

# Ziyu He 何子宇

Date of birth: April 4 2003

Place of birth: Shaoguan, Guangdong, China

Home address: Room 23A, Building 1A, 5 Songping Street, Shenzhen, Guangdong, China

Email: heziyu36@gmail.com — Telephone: +86 13544125771

## EDUCATION

---

### Sun Yat-sen University

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

*Bachelor of Science, Major in Physics*

Sep 2021 – Jun 2025 (Expected)

Telephone: +86 20 8411 2828

**GPA: 4.2/5.0, Rank: 3/94**

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

### Shenzhen Middle School

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

*High School Degree*

Sep 2018 – Jun 2021

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

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

## RESEARCH INTEREST

---

My research interest lies in **theoretical many-body physics**, with a specific focus on understanding the emergent phenomena. I aim to investigate how complex collective behaviors and **new phases of matter** arise from fundamental interactions. 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)

Dec 2022, Nov 2023, Oct 2024

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

### Outstanding Student Organization Leader

Oct 2023

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

### First Prize in the 13th CUPT

Oct 2022

Ranked 5<sup>th</sup> nationwide.

### First Prize in the National Undergraduate Mathematical Contest in Modelling

Sep

2022

Top 5% in Guangdong Province Division.

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

Jun 2022

Ranked 1<sup>st</sup> in South Central China.

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

Jun 2022

Best individual performance in South Central China.

### First Prize in the Chinese Physics Olympiad (CPhO)

Oct 2020

Rank top 0.1% in Guangdong Province.

## 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,  $\text{\LaTeX}$

**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 & Modeler*

- Led a 3-member team through an intensive 3-day competition to develop a mathematical model for a real-world problem and write a comprehensive research paper.
- Pioneered the core mathematical model, formulating key differential equations to describe the system’s dynamics.
- Effectively coordinated team workflow and delegated tasks among two teammates, ensuring timely completion and a cohesive final submission, which achieved a First Prizes.

**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)*