Da-Ming Yang

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Education

Leiden University — Leiden, Netherlands
M.S. in Astronomy Research — 2021–Present

- Master Thesis: *"High-z Quasar Candidate Archive: A Spectroscopic Catalog of Quasars and Imposters in Various Quasar Searches"*
  Advisor: Prof. Joseph F. Hennawi
- First Master Project Thesis: *"Uncovering Connections Between Host Galaxy Property and Spectral Type of Tidal Disruption Flare"*
  Advisor: Prof. Sjoert van Velzen

University of Science and Technology of China — Hefei, China
B.S. in Astronomy (the School of the Gifted Young) — 2016–2020

- Thesis: *"Turn-On and Turn-Off Active Galactic Nuclei Candidate: Using [OIII]λ5007/BLR H_β to Probe Accretion History"*
  Advisor: Prof. Jun-Xian Wang

University of Science and Technology of China — Hefei, China
Minor in Computer Science — 2017–2020

National University of Singapore — Singapore
Summer Workshop of School of Computing — Summer 2018

- Project: 2D Video Game Engine Development
  github.com/topologyYDM/Journey-to-the-west

Publications

As Primary Author

1. **Da-Ming Yang**, Joseph.F.Hennawi et al. in prep., *High-z Quasar Candidate Archive: A Spectroscopic Catalog of Quasars and Imposters in Various Quasar Searches*, arxiv:xxx.
2. **Da-Ming Yang**, Zhang-Liang Xie, Jun-Xian Wang 2020, *The Feasibility and Flexibility of Selecting Quasars by Variability Using Ensemble Machine Learning Algorithms*, accepted for publication in Research in Astronomy and Astrophysics, arxiv: 2011.03160.

As Contributing Author

1. Gloudemans et al. 2022, *Discovery of 24 radio-bright quasars at* $4.9 \leq z \leq 6.6$ *using low-frequency radio observations*, accepted for publication in Astronomy & Astrophysics, arxiv: 2210.01811.
2. Bañados et al. in prep., *The Pan-STARRS1* $z > 5.6$ *quasar survey II: 50 New Quasars at* $5.6 < z < 6.5$.

Observation Programs

As Co-Investigator

- W.M. Keck Observatory Telescope, LRIS — 1 nights, September 2022
  PI: Joseph Hennawi, co-Is: Riccardo Nanni, Feige Wang, **Daming Yang**
  The Keck/JWST/HST Quasar Legacy Redshift Survey

- W.M. Keck Observatory Telescope, LRIS 1 nights, April 2022
  PI: Joseph Hennawi, co-Is: Riccardo Nanni, Jan-Torge Schindler, Feige Wang, Jinyi Yang, **Daming Yang**
  Paving the Way for Euclid and JWST via Optimal Selection of High-z Quasars

- W.M. Keck Observatory Telescope, MOSFIRE 1 nights, April 2022
  PI: Joseph Hennawi, co-Is: Riccardo Nanni, Jan-Torge Schindler, Feige Wang, **Daming Yang**
  Paving the Way for Euclid and JWST via Optimal Selection of High-z Quasars

- W.M. Keck Observatory Telescope, LRIS 2 nights, March 2022
  PI: Joseph Hennawi, co-Is: Riccardo Nanni, Jan-Torge Schindler, Feige Wang, **Daming Yang**
  The Keck/JWST/HST Quasar Legacy Redshift Survey

Research Experience

Research on High-z Quasar Search

Advisors: Prof. Joseph Hennawi, Dr. Riccardo Nanni, Dr. Jan-Torge Schindler February 2022-Present
Leiden University

- We reduced spectroscopic data from several Keck observing runs for high-z quasar search with `PypeIt` to construct a catalog of high-z quasar candidate. With this catalog, we conducted analysis on the contaminant population. We also forward modeled spectroscopic observations with several Keck instruments to refine our current observing strategy and test the feasibility of using Keck to confirm future Euclid quasars. We have published our results in Yang et al. 2022.

Research on Host Galaxy of Tidal Disruption Event

Advisor: Prof. Sjoert van Velzen February 2021-Present
Leiden University

- We investigated the possible relations between the spectral types of the tidal disruption flares and the properties of their host galaxies. We used the stellar population synthesis package `Prospector` to estimate the stellar mass, star formation history, metallicity and dust absorption of the host galaxies. We utilized several statistical models to test the possible relations. All the methods suggested a null result.
- We proposed a new method to estimate the compactness of the host galaxy of TDE by combining photometric data from SDSS and Gaia. The preference of TDEs for more compact hosts is also seen in our results, but we consolidate this point with an unexplored smaller scale.

Research on Pipeline Development for WFST

University of Science and Technology of China August 2020-December 2020

- I took part in the development of the real-bogus classification module of transients for the Wide Field Survey Telescope (WFST; operated by University of Science and Technology of China and the Purple Mountain Observatory), including the design of the algorithm and a platform for generating training data.

Research on AGN Duty Cycle

Advisor: Prof. Jun-Xian Wang February 2020-June 2020
University of Science and Technology of China

- We proposed a method to select turn-on/turn-off AGN candidates with the line ratio between narrow and broad emission line. After excluding sources with evident dust absorption, we select several candidates as possible observing targets for the future. We further analyzed the distribution of candidates in BPT diagram and in terms of accretion rate, their composite spectrum and SED.

Research on Quasar Selection with Variability

Advisor: Prof. Jun-Xian Wang 2019-2020
University of Science and Technology of China

- We trained several machine learning algorithms for quasar searches with variability features extracted with `JAVELIN`. We tested the performance with SDSS Stripe 82 quasar catalog, using one year, two year and full data respectively. We published the results in **Yang** et al., 2021.

Research on Baryonic Tully-Fisher Relation

Advisor: Prof. Ying Zu — Summer 2019
Shanghai Jiao Tong University

- We estimated the intrinsic scatter of the Baryonic Tully-Fisher Relation (BTFR) with SPARC catalog, following Lelli et al., 2016. We investigated more physical parameters to see the origin of the intrinsic scatter, including the halo mass and the gas mass. To get all the values, we fitted the rotation curves of these galaxies with Markov chain Monte Carlo and various halo density profiles. We found a positive correlation between the scatter $\sigma_{\rm BTFR}$ and the so called "HI excess" parameter (Zu and Mandelbaum, 2018).

Research on Casimir Force (Physics)

Advisor: Prof. Changgan Zeng — 2017-2018
University of Science and Technology of China

- We measured Casimir Interaction between special material (like KTO and graphene) and metals with atomic force microscope.

Scholarships and Awards

- Bronze Scholarship of University of Science and Technology of China — 2018
- Guang Hua Scholarship — 2017
- Silver Scholarship of University of Science and Technology of China — 2016

Skills

- **Programming Language:** C, C++, Python, Shell, SQL
- **General Software:** Mathematica
- **Astronomical Software:** PypeIt

Languages

- **Chinese:** Native
- **English:** Fluent
  - **Toefl:** 111