**Xuhong Liu**
Master student at School of Mathematical Sciences, University of Science and Technology of China, Hefei, Anhui, China.
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## RESEARCH INTERESTS

My main interest is theoretical computer science. Especially quantum cryptography, quantum computing and quantum information.

## EDUCATION

**University of Science and Technology of China**, Hefei, China — September 2022 — Present
Master of Mathematical Sciences
Expected graduation: June 2025

**Hefei University of Technology**, Hefei, China
Study in School of Mechanical Engineering — September 2017 — September 2019
Bachelor of Mathematics and Applied Mathematics — September 2019 — June 2022

## TEACHING EXPERIENCE

**Teaching Assistant of Function of Complex Variable B** — September 2022 — January 2023

- Answer questions raised by students in the class.
- Mark students' homework every week.
- Teach a problem-solving class.
- Assisted the teacher in grading exams.

**Teaching Assistant of Mathematical Analysis B2** — March 2024 — July 2024

- Answer questions raised by students in the class.
- Mark students' homework every week.
- Teach a problem-solving class.
- Assisted the teacher in grading exams.

## PROJECTS

Since May 2024, I have been involved in a research project on quantum information and quantum cryptography, led by Professor Qipeng Liu at the University of California, San Diego. Periodically, I discuss related issues with Professor Liu online. So far, my contribution has been proposing a new proof method for one of the conclusions that Professor Liu had already reached. The project is still ongoing.

## PUBLICATIONS

Jingrun Chen, Xuhong Liu, Jiangqiong Mao and Wei Yang, *Adaptive finite element method for simulating graphenesurface plasmon resonance.*
Accepted by *Advances in Applied Mathematics and Mechanics.*

## AWARDS

**The Chinese Mathematics Competitions** — Hefei, China
Provincial Second Prize (Mathematics Category A) — November 2021

**The Chinese Mathematics Competitions** — Shanghai, China
National Third Prize (Senior Mathematics Group) — March 2023

## BOOKS I HAVE READ

- Oded Goldreich. Foundations of Cryptography: Volume 1, Basic tools.
- Michael Sipser. Introduction to the Theory of Computation.
- Michael A. Nielsen, Isaac L. Chuang. Quantum Computation and Quantum Information.

## A BRIEF SELF-INTRODUCTION(Why I changed my research direction)

In 2023, through a fortunate coincidence, I met Professor Qipeng Liu at the University of California, San Diego. By the end of that year, under the guidance of my graduate advisor, I completed a journal paper. With ample time on my hands, I began reading books about theoretical computer science under Professor Liu's guidance, developing a keen interest in theoretical computer science. Within six months, I delved into books on computational theory, cryptography, and quantum computing. In May 2024, I started discussing research topics with Professor Liu. I am deeply grateful to Professor Liu for his generous assistance during this time.