QIAN YANG

CONTACT INFORMATION

Harvard-Smithsonian Center for Astrophysics
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WORKING EXPERIENCE

Astrophysicist (Post-Doctoral Research Fellow)
Harvard-Smithsonian Center for Astrophysics *2021.08 - Present*

Postdoctoral Research Associate
Department of Astronomy, University of Illinois at Urbana-Champaign *2018.09 - 2021.08*

Visiting Research Scholar
Steward Observatory, University of Arizona *2015.09 - 2016.09*

EDUCATION

Ph.D, Astrophysics, Peking University *2012.09 - 2018.07*

B.S., Physics, Sichuan University *2008.09 - 2012.07*

RESEARCH INTERESTS

- Galaxies and their central supermassive black holes
- Quasar variability
- Changing-look quasars
- Quasar target selection and photometric redshift estimation
- Dust reverberation mapping in distant quasars

TECHNICAL EXPERIENCE

Programming	IDL, Python, R
Software	IRAF, SQL, LaTeX, TOPCAT
Astronomical	Optical spectroscopy data reduction and decomposition
	X-ray data reduction and analysis
	Imaging reduction and photometry
	Photometric redshift estimation of quasars and galaxies

OBSERVING EXPERIENCE

Imaging

- Leading an ongoing observing program using DECam to monitor several LSST Deep Drill Fields to bridge the Pan-STARRS/DES and LSST light curves (4 semesters)
- Large Binocular Telescope (LBT) 2*8.4m/LBC, LBT Observatory (0.5 nights)
- Mayall 4m/MOSAIC-3, National Optical Astronomy Observatory (17 nights)
- Bok 2.3m/90Prime, Steward Observatory (19 nights)

Spectroscopy

- Magellan Baade 6.5m/FIRE, Las Campanas Observatory (3 nights)
- MMT 6.5m/Red Channel, MMT Observatory (6 nights)
- P200 Hale 5m/Triplespec, Palomar Observatory (7 nights)
- Gemini GMOS-N, twin 8.1m (1 night in Queue mode)
- MMT 6.5m/Binospec (6.5 nights in Queue mode)
- Lijiang 2.4m/YFOSC, Yunnan Astronomical Observatory (>20 nights)
- Xinglong 2.16m/BFOSC, NAOC Xinglong Observatory (>30 nights)

PRESS

'Echo Mapping' in Faraway Galaxies Could Measure Vast Cosmic Distances
NASA Jet Propulsion Laboratory (JPL)

New Discoveries Double the Number of Changing-look AGNs
The Kavli Institute for Astronomy and Astrophysics at Peking University (KIAA-PKU)

HONORS AND AWARDS

- 2020 NASA Astrophysics Data Analysis Program (ADAP, co-I)
- 2015-2016 China Scholarships Council Fellowship
- 2010-2011 The Third Prize Scholarship, Excellent Student, Sichuan University
- 2009-2010 The Third Prize Scholarship, Excellent Student, Sichuan University
- 2008-2009 The Second Prize Scholarship, Excellent Student, Sichuan University

TEACHING EXPERIENCE AND OUTREACH

Teaching Assistant in Fundamental Astronomy, Peking University *2014.03 - 2014.07*
Sidewalk astronomy (organizer), Sichuan University *2009 - 2010*

CONFERENCES AND TALKS

26. Talk, *Chasing Quasar Accretion State Changes with Chandra.* AAS 241 Winter Meeting, Seattle, Washington, USA, Jan 10, 2023
25. Talk, *Chasing Quasar Accretion State Changes with Chandra.* CfA High Energy Seminar, Harvard–Smithsonian Center for Astrophysics, USA, Nov 30, 2022
24. Talk, *A Southern Photometric Quasar Catalog from the Dark Energy Survey Data Release 2.* CfA Seminar, Harvard–Smithsonian Center for Astrophysics, USA, Nov 1st, 2022
23. Invited talk, *A Southern Photometric Quasar Catalog from the Dark Energy Survey Data Release 2.* Yunnan Observatory (zoom), Oct 24, 2022
22. Invited talk, *Changing Look AGN.* Institute of High Energy Physics, Chinese Academy of Sciences (zoom), June 28, 2022
21. Talk, *Using DES/LSST to Search for Extreme Variables.* Survey Science Meeting, NCSA, UIUC, USA, March 28, 2019
20. Talk, *Spectral Variability of a Sample of Extreme Variability Quasars and Implications for the MgII Broad-line Region.* DES Collaboration Wide Review, (zoom) UIUC, USA, March 11, 2019
19. Poster, *Discovery of 21 New Changing-look AGNs: Study on Evolution of AGNs and AGN Host Galaxies*, the 231st AAS Meeting, Washington, DC, USA, January 2018
18. Sciences with LSST and CSST Forum, Beijing, China, November 2017

17. Talk, *Quasar Photometric Redshift and Candidate Selection and Changing-look Quasars*, BHOLE project Group 4 Workshop, Beijing, China, July 2017
16. Rapid talk, *Photo-z and Candidate Selection of Quasars Based on Imaging Data*, DESI Collaboration meeting, Berkeley, USA, June 2017
15. Talk, *Photometric Redshift of Quasars and Quasar Candidate Selection and Changing-look Quasars*, BHOLE Group 3 Workshop, Beijing, China, May 2017
14. AGN RM Workshop, Lijiang, China, October 2016
13. DECaLS Workshop, Tucson, USA, August 2016
12. Participated in workshop organization, East-Asia AGN Workshop, Changchun, China, July 2015
11. BASS Survey workshop, Beijing, China, June 2015
10. Talk, *Quasar Photometric Redshift Estimations and Check with SDSS Quasars*, The 2015 KIAA-SHAO Bilateral Workshop, Beijing, China, May 2015
9. KIAA SAC Meeting, Beijing, China, March 2015
8. Mini-workshop on AGN Fueling and Star Formation, Lijiang, China, January 2015
7. LAMOST 973 Meeting, Beijing, China, December 2014
6. Meeting, From Dark Matter to Galaxies, Xi'an, China, May 2014
5. Chinese Astronomical Society Annual Meeting, Suzhou, China, October 2013
4. Molecular Astronomy Workshop, Weihai, China, August 2013
3. Talk, *Quasar Photometric Redshift Estimations and Check with SDSS quasars*, Zhang Heng Conference, Zhangjiajie, China, July 2013
2. Talk, *Quasar Photometric Redshift Estimations and Check with SDSS Quasars*, Jing-Guang-Xia Astrophysics Meeting, Shaoguan, China, June 2013
1. Volunteer, The 28th General Assembly of the International Astronomical Union (IAU), Beijing, China, August 2012

APPROVED TELESCOPE PROPOSALS

- **MMT/Binospec:** Accretion Power and the Broad Line Region: Spectroscopic Follow-up of Changing-look Quasars
  Principal Investigator, 2 nights, 2023A
- **MMT/Binospec:** Accretion Power and the Broad Line Region: Spectroscopic Follow-up of Changing-look Quasars
  Principal Investigator, 1.5 nights, 2022B
- **Chandra:** Changing-Look Quasars: How/Does Accretion Variability Scale?
  Co-I, 165 ks, Cycle 24 (Joint Gemini-N/GMOS 1 night, VLA 8 hours)
- **MMT/Binospec:** Accretion Power and the Broad Line Region: Spectroscopic Follow-up of Strongly Variable Quasars
  Principal Investigator, 2 nights, 2022A
- **MMT/Binospec:** Accretion Power and the Broad Line Region: Spectroscopic Follow-up of Strongly Variable Quasars
  Col-I, 3 nights, 2021B

- **JWST:** A JWST Study of the Link Between Supermassive Black Holes and Galaxies at Cosmic Noon
  Col-I, Cycle 1, ID. 2057
- **MMT/Binospec:** Spectroscopic Follow-up of X-ray-Observed, Strongly Variable Quasars
  Col-I, 1 night in 2020A, 1.5 nights in 2020C
- **XMM-Newton:** Unusual Mid-Infrared Flared Objects: Turning-on Obscured AGNs?
  Principal Investigator, 206 ks, AO-18
- **Xinglong Telescope (2.16m)**: Searching for Changing-look Quasars
  Co-I, BFOSC, 23 nights, 2018-2019
- **Lijiang Telescope (2.4m)**: Searching for Changing-look Quasars: Turning-off Quasars
  Co-I, YFOSC, 8 nights, 2017-2018
- **Xinglong Telescope (2.16m)**: Searching for Changing-look Quasars: Turning-on Quasars
  Co-I, BFOSC, 21 nights, 2017-2018
- **Hale (5.1m)**: Complete the uniform z$\sim$5.5 quasar sample: spectroscopy in the northern galactic cap
  Co-I, DBSP, 2 nights, 2017A
- **Hale (5.1m)**: The first z$\sim$5.5 quasar survey based on PS1-ALLWISE colors: the southern galactic cap spectroscopy
  Co-I, DBSP, 2 nights, 2016B
- **Hale (5.1m)**: Study black hole masses of luminous z$\sim$5 quasars
  Co-I, Triplespec, 5 nights, 2016A
- **Hale (5.1m)**: Study the black hole masses of luminous z$\sim$5 quasars
  Co-I, Triplespec, 4 nights, 2015B
- **MMT (6.5m)**: Finding quasars in the post-reionization epoch
  Co-I, Red channel, 2 nights, 2015A

PUBLICATIONS

NASA ADS records as of October 2022:
Total: 42 publications, 39 in refereed journals, 3,918 citations.
As first author: 6 publications, 196 citations.

I. FIRST-AUTHORED PAPERS

6. **Yang, Q.**; Shen, Y. (2023). *A Southern Photometric Quasar Catalog from the Dark Energy Survey Data Release 2.* ApJS, 264, 9.

5. **Yang, Q.**; Shen, Y.; Liu, X., et al. (2020). *Dust Reverberation Mapping in Distant Quasars from Optical and Mid-infrared Imaging Surveys.* ApJ, 900, 58.

4. **Yang, Q.**; Shen, Y.; Chen, Y.-C.; Liu, X. et al. (2020). *Spectral Variability of a Sample of Extreme Variability Quasars and Implications for the Broad-line Region.* MNRAS, 493, 5773

3. **Yang, Q.**; Shen, Y.; Liu, X.; Wu, X.-B; Jiang, L.; Shangguan, J.; Graham, M.; Yao, S. (2019). *An Unusual Mid-Infrared Flare in a Type 2 AGN: An Obscured Turning-on AGN or Tidal Disruption Event?* ApJ, 885, 110

2. **Yang, Q.**; Wu, X.-B.; Fan, X.; Jiang, L.; McGreer, I.; Shangguan, J.; Yao, S.; Wang, B.; Joshi, R.; Green, R.; Wang, F.; Feng, X.; Fu; Y.; Yang, J.; Liu, Y. (2018). *Discovery of 21 New Changing-look AGNs in Northern Sky.* ApJ, 862, 109

1. **Yang, Q.**; Wu, X.-B; Fan, X.; Jiang L.; McGreer, I. D.; Green, R.; Yang, J.; Schindler J.-T.; Wang, F.; Zuo, W.; Fu, Y. (2017). *Quasar Photometric Redshifts and Candidate Selection: A New Algorithm Based on Optical and Mid-Infrared Photometric Data.* AJ, 154, 269

II. Contributed PAPERS

36. Zhang, H.; **Yang, Q.**; Wu, X.-B. (2018). *Broadband Photometric Reverberation Mapping Analysis on SDSS-RM and Stripe 82 Quasars.* ApJ, 853, 116

35. Zeltyn, G.; Trakhtenbrot, B.; Eracleous, M.; Runnoe, J.; Trump, J.; Stern, J.; Shen, Y.; Hernández-García, L.; Bauer, F.; **Yang, Q.** et al. (2022). *A Transient "Changing-look" Active Galactic Nucleus Resolved on Month Timescales from First-year Sloan Digital Sky Survey V Data* ApJL, 939, L16

34. Burke, C.; Liu, X.; Shen, Y.; Phadke, K.; **Yang, Q.** et al. (2022). *Dwarf AGNs from Optical Variability for the Origins of Seeds (DAVOS): insights from the dark energy survey deep fields* MNRAS, 516, 2736

33. Fu, Y.; Wu, X.-B.; Jiang, L.; Zhang, Y., Huo, Z.; Ai, Y.; **Yang, Q.** et al. *Finding Quasars behind the Galactic Plane. II. Spectroscopic Identifications of 204 Quasars at* $|b| < 20^\circ$ ApJS, 261, 32

32. Stone, Z., Shen, Y., Burke, C. J., Chen, Y.-C. ; **Yang, Q.** et al. (2022). *Optical variability of quasars with 20-yr photometric light curves* MNRAS, 514, 164

31. Chen, Y.-C., Hwang, H.-C., Shen, Y., Liu, X.; Zakamska, N. L.; **Yang, Q.**; Li, J. I. (2022). *Varstrometry for Off-nucleus and Dual Subkiloparsec AGN (VODKA): Hubble Space Telescope Discovers Double Quasars* ApJ, 925, 162

30. Burke, C. J.; Shen, Y.; Blaes, O.; Gammie, C. F. ; Horne, K. ; Jiang, Y.-F. ; Liu, X. ; McHardy, I. M. ; Morgan, C. W. ; Scaringi, S.; **Yang, Q.** (2021). *A characteristic Optical Variability Time Scale in Astrophysical Accretion Disks* Science, 373, 789

29. Fu, Y., Wu, X.-B., **Yang, Q.**, Brown, A. G. A.; Feng, X.; Ma, Q.; Li, S. (2021). *Finding Quasars behind the Galactic Plane. I. Candidate Selections with Transfer Learning* ApJS, 254, 6

28. Burke, C. J.; Shen, Y.; Chen, Y.-C.; Scaringi, S.; Faucher-Giguere, C.-A.; Liu, X.; **Yang, Q.** (2020). *Optical Variability of the Dwarf AGN NGC 4395 from the Transiting Exoplanet Survey Satellite.* ApJ, 899, 136

27. Luo, Y.; Shen, Y.; **Yang, Q.** (2020). *Characterization of optical light curves of extreme variability quasars over a ∼16-yr baseline.* MNRAS, 494, 3686.

26. Guo, H.; Shen, Y.; He, Z.; Wang, T.; Liu, X.; Wang, S.; Sun, M.; **Yang, Q.**; Kong, M.; Sheng, Z. (2019). *Understanding Broad Mg II Variability in Quasars with Photoionization.* ApJ, 888, 58

25. Zou, H.; Zhou, X.; Fan, X. and 45 co-authors including **Yang, Q.** (2019). *The Third Data Release of the Beijing-Arizona Sky Survey.* ApJS, 245, 4.

24. DESI Collaboration, Dey, A.; Schlegel, D. J.; Lang, D.; and 158 co-authors including **Yang, Q.** (2019). *Overview of the DESI Legacy Imaging Surveys.* AJ, 157, 168

23. Yang, J.; Wang, F.; Fan, X.; Wu, X.-B.; Bian, F.; Banados, E.; Yue, M.; Schindler, J.-T.; **Yang, Q.**; Jiang, L.; McGreer, I. D.; Green, R.; Dye, S. (2019). *Filling in the Quasar Redshift Gap at z∼5.5. II. A Complete Survey of Luminous Quasars in the Post-reionization Universe.* ApJ, 871, 199

22. Yao, S.; Wu, X.-B.; Ai, Y. L.; Yang, J; **Yang, Q.**; et al. (2019). *The Large Sky Area Multi-object Fiber Spectroscopic Telescope (LAMOST) Quasar Survey: The Fourth and Fifth Data Releases.* ApJS, 240, 6

21. Li, Z.; McGreer, I. D.; Wu, X.-B.; Fan, X.; **Yang, Q.** (2018). *The Ensemble Photometric Variability of Over* 10^5 *Quasars in the Dark Energy Camera Legacy Survey and the Sloan Digital Sky Survey.* ApJ, 861, 6

20. Dong, X.; Wu, X.-B.; Ai, Y.; Yang, J.; **Yang, Q.**; Wang, F.; Zhang, Y.; Luo, A.; Xu, H.; Yuan, H.; Zhang, J.; Wang, M.; Wang, L.; Li, Y.; Zuo, F.; Hou, W.; Guo, Y.; Kong, X.; Chen, X.; Wu, Y.; Yang, H.; Yang, M. (2018). *The Large Sky Area Multi-Object Fibre Spectroscopic Telescope (LAMOST) Quasar Survey: Quasar Properties from Data Release Two and Three.* AJ, 155, 189

19. Yang, J.; Wu, X.-B.; Liu, D.; **Yang, Q.**, Fan, X.; Wang, F.; McGreer, I. D.; Fan, Z.; Yuan, S.; Shan, H. (2018). *Deep CFHT Y - band imaging of VVDS-F22 field: II. Quasar selection and quasar luminosity function at* $0.5 < z < 4.5$. AJ, 155, 110

18. Schindler, J.-T.; Fan, X.; McGreer, I.; **Yang, Q.**; Wu, J.; Jiang, L.; Green, R. (2017). *The Extremely Luminous Quasar Survey (ELQS) in the SDSS Footprint I: Infrared Based Candidate Selection.* ApJ, 851, 13

17. Zou, H.; Zhang, T.; Zhou, Z. and 25 co-authors including **Yang, Q.** (2017). *The First Data Release of the Beijing-Arizona Sky Survey.* AJ, 153, 276

16. Wang, F.; Fan, X.; Yang, J.; Wu, X.-B.; **Yang, Q.**; Bian, F.; McGreer, I. D.; Li, J.-T.; Dey, A.; Findlay, J. R.; Green, R.; Jiang, L.; Lang, D.; Myers, A. D.; Schlegel, D. J.; Shanks, T. (2017). *First Discoveries of $z > 6$ Quasars with the DECam Legacy Survey and UKIRT Hemisphere Survey.* ApJ, 839, 27

15. Yi, W.; Green, R.; Bai, J.-M.; Wang, T.; Grier, C. J.; Trump, J. R.; Br,t, W. N.; Zuo, W.; Yang, J.; Wang, F.; Yang, C.; Wu, X.-B.; Zhou, H.; Fan, X.; Jiang, L.; **Yang, Q.**, Varricatt, W.; Kerr, T.; Milne, P.; Benigni, S.; Wang, J.-G.; Zhang, J.; Wang, F.; Wang, C.-J.; Xin, Y.-X.; Fan, Y.-F.; Chang, L.; Zhang, X.; Lun, B.-L. (2017). *The physical constraints on a new LoBAL QSO at $z = 4.82$.* ApJ, 838, 135

14. Yang, J.; Fan, X.; Wu, X.-B.; Wang, F.; Bian, F.; **Yang, Q.**; McGreer, I. D.; Yi, W.; Jiang, L.; Green, R.; Yue, M.; Wang, S.; Li, Z.; Ding, J.; Dye, S.; Lawrence (2017). *Discovery of 16 new $z \sim 5.5$ quasars: Filling in the redshift gap of quasar color selection.* AJ, 153,184

13. Jiang, L.; McGreer, I. D.; Fan, X.; Strauss, M. A.; Banados, E.; Becker, R. H.; Bian, F.; Farnsworth, K.; Shen, Y.; Wang, F.; Wang, R.; Wang, S.; White, R. L.; Wu, J.; Wu, X.-B.; Yang, J.; **Yang, Q.** (2016). *The Final SDSS High-Redshift Quasar Sample of 52 Quasars at $z > 5.7$.* ApJ, 833, 222

12. Bañados, E.; Venemans, B. P.; Decarli, R. and 33 co-authors including **Yang, Q.** (2016). *The Pan-STARRS1 Distant $z > 5.6$ Quasar Survey: More than 100 Quasars within the First Gyr of the Universe.* ApJS, 227, 11

11. DESI Collaboration, Aghamousa, A.; Aguilar, J.; and 290 co-authors including **Yang, Q.** (2016). *The DESI Experiment Part II: Instrument Design.* arXiv:1611.00037

10. DESI Collaboration, Aghamousa, A.; Aguilar, J.; and 290 co-authors including **Yang, Q.** (2016). *The DESI Experiment Part I: Science,Targeting, and Survey Design.* arXiv:1611.00036

9. Yang, J.; Wang, F.; Wu, X.-B.; Fan, X.; McGreer, I. D.; Bian, F.; Yi, W.; **Yang, Q.**, Ai, Y.; Dong, X.; Zuo, W.; Green, R.; Jiang, L.; Wang, S.; Wang, R.; Yue, M. (2016). *A Survey of Luminous High-redshift Quasars with SDSS and WISE. II. the Bright End of the Quasar Luminosity Function at $z \sim 5$.* ApJ, 829, 33

8. Wang, F.; Wu, X.-B.; Fan, X.; Yang, J.; Yi, W.; Bian, F.; McGreer, I.D.; **Yang, Q.**, Ai, Y.; Dong, X.; Zuo, W.; Jiang, L.; Green, R.; Wang, S.; Cai, Z.; Wang, R.; Yue, M. (2016). *A Survey of Luminous High-redshift Quasars with SDSS and WISE. I. Target Selection and Optical Spectroscopy.* ApJ, 819, 24

7. Ai, Y.L.; Wu, X.-B.; Yang, J.; **Yang, Q.** et al. (2016). *The Large Sky Area Multi-object Fiber Spectroscopic Telescope Quasar Survey: Quasar Properties from the First Data Release.* AJ, 151, 24

6. Yi, W.-M.; Wu, X.-B.; Wang, F.; Yang, J.; **Yang, Q.**; Bai, J. (2015). *Discovery of two broad absorption line quasars at redshift about 4.75 using the Lijiang 2.4 m telescope.* Science China Physics, Mechanics, and Astronomy, 58, 5685

5. Wang, F.; Wu, X.-B.; Fan, X.; Yang, J.; Cai, Z.; Yi, W.; Zuo, W.; Wang, R.; McGreer, I.D.; Ho, L.C.; Kim, M.; **Yang, Q.**, Bian, F.; Jiang, L. (2015). *An Ultra-luminous Quasar at $z = 5.363$ with a Ten Billion Solar Mass Black Hole and a Metal-rich DLA at $z \sim 5$.* ApJ, 807, 9

4. Wu, X.-B.; Wang, F.; Fan, X.; Yi, W.; Zuo, W.; Bian, F.; Jiang, L.; McGreer, I.D.; Wang, R.; Yang, J.; **Yang, Q.**, Thompson, D.; Beletsky, Y. (2015). *An ultraluminous quasar with a twelve-billion-solar-mass black hole at redshift 6.30.* Nature, 518, 512

3. Yi, W.-M.; Wang, F.; Wu, X.-B.; Yang, J.; Bai, J.-M.; Fan, X.; Br,t, W. N.; Ho, L. C.; Zuo, W.; Kim, M.; Wang, R.; **Yang, Q.**, Zhang, J.-j.; Wang, F.; Wang, J.-G.; Ai, Y.; Fan, Y.-F.; Chang, L.; Wang, C.-J.; Lun, B.-L.; Xin, Y.-X. (2014). *SDSS J013127.34−032100.1: A Newly Discovered Radio-loud Quasar at* $z = 5.18$ *with Extremely High Luminosity.* ApJ, 795L, 29

2. Wu, X.-B.; Zuo, W.; Yang, J.; **Yang, Q.** , Wang, F. (2013). *Discovering bright quasars at intermediate redshifts based on the optical/near-IR colors.* AJ, 146, 100

1. Wu, X.-B.; Zuo, W.-W.; **Yang, Q.**, Yi, W.-M.; Yang, C.-W.; Liu, W.-J.; Jiang, P.; Shu, X.-W.; Zhou, H.-Y. (2012). *Discovery of six high-redshift quasars with the Lijiang 2.4m telescope and the Multiple Mirror Telescope.* Research in Astronomy and Astrophysics, 12, 1185