Guangcheng Liu

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EDUCATION

School of Physics and Technology, Wuhan University, Wuhan, Hubei China *2019.9-2023.7(Expected)*

Bachelor of Science in Physics

Tianjuan Class, a joint training class of the School of Physics of WHU and the APM of CAS.

- **GPA** 3.85/4.0 (major) 3.87/4.0(total)
- **Rank** 2/333 in School of Physics

Core Course: Quantum Mechanics(98) Classical Mechanics(97) ODE(98) Electromagnetism(93) Computational Physics(100) Atomic Physics(93) Optics(94) Thermodynamics and Statistical Mechanics (92)

Probability Theory and Statistics(96)

Advanced Quantum Mechanics(86) QIQC(90) Quantum Optics

RESEARCH EXPERIENCES

University of Science and Technology of China(USTC) *2021.7-2021.9*

Quantum Information and Quantum Computing Seminar

Advisor: Prof Zhaofeng Su/Cheng Guo

- Learned the QCQI theory through different methods

The Innovation Academy for Precision Measurement Science and Technology (APM) *2021.7-present*

RA, Experimental study of quantum information processing in the ion trap system

Advisor: Prof Mang Feng/Fei Zhou

- **Motional state of two trapped ions analysis**
  - > Derived the formula of population after carrier transition and blue band transition
  - > Used Python programming to obtain the mean vibrational quantum number and Rabi frequency
- **Preparation of entangled state through Mølmer–Sørensen gate**
  - > Derived of the evolution of two ions under the drive of red and blue detuned lasers via two method
  - > Used Python programming to obtain optimal fidelity and the minimum time for MS gate operation

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COMPUTATIONAL PHYSICS GROUP(lead by Prof. Shengjun Yuan) *2020.12-present*

RA, Quantum Computer Simulator Development

Advisor:Prof Shengjun Yuan

- **Universal Quantum Computer Simulator Development**
  - > Designed a Javascript program to easily build quantum circuits and simulate the universal quantum circuits
  - > Developed a high-performance universal quantum simulator with MPI to build large scale quantum circuits
- **Physical Quantum Computer Simulator Development**
  - > Used program to simulate the quantum computer of NMR system by Chebyshev polynomial method

HONORS AND AWARDS

- Lei Jun Scholarship in Wuhan University (highest honor)(**1/1177**) 2021
- Outstanding First Class Scholarship,in Wuhan University 2021
- Outstanding student pacesetter,in Wuhan University 2021
- Outstanding Second Class Scholarship,in Wuhan University 2020
- First Prize of National University Mathematics Competition 2020
- First Prize of China Undergraduate Physicists'Tournament(CUPT) at Wuhan University 2020

PUBLICATION

- UQCS(Universal Quantum Computer Simulator)

SKILLS

- Atomic and optical physics experimental skills
- **Programming skills**: C,C++,Javascript,Python,Fortran,Lisp(Total 10k+)