Contact Information

Address: Department of Mathematics
Massachusetts Institute of Technology
77 Massachusetts Avenue
Cambridge, MA 02139
E-mail: yimingzh@mit.edu
URL: yimingzhao.net

Education

2012–2017 **Ph.D. in Mathematics**, New York University, New York, U.S.
Adviser: Erwin Lutwak, Deane Yang, and Gaoyong Zhang
Thesis: Geometric measures, affine invariants, and their characterizations

2007–2011 **B.S. in Mathematics**, Shanghai University, Shanghai, China

Research Interests

convex geometry, geometric analysis, partial differential equations

Employment

Fall 2018 –	C.L.E. Moore Instructor at Massachusetts Institute of Technology Mentor: David Jerison
Fall 2017 – Spring 2018	Assistant Professor (Contract Faculty) at St. John's University
Summer 2017	Research Associates & Adjunct Assistant Professor at New York University

Grant

- NSF Grant DMS-2002778 (PI), 06/2020 — 05/2023

Publications and Preprints

1. (with D. Xi) General affine invariances related to Mahler volume, *submitted*.
2. (with Y. Huang and D. Xi) The Minkowski problem in Gaussian probability space, *submitted*.

3. (with K. Böröczky, E. Lutwak, D. Yang, and G. Zhang) The Gauss image problem, *Communications on Pure and Applied Mathematics*, 73: 1406-1452, 2020.

4. (with K. Böröczky, E. Lutwak, D. Yang, and G. Zhang) The dual Minkowski problem for symmetric convex bodies, *Adv. Math.*, 356:106805, 2019.

5. The L_p Aleksandrov problem for origin-symmetric polytopes, *Proc. Amer. Math. Soc.*, 147 (10): 4477-4492, 2019.

6. (with C. Chen, and Y. Huang) Smooth solutions to the L_p-dual Minkowski problem, *Math. Ann.*, 373 (3-4):953-976, 2019.

7. (with Y. Huang) On the L_p dual Minkowski problem, *Adv. Math.*, 332: 57-84, 2018.

8. Existence of solutions to the even dual Minkowski problem. *J. Differential Geom.*, 110 (3): 543-572, 2018.

9. The dual Minkowski problem for negative indices. *Calc. Var. Partial Differential Equations*, 56 (2):18, 2017.

10. On L_p-affine surface area and curvature measures. *Int. Math. Res. Not. IMRN*, (5): 1387–1423, 2016.

Invited Talks

- 2020 Oct. AMS special session (virtual) , The Minkowski problem in Gaussian probability space.
- 2020 Aug. University of Connecticut, Reconstruction of convex bodies via Gauss map.
- 2019 Jun. International Congress of Chinese Mathematicians, 45-min talk, The dual Minkowski problem for o-symmetric convex bodies.
- 2019 Jun. Fudan University, The dual Minkowski problem for o-symmetric convex bodies.
- 2019 Jun. Tongji University, The dual Minkowski problem for o-symmetric convex bodies.

- 2019 Jun. Shanghai University, The dual Minkowski problem for o-symmetric convex bodies.
- 2019 Jun. Hunan University, lecture series: An Introduction to Minkowski-type problems in convex geometry.
- 2019 May. AIM workshop, The even dual Minkowski problem for integer indices.
- 2019 Jan. University of Connecticut, PDE and Differential Geometry Seminar: The Gauss image problem.
- 2018 Mar. AMS special session at Ohio State University, The Aleksandrov problem and its recent development.
- 2017 Dec. St. Johns University, Minkowski problems and Monge-Ampère type equations.
- 2017 Sept. CUNY Graduate Center, Geometric Analysis Seminar: Minkowski-type problems in convex geometry.
- 2017 Feb. Case Western Reserve University, Analysis & Probability Seminar: On the dual Minkowski problem.
- 2017 Feb. Kent State University, Measure Theory Seminar: The dual Minkowski problem and its solution.
- 2015 Sep. Oaxaca, Mexico (CMO workshop): On L_p-affine surface area and curvature measures.

Courses Taught

- at MIT

  as Recitation Leader: 18.01A/18.02A Calculus, 18.03 Differential Equation

  as Instructor: 18.100Q Communication Intensive Real Analysis
- at St. John's University

  as Instructor: Pharmacy Statistics, Business Calculus, Pharmacy Calculus

- at New York University

  as Instructor: Engineering Calculus II, Calculus III

  as Recitation Leader: graduate Linear Algebra, undergraduate and graduate Real Analysis