with HPC environments and automated analysis pipelines.

- Comfortable with Mathematica, MATLAB, IDL, and common scientific tools (Emacs, DS9, ImageJ, LaTeX/BibTeX, Markdown, office suites).