

QIUYU REN (任秋宇)

PERSONAL INFORMATION

Email: qiuyu_ren@berkeley.edu
Address: 775 Evans Hall, UC Berkeley, Berkeley, CA 94720
Citizenship: China
Language: Chinese, English, French

EDUCATION

University of California, Berkeley Ph.D. candidate in Mathematics Advisor: Ian Agol	August 2021 - Present
Massachusetts Institute of Technology (MIT) B.S. in Mathematics GPA: 5.0/5.0	August 2018 - June 2021
Peking University Major in Mathematics	September 2017 - July 2018
The Affiliated High School of SCNU	September 2014 - June 2017

RESEARCH PAPERS

- Khovanov homology and exotic 4-manifolds, with Michael Willis, submitted. arxiv:2402.10452
- Toroidal Hitomezashi patterns, with Shengtong Zhang, submitted. arxiv:2309.02741.
- Slice genus bound in DTS^2 from s -invariant, to appear in *Algebraic and Geometric Topology*. arxiv:2306.17816.
- Lee filtration structure of torus links, to appear in *Geometry and Topology*. arXiv:2305.16089.
- A short proof to Defant and Kravitz's theorem on the length of Hitomezashi loops, with Shengtong Zhang, *Annals of Combinatorics* (2024). Link.
- Spectral asymptotics for kinetic Brownian motion on Riemannian manifolds, with Zhongkai Tao, submitted. arXiv:2212.05394.
- Spectral asymptotics for kinetic Brownian motion on locally symmetric spaces, with Zhongkai Tao. arXiv:2208.13111.
- On the union of essentially distinct δ -tubes. arXiv:1908.06000.

INVITED TALKS

- *TBD*. University of Hamburg, June 2024.
- *Khovanov skein lasagna module detects exotic 4-manifolds*
 - University of South Florida geometry and topology seminar, April 2024;
 - Simons Collaboration satellite conference: Floer homology, low-dimensional topology, and algebra, Princeton University, March 2024;
 - UC Davis geometry and topology seminar, March 2024.
- *Lee filtration structure of torus links, adjunction inequality, and applications*

- Texas A&M topology seminar, October 2023;
- Caltech geometry and topology seminar, September 2023;
- Stanford topology seminar, September 2023;
- MIT geometry and topology seminar, September 2023.
- *J-holomorphic curves*. Kylerec workshop at Foresthill, CA, June 2022.

AWARDS AND GRANTS

Mathematics Summer Grant Award, UC Berkeley	2022
Jon A. Bucsela Prize, MIT	2021
<i>Recognition of distinguished scholastic achievement, professional promise and enthusiasm for mathematics. Awarded yearly to one or two math major undergraduate students in their last year of study.</i>	
Rank 7.5, 78 th William Lowell Putnam Mathematical Competition, USA	2019
The Hartley Rogers Jr. Prize (SPUR), MIT	2019
<i>Best paper(s) and presentation(s) in the Summer Program for Undergraduate Research (SPUR).</i>	
Freshmen Scholarship, Peking University	2017
Gold Medal, 58 th International Mathematical Olympiad (IMO), Brazil	2017
Outstanding Graduate Award, The Affiliated High School of SCNU	2017

SERVICES AND MISCELLANY

- Co-organizing the student 3-manifold seminar, UC Berkeley, Fall 2023 - Present.
- Supervised an independent reading for a UC Berkeley undergraduate student, Fall 2023.
- Mentor at the Peer Mentor Program for new math PhD students at UC Berkeley, Fall 2023.
- Co-organized a reading group on Kobayashi-Hitchin correspondence (Donaldson-Uhlenbeck-Yau theorem), Fall 2022.
- Third place in the 2021 Berkeley Half Marathon (20-29 age group).
- Organized an online reading group on Donaldson's theory for 4-manifolds, Summer 2021.
- Tutor at MIT Math Learning Center, Fall 2020.
- Third place in the 2019 Baystate Marathon (20-29 age group); qualified for the Boston Marathon (cancelled due to Covid-19).
- First place in the 2018 Baystate Half Marathon (under 20 age group).

Programming languages: C++, Delphi, Java, JavaScript, Lean, Pascal, Python, Tex, Wolfram Language