HAOCHEN QIU

hcqiu16@fudan.edu.cn | +86 136-0950-3093

Room 317, 17#Building, Fudan University, No. 440 Guoding Road, Yangpu District, Shanghai, China 200433

EDUCATION

Fudan University **Shanghai, China**

Bachelor of Science in Mathematics and Applied Mathematics *Sep 2016-Expected June 2020*

- Grade-point average of 3.96/4.0 in upper division mathematics courses. GPA of 7 courses related to topology and contemporary geometry: 4.0/4.0. Junior year's overall GPA: 3.91/4.0 (8/156).
- **Core Coursework:** Topology, Algebraic Topology (Honors course), Differential Geometry, Riemannian Geometry (Honors course), Differential Forms in Algebraic Topology (Honors course), Introduction to Symplectic Topology, Partial Differential Equation

PREPREINTS

- *Orbit Braid Action on a Finite Generated Group*, arXiv: 1912.05450.
- *Alexander Theorem of Orbit Links*, in preparation.

ACADEMIC RESEARCHES AND PROJECTS

Research on Orbit Braid **Fudan University, Shanghai**

Advisor: Prof. Zhi Lü *Aug 2019-present*

- Discussed a new concept of orbit braid, summarized old approaches of the ordinary braid group depicted in *Braids, Links, And Mapping Class Groups* by Joan S. Birman and *Lecture Notes on Knot Invariants* by Weiping Li.
- Constructed a faithful representation of the orbit braid group in another group and deduced fundamental groups of the complementary space of the closure of the orbit braid.
- Defined orbit links in 3-dimension sphere and investigated properties of orbit links; generalized the Alexander theorem, which was originally proved for the ordinary braid group, to the case of orbit braids.

Summer School on Equivariant Homotopy Theory **Shanghai Center for Mathematics Science, Shanghai**

Advisor: Prof. Wang Guozhen *Aug 2019-Aug 2019*

- Reviewed fundamental homotopy theory in *Algebraic Topology* by Allen Hatcher and *A Concise Course in Algebraic Topology* by J. P. May.
- Analyzed the infinity category theory in *Higher Topos Theory* by J. Lurie and stable category in *Stable Homotopy and Generalised Homology* by J. F. Adams.

Seminar of de Rham Cohomology **Fudan University, Shanghai**

Speaker *Mar 2019-June 2019*

- Discussed *From Calculus to Cohomology,* M. do Carmo, led by Prof. Jixiang Fu from Fudan University; gave 3 presentations about differential forms on manifolds, linking the numbers and index of vector fields and Poincaré duality.
- Gave a presentation on the exercises of *Differential Forms in Algebraic Topology* by Bott & Tu, such as the classification of isomorphism classes of real vector bundles over a circle and the computation of the ring structure of the cohomology group of a complex projective space by Leray's theorem.

Seminar of Differential Topology **Fudan University, Shanghai**

Speaker *Oct 2017-Dec 2017*

- Gave 3 presentations about basic point set topology and differential topology, and discussed *Topology from the differentiable viewpoint,* J. Milnor, led by Prof. Peng Wu from Shanghai Center for Mathematics Science

Seminar of Global Differential Geometry **Fudan University, Shanghai**

Speaker *Mar 2018-June 2018*

- Discussed *Global Differential Geometry,* Zhengguo Bai&Yibin Shen, led by Prof. Ling Yang

Seminar of Algebraic Topology **Fudan University, Shanghai**

Core Speaker *July 2018-Aug 2018*

- Gave 4 presentations about Van Kampen theorem, covering the space, simplicial homology, and cohomology ring, and discussed *A Basic Course in Algebraic Topology,* W. Massey.

Seminar of Lie Algebra **Shanghai Center for Mathematics Science, Shanghai**

Core Speaker *Oct 2018-Dec 2018*

- Discussed *Introduction to Lie algebras and representation theory,* James Humphrey, led by Prof. Ronggang Shi

HONORS & AWARDS

Winning prize in The 10th Session of S.-T. Yau Mathematics Competition for College Students in Geometry and Topology (18 among 1116) 2019

Fang Jianghui Scholarship (4 among 156) 2019

Member of Top-notch Talent Program (Subuqing Class) 2018

Subject Scholarship 2018

Third Award in Chinese Mathematics Competition for College Students 2017

EXTRACURRICULAR ACTIVITIES

Fudan Mathematics Department Student Union

Core Member, Department of Scientific Innovation

- Planned and hosted lectures given by luminaries from academia and futures trading
- Performed propaganda work and attracted over 200 participants

SKILLS AND OTHER INTERESTS

Skills: Java, Python, Microsoft Office, Photoshop

Languages: Mandarin (Native), English (Fluent), Sanskrit

Interests: Archery, Lion Dancing (Gold Medals in Shanghai Dragon Culture Competition in 2018 and 2019)