Junjue Liao

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Education

Shanghai Jiao Tong University (SJTU), Shanghai, China 2021 – Present

B.S in Physics (Zhiyuan Honors Program), expected 2025, GPA:3.7

Research Experience

Laboratory of Plasma Studies, Cornell Ithaca, America Jun. 2024 – Present

Summer Intern Individual Project, Adviser: Gennady Shvets

Brief introduction: Built an analytic model of stable shock-like structures in ultra-intense laser interaction with underdense plasma

- Express the width of shock front with laser-plasma parameters, which help to give the criterion for CEP effect.
- Express the CEP effect by laser-plasma parameters for optimisation of phase and polarization dependent acceleration
- The results are being sorted out **to be published**

Institute of Laser Plasma Physics, SJTU Shanghai, China Sep. 2023 – Present

Undergraduate Team Projects, Adviser: Jie Zhang

Brief introduction: Built an analytical model for thermonuclear burn propagation

- Gave analytical solution of the burning speed for both isobaric and isochoric hot spot
- Explained the impact of density of hot spot on burning propagation
- Gave a new criterion for detonation wave
- The results are being sorted out **to be published**

Undergraduate Individual Projects, Adviser: Min Chen

Brief introduction: Studied axial and radial chirp effect during photon acceleration

- Analyzed the impact of chirp effect on laser quality during photon acceleration due to inhomogeneity of acceleration gradient
- The results are being sorted out **to be published**

Shanghai Synchrotron Radiation Facility Shanghai, China Jun. 2023 – Sep. 2023

Summer Intern Individual Project, Adviser: Xiaowei Wu

Brief introduction: Designed the resonant cavity pre-tuning system for Shanghai High Repetition Rate XFEL and Extreme light facility (SHINE).

- Built the cavity pre-tuning system
- Coded for the system to achieve automation

Honors and Awards

Zhiyuan Honors Scholarship - Top 10% in SJTU each year. 2021-2023
Undergraduate- Merit Scholarship - Top 30% in Zhiyuan Honors Program 2021-2023

Miscellaneous

- Programming Languages: Cpp, Python, Matlab, Labview, LaTeX PIC(epoch,FBPIC,WAKE1D)
- Language: IELTS: 7.0
- Research Interests: Computational Plasma Physics, Experimental Plasma Physics, Laboratory Astrophysics, Metamaterials and Plasmonics, Photics