

# Jules ZHU Haoyu

Sun Yat-sen University – 519082 Zhuhai, Guangdong – China

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🌐 <https://jules-zhu.github.io/> • Gender: Male

## Education Background

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**Sun Yat-sen University**

*Undergraduate, School of Mathematics (Zhuhai)*

**Zhuhai**

2022 – present

*Gap because of Tuberculosis*

April 2025 – Sept 2025

*Expected date of graduation*

June 2027

## Courses

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*Commutative Algebra and Homological Algebra (Graduate)*

Feb 2024 – Jun 2024

○ **Textbook:** *Introduction to Commutative Algebras*, M.F. Atiyah, I.G. Macdonald, and other materials.

○ **Instructor:** Prof. Lei Zhang.

○ **Grade point:** 77/100.

*Representation Theory (Graduate)*

Feb 2024 – Jun 2024

○ **Textbook:** *Introduction to Lie Algebras and Representation Theory*, J.E. Humphreys.

○ **Instructor:** Prof. Min Huang.

○ **Grade point:** 96/100.

*Real Analysis (Graduate)*

Sept 2024 – Jan 2025

○ **Textbook:** *Measure Theory and Fine Properties of Functions*, L.C. Evans, R.F. Gariepy.

○ **Instructor:** Prof. Xining Li.

○ **Grade point:** 85/100.

*Complex Analysis (Graduate)*

Feb 2026 – Jun 2026

○ **Textbook:** *A Course in Complex Analysis and Riemann Surfaces*, Wilhelm Schlag.

○ **Instructor:** Prof. Hang Xu.

○ **Grade point:** TBA.

*Modern Number Theory (Graduate)*

Feb 2026 – Jun 2026

○ **Textbook:** *A Classical Introduction to Modern Number Theory*, Kenneth Ireland, Michael Rosen.

○ **Instructor:** Prof. Chan leong Kuan.

○ **Grade point:** TBA.

*Algebraic Geometry 2 (Seminar)*

Feb 2026 – Jun 2026

- **Textbook:** *Algebraic Geometry*, Robin Hartshorne.
- **Speakers:** Xinyu Fang, Kang Huang, Boping Jiang, Haoyu Zhu.

## Research Experience

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**Sun Yat-sen University**

**Zhuhai, Guangdong**

**College Students' Innovative Training Plan Program**

*Oct. 2023 – Oct. 2024*

- *Summary:* Read Stembridge's paper on Immanants and worked on problems involving integer partitions and irreducible characters of symmetric groups. This research is under the supervision of Prof. Min Huang (Sun Yat-sen University).

**Peking University**

**Beijing**

**PKU Algebraic Combinatorics Experience**

*Jul. 2024 – Aug. 2024*

- *Summary:* On Bott–Samelson rings for Coxeter groups. One can see [arxiv.org/abs/2408.10155] for details. This research lasts for 8 weeks under the supervision of Dr. Tao Gui (Peking University) and in collaboration with Lin Sun and Shihao Wang.

**Sun Yat-sen University**

**Zhuhai, Guangdong**

**College Students' Innovative Training Plan Program**

*Oct. 2024 – Oct. 2025*

- *Summary:* Comparing skein algebras and quantum cluster algebras of certain semisimple Lie algebras. This research is supervised by Prof. Min Huang (Sun Yat-sen University).

**The Hong-kong University of Science and Technology**

**Hongkong**

**2025 Summer Research Program (on campus)**

*Jul. 2025 – Aug. 2025*

- *Summary:* Studying whether  $\mathcal{A} = \mathcal{U}$  for cluster algebras of type  $G_2$  from moduli spaces of  $G$ -local systems. This research is supervised by Prof. Ivan Chi-Ho Ip (HKUST).

## Skills and Miscellaneous

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**Programming:** MATLAB, Python, C++, SageMath

**Tools:** LaTeX, Markdown

**Languages:** Mandarin (Native), English (Equivalent C1), French (DELFB2, 2026 in Canton: 61/100)

**Hobbies:** Piano (ABRSM Grade 8), Chorus, Football, Movie

## Honors and Awards

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**2023:** Third Prize Scholarship.

**2024:** Excellent Student Cadre.