

Curriculum Vitae

Wang Liang

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1 Education

Shanghai Jiao Tong University

2021.09 - 2025.06

B.S(Physics,Tsung-Dao Lee Class)

Grades: Freshman(80.1/100), Sophomore (88.3/100), Junior(89.6/100)

Grad Coureses:GR (93/100) Gauge Field Theory (Undergrad could only audit)

University of New South Wales

2023.09 - 2023.12

Exchange(Physics)

Grades: Term 3 (87.3/100)

2 Academics Experience

- Attending Workshop on Muon Physics at the Intensity and Precision Frontiers and won **Best Poster Awards**. 2023 4.15-4.16
- Attending SUT-PSI Schools of Muon and Neutron Physic. 2023 7.10-7.14
- Attending Joint TDLI and INPAC summer school in particle physics. 2023 7.16-7.20
- Selected to join the 3rd Frontier Summer Seminar on String Theory, Field Theory, and Holography organized by SEU (Southeast University). 2023 8.20-8.27
- Selected to join the 4rd Frontier Summer Seminar on String Theory, Field Theory, and Holography organized by SEU. 2024 8.19-8.31

3 Research Experience

1.(hep-ex)Muons Source study based on SHINE facility

2023.02 - 2024.03

To validate the feasibility of establishing a muon source using the beam dump from the SHINE, we employed GEANT4-based simulation software to simulate the particle interaction process, optimized the target configuration, and estimated muon production.

2.(gr-qc)Inflation and Early Universe

2023.09 - 2024.12

Focusing on fluctuation in early universe and find its connection with CMB temperature spectrum through calculation and simulation with CAMB under professor Yvonne's (UNSW) guidance and wrote a study note.

3.(gr-qc)Black hole holography

2023.12 - 2024.03

Under professor Tower Wang's guidance, we explored the observational properties of Reduced Kiselev Black Holes,which describes certain fluid perturbations from black hole formation , and studying the duality between $SL(2, \mathbb{R})_{PR}$ from the photon ring and

$SL(2, \mathbb{R})_{QM}$ from quasi-normal modes and derive observable relation potentially served as direct evidence of such duality.

4.(gr-qc)Cosmological Perturbation Theory

2024.04 - 2024.07

Under Professor Hongjian He's guidance, I studied cosmological perturbation theory, referencing Professor Pajer's notes and Professor Zhongzhi-Xianyu's papers, covering in-in formalism, soft-limit theorems, cosmological collider properties, and cosmological bootstrap, and all of which are presented in my study notes

5.(hep-th) Exploring the AdS_5/CFT_4 Correspondence

2024.04 - 2024.07

Participated in the FuSEP summer research program at USTC, studying AdS_5/CFT_4 implementation and related topics under Professor Jianxin Lu's guidance. Presented a reading report on Maldacena's paper, focusing on how to build the correspondence through Type IIB string theory. Also the holographic dictionary, black hole thermodynamics, and large-N expansions are discussed in related notes .

More details can be found on my personal website: [Research Experience](#)

4 Advanced Study and Skills

Unable to enroll in advanced physics courses, I self-studied cutting-edge topics.

- Advanced Study:

Differential geometry, String theory, CFT

- Topics of Interest:

higher dimension CFT and Bootstrap, Black Hole Entanglement Entropy, On-Shell Amplitudes, SYK model, Random Matrix Theory...

- Language:

Tofel(105/120), Python , C++, Linux, Matlab, Mathematica, L^AT_EX, Markdown...

- Program:

CAMB, CLASS (Cosmology) MESA (Astro) ROOT, Geant4, PyROOT, (hep-ex) Machine Learning and Computer-Vision, Origin...

Notes about my study can be found on my website [Physics Notes](#)