Fan Lu

✉ fanlu0077@outlook.com ☎ + (86) 13713217717

EDUCATION

Sun Yat-sen University, Guangzhou, China 09.2017-06.2021

- BS (Expected) in **Physics**, GPA **3.7/4.0,** Third-class Merit-based Scholarship in 2018 and 2019

PUBLICATION

[1] Fan Lu. *Several Ways to Implement Qubits in Physics.* 2021 International Conference on Advances in Optics and Computational Sciences (AOCS 2021). Accepted.

[2] Jiajun Chen*, Chenhao Hong*, Fan Lu*. *Verification of Bell's Inequalities and GHZ Experiment on IBM Q*. The 2021 International Conference on Dynamical System and Industrial Control System (DSICS 2021). Accepted. *Co-first author

ACADEMIC RESEARCH

Introduction to Quantum Mechanics and Quantum Computing 07.2020-09.2020

Advisor: Professor Thomas Mehen from Duke University

- Went over topics in quantum mechanics, Schroedinger's equation, energy quantization, EPR paradox and Bell's inequalities
- Learned and improved knowledge about qubits and the circuit model of quantum computation
- Reviewed several quantum algorithms, including quantum teleportation, Grover's search algorithm and Shor's algorithm

Quantum Control of Nuclear Electron Resonance 11.2020-present

Capstone Project, supervised by Prof. Ze-liang Xiang

- To achieve quantum control of nuclear electron resonance by imitating nuclear magnetic resonance (in progress)

COURSE PROJECTS

An Entangled Steady State of Cavity Optomechanical System 01.2020

- Improved a solution to realize quantum correlation in a system coupled by typical optomechanical system and quantum well
- Converted moving mirror into quantized wave, obtained the hybrid optomechanical system by coupling quantum well with moving mirror, which is then introduced into field drive
- Used Langevin equation to describe time-dependent evolution of the system, and accomplished steady-state conditions from the coefficient matrix

Adiabatic Elimination in Quantum Optics 12.2019

- Calculated unequal detuning between three level atoms and bosons with Generalized FRÖHLICH-NAKAJIMA Transformation, time average method, and Heisenberg equation
- Worked out the Hamiltonian when three-level atoms interact with bosons

AWARDS AND HONORS

- **2nd Prize** in Guangdong Province, 2019 Contemporary Undergraduate Mathematical Contest in Modeling (CUMCM)
- **Successful Participant** in 2019 Mathematical Contest In Modeling

SKILLS

- **Software：** Matlab, Methematica, NI Labview, Origin, LaTeX
- **Programming：** C/C++, Python