



# Zhongqi Xiu

Major in Optics and Optical Engineering

University of Science and Technology of China, Hefei, China

Research on Fiber cavity QED system supervised by Prof. Chuan-Feng Li and associate professor Dr. Jian Wang, CAS Key Laboratory of Quantum Information

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Homepage of Lab

## EDUCATION

Institute	University/Lab	Year
School of Physical Sciences	University of Science and Technology of China	2021-now
Group of Fiber cavity QED system	CAS Key Laboratory of Quantum Information	2022-now
Chung-Yao Chao Talent Program	Shanghai Institute of Applied Physics, Chinese Academy of Sciences	2023-now

- Major GPA:3.72/4.3(Top 20%)
- TOFEL:94/120(Will take my second TOEFL iBT Test on March 2)

## HONOR

- **Outstanding Freshman Scholarship, Third prize** 2021
- **Endeavor Scholarship** (Top 5%) 2022
- **Outstanding Student Scholarship, Silver Prize** (Top 10%) 2022,2023
- **Chung-Yao Chao Talent Program Scholarship** 2023

## RESEARCH EXPERIENCE

### • Magneto Optical Trap(MOT)

*Building MOT system*

- Led the project of trapping single atom based on a two-dimensional movable optical lattice and achieving high-precision control of atomic positions in our second vacuum system.
- Participated in setting up the optical path for magneto optical trap (MOT) for  $^{87}\text{Rb}$ . Independently built the double pass configuration with an acoustic-optic modulator(AOM) to adjust the frequency of cooling light with Bragg diffraction. The MOT acts as a cold atom reservoir for our subsequent experiments.
- Participated in building and cleaning our second ultrahigh optical accessible vacuum system, in which we mounted a Rb atom dispenser for the MOT and optical dipole traps for ensembles and single atoms. The vacuum degree of our new-build system has reached  $3 \times 10^{-11}$  Torr.

### • Optical Fiber

*Pre-treating the optical fiber*

- Independently pre-treated the optical fiber which will be used in the vacuum system and tested the mode field diameter of treated single mode fiber to optimize the mode matching between the modes of cavity and fiber. Importantly, due to the needs of ultra-high vacuum environment, the process of fiber cleaving and splicing was carefully designed to avoid contamination and minimize optical loss.

### • Control Circuit

*Setting up the control circuit of cooling and repumping light*

- Independently designed control circuits and installed control electronics such as the microwave amplifier, radio frequency switch and radio frequency generator into multiple integrated chassis to facilitate the connection of electrical devices in the optical path.

## TECHNICAL SKILLS

- **Programming Languages:** C/C++, Python & Java
- **Tools and Frameworks:** LabVIEW,Matlab,Mathematica, Solidworks,Keil,Comsol

## KEY COURSES TAKEN

- **Physics:** Mechanics, Electromagnetism, Thermotics, Optics, Fundamental of Electronics, Theoretical Mechanics, Atomic Physics, Electrodynamics, Quantum Mechanics, Technique of Quantum Information, Laser Principle and Technology.
- **Maths:** Mathematical Analysis, Linear Algebra, Function of Complex Variable, Probability Theory and Mathematical Statistics, Computational Method, Equations of Mathematical Physics, Computational Physics.

## MISCELLANEOUS

- **First Prize in the electromagnetism course essay competition-** Research on “Equipotential Lines”(IYPT 2022) 2022
- **Third Prize in the game of robotic car-**Use Stm32 to control a self-build micro-car doing preset settings 2023
- **Served as teaching assistant in optics course -**Provide teaching resource expansion and set up exercise classes 2023

## PREFERRED PROJECTS

- **All-Reflective Confocal Microscopy** —Prof. Henry Everitt
- **Terahertz Imaging** —Prof. Henry Everitt
- **Optical spectroscopy of telecom quantum emitters in silicon** —Prof. Songtao Chen