

Ziyu He 何子宇

Gender: Male

Date of birth: April 4 2003

Place of birth: Shaoguan, Guangdong, China

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EDUCATION

Sun Yat-sen University

Bachelor of Science, Major in Physics

Telephone: +86 20 8411 2828

Website: <https://www.sysu.edu.cn/>

No. 135, Xingang Xi Road, Guangzhou, Guangdong, China

Sep 2021 – Jun 2025 (Expected)

GPA: 4.3/5.0, Rank: 4/94

Shenzhen Middle School

High School Degree

Website: <https://www.shenzhong.net/>

First Prize in the Chinese Physics Olympiad (CPhO), ranking top 0.1% in Guangdong Province

No. 18, Shenzhong Street, Shenzhen, Guangdong, China

Sep 2018 – Jun 2021

RESEARCH INTEREST

My research interest lies in **theoretical many-body physics**, with a specific focus on understanding the emergent phenomena in systems of cold atoms. I aim to investigate how complex collective behaviors and **new phases of matter** arise from fundamental particle interactions at low temperatures. This involves employing analytical and computational methods to explore topics like **far-from-equilibrium dynamics and phase transition**, often in connection with condensed matter physics.

AWARDS

SYSU Outstanding Undergraduate Award (First Class)

Top 5% in Physics major, Sun Yat-sen University.

Dec 2022, Nov 2023, Oct 2024

Outstanding Student Organization Leader

Top leaders in student organizations & clubs at Sun Yat-sen University.

Oct 2023

First Prize in the 13th CUPT

Ranked 5th nationwide.

Oct 2022

First Prize in the National Undergraduate Mathematical Contest in Modelling

Top 5% in Guangdong Province Division.

Sep 2022

First Prize in the 13th CUPT (South Central China)

Ranked 1st in South Central China.

Jun 2022

Best Player in the 13th CUPT (South Central China)

Best individual performance in South Central China.

Jun 2022

First Prize in the Chinese Physics Olympiad (CPhO)

Rank top 0.1% in Guangdong Province.

Oct 2020

MEMBERSHIPS

Society of Physics Students, Sun Yat-sen University

Vice President

Guangzhou, China

Sep 2022 – Jul 2023

SKILLS

Programming Languages: Python (Advanced), Mathematica (Advanced), C (Intermediate)

Software Tools: COMSOL Multiphysics, Origin, Git, LabVIEW, L^AT_EX

Hobbies: Piano (Advanced), Badminton (Advanced)

CONTESTS

China Undergraduate Physics Tournament (CUPT)

Nov 2021 – Oct 2022

Team Captain

- Led a 12-member team to solve 17 complex physics problems, achieving a top 5 national ranking—the best ranking in Sun Yat-sen University’s 12-year history of participation.
- Directed weekly team meetings to coordinate theoretical modeling, experimental work, and data analysis, improving collaboration and efficiency.
- Contributed core theoretical calculations for most problems, critically supporting the team’s analytical approach.

National Undergraduate Mathematical Contest in Modelling

Sep 2022

Team Captain & Lead Modeler

- Led a 3-member team through an intensive 3-day competition to develop a mathematical model for a real-world problem, write a comprehensive research paper, and perform numerical simulations.
- Pioneered the core mathematical model, formulating key differential equations to describe the system’s dynamics.
- Executed a significant portion of the numerical solutions using Mathematica, translating theoretical models into quantitative results.
- Effectively coordinated team workflow and delegated tasks among two teammates, ensuring timely completion and a cohesive final submission, which achieved a First Prize (Top 5% in Guangdong Province).

Chinese Physics Olympiad (CPhO) - Guangdong Division

Oct 2020

Provincial Top 0.1% Laureate

- Successfully navigated a rigorous two-part examination during high school, comprising a 3-hour university-level theoretical physics test and a 1.5-hour practical laboratory assessment.
- Achieved a top 20 ranking in Guangdong Province out of over 20,000 participants, placing in the top 0.1%.

PUBLICATIONS

- Rui-Yang Gong, Zi-Yu He, Cheng-He Yu, Ge-Fei Zhang, Franco Nori, and Ze-Liang Xiang, “Tunable quantum router with giant atoms, implementing quantum gates, teleportation, non-reciprocity, and circulators,” (under preparation).

TRAVEL HISTORY

Hong Kong (2024)