QIAN YANG

CONTACT INFORMATION

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RESEARCH & EMPLOYMENT

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
Kavli Institute for Astronomy and Astrophysics, Peking University   *2012.09 - 2018.07*
B.S., Physics
College of Physics, Sichuan University   *2008.09 - 2012.07*

RESEARCH INTERESTS

- Galaxies and their central supermassive black holes (SMBHs)
- Active galactic nuclei (AGNs) and their more luminous counterparts, quasars
- AGN variability in multiwavelength (optical, infrared, and X-rays)
- Changing-look AGN/quasars
- High redshift galaxies and quasars
- Quasar, galaxy, and star classification and photometric redshift estimation

TECHNICAL EXPERIENCE

Programming	Python, R, IDL
Software	IRAF, SQL, TOPCAT, CIAO, Xspec, HEASoft
Astronomical	Optical spectroscopy data reduction and spectral fitting
	X-ray data reduction and analysis
	Imaging reduction and photometry
	Photometric redshift estimation of quasars and galaxies

SPECTROSCOPIC SURVEY MEMBER

Sloan Digital Sky Survey-V (SDSS-V)   *2021-present*
4-meter Multi-Object Spectroscopic Telescope (4-MOST)   *2023-present*

PROFESSIONAL EXPERIENCE

Panelist for NASA Proposal Review	*2023*
Panelist for Chandra Peer Review	*2021*
Reviewer for Nature Astronomy, ApJL, ApJ, MNRAS	*2019-present*
Reviewer for China Telescope Access Program	*2019-2021*

SELECTED OBSERVING EXPERIENCE

Imaging

- Lead an observation 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)
- Lijiang 2.4m/YFOSC, Yunnan Astronomical Observatory (>20 nights)
- Xinglong 2.16m/BFOSC, NAOC Xinglong Observatory (>30 nights)

SELECTED APPROVED PROPOSALS AND GRANTS

Astrophysics Data Analysis

- **ADAP:** WISE Exploration of Mid-Infrared Variability in Galactic Nuclei
  Co-I, 20-ADAP20-0068, Funding $402,375

X-ray

- **Chandra:**, Chandra Cycle 25, *Tracking Transitions in Changing Look Quasars*
  Principal Investigator, 197 ks Chandra Cycle 25 + NRAO Very Large Array (VLA; radio) 12 hours, **Funding $134,000** (Budget PI, 2024-2025)

- **NuSTAR:** Systematically Constraining the AGN Coronal Properties with NuSTAR Using a Sample of Luminous, High-redshift Quasars
  Co-I, Large Program, 500 ks NuSTAR Cycle 9 + 142 ks XMM-Newton, Funding $130,000

- **Chandra:** Changing-Look Quasars: How/Does Accretion Variability Scale?
  Co-I, 165 ks Chandra Cycle 24 + Gemini-N/GMOS 1 night + VLA 8 hours, Funding $91,850

- **Swift/XRT:** Building with Swift/XRT a Sample of Luminous, High-redshift Quasars to Constrain the Properties of AGN Coronae
  Co-I, 18 ks

- **XMM-Newton:** Unusual Mid-Infrared Flared Objects: Turning-on Obscured AGNs?
  Principal Investigator, 206 ks, AO-18 ID. 84470

Infrared

- **JWST:** A JWST Study of the Link Between Supermassive Black Holes and Galaxies at Cosmic Noon
  Co-I, Cycle 1, ID. 2057

- **Hale (5.1m)**: Study black hole masses of luminous z∼5 quasars
  Co-I, Triplespec, 5 nights, 2016A

- **Hale (5.1m)**: Study the black hole masses of luminous z∼5 quasars
  Co-I, Triplespec, 4 nights, 2015B

Optical

- **MMT/Binospec (6.5m):** Accretion Power and the Broad Line Region in Real-time: Finding Galaxies Turning Into Quasars
  Principal Investigator, 2.5 nights, 2024A

- **FLWO-1.2m/Keplercam:** Monitoring the Transitions in Changing-look Quasars
  Principal Investigator, 4 nights, 2024A

- **MMT/Binospec (6.5m):** Accretion Power and the Broad Line Region in Real-time: Finding Galaxies Turning Into Quasars
  Principal Investigator, 2.5 nights, 2023B

- **FLWO-1.2m/Keplercam:** Monitoring the Transitions in Changing-look Quasars
  Principal Investigator, 3 nights, 2023B

- **Gemini/GMOS (8m):** Velocity-resolved Echo Mapping with Gemini
  Co-I, Gemini Large and Long Program (LLP), 296.7 hours, 23B-26A

- **HET/LRS2 (10m):** Deciphering the Transitions of Changing-Look Quasars
  Co-I, 12 hours

- **MMT/Binospec (6.5m):** Accretion Power and the Broad Line Region in Real-time: Finding Galaxies Turning Into Quasars
  Principal Investigator, 2 nights, 2023A

- **MMT/Binospec (6.5m):** Accretion Power and the Broad Line Region in Real-time: Finding Galaxies Turning Into Quasars
  Principal Investigator, 1.5 nights, 2022B

- **MMT/Binospec (6.5m):** Accretion Power and the Broad Line Region: Spectroscopic Follow-up of Strongly Variable Quasars
  Principal Investigator, 2 nights, 2022A

- **MMT/Binospec (6.5m):** Galaxies Turning Into Quasars in Realtime
  Co-I, 3 nights, 2021B

- **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~5.5 quasar sample: spectroscopy in the northern galactic cap
  Co-I, DBSP, 2 nights, 2017A
- **Hale (5.1m)**: The first z~5.5 quasar survey based on PS1-ALLWISE colors: the southern galactic cap spectroscopy
  Co-I, DBSP, 2 nights, 2016B
- **MMT (6.5m)**: Finding quasars in the post-reionization epoch
  Co-I, Red channel, 2 nights, 2015A

SELECTED HONORS AND AWARDS

- 2021   IOP Publising China Top Cited Paper Award
- 2015-2016   China Scholarships Council Fellowship
- 2008-2011   Excellent Student, Scholarship, Sichuan University

RESEARCH 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)

TEACHING EXPERIENCE AND OUTREACH

Sensing the Dynamic Universe Project: sonifying time domain astronomy for the blind

2021-present

Teaching Assistant in Fundamental Astronomy, Peking University	*2014*
Sidewalk astronomy (organizer), Sichuan University	*2009 - 2010*

SELECTED TALKS AND CONFERENCE ORGANIZATION

- Talk, *Accretion Power and the Broad Line Region in Real-time: Finding Galaxies Turning into Quasars.* AAS 243 Winter Meeting, New Orleans, LA, USA, Jan 8, 2024

- Talk, *Changing-Look Quasars: Zooming in on X-ray/Optical Variability, Zooming out to the Big Picture.* 2023 SDSS-V Collaboration Meeting, NY, USA, July 31, 2023

- Talk, *Changing-Look Quasars: How/Does Accretion Variability Scale?* HEAD 20 Meeting, Waikōloa, Hawaii, USA, March 27, 2023

- Talk, *Chasing Quasar Accretion State Changes with Chandra.* AAS 241 Winter Meeting, Seattle, Washington, USA, Jan 10, 2023

- Talk, *Chasing Quasar Accretion State Changes with Chandra.* CfA High Energy Seminar, Harvard–Smithsonian Center for Astrophysics, USA, Nov 30, 2022

- 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

- Invited talk, *A Southern Photometric Quasar Catalog from the Dark Energy Survey Data Release 2.* Yunnan Observatory (zoom), Oct 24, 2022

- Invited talk, *Changing Look AGN.* Institute of High Energy Physics, Chinese Academy of Sciences (zoom), June 28, 2022

- Talk, *Dust Reverberation Mapping in Distant Quasars.* NERQUAM, University of Connecticut, May 26 2022

- Talk, *Quasar Target Selection for SDSS-V Open Fiber Proposal*, SDSS-V QSOphysWG telecon (zoom), November 12, 2019

- Talk, *Using DES/LSST to Search for Extreme Variables.* Survey Science Meeting, NCSA, UIUC, USA, March 28, 2019

- Talk, *Spectral Variability of a Sample of Extreme Variability Quasars and Implications for the MgII Broad-line Region.* DES Collaboration Wide Review, UIUC, USA, March 11, 2019

- 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

- Talk, *Photo-z and Candidate Selection of Quasars Based on Imaging Data*, DESI Collaboration meeting, Berkeley, USA, June 2017

- Talk, *Photometric Redshift of Quasars and Quasar Candidate Selection and Changing-look Quasars*, BHOLE Group 3 Workshop, Beijing, China, May 2017

- Workshop organization, East-Asia AGN Workshop, Changchun, China, July 2015

PUBLICATIONS

NASA ADS records as of Jan 2024:
Total: 48 papers, 42 in refereed journals, > 5000 citations, h-index=26.

I. First- and Second-Author Papers ($>$ 270 citations)

10. **Yang, Q.**; Green, P. J. et al. (2023). *Accretion Power and the Broad Line Region in Real-time: Finding Galaxies Turning Into Quasars.* Near submission.

9. Zhuang, M.-Y.; **Yang, Q.**; Shen, Y. (2023) *High-cadence Extragalactic Legacy-fields Monitoring (HELM) with DECam.* Near submission.

8. **Yang, Q.**; Green, P. J., MacLeod, C. L., et al. (2023), *Probing the Origin of Changing-look Quasar Transitions with Chandra.* ApJ, 953, 61.

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

6. **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.

5. **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

4. **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

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

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

38. Shen, Y.; Grier, C. J.; Horne, K.; Stone, Z.; Li, J. I.; **Yang, Q.** et al. (2023). *The Sloan Digital Sky Survey Reverberation Mapping Project: Key Results* arXiv:2305.01014

37. Stone, Z. ; Shen, Y. ; Burke, C. J. ; Chen, Y.-C.; **Yang, Q.** et al. (2023). *Correction to: Optical variability of quasars with 20-year photometric light curves.* MNRAS, 521, 836

36. Fries, L. B., Trump, J. R., Davis, M. C., and 30 co-authors including **Yang, Q.** (2023). *The SDSS-V Black Hole Mapper Reverberation Mapping Project: Unusual Broad-Line Variability in a Luminous Quasar.* arXiv:2301.10252

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 $|b| < 20°$.* 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