



Lingyu Xia

My Self Page(Still under Construction)

🔗 GitHub Profile

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EDUCATION

- **Bsc. Physics in Taishan College, Shandong University, China** GPA: 87/100 2021-2025
– Taishan College is the distinguished college of Shandong University. Only about 20 students from freshmen can be selected for the Physics Orientation of Taishan College each year.
- **Visiting Student, Department of Physics, Bar-Ilan University, Israel** 2023-2024

RESEARCH EXPERIENCE

- **Scattering of Gravitational Wave** Nov. 2022 - Nov. 2023
Institute of Frontier and Interdisciplinary science, Shandong University, advised by Prof. Hong Zhang
– In the study of scattering problems, a key obstacle is the lack of convergence of wave summation when calculating scattering amplitudes. In our work, we discard the assumption of plane wave incidence in the traditional fractional wave method, and consider the combined influence of the long-range forces of the wave source and the scattering source, so as to solve the problem of lack of convergence of scattering amplitude, and extract the physical information we need in the absence of analytical solutions of differential equations.
- **Gamma-Ray Bursts** Nov. 2023 - Present
Department of Physics, Bar-Ilan University, advised by Prof. Peer Asaf
– Research about GRB(Gamma-Ray Bursts).
- **Numerical simulations of Active Galactic Nuclei** May 2022 - Nov. 2022
Shanghai Astronomical Observatory, CAS, advised by Prof. Feng Yuan
– This is a Science and Technology Innovation Project of the SAO, CAS. We propose to use the advanced numerical simulation code **Athena++**, combined with knowledge of astrophysics and hydrodynamics to analyze some special phenomenon.

STUDYING EXPERIENCES

- **Student-led study group-Taishan Seminar** Mar. 2022-Present
Taishan College, Shandong University
– In order to better learn the theoretical knowledge of physics, I, as one of the **co-funders and contributors**, jointly set up the Taishan Seminar. My classmates and I discuss mathematics and physics-related problems every week. And we established a website to upload notes and other materials for each discussion. Website: **physicsseminar**
- **Hands-on project of axion and boson stars** Jan. 2023
TDLI Winter Camp of Astrophysics, advised by Prof. Luca Visinelli
– We study the method of estimating the mass of a boson star and Friedmann equations, and numerically predict the upper bound of the mass using shooting method of ODE and the age of Universe. And understand the theory knowledge about axions.
- **The first Summer School of Basic Theory for top physics students** July 2023
Nankai University
– The Summer School invited more than 20 experts and scholars, including academicians of the Chinese Academy of Sciences, to give lectures and participate in seminars for students. The summer School's content includes in-depth learning of basic theories of physics, cutting-edge reports, teacher-student seminars, student exchanges, education and teaching forums, etc.

ACHIEVEMENTS

- **Third prize in academic level of Shandong University** Oct. 2023
- **Provincial First Prize in China Undergraduate Mathematical Contest in Modeling** Oct. 2022
- **First prize of physics competition of university students in Shandong province** Oct. 2021

TECHNICAL SKILLS AND INTERESTS

Code Skills: \LaTeX , Mathematica, Python, C, Matlab

Core Course: General Relativity & Cosmology, Quantum Mechanics, Electrodynamics

Areas of Interest: Gravitational Wave, Cosmology, Gravity Theory