Chen Huang
South Kensington Campus, Imperial College London, SW7 2AZ
Email: chen.huang23@imperial.ac.uk
Mobile: +44 (0)79 0107 6154

Education

- **Imperial College London** — London, UK
  M.Sc. in Physics with Extended Research — *Sep. 2023 – Expected Sep. 2025*
- **Huazhong University of Science and Technology (HUST)** — Wuhan, CN
  B.S. in Physics — *GPA: 3.89/4.00 (Top 10%)* — *Sep. 2018 – Jun. 2022*
- **Peking University** — Beijing, CN
  Summer Program: Introduction to Quantum Information Technology, Quantum Mechanics(II) — *summer 2020*

Research Experience

- **Institute for Quantum Computing, Baidu Inc.** — Beijing, CN
  Research Intern ‖ Mentor: Dr. Jingbo Wang — *March. 2023 - Sep. 2023*

  Automated Calibration of Experimental Parameters in Trapped-Ion Quantum Computing
  - Pioneered a comprehensive calibration process for the trapped-ion system.
  - Programmed a Python-based automation tool for calibrating physical parameters in the trapped-ion quantum computer, significantly reducing manual work and potential errors.
  - Played a key role in the development and patenting of five innovative schemes aimed at improving various aspects of trapped-ion quantum computing. These schemes include: 1) *A methodology for calibrating experimental parameters*; 2) *A technique for enhancing the signal-to-noise ratio*; 3) *A method for correcting phonon frequency drift*; 4) *An approach to determining interaction symbols using multi-ion and multi-phonon entanglement*; 5) *A rapid calibration scheme for ion and phonon interaction symbols.*

- **International Joint Lab on Quantum Sensing and Quantum Metrology, HUST** — Wuhan, CN
  Research Assistant ‖ Supervisor: Prof. Jianming Cai — *Apr. 2019 - Dec. 2022*

  Nanoscale Detection of Ions Using a Spin Quantum Sensor (Graduation Project)
  - Conducted research on ion distribution in solution under AC voltage, successfully establishing a correlation between AC voltage and NV sensing.
  - Utilized MATLAB and Python to compute analytical solutions for electrostatic potential and ion distribution.
  - Designed a 3D model of a Surface Forces Apparatus (SFA) with AutoCAD.

  Measurement of Entangled Qubits
  - Constructed and optimized the optical components of an experimental system, ensuring the stability and accuracy of photon polarization states.
  - Prepared maximally entangled photon pair states via spontaneous parametric down-conversion (SPDC).
  - Reconstructed the density matrix of photon polarization entangled qubits using a single-photon detector, achieving a concurrence of 0.825.

- **Low Dimensional Physics and Interface Engineering Laboratory, SJTU** — Shanghai, CN
  Research Intern ‖ Supervisor: Prof. Hao Zheng — *Jul. 2021 - Sep. 2021*

  STM Study of Topological Insulators
  - Developed and fabricated needle tips for Scanning Tunneling Microscopy (STM) using an innovative electrochemical method, improving the precision and reliability of measurements.
  - Gained comprehensive knowledge and practical experience in Molecular Beam Epitaxy (MBE) and STM, contributing to the overall progress of the research.
  - Investigated the setup and principle of the dilution refrigerator and the Raman spectrometer, leading to a deeper understanding of the exotic structural and electronic properties of topological insulators at ultralow temperatures.

Awards and Honors

- **HUST Outstanding Graduate**, 2022
- **China National Scholarship**, 2019 ‖ The highest honor for undergraduates in China, awarded to top 0.2% of undergraduates nationwide

Skills

- **Experimental Skills**: Proficient in using scientific instruments such as Scanning Tunnel Microscope (STM), Raman Spectrometer, Dilution Refrigerator, and Molecular Beam Epitaxy (MBE).
- **Programming and Software Skills**: Python, MATLAB, LaTeX, COMSOL, AutoCAD