

Jianwei Lyu

CONTACT INFORMATION

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EDUCATION

University of Arizona, Tucson, Arizona USA **2014-now**

Ph.D. Candidate, Astronomy & Astrophysics (expected graduation date: Jan 2020)

- Dissertation Topic: “Demystifying the IR Emission of Type-1 AGNs from $z \sim 0$ to $z \sim 6$ ”
- Advisor: George H. Rieke

Shanghai Astronomical Observatory, Chinese Academy of Sciences, Shanghai, China **2011-2014**

M.S., Astronomy, June, 2014

University of Science and Technology of China, Hefei, China **2007-2011**

B.A., Astronomy, June, 2011

RESEARCH INTERESTS

- AGN IR properties and unification; interplay between the AGN torus and host ISM
- search and identifications of the elusive AGNs at high- z
- black hole/galaxy connection; quasar host galaxies at $z \gtrsim 5$
- optical and IR time-domain study of extragalactic objects (AGNs, TDEs, etc)
- new science with future IR missions like JWST, SPICA, OST

RESEARCH EXPERIENCE

University of Arizona, Tucson, Arizona USA

Member of the JWST/MIRI Science Team

2017 - now

- Helped to prepare the JWST Guaranteed Time Observations (GTO) programs (e.g., science design, sample selection and observing strategy checks for GTO 1205: *Formation Histories and Stellar Masses of Very High- z Quasars*);
- Highly involved in the development of next-generation AGN selection techniques for GTO 1207: *MIRI in the Hubble Ultra-Deep Field*

Graduate Student

September, 2014 - present

- Development of dust reverberation mapping program to allow the use of public asteroid/supernova hunting surveys to statistically study quasar torus at $z \sim 0-2$;
- Development of a (semi-)empirical SED library to reconcile type-1 AGN SEDs with broad ranges of luminosity ($L_{\text{AGN}} \sim 10^8-10^{14} L_{\odot}$) and redshift ($z \sim 0-6$);
- Development of SED analysis tools to measure the properties of AGN host galaxies (e.g., stellar masses and star formation rates) and to identify AGN candidates with polar dust emission;
- Design (and execution) of observing programs with optical IFU and future JWST instruments;
- Added IMACS-IFU support to the P3D software for its fiber-fed IFU data reduction.

Shanghai Astronomical Observatory, Shanghai, China

Research Assistant

September, 2011 - July, 2014

- Construction of the largest optical and mid-IR spectroscopic database with data from SDSS and *Spitzer* /IRS;
- Development of various tools for optical to mid-IR spectral measurements and science analysis.

PUBLICATIONS

Lead Author:

- 6 “Mid-IR Variability and Dust Reverberation Mapping of Low- z Quasars I. Data, Methods and Basic Results” **Lyu, Jianwei**; Rieke, G. H. 2019, *Smith, P. S. 2019, ApJ* in press (arXiv: 1909.11101)
- 5 “Polar Dust, Nuclear Obscuration and IR SED Diversity in Type-1 AGNs” **Lyu, Jianwei**; Rieke, G. H. 2018, *ApJ*, 866, 92
- 4 “The Intrinsic Far-infrared Continua of Type-1 Quasars” **Lyu, Jianwei**; Rieke, G. H. 2017, *ApJ*, 841, 76
- 3 “Dust-deficient Palomar-Green Quasars and the Diversity of AGN Intrinsic IR Emission” **Lyu, Jianwei**; Rieke, G. H.; Yong Shi 2017, *ApJ*, 835, 257
- 2 “The Contribution of Host Galaxies to the Infrared Energy Output of $z \gtrsim 5$ Quasars,” **Lyu, Jianwei**; Rieke, G. H.; Albert, Stacey 2016, *ApJ*, 816, 85;
- 1 “Dust in Active Galactic Nuclei: Anomalous Silicate to Optical Extinction Ratios?” **Lyu, Jianwei**; Hao, Lei; Li, Aigen 2014, *ApJL*, 792, L9.

Contributing Author:

- 4 “The Far Infrared Emission of the First Massive Galaxies” De Rossi, Maria Emilia; Rieke, George H.; Shivaeei, Irene; Bromm, Volker; **Lyu, Jianwei** 2018, *ApJ*, 860, 4
- 3 “Long Fading Mid-infrared Emission in Transient Coronal Line Emitters: Dust echo of a Tidal Disruption Flare” Dou, Liming; Wang, Tinggui; Jiang, Ning; Yang, Chenwei; **Lyu, Jianwei**; Zhou, Hongyan 2016, *ApJ*, 832, 188
- 2 “The WISE Detection of an Infrared Echo in Tidal Disruption Event ASSASSN-14li,” Jiang, Ning; Dou, Liming; Wang, Tinggui, Yang, Chenwei; **Lyu, Jianwei**; Zhou, Hongyan 2016, *ApJ*, 828, 14;
- 1 “SDSS J163459.82+204936.0: A Ringed Infrared-luminous Quasar with Outflows in Both Absorption and Emission Lines,” Liu, Wen-Juan; Zhou, Hong-Yan; Jiang, Ning; Wu, Xufen; **Lyu, Jianwei**, et al. 2016 *ApJ*, 816, 85;

PROJECTS IN PREPARATION

- 3 “Mid-IR Variability and Dust Reverberation Mapping of Low- z Quasars II. Insights into the AGN Circumnuclear Torus with SED Information” **Lyu, Jianwei**; Rieke, George H., et al.
- 2 “An IMACS-IFU study of type-1 AGN host galaxies: indications for IR SEDs as tracers for different ISM status” **Lyu, Jianwei** et al.
- 1 “How well can we constrain the star formation rates of AGN host galaxies?” **Lyu, Jianwei** et al.

CONFERENCES ORAL PRESENTATIONS & SEMINARS

- Cosmic Evolution of Quasars: from the First Light to Local Relics, Peking University, China (Oct 2019)
- Dusting the Universe workshop, Tucson, AZ, USA (Mar 2019)
- Colloquium, Shanghai Astronomical Observatory, China (Jan 2019)
- 233rd AAS meeting, Seattle, USA (Jan 2019)
- TORUS2018: the many faces of the AGN obscuration, Puerto Varas, Chile (Dec 2018)
- KIAA lunch talk, Peking University, China (Jul 2018)
- NOAO FLASH talk, Tucson, AZ, USA (May 2018)
- AGN: what’s in a name, Garching ESO, Germany (Jun 2016)
- NOAO FLASH talk, Tucson, AZ, USA (May 2016)
- Journal Club, USTC, China (Jan 2016)

HONORS AND AWARDS

- The 2019 AAS Doxsey Travel Prize (December 2018)
- Annual Scholarship of National Astronomical Observatories, CAS (December 2010)
- The Second Prize Scholarship, USTC (November 2010)
- The Third Prize Scholarship, USTC (November 2009)

- TELESCOPE PROPOSALS
- PI: Bok/VATT Telescope (optical spectrograph), 2020a
 - PI: Magellen Telescope(Baade)/IMACS-IFU, 2019a
 - PI: Kuiper 61-inch/SPOL, 2017a
 - Col-I (PI: George H. Rieke): JWST GTO 1204, 1205, 1207
 - Col-I (PI: Feng Gao): SMT/1.3mm(ALMA), Spring 2016
- TEACHING EXPERIENCE
- Teaching Assistant* **2017 - 2018**
- Some lectures; leading the in-class discussions, student labs; shared responsibility for exams, homework assignments, and grades.
- ASTR170B1 The Physical Universe (by Dr. Brenda Frye), Spring 2018.
 - ASTR170B1 The Physical Universe (by Dr. Christopher Walker), Spring 2017.
- TECHNICAL SKILLS
- Data analysis: SDSS, *Spitzer*, *WISE*, Magellan/IMACS-IFU, some knowledge of *Herschel*, ALMA; general knowledge of photometric and spectroscopic data reductions; experienced in SED fittings and spectral decompositions; some experience of radiation transfer modeling and time series data analysis
 - Languages: IDL, Python, C/C++, some use of Unix shell scripts, Fortran;
 - Applications: L^AT_EX, SMART, SKIRT, P3D. some use of SEXtractor, IRAF, Supermongo;
 - Operating Systems: Unix/Linux, Windows.
- SERVICE, OUTREACH AND OTHER ACTIVITIES
- LOC member of the conference “Dusting the Universe”, Tucson, AZ (2018)
 - Senita Valley Elementary School Family Science Night, Tucson, AZ (Jan, 2015)
 - Volunteer of the Dissecting Galaxies with 2D Wide-field Spectroscopy conference, Lijiang, China (March, 2013)
 - Host of USTC Students’ Journal Club, USTC, Hefei, China (2011)
 - Tour guide of USTC Observatory Open Day, USTC, Hefei, China (2007-2011)
 - Local organizer of the IYA2009 “100 Hours of Astronomy” activity, Hefei, China (2009)
 - Deputy president of the Association of Amateur Astronomers of USTC, Hefei (2008-2009)
 - Leader and organizer of the USTC 2008 total solar eclipse expedition team, Jiuquan (2008)

(updated: October 27, 2019)