Lu Li

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Shanghai Astronomical Observatory, Chinese Academy of Sciences
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Education & Training

- Shanghai Astronomical Observatory, Shanghai, China 2017 –
  Ph.D. candidate in Astrophysics
- Shanghai Astronomical Observatory, Shanghai, China 2015 – 2017
  M.S. in Astrophysics
- Oxford University, UK 2019.03 – 2019.04
  Visitor
- Anhui Normal University, Wuhu, China 2007 – 2011
  B.S. in Physics

Research Projects

My research mainly focuses on modeling stellar populations in the Color-Magnitude Diagram (CMD).

- Isochrone fitting of open clusters.
- Binary properties and the evidence of dynamical interaction in open clusters.
- The evolution of stellar mass function of open clusters.

Professional Skills

- Modeling stellar populations in the CMD
- Analysis of survey catalogs: Gaia, 2MASS (and other photometric and astrometric data)
- Bayesian analysis: Hierarchical Bayes, sampling, Gaussian process
- Data mining: clustering method

Awards & Scholarships

- The finalist of the American Statistical Association (ASA/AIG) Best Student Paper Award 2021 ⚲ 2021
- National Scholarship (2%), China 2021
- Selected by *AAS Journal Author Series* ⚲ 2020
- First Prize Student Scholarship, University of Chinese Academy of Sciences 2019
- Travel Grant: XXXth General Assembly (GA) of the IAU, Vienna 2018
- Favorite Poster Prize, Conference, *Life & Times of the Milky Way*, Shanghai 2018

Telescope Time

- Co-PI: Canada-France-Hawaii Telescope, 2020B, 4 nights 2020
  Relationship between the bifurcated main-sequence and stellar rotation
- PI: Lijiang 2.40m Telescope, 2019B, 3 nights 2019
  Relationship between the bifurcated main-sequence and stellar rotation
- Co-PI: Lulin 1m Telescope, 3 nights 2015
  Photometric observation of three open clusters

Invited Talks

- Tsung-Dao Lee Institute, Shanghai, China 2020.11
  Measuring the Binary Fraction & Stellar Mass Function of Open Clusters in the CMD

- South-Western Institute for Astronomy Research, Yunnan University, China ✂ 2020.08
  Dynamical interaction in stellar cluster — Evidence from binaries of NGC 3532
- Kavli Institute for Astronomy and Astrophysics, Peking University, China ✂ 2020.05
  Dynamical interaction in stellar cluster — Evidence from binaries of NGC 3532

Presentations in Conferences

Oral presentation
- Joint Statistical Meetings, Seatle, US, Online 2021.08
  Modeling unresolved binaries of open clusters in the color-magnitude diagram
- Annual Assembly of the Chinese Astronomical Society, Online 2020.10
  Dynamical interaction in stellar cluster — Evidence from binaries of NGC 3532
- 4th Cross-Strait Meeting on Open Clusters, Urumqi 2018.07
  Measuring the Binary Fraction & Stellar Mass Function of Open Clusters in the CMD
- 11th Zhang Heng Meeting of the Chinese Astronomical Society, Guiyang 2017.07
  Measuring basic properties Open Clusters with Photometric Survey Data

Poster presentation
- European Astronomical Society Annual Meeting, 2021, online 2021.07
  Dynamical interaction in stellar cluster — Evidence from binaries of NGC 3532
- ESO Workshop: A revolution in stellar physics with Gaia and large surveys, Warsaw 2018.09
  Measuring the Binary Fraction and Mass Ratio of Open Clusters in the CMD
- XXXth General Assembly (GA) of the IAU, Vienna 2018.08
  Measuring the Binary Fraction and Mass Ratio of Open Clusters in the CMD

Outreach

- Counselor for high school students in an official scientific practice project for youth 🖼 2016 – 2020
- Popular science courses *Explore the Astronomy – Moon* 🖼 2018
- Popular Science talk, *The planets in the solar system*, Shanghai Natural History Museum 2016
- Volunteer guide at the Shanghai Natural History Museum 2016
- Popular Science talk, *The Moon*, Shanghai Science & Technology Museum 2016
- Popular science courses for Huishi Primary School, 20 hours 2015 – 2017
- Popular science courses for Xuhui Middle School, 10 hours 2015 – 2017

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Publication List

Summary: 8 papers [ADS link ✎]

1. MiMO: Mixture Model for Open Clusters in Color Magnitude Diagram
   Li, L ; Shao, Z., 2021, arXiv: 2112.08028 ✎

2. Modeling Unresolved Binaries of Open Clusters in the Color-Magnitude Diagram. I. Method and Application of NGC 3532
   Li, L., Shao, Z., Li, Z.-Z., Yu, J., Zhong, J., and Chen, L., 2020, ApJ, 901, 49 ✎

3. Robust Gaussian process regression based on iterative trimming
   Li, Z.-Z., **Li, L.**, and Shao, Z., 2021, Astronomy and Computing, 36, 100483 ✎

4. Gaia parallax of Milky Way globular clusters - A solution of mixture model
   Shao, Z. and **Li, L.**, 2019, MNRAS, 489, 3093 ✎

5. Unveiling the Hierarchical Structure of Open Star Clusters: The Perseus Double Cluster
   Yu, H., Shao, Z., Diaferio, A., and **Li, L.**, 2020, ApJ, 899, 144 ✎

6. Exploring open cluster properties with Gaia and LAMOST
   Zhong, J., Chen, L., Wu, D., **Li, L.**, Bai, L., and Hou, J., 2020, A&A, 640, A127 ✎

7. Revealing the Complicated Story of the Cetus Stream with StarGO
   Yuan, Z., Smith, M.C., Xue, X.-X., Li, J., Liu, C., Wang, Y., **Li, L.**, and Chang, J., 2019, ApJ, 881, 164 ✎

8. Substructure and halo population of Double Cluster h and χ Persei
   Zhong, J., Chen, L., Kouwenhoven, M.B.N., **Li, L.**, Shao, Z., and Hou, J., 2019, A&A, 624, A34 ✎