Claire Shi Ye

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Education

Northwestern University, USA August 2022
Ph.D. Astronomy, Advisor: Frederic A. Rasio

Northwestern University, USA 2016
M.Sc. Physics, Advisor: Melville P. Ulmer

Zhejiang University, China 2015
B.Sc. Physics · GPA: 3.82

Presentations

INVITED

1. McGill Space Institute Seminar February 2023
2. 16th Marcel Grossmann Meeting July 2021

CONTRIBUTED

1. Intermediate-mass Black Holes Meeting, San Juan, PR May 2022
2. AAS HEAD Meeting (stellar/compact object oral session), Pittsburgh, PA March 2022
3. Dynamical Formation of Gravitational Wave Sources, Aspen, CO January 2022
4. UC-Santa Cruz FLASH Seminar December 2021
5. Carnegie Observatories Lunch Talk November 2021
6. UCLA Lunch Talk November 2021
7. Caltech TAPIR Seminar November 2021
8. Princeton University Galread Seminar October 2021
9. Columbia University Astro Seminar October 2021
10. Carnegie Mellon University & University of Pittsburgh Astro Lunch Seminar October 2021
11. EAS Annual Meeting June 2021
12. National Radio Astronomy Observatory TUNA Lunch Talk May 2021
13. Texas Tech University Summer Astro Seminar May 2021
14. Center for Computational Astrophysics Stars & Compact Objects Meeting May 2021
15. IAU Symposium 351 & MODEST-19, Bologna, Italy May 2019
16. Brown Bag Seminar, Northwestern University April 2019
17. Midwest Relativity Meeting, Milwauke, WI October 2018
18. MODEST-18, Santorini, Greece June 2018

Honors & Awards

Reach for the Stars Fellowship 2018-2019 & Summer 2020
GK-12 Program · Collaborated with a K-12 science classroom teacher to bring more inquiry-based teaching methods into the classroom; Developed interactive Python programs for astronomy classroom activities; Co-organized a CIERA high school astronomy summer camp

Professional Service

Conference/Workshop Organizer
CIERA Pulsar Workshop: A three-day workshop of pulsar physics and dynamics in globular clusters Evanston 2019

Peer Reviewer
The Astrophysical Journal, the Astrophysical Journal Letters, and the Monthly Notices of the Royal Astronomical Society

Outreach/Departmental Service

DEPARTMENTAL SERVICE

Physics and Astronomy Graduate Student Council 2021-2022
Master's Student Committee Chair · Support Master's students by ensuring awareness of policies, deadlines, and other information pertinent to Master's students success both at Northwestern and in the future, and providing the department with authentic feedback as the Master's program develops from its infancy

CIERA K-12 Task Force 2021-2022
Committee · The K-12 outreach task force is developing a framework for creating and sustaining K-12 outreach initiatives at CIERA with the goal of ensuring that CIERA K-12 outreach has a social justice impact

OUTREACH

CIERA Astronomer Evening 2018-2022
Monthly conversations with the public in Dearborn Observatory including open Q & A sessions and interactive activities

Astronomy on Tap Chicago 2017-2022
Engage the public at local venues with professional astronomy talks, trivia, and prizes once per quarter as part of a national outreach effort

Letters to a Pre-Scientist 2018-2019
Exchanged letters with middle school students in high-poverty areas to demystify STEM career and inspire future scientists

Northwestern Seven Minutes of Science 2017
TED-style public symposium on Pulsars in the Snow Globes

Helix Magazine 2017
Outreach article on the story of two camps of astronomers behind the discovery of the first binary black hole merger: Astronomy Fugato: Two Approaches, One Vast Field of Discovery

Teaching Experience

Northwestern University 2016-2017 & Fall 2020
Teaching assistant · Taught weekly discussions or lab sessions for four different undergraduate General/College Physics courses and a graduate course on Methods of Theoretical Physics

CIERA High School Summer Camp 2019
Co-organizer · Co-organized the high school summer camp with team-style learning, hands-on training, real astronomy research experiences and introductory lectures
Lecturer · Taught multiple lectures ranging from astronomy to computer programming

Niles North High School 2018-2019
Teaching assistant in astronomy classes · GK-12 Program

Workshops & Skills

- **Python**
- **C/C++**
- **Fortran**

Black Hole Dynamics in Clusters Northwestern 2018
One-week workshop on black hole dynamics

Heidelberg Summer School University of Heidelberg 2017
One-week summer school on compact objects & gravitational waves

MESA Summer School UC Santa Barbara 2017
One-week summer school on the stellar evolution code MESA

Research Communication Training Program Northwestern 2017
Ten-week courses on science communication and presentation skills, culminated in a TED-style presentation

Publications

32 total publications (ADS Library), including 6 first-author and 3 second-author.

REFEREED FIRST- AND SECOND-AUTHOR PAPERS

1. **Single Millisecond Pulsars from Dynamical Interaction Processes in Dense Star Clusters**
   Ye, C. S., Kremer, K., Ransom, S. et al. 2023, arXiv:2307.15740
2. **On the Tidal Capture of White Dwarfs by Intermediate-mass Black Holes in Dense Stellar Environments**
   Ye, C. S., Fragione, G., & Perna, R. 2023, ApJ, 953, 141
3. **Millisecond Pulsars in Dense Star Clusters: Evolution, Scaling Relations, and the Galactic-Center Gamma-ray Excess**
   Ye, C. S. & Fragione, G. 2022, ApJ, 940, 162
4. **Formation of Low-mass Black Holes and Single Millisecond Pulsars in Globular Clusters**
   Kremer, K., **Ye, C. S.**, Kıroğlu, F., et al. 2022, ApJL, 934, L1
5. **Compact Object Modeling in the Globular Cluster 47 Tucanae**
   Ye, C. S., Kremer, K., Rodriguez, C. L., et al. 2021, ApJ, 931, 84
6. **Modeling Dense Star Clusters in the Milky Way and Beyond with the CMC Cluster Catalog**
   Kremer, K., **Ye, C. S.**, Rui, N. Z., et al. 2020, ApJS, 247, 48-91
7. **On the Rate of Neutron Star Binary Mergers from Globular Clusters**
   Ye, C. S., Fong, W-f., Kremer, K., et al. 2020, ApJL, 888, L10-22
8. **Millisecond Pulsars and Black Holes in Globular Clusters**
   Ye, C. S., Kremer, K., Chatterjee, S., et al. 2019, ApJ, 877, 122-131
9. **How Black Holes Shape Globular Clusters: Modeling NGC 3201**
   Kremer, K., **Ye, C. S.**, Chatterjee, S., et al. 2018, ApJL, 855, L15-21

REFEREED CO-AUTHOR PAPERS

1. **Gravitational Microlensing Rates in Milky Way Globular Clusters**
   Kıroğlu, F., Weatherford, N., Kremer, K., **Ye, C. S.**, et al. 2021, arXiv:2111.14866
2. **White Dwarf Subsystems in Core-Collapsed Globular Clusters**
   Kremer, K., et al. (including **Ye, C. S.**) 2021, ApJ, 917, 28-46
3. **Modeling Dense Star Clusters in the Milky Way and Beyond with the Cluster Monte Carlo Code**
   Rodriguez, C. L., et al. (including **Ye, C. S.**) 2021, arXiv:2106.02643
4. **Matching Globular Cluster Models to Observations**
   Rui, N. Z., et al. (including **Ye, C. S.**) 2021, ApJ, 912, 102-118
5. **Fast Optical Transients from Stellar-Mass Black Hole Tidal Disruption Events in Young Star Clusters**
   Kremer, K., Lu, W., Piro, A. L., Chatterjee, S., Rasio, F. A., **Ye, C. S.** 2021, ApJ, 911, 104-116
6. **Intermediate-mass Black Holes from High Massive-star Binary Fractions in Young Star Clusters**
   González, E., et al. (including **Ye, C. S.**) 2021, ApJL, 908, L29-35
7. **Black Hole Mergers from Star Clusters with Top-Heavy Initial Mass Functions**

Weatherford, N. C., Fragione, G., Kremer, K., Chatterjee, S., **Ye, C. S.**, et al. 2021, ApJL, 907, L25-32

8. **Black Hole Mergers from Hierarchical Triples in Dense Star Clusters**
   Martinez, M. A. S., et al. (including **Ye, C. S.**) 2020, ApJ, 903, 67-83
9. **Populating the Upper Black Hole Mass Gap through Stellar Collisions in Young Star Clusters**
   Kremer, K., et al. (including **Ye, C. S.**) 2020, ApJ, 903, 45-62
10. **Demographics of Triple Systems in Dense Star Clusters**
    Fragione, G., Martinez, M. A. S., Kremer, K., Chatterjee, S., Rodriguez, C. L., **Ye, C. S.**, et al. 2020, ApJ, 900, 16-38
11. **COSMIC Variance in Binary Population Synthesis**
    Breivik, K., Coughlin, S. C., Zevin, M., Rodriguez, C. L., Kremer, K., **Ye, C. S.**, et al. 2020, ApJ, 898, 71-84
12. **GW190412 as a Third-generation Black Hole Merger from a Super Star Cluster**
    Rodriguez, C. L., et al. (including **Ye, C. S.**) 2020, ApJL, 896, L10-16
13. **The Optical Afterglow of GW170817: An Off-axis Structured Jet and Deep Constraints on a Globular Cluster Origin**
    Fong, W-f., Blanchard, P. K., Alexander, K. D., Strader, J., Margutti, R., Hajela, A., Villar, V. A., Wu, Y., **Ye, C. S.**, et al. 2019, ApJL, 883, L1-9
14. **Black holes: The next generation-repeated mergers in dense star clusters and their gravitational-wave properties**
    Rodriguez, C. L., et al. (including **Ye, C. S.**) 2019, Phys. Rev. D, 100, 043027:1-15
15. **Post-Newtonian dynamics in dense star clusters: Binary black holes in the LISA band**
    Kremer, K., et al. (including **Ye, C. S.**) 2019, Phys. Rev. D, 99, 063003:1-12
16. **How Initial Size Governs Core Collapse in Globular Clusters**
    Kremer, K., Chatterjee, S., **Ye, C. S.**, et al. 2019, ApJ, 871, 38-49
17. **Post-Newtonian dynamics in dense star clusters: Formation, masses, and merger rates of highly-eccentric black hole binaries**
    Rodriguez, C. L., et al. (including **Ye, C. S.**) 2018, Phys. Rev. D, 98, 123005:1-16

CONFERENCE PROCEEDINGS / RESEARCH NOTES

1. **No Black Holes in NGC 6397**
   Rui, N. Z., et al. (including **Ye, C. S.**) 2021, RNAAS, 5, 47
2. **The Observed Rate of Binary Black Hole Mergers can be Entirely Explained by Globular Clusters**
   Rodriguez, C. L., et al. (including **Ye, C. S.**) 2021, RNAAS, 5, 19
3. **The Role of "Black Hole Burning" in the Evolution of Dense Star Clusters**
   Kremer, K., **Ye, C. S.**, Chatterjee, S., et al. 2019, arXiv:1907.12564
4. **Shaping Si, NiCo, and glass substrates via stresses in the coatings**
   Wang, X., Yao, Y., **Ye, C. S.**, et al. 2016, SPIE Conference Series, 9965, 99650D:1-9
5. **Toward large-area sub-arcsecond x-ray telescopes II**
   O'Dell, S. L., et al. (including **Ye, C. S.**) 2016, SPIE Conference Series, 9965, 996507:1-17
6. **APERTURE: a precise extremely large reflective telescope using re-configurable elements**
   Ulmer, M. P., et al. (including **Ye, C. S.**) 2016, SPIE Conference Series, 9904, 99041I:1-12