ZHENG Renpeng

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Education

- **Imperial College London** — London, UK
  Master of Science in Pure Mathematics (in progress). — *Oct. 2021 – Oct. 2022*
  - **MSc Thesis**: Topic: Toric Varieties, Supervisor: Dr. Jonathan Lai.
  - **Autumn Semester Courses**: *Algebraic Curves*, *Manifolds*, *Commutative Algebra*, *Group Representation Theory*
- **The Chinese University of Hong Kong, Shenzhen** — Shenzhen, China
  Bachelor of Science in Mathematics and Applied Mathematics: Pure Mathematics stream. — *Aug. 2017 – July. 2021*
  - **Degree**: BSc with Honours, **First Class**
  - **Awards**: AY2019-20/2020-21 Dean's List Award of School of Science and Engineering.
  - **Courses**: *Differential Geometry*, *Introduction to Geometry and Topology*, *Advanced Linear Algebra*, *Abstract Algebra*, *Complex Variables*, *Real Analysis*, *Partial Differential Equations*, *Probability Theory*
  - **Grade**: Cumulative GPA 3.495/4.000, major GPA 3.794/4.000.
- **University of California, Berkeley** — Berkeley, CA, US
  Summer Session Visiting Student — *Jun. 2018 – Aug. 2018*
  - **Courses**: *Abstract Algebra* and *Research & Data Analysis*

Academic Activities

- **MSc Project**
  Toric Varieties — *Nov. 2021 – Sept. 2022*
  - Writing a thesis on toric varieties under the supervision of Dr. Lai.
- **Study Group**
  Algebraic Topology — *Aug. 2021 – Oct. 2021*
  - Co-organized a weekly reading group with 2 students in CUHK(SZ).
  - **Topics**: *Singular homology theory* (Jan. 2021 – Feb. 2021), *Bott periodicity of spheres in the topological K-theory* and *Weak homotopy equivalence and CW approximation.*

  Representation Theory — *May. 2020 – Jan. 2021*
  - Co-organized a weekly reading group supervised by Prof. Daniel Wong in CUHK(SZ).
  - **Topics**: *Lie algebras and simply connected Lie groups*, *Classification of semisimple Lie algebras* and *highest weight of irreducible representations and corresponding Verma modules.*
- **Summer Programme at Girton College, Cambridge**
  Engineering Summer Programme — *July. 2019 – Aug. 2019*
  - **Courses**: *Renewable Energy*, *The Jet Engine*, *Nanotechnology*, *Quantum Technologies.*

Other Personal Interests Related to Mathematics

- **Computer Science and Formal Mathematics**
  Trying to use simpler and stricter ways to define and use mathematical concepts.
  - Implementing a run-able "math-rust" repository in GitHub as "GiacomoZheng". I wrote "Young Tableaux" in 2020 and I am writing the code of "Toric Varieties" now.
  - Implementing a new programming language *"gm"* to write the mathematics I am learning in a machine-recognisable as well as human-friendly way.
- **Physics and Mathematical Physics**
  - Applying my Math knowledge to Theoretical Physics. I learnt Quantum Mechanics and Hamiltonian Mechanics in the Summer of 2021. My knowledge in representation theory and elementary symplectic geometry were useful.