Yuji He

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Personal Statement

My research focuses on determining stellar parameters of eclipsing spectroscopic binaries using LAMOST spectra and public photometric data. This includes studying the mass-radius relationship and gravitational redshift of white dwarfs, M-dwarf parameters, and the period gap in cataclysmic variables. I am also highly interested in asteroseismology, particularly in a special class of eccentric binary systems known as heartbeat stars.

Education

- **University of Chinese Academy of Sciences** — Beijing, China
  MSc. in Astrophysics — *2022 - present*
  - Research Group: LAMOST Operation and Development Center
  - Research Focus: The formation and evolution of binary stars

Publications

- Yuan, H. et al. Orbital parameters for an ELM white dwarf with a white dwarf companion: LAMOST J033847.06+413424.2. *Mon Not R Astron Soc* 526, 5471–5482 (2023).
- Huang, X., **Yuji He**, Zhongrui Bai, Hailong Yuan, Mingkuan Yang, et al. The Near-infrared Ca ii Triplet as a Stellar Activity Indicator: A Library and Comparative Study. *ApJS* 272, 6 (2024).

Skills

- **Programming Languages:** Python, Matlab, C, LaTeX
- **Analytical Methods and Techniques:**
  - **Spectral Analysis:** 2D spectrum processing, stellar parameters and radial velocity determination, orbital parameter fitting, and gravitational redshift
  - **Photometric Data Analysis:** Spectral energy distribution (SED) fitting
  - **Light Curve Analysis:** Binary star modeling using the Wilson–Devinney code
- **Software:** TOPCAT, AstroImageJ, Period04, MESA, GYRE

International Conferences Attended

- MESA Down Under School (2024) — University of Sydney, Australia
- ICESUN Summer School 2024: Stellar Explosions and Related Objects — Yunnan Observatories, China
- Binary and Multiple Stars in the Era of Big Sky Surveys — Litomyšl, Czech Republic