

# Zewei Xiong

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## Education

University of Minnesota, Twin Cities, Minneapolis, MN, USA  
Ph.D. Physics

09/2015 - 12/2020

Shanghai Jiao Tong University, Shanghai, China  
B.S. Physics

09/2011 - 07/2015

## Research

Postdoctoral researcher in GSI Helmholtz Center

01/2021 - present

Research assistant in University of Minnesota

09/2017 - 12/2020

## Teaching

University of Minnesota, Twin Cities, Minneapolis, MN, USA

Teaching assistant, Introductory Physics for Science and Engineering I

Fall 2016

Teaching assistant, Introductory Physics for Science and Engineering II

Spring 2017

## Honor

College of Science and Engineering Graduate Fellowship (UMN)

2015 - 2016

## Publications

1. R. Fernández, O. Just, **ZX**, and G. Martínez-Pinedo, Viscous hydrodynamic evolution of neutron star merger accretion disks: a code comparison, *Physical Review D* 110, 023001 (2024)
2. **ZX**, M.-R. Wu, M. George, C.-Y. Lin, N. Khosravi Largani, T. Fischer, and G. Martínez-Pinedo, *Physical Review D* 109, 123008 (2024)
3. **ZX**, G. Martínez-Pinedo, O. Just, and A. Sieverding, Production of  $p$ -nuclei from  $r$ -process seeds: the  $\nu r$ -process, *Physical Review Letter* 132, 192701 (2024)

4. S. Abbar, M.-R. Wu, and **ZX**, Application of neural networks for the reconstruction of supernova neutrino energy spectra following fast neutrino flavor conversions, *Physical Review D* 109, 083019 (2024)
5. C. E. Collins, L. J. Shingles, A. Bauswein, S. A. Sim, T. Soultanis, V. Vijayan, A. Flörs, O. Just, G. Leck, G. Lioutas, G. Martínez-Pinedo, A. Sneppen, D. Watson, and **ZX**, Towards inferring the geometry of kilonovae, *Monthly Notices of the Royal Astronomical Society* 529, 1333–1346 (2024)
6. S. Abbar, M.-R. Wu, and **ZX**, Physics-informed neural networks for predicting the asymptotic outcome of fast neutrino flavor conversions, *Physical Review D* 109, 043024 (2024).
7. **ZX**, L. Johns, M.-R. Wu, and H. Duan, Collisional flavor instability in dense neutrino gases, *Physical Review D* 108, 083002 (2023)
8. **ZX**, M.-R. Wu, S. Abbar, S. Bhattacharyya, M. George, and C.-Y. Lin, Evaluating approximate asymptotic distributions for fast neutrino flavor conversions in a periodic 1D box, *Physical Review D* 108, 063003, (2023)
9. L. J. Shingles, C. E. Collins, V. Vijayan, A. Flörs, O. Just, G. Leck, **ZX**, A. Bauswein, G. Martínez-Pinedo, and S. A. Sim, Self-consistent 3D Radiative Transfer for Kilonovae: Directional Spectra from Merger Simulations, *Astrophysical Journal Letters* 954, L41 (2023)
10. **ZX**, M.-R. Wu, and Y.-Z. Qian, Symmetry and bipolar motion in collective neutrino flavor oscillations, *Physical Review D* 108, 043007, (2023)
11. O. Just, V. Vijayan, **ZX**, S. Goriely, T. Soultanis, A. Bauswein, J. Guilet, H.-Th. Janka, and G. Martínez-Pinedo, End-to-end kilonova models of neutron-star mergers with delayed black-hole formation, *Astrophysical Journal Letters* 951, L12 (2023)
12. **ZX**, M.-R. Wu, G. Martínez-Pinedo, T. Fischer, M. George, C.-Y. Lin, and L. Johns, Evolution of collisional neutrino flavor instabilities in spherically symmetric supernova models, *Physical Review D* 107, 083016 (2023)
13. M. George, C.-Y. Lin, M.-R. Wu, T. G. Liu, and **ZX**, COSE $\nu$ : A collective oscillation simulation engine for neutrinos, *Computer Physics Communications* 283, 108588 (2023)
14. L. Johns, and **ZX**, Collisional instabilities of neutrinos and their interplay with fast flavor conversion in compact objects, *Physical Review D* 106, 103029 (2022)
15. A. Roggero, E. Rrapaj, **ZX**, Entanglement and correlations in fast collective neutrino flavor oscillations, *Physical Review D* 106, 043022 (2022)
16. S. Richers, H. Duan, M.-R. Wu, S. Bhattacharyya, M. Zaizen, M. George, C.-Y. Lin, and **ZX**, Code comparison for fast flavor instability simulations, *Physical Review D* 106, 043011 (2022)
17. **ZX**, Many-body effects of collective neutrino oscillations, *Physical Review D* 105, 103002 (2022)

18. M.-R. Wu, M. George, C.-Y. Lin, and **ZX**, Collective fast neutrino flavor conversions in a 1D box: Initial conditions and long-term evolution, *Physical Review D* 104, 103003 (2021)
19. **ZX** and Y.-Z. Qian, Stationary solutions for fast flavor oscillations of a homogeneous dense neutrino gas, *Physics Letters B* 820, 136550 (2021)
20. **ZX**, A. Sieverding, M. Sen, and Y.-Z. Qian, Potential impact of fast flavor oscillations on neutrino-driven winds and the nucleosynthesis, *Astrophysical Journal* 900, 144 (2020)
21. **ZX**, M.-R. Wu, and Y.-Z. Qian, Active-sterile neutrino oscillations in neutrino-driven winds: Implications for nucleosynthesis, *Astrophysical Journal* 880, 81 (2019)

## Preprints

22. M. George, **ZX**, M.-R. Wu, and C.-Y. Lin, Evolution and the quasistationary state of collective fast neutrino flavor conversion in three dimensions without axisymmetry, arXiv:2409.08833 (2024)
23. **ZX**, M.-R. Wu, M. George, and C.-Y. Lin, Robust integration of fast flavor conversions in classical neutrino transport, arXiv:2403.17269 (2024)
24. A. Gross, **ZX**, and Y.-Z. Qian, A Data-Driven Model for Abundances in Metal-poor Stars and Implications for Nucleosynthetic Sources, arXiv:2309.09385 (2023)

by November 1, 2024.