

# Kevin Ren

kevinren@math.princeton.edu

kevinren-math.github.io

## Research interests

---

I am interested in studying Fourier analysis and its applications to problems in geometric measure theory and metric geometry.

## Education

---

<b>Princeton University</b> PhD student in Mathematics Advisor: Assaf Naor	2022-present
<b>Massachusetts Institute of Technology</b> Bachelor of Science in Mathematics and Physics	2018-2022

## Honors and Awards

---

NSF GRFP fellowship	2022-2027
---------------------	-----------

## Publications and Preprints

---

### Geometric Measure Theory and Harmonic Analysis

1. *An incidence estimate and a Furstenberg type estimate for tubes in the plane* (joint with Yuqiu Fu and Shengwen Gan). **J Fourier Anal Appl**, **28**, 59 (2022)
2. *New improvement to Falconer distance set problem in higher dimensions* (joint with Xiumin Du, Yumeng Ou, and Ruixiang Zhang). arxiv preprint: 2309.04103
3. *Discretized Radial Projections in  $\mathbb{R}^d$* . arxiv preprint: 2309.04097
4. *Furstenberg sets estimate in the plane* (joint with Hong Wang). arxiv preprint: 2308.08819
5. *A note on maximal operators for the Schrödinger equation on the torus* (joint with Yuqiu Fu, Haoyu Wang). arxiv preprint: 2307.12870
6. *Incidence estimates for  $\alpha$ -dimensional tubes and  $\beta$ -dimensional balls in the plane* (joint with Yuqiu Fu). arxiv preprint: 2111.05093

### Combinatorics

1. *Topology of Augmented Bergman Complexes* (joint with Elisabeth Bullock, Aidan Kelley, Victor Reiner, Gahl Shemy, Dawei Shen, Brian Sun, Amy Tao, Zhichun Joy Zhang). **Electronic Journal of Combinatorics**, p. 1-31 (2022)
2. *%-Immanants and Temperley-Lieb Immanants* (joint with Frank Lu, Dawei Shen, Siki Wang). arxiv preprint: 2303.17004

3. *Extending the Graph Formalism to Higher-Order Gates* (joint with Andrey Boris Khesin). [arxiv preprint: 2108.02686](#)

## Invited Talks

---

Berkeley Analysis Seminar	Oct 2023
University of British Columbia Analysis Seminar	Oct 2023
Online Analysis Research Seminar	Sept 2023
Princeton Graduate Student Seminar	Oct 2022
Joint Mathematics Meetings AMS/PME student poster session	Jan 2022