Xue Li **Email:** lixue.liv@outlook.com **Tel: (+86) 15640520158**

Working Experience

03.2022-up to date: self employed, data scientist
11. 2016-01.2022: researcher associate, physics department, Tsinghua University, China
11. 2014-01. 2016: visiting researcher, Niels Bohr Institute, University of Copenhagen, Denmark

Education

01.2010-10.2014: PhD in Astrophysics and Cosmology, Dark Cosmology Centre, Niels Bohr Institute, University of Copenhagen, Denmark
09.2006-09.2009: MSc in Physics, Dalian University of Technology, China
09.2002-09.2006: BSc in Physics, Dalian University of Technology, China

Press Coverage

08. 2014: 'GRBs: A New Standard Candle?', article in *Sky & Telescope* Magazine introducing the work of 'Light Curve Properties of Supernovae Associated With Gamma-ray Bursts', by Xue Li and Jens Hjorth (2014)

Code skills

Python, IDL, Matlab, R, SQL, PyTorch, TensorFlow[1], MS Power Platform[2,3,4], MS Azure[5,6]

[1]TensorFlow Developer Certificate ID: 50282415
[2]Power Platform Solution Architect Expert Certification Number: I786-4024
[3]Power BI Analyst Associate Certification Number: I717-9978
[4]Power Platform Functional Consultant Associate Certification Number: I760-2846
[5]Azure Data Scientist Associate Certification Number: I602-7123
[6]Azure AI Engineer Associate Certification Number: I691-1078

Selected leading and contributed projects

1. Supervised a student in a study of supernovae classification using artificial intelligence technology. Provided guidance on AI and machine learning theory and applications. Collaborated on data collection, ML model building, and data analysis using R, TensorFlow, and Python.

2. Led a project on netizen behavior analysis through web scraping and social media analysis. Applied web scraping techniques to collect real-time social media data and utilized machine learning techniques such as TensorFlow for netizen behavior modeling.

Employed natural language analysis and statistical methods (R and Python) throughout the project.

3. Initiated and led a scientific project on AT2018cow, designing the scientific approach. Applied mathematical and statistical tools including the Lomb-Scarglo periodogram, Fast Fourier analysis, Monte Carlo simulations, cross-correlation functions, and other advanced statistical methods to analyze time series data. Collected, analyzed, and identified patterns and trends using Python, Matlab, and SQL. Presented findings at the American Astronomical Meeting in 2022.

4. Contributed to a scientific project on SN 2018oh. Utilized Matlab and Python for data analysis on supernova data. Identified the origin of supernova explosion. The project was highlighted by NASA.

5. Led a scientific project on gamma-ray burst supernovae (GRB-SNe) and cosmology. Utilized Matlab, IDL, Python, and R for calculations and data analysis on GRB-SNe time series data. Pioneered the identification of intrinsic trends and patterns in GRB-SNe light curves and applied them to measure cosmological parameters. The project was highlighted by Sky & Telescope Magazine.

6. Led and contributed to 10+ scientific projects focusing on data analysis and data science in the field of scientific research.

Funding and Proposals

PI:

2016-2021: National post-doc fundings: I was 1 of 10 researchers sponsored nationwide in the field of astrophysics and astronomy in 2016.

2017-2018: Yunnan observatory: studies on transients and cosmology.

Non-PI:

2018-2021: several National Natural Science Foundation of China on transients and cosmography.

2015: Hubble Space Telescope: Scheduled discovery of high-redshift standard candles

2010: EUROPEAN SOUTHERN OBSERVATORY: Calibrating gravitational telescopes

2010: Project 2: The luminous merger NGC6240 – Extragalactic Astronomy in the ALMA, Era: Nordic-Baltic Research Summer School

Awards and Scholarships

06. 2020: awarded as ‘excellent tutor’ by Beijing Association for Science and

Technology.

2006-2009: Funded by a national scholarship for master study

2006: Selected to sponsor a postgraduate placement without entrance test

2002: Won the name of 'the best debater' in the college, and represented the college to win the third place in the university-level debate competition

2001: Won the third prize in Chinese Physics Olympiad

Languages

Chinese: native

English: fluent

Japanese: 1-year experience, and can be picked up readily

Professional Service

2018-till now: give reports as a representative of our department, attend alumni meetings, and organize visits of funders and visitors to our institution and the observatory.

2017-till now: serve several times as a secretary for student thesis defense, working with students to prepare and complete their thesis defense before deadlines.

2017-till now: organize academic meetings in the institution.

2013-2014: Scientific organizing committee, Dark Cake Talk, Dark Cosmology Centre, Niels Bohr Institute, University of Copenhagen

2012-2013: Scientific organizing committee, astro-ph talk, Dark Cosmology Centre, Niels Bohr Institute, University of Copenhagen

Non-academic Experience

2007-2009: As a volunteer registered in Dalian Charity Federation, attended voluntary actions and helped train new comers

06. 2003-01. 2004: As a secretary in innovation college, successfully organized a series of introduction lectures on the National Contest of Mathematical Modeling

07. 2003-09. 2003: As the team leader, organized teammates to do research on national technology development, and the team won the second prize in university

Conferences, Workshops, Visits & Contributed Talks

06.2022: contributed **Talk**: `Zero time lag between optical and X-ray quasi-periodicity in AT2018cow' for the 240 Annual Meeting of the American Astronomical Society

10.2021: **Talk:** `quasi-periodicity in AT2018cow', Tsinghua University, China

03.2021: **Talk**: `Lense-Thirring precession', Tsinghua University, China

10.2010: **Talk**: `fluctuations of light curves in AT2018cow', Tsinghua University, China

01.2010: **Talk**: `multi-band light curves in AT2018cow', Tsinghua University, China

09.2019: **Talk**: `methods weighting black holes in tidal disruption events', Tsinghua University, China

11.2018: **Talk**: `tidal disruption light curves', Tsinghua University, China

03.2018: **Talk**: `supernovae associated with Gamma-ray burst', Tsinghua University, China

10.2017: **Talk**: `Superluminous supernovae and standard candles', Tsinghua University, China

05.2017: **Talk**: `Hubble constant and supernovae', Tsinghua University, China

11. 2016: **Talk**:'Supernova and Standard Candles', Wuhan University, China

01. 2014: **Talk**:'GRB-SNe as Standard Candles', National Astronomical Observatories, Chinese Academy of Sciences, China

10. 2013: Conference on 'Supernovae and Gamma-Ray Bursts 2013', Kyoto University, Japan
10.2013 Workshop on Collapsing Objects, Fudan University, China

07. 2013: **Talk**: 'Light Curve properties of GRB-SNe', EWASS Conference, Turku, Finland

06. 2013: **Talk**: 'GRB-SNe and cosmology', Danish National Astronomy Meeting, Sandbjerg, Denmark

10. 2012: **Talk**: 'Rates of Supernovae and Time-delay Distribution in Strong Gravitational Lensing System', Conference on 'the Dark Universe', Abastumani Astrophysical Observatory, Georgia

06. 2012: Workshop on Supernova Remnants, Dark Cosmology Centre, Denmark

08. 2011: Conference on 'Gravitational Wave Astrophysics, Binary Supermassive Black Holes, and Galaxy Mergers', Lijiang, China

06. 2011: **Talk**: 'Time-delay Distribution in Strong Gravitational Lensing System', Summer School on 'Hands-on Strong Gravitational Lensing School', Excellence Cluster Universe, Garching, German

06. 2010 **Talk**: 'Time-delay distribution behind 17 strong lensing clusters', Workshop on 'Extragalactic Astronomy in the ALMA Era', Onsala Space Observatory, Sweden

01. 2010 **Talk**: 'Progress in Solid-state Physics', Fourth Annual DARS meeting, Ebeltoft, Denmark

Publications

(non-refereed)

19. Zero time lag between optical and X-ray quasi-periodicity in AT2018cow

Xue Li, Jens Hjorth, Xiaofeng Wang, Lingjun Wang, Cosimo Bambi, Giuseppe Lodato,

Xiaonan Song, Weili Lin, Danfeng Xiang, Jie Lin

2023, to be submitted

18. Global Lense-Thirring precession in AT2018cow

Xue Li, Xiaofeng Wang, Lingjun Wang, Giuseppe Lodato, Cosimo Bambi, Kimitake Hayasaki, Jens Hjorth, Xiaonan Song, Xinghan Zhang, Danfeng Xiang, Weili Lin, Jie Lin, Chengyuan Wu, Hanna Sai, Han Lin, Wenxiong Li, Shengyu Yan, Gaobo Xi, Zhihao Chen, and Jun Mo

2023, to be submitted

17. Light curve properties of tidal disruption events and a mass estimator for supermassive black holes

Xue Li, Xiaofeng Wang, Jens Hjorth, Katie Auchettl, Lingjun Wang, Xiaonan Song, Xinghan Zhang, Danfeng Xiang, Weili Lin, Jicheng Zhang, Jie Lin, Chengyuan Wu, Liming Rui, Hanna Sai, Han Lin, Wenxiong Li, Jun Mo, Gaobo Xi, Zhihao Chen, and Shengyu Yan,

2023, to be submitted

16. Light Curve Properties of Supernovae Associated With Gamma-ray Bursts

Xue Li, Jens Hjorth, Xiaofeng Wang

2023, to be submitted

(refereed)

15. Minute-cadence Observations of the LAMOST Fields with the TMTS: I. Methodology of Detecting Short-period Variables and Results from the first-year Survey

Jie Lin, Xiaofeng Wang, Jun Mo, Gaobo Xi, Jicheng Zhang, Xiaojun Jiang, Jianrong Shi, Xiaobin Zhang, Xiaoming Zhang, Zixuan Wei, Limeng Ye, Chengyuan Wu, Shenyu Yan, Zhihao Chen, Wenxiong Li, **Xue Li**, Weili Lin, Han Lin, Hanna Sai, Danfeng Xiang, Xinghan Zhang

2022, mnras, 509, 2

14. The Peculiar Transient AT2018cow: A Possible Origin of a Type Ibn/IIn Supernova

Xiang, Danfeng, Wang, Xiaofeng, Lin, Weili, Mo, Jun, Lin, Han, Burke, Jamison, Hiramatsu, Daichi, Hosseinzadeh, Griffin, Howell, D. Andrew, McCully, Curtis, Valenti, Stefan, Vinkó, József, Wheeler, J. Craig, Ehgamberdiev, Shuhrat A., Mirzaqulov, Davron, Bódi, Attila, Bognár, Zsófia, Cseh, Borbála, Hanyecz, Ottó, Ignácz, Bernadett, Kalup, Csilla, Könyves-Tóth, Réka, Kriskovics, Levente, Ordasi, András, Pál, András, Sárneczky, Krisztián, Seli, Bálint, Szakáts, Róbert, Arranz-Heras, T., Benavides-Palencia, R., Cejudo-Martínez, D., De la Fuente-Fernández, P., Escartín-Pérez, A., García-De la Cuesta, F., González-Carballo, J. L., González-Farfán, R., Limón-Martínez, F., Mantero, A., Naves-Nogués, R., Morales-Aimar, M., Ruíz-Ruíz, V. R., Soldán-Alfaro, F. C., Valero-Pérez, J., Violat-Bordonau, F., Zhang, Tianmeng, Zhang, Jujia, **Li, Xue**, Chen, Zhihao, Sai, Hanna, Li, Wenxiong

2021, ApJ, 910, 42

13. Near-Infrared and Optical Observations of Type Ic SN2020oi and broad-lined Ic SN2020bvc: Carbon Monoxide, Dust and High-Velocity Supernova Ejecta

J. Rho, A. Evans, T. R. Geballe, D. P. K. Banerjee, P. Hoeflich, M. Shahbandeh, S. Valenti, S.-C. Yoon, H. Jin, M. Williamson, M. Modjaz, D. Hiramatsu, D. A. Howell, C. Pellegrino, J. Vinko´, R. Cartier, J. Burke, C. McCully, H. An, H. Cha, T. Pritchard, X. Wang, J. Andrews, L. Galbany, S. Van Dyk, M. L. Graham, S. Blinnikov, V. Joshi, A. Pa´l, L. Kriskovics, A. Ordasi, R. Szaka´ts, K. Vida, Z. Chen, **X. Li,** J. Zhang, and S. Yan

2021, ApJ, 908, 232

12. SN 2015bf: A fast declining type II supernova with flash-ionized signatures

Han Lin, Xiaofeng Wang, Jujia Zhang, Weili Lin, Jun Mo, Alexei V Filippenko, WeiKang Zheng, Peter J Brown, Danfeng Xiang, Fang Huang, Yongzhi Cai, Tianmeng Zhang, Xue Li, Liming Rui, Xinghan Zhang, Hanna Sai, Xulin Zhao, Melissa L Graham, I Shivvers, G Halevi, H Yuk, Thomas G Brink

2021, mnras, 505, 4

11. Optical and Ultraviolet Monitoring of the Black Hole X-ray Binary MAXI J1820+070/ASASSN-18ey for 18 Months

Hanna Sai, Xiaofeng Wang, Jianfeng Wu, Jie Lin, Tianmeng Zhang, Wenxiong Li, Jujia Zhang, Jun Mo, Tianrui Sun, Shuhrat A. Ehgamberdiev, Davron Mirzaqulov, Liming Rui, Weili Lin, Xulin Zhao, Han Lin, Jicheng Zhang, Xinghan Zhang, Yong Zhao, **Xue Li**, Danfeng Xiang, Lingzhi Wang, and Chengyuan Wu,

2021, mnras, 504, 3

10. SN 2018HTI: A NEARBY SUPERLUMINOUS SUPERNOVA DISCOVERED IN A METAL-POOR GALAXY

W.L.Lin, X.F.Wang, W.X.Li, J.J.Zhang, J.Mo, H.N.Sai, X.H.Zhang, A.V.Filippenko, W. K. Zheng, T. G. Brink, E. Baron , J. M. DerKacy , S. A. Ehgamberdiev , D. Mirzaqulov , **X. Li** , J. C. Zhang ,S.Y.Yan ,G.B.Xi ,Y.Hsiao ,T.M.Zhang ,L.J.Wang ,L.D.Liu ,D.F.Xiang ,C.Y.Wu, L.M.Rui , Z.H.Chen

2020, mnras, 497, 1, arXiv: 2006.16443

9. Seeing Double: ASASSN-18bt Exhibits a Two-Component Rise in the Early-Time K2 Light Curve

B. J. SHAPPEE, T. W.-S. HOLOIEN, M. R. DROUT, K. AUCHETTL, M. D. STRITZINGER, C. S. KOCHANEK, K. Z. STANEK, E. SHAYA, AND G. NARAYAN, … WENXIONG LI, **XUE LI**, and more

2019, ApJ, 870, 1

8. K2 Observations of SN 2018oh Reveal a Two-component Rising Light Curve for a Type Ia Supernova

G. Dimitriadis, R. J. Foley, A. Rest, D. Kasen, A. L. Piro, A. Polin, D. O. Jones, A. Villar, G. Narayan, D. A. Coulter, C. D. Kilpatrick, Y. -C. Pan, C. Rojas-Bravo, O. D. Fox, S. W. Jha, P. E. Nugent, A. G. Riess, D. Scolnic, M. R. Drout…F. Huang, **X. Li**, and more

2019, ApJL, 870, 1

7. Photometric and Spectroscopic Properties of Type Ia Supernova 2018oh with Early Excess Emission from the Kepler 2 Observations

W. Li, X. Wang , J. Vinkó , J. Mo, G. Hosseinzadeh , D. J. Sand , J. Zhang, H. Lin, T. Zhang, L. Wang, J. Zhang, Z. Chen, D. Xiang, L. Rui, F. Huang, **X. Li**, X. Zhang, L. Li, E. Baron, J. M. Derkacy, X. Zhao, H. Sai, K. Zhang, L. Wang, and more

2019, ApJ, 870, 12

6. SN 2017gmr: An energetic Type II-P supernova with asymmetries

Jennifer E. Andrews, D. J. Sand, S. Valenti, Nathan Smith, Raya Dastidar, D.K. Sahu, Kuntal Misra, Avinash Singh, D. Hiramatsu, P.J. Brown, G. Hosseinzadeh, S. Wyatt,1 J. Vinko, G.C. Anupama,
I. Arcavi, Chris Ashall, S. Benetti, Marco Berton, K. A. Bostroem, M. Bulla, J. Burke, S. Chen, L. Chomiuk, A. Cikota, E. Congiu, B. Cseh, Scott Davis, N. Elias-Rosa, T. Faran, Morgan Fraser, L. Galbany, C. Gall, A. Gal-Yam, Anjasha Gangopadhyay, M. Gromadzki,
J. Haislip, D. A. Howell, E. Y. Hsiao, C. Inserra, E. Kankare, H. Kuncarayakti,
V. Kouprianov, Brajesh Kumar, **Xue Li**, Han Lin, K. Maguire, P. Mazzali, C. McCully, P. Milne, Jun Mo, N. Morrell, M. Nicholl, P. Ochner, F. Olivares, A. Pastorello, F. Patat,M. Phillips, G. Pignata, S. Prentice, A. Reguitti, D. E. Reichart, O. Rodr´ıguez, Liming Rui,Pankaj Sanwal, K. Sa´rneczky, M. Shahbandeh, Mridweeka Singh, S. Smartt, J. Strader, M.D. Stritzinger, R. Szaka´ts, L. Tartaglia, Huijuan Wang, Lingzhi Wang, Xiaofeng Wang, J. C. Wheeler, Danfeng Xiang, O. Yaron, D.R. Young, and Junbo Zhang

2019, ApJ, 885, 43

5. Cosmological Parameters From Supernovae Associated With Gamma-ray Bursts

Xue Li, Jens Hjorth, Radosław Wojtak
2014, ApJL, 796, L4

4. The Rates and Time-delay Distribution of Multiply Imaged Supernovae Behind Lensing Clusters

Xue Li, Jens Hjorth, Johan Richard, 2012, J. Cosmology Astropart. Phys., 11, 15

3. Effect of Different Substrate Temperature on Sb-doped ZnO Thin Films Prepared by *PLD on Sapphire Substrates*

Ziwen Zhao, Lizhong Hu, Heqiu Zhang, Jingchang Sun, Kaitong Sun, Xi Chen, Jianze Zhao , **Xue Li** and Jingxia Zhu
Chinese Phys. Lett. 27 017301

2. ZnO Thin Films of High Transmission Prepared by Evaporation-oxidation Method

Xue Li, Yi Cheng, Jingyang Chi, Hongwei Liang, Jianze Zhao, Jingchang Sun,

Lizhong Hu, Guotong Du
Highlights of Sciencepaper online, 2009, 2(15):1562-1565

1. Preparation of Ga Doped ZnO Transparent Conducting Films
Jingyang Chi, **Xue Li**, Yi Cheng, Hongwei Liang, Jianze Zhao, Jingchang Sun, Lizhong Hu, Guotong Du
Sciencepaper online, 200905-693