

Jian Hou LAI

 Jian Hou Lai |  laijianhou1122@gmail.com

SUMMARY

I am interested in research in quantum information theory. My research experience includes quantum field theory in curved spacetime (bachelor's thesis) and Bose–Einstein condensates (internship project). I am actively involved in teaching and coaching high school students for competitive physics, including preparing Malaysia's national team for the International Physics Olympiad. I earned a B.Sc. (Hons) in Physics with a CGPA of 3.79/4.00 (first class honours and top 5 out of 75 students) from the University of Science Malaysia. My full CV can be found [here \(Github\)](#)!

WORK EXPERIENCES & SELECTED PROFESSIONAL EXPERIENCES

Part-time Tutor

Sept. 2025 – Present

- Taught Physics and Mathematics across IGCSE, SPM, STPM, A-level, and Further Maths physically and virtually.
- Delivered personalised academic support and exam preparation strategies.

Coach, MALAYSIA PHYSICS OLYMPIAD TRAINING CAMPS

2023 – Present

- Designed and taught competitive physics lectures and tutorials to high school students.
- Created and graded screening tests; trained finalists for international competitions.

Team Leader for Malaysia Team, ISPhO 2026

Oct. 2025 – Jun. 2026

- International Scientific Physics Olympiad (ISPhO).
- Responsible for training & guiding a group of high school students for ISPhO 2026, at Moscow Institute of Physics and Technology (MIPT).

Research Intern, ACADEMIA SINICA, TAIWAN

Jun. – Jul. 2025

- At the Institute of Atomic and Molecular Science, under the supervision of Dr. Hsiang Hua Jen.
- Focus: Quantum turbulence in 2D Bose–Einstein condensates.
- Developed understanding of Gross–Pitaevskii equation's simulations.

Intern, XIAMEN UNIVERSITY MALAYSIA

Apr. – May & Aug. – Sept. 2025

- Delivered weekly seminars on quantum mechanics and quantum field theory.
- Prepared formatted lecture notes to support the outcomes of the seminar.

RESEARCH EXPERIENCES

Review on Turbulence in 2D Bose-Einstein Condensation

Jun. – Jul. 2025

Internship project in the *Institute of Atomic and Molecular Science*, Academia Sinica, Taiwan.

Probing an Expanding Universe with an Unruh-deWitt Detector

Sept. 2023 – Jun. 2024

Bachelor's thesis at the *University of Science Malaysia*, Penang, Malaysia.

SELECTED EXTRACURRICULAR ACTIVITIES

President, PHYSICAL SCIENCE SOCIETY USM

Jul. 2022 – Jun. 2023

- Led 38 committees and organised 30+ academic and community events in one academic year.
- Represented physics students in collaborations with faculty leadership.

- Chairman**, NATIONAL PHYSICS UNDERGRADUATE PROJECT CONFERENCE *Mar. – Oct. 2023*
- Organised the first on-site NPUPC at Xiamen University Malaysia.
 - Attracted 100 participants including students, educators, and professionals.
- Committee Member**, AGAPE CHRISTIAN SOCIETY USM *2022 – 2024*
- Facilitated weekly small-group sessions for 20+ participants.
 - Prepared learning materials used by 5 cell groups across campus and trained 10 new student leaders.
- Student Committee**, GMAC - PENANG ROADSHOW *Sept. 2022 – Jan. 2023*
- This event was part of the Global Malaysian Astronomer Convention (GMAC).
 - Led volunteers to run 2 astronomy exhibition booths and engaged with 50+ public visitors through demos and guided activities.

EDUCATION

- 2021 – 2025 **BSc. (Hons) Physics (Track: Pure Physics)** (CGPA: 3.79/4.00, *First class*)
University of Science Malaysia, Penang, Malaysia.
- 2019 – 2021 **Sijil Tinggi Persekolahan Malaysia (A-Level Equivalent)** (CGPA: 3.83/4.00)
SMK Gajah Berang, Melaka, Malaysia.
- 2014 – 2018 **Sijil Pelajaran Malaysia (O-Level Equivalent)** (Grades: 9A)
SMK Munshi Ibrahim Labis, Johor, Malaysia.

AWARDS & HONOURS

- Dean's List Academic Award** *2021 – 2025*
Recognition of outstanding academic performance by the School of Physics USM.
- Silver Medal**, THE UNIVERSITY PHYSICS COMPETITION *2024*
[Team 159](#), Top 2.2–17% out of 681 teams (International).
- Prize of Honour (Hadiah Kepujian)** *2022*
Recognition of achieving a perfect GPA (4.00) in Semester 1, Academic Session 2021/2022 by USM.
- Kuok Foundation Study Award** *2022*
3 years of loan-grant award of RM14,000.00 per academic year.
- Selected to represent IPhO Malaysia Team** *2021*
After competing in multiple national selection tests.
- Honorable Mention**, KANGAROO MATH COMPETITION *2020*

SKILLS

- Intermediate** Research skill, Python, \LaTeX , Microsoft Word, Microsoft Excel, Wolfram Mathematica
- Elementary** MATLAB, Orange

LANGUAGES

- Mother tongue** Chinese
- Advanced** English, Malay