Zhi Chen

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Education

- **Stony Brook University** — New York, US
  Master of Arts - Physics; GPA: 3.83/4.00 — *Aug 2021 - May 2023*
  Courses: *Stars & Radiation, Cosmology, Galaxies, Classical Mechanics, Quantum Mechanics I, Computational Methods*
- **Stony Brook University** — New York, US
  Bachelor of Science - Physics; GPA: 3.96/4.00; Summa Cum Laude — *Aug 2017 - May 2021*
  Courses: *Stars & Radiation, Cosmology, Galaxies, General Relativity, Classical Mechanics, E&M, Statistical Mechanics, Quantum Mechanics*

Research Experience

- **Master Thesis Research / Research Assistant** — Remote
  Student Research — *Jan 2022 - Present*
  - **Project Description**: Investigated on how different reaction networks would affect the speed of flame propagation for an x-ray burst on a neutron star using Castro, which is an adaptive mesh, astrophysical radiation hydrodynamics simulation code.
  - **Details**: ...
- **SULI Program at Brookhaven National Lab + Continued Research** — Remote
  Summer Internship + Student Research — *Jun 2021 - Present*
  - **General Setting**: Worked in a small group developing a technique called two-photon interferometry, which has the potential of measuring the relative separation of two luminous objects with high precision.
  - **Data Analysis using Python**: Analyzed laboratory data by making and fitting various plots using Python.
  - **Python Code Development**: Developed Python code that identifies suitable star pairs for the real-world observation through two-photon interferometry.
  - **Two-Photon Interferometry Simulation using Python**: Developed a simulator that simulated the theoretical observational signal through two-photon interferometry given a set of telescopes and star pair using Python.
  - **Additional Features: Data Sampling and MCMC**: Added features such data sampling and Markov Chain Monte Carlo algorithm to predict the precision of the relative separation between the star pair using Markov Chain Monte Carlo algorithm.
  - **Poster Conference**: Joined a poster conference by the end of the program to share the research results over the summer.
- **SULI Program at Brookhaven National Lab** — Remote
  Summer Internship — *Jun 2020 - Aug 2020*
  - **General Setting**: Worked in an Astro-group for building a radio-telescope to detect 21-cm emission from hydrogen
  - **Primary Role**: Developed additional features for imcurio, which is a simple simulator of intensity mapping observations that simulates a fixed set of visibilities for a fixed telescope and fixed sky using Python.
  - **Poster Conference**: Joined a poster conference by the end of the program to share the research results over the summer.

Publications

- **Paper: Astrometry in two photon interferometry using Earth rotation fringe scan**: Work in Progress: paper to be published in Physical Review D.

Honors, Grants, Awards, and Achievements

- Dean's List, 2017-2021

Skills Summary

- **Languages**: Python, C++, Bash
- **Tools**: GIT,Sphinx
- **Platforms**: Linux, Web, Windows, NERSC (supercomputing remote server)