# Tongou Yang——Curriculum Vitae

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## **EDUCATION**

- The University of British Columbia, Vancouver, BC, Canada (2017-2021):
  - Doctor of Philosophy in Mathematics
  - Advisor: Malabika Pramanik
  - Thesis Title: Configurations and decoupling: a few problems in Euclidean harmonic analysis

#### The Chinese University of Hong Kong, Shatin, Hong Kong, China (2015-2017):

- Master of Philosophy in Mathematics
- Advisor: Po Lam Yung
- Thesis Title: Kakeya and restriction problems in harmonic analysis
- The Chinese University of Hong Kong, Shatin, Hong Kong, China (2011-2015):
  - Bachelor of Science in Mathematics, First Honours Degree

#### **RESEARCH INTERESTS**

Harmonic Analysis on Euclidean Spaces, Geometric Measure Theory, Analysis of Fractals

## CURRENT POSITION

1. The University of California, Los Angeles, CA, United States (2023-)

Assistant Adjunct Professor Mentors: Terence Tao and Hong Wang (now at NYU)

#### PREVIOUS POSITIONS

- The University of Wisconsin-Madison, WI, United States (2022-2023)
  Van Vleck Visiting Assistant Professor Mentors: Shaoming Guo and Betsy Stovall
- 2. **The University of British Columbia, Vancouver, BC, Canada (2021-2022)** Postdoctoral Fellow Mentors: Joshua Zahl and Malabika Pramanik

### SELECTED AWARDS AND SCHOLARSHIPS

Croucher Postdoctoral Fellowship, Croucher Foundation Hong Kong (2023-2025)

Graduate research award, Department of Mathematics, UBC (2020)

Master's List and Morningside College Scholarship, Morningside College, CUHK (2011-12, 2012-13, 2013-14, 2014-15)

Dean's List, Science Faculty, CUHK (2011-12, 2012-13, 2014-15)

#### PUBLICATIONS

- 1. (Joint with Malabika Pramanik and Joshua Zahl) A Kaufman type restricted projection theorem in  $\mathbb{R}^3$  (2022), accepted by *American Journal of Mathematics*, arxiv link
- 2. (Joint with Jianhui Li) Decoupling for smooth surfaces in  $\mathbb{R}^3$  (2021), accepted by *American Journal of Mathematics*, arxiv link
- 3. (Joint with Jianhui Li) Decoupling for mixed-homogeneous polynomials in  $\mathbb{R}^3$ . *Mathematische Annalen*, 383(3-4):1319-1351, 2022 link
- Uniform *l*<sup>2</sup>-decoupling in ℝ<sup>2</sup> for polynomials. *Journal of Geometric Analysis*, 31(11):10846-10867, 2021, link
- 5. On sets containing an affine copy of bounded decreasing sequences. *Journal of Fourier Analysis and Applications*, 26(5):73, 2020, link

#### PREPRINTS

- 1. (Joint with Yue Zhong) Construction of a curved Kakeya set (2024), arxiv link
- 2. (Joint with Jianhui Li) Two principles of decoupling (2024), arxiv link
- 3. (Joint with Mingfeng Chen and Shaoming Guo) A multi-parameter cinematic curvature (2023), arxiv link

#### THESES AND SELECTED EXPOSITORY PAPERS

- 1. *Configurations and decoupling: a few problems in Euclidean harmonic analysis,* PhD thesis (2021), available here
- 2. Kakeya and restriction problems in harmonic analysis, MPhil thesis (2017), available here
- 3. (Joint with Tainara Borges and Siddharth Mulkerhar) *Study guide for "*On restricted projections to planes in  $\mathbb{R}^{3"}$  (2024), arxiv link
- 4. A Study Guide for "A Study Guide for the  $\ell^2$  decoupling Theorem" (2018), link

## SELECTED TEACHING EXPERIENCE

#### Instructor of:

MATH 33A (Linear Algebra and Applications) at UCLA, 2023-24 Quarter 3

MATH 33A (Linear Algebra and Applications) at UCLA, 2023-24 Quarter 2

MATH 132 (Complex Analysis for Applications) at UCLA, 2023-24 Quarter 1

MATH 551 (Elementary Topology) at UW-Madison, 2022-23 Term 2

MATH 521 (Analysis I) at UW-Madison, 2022-23 Term 1

MATH 300 (Introduction to Complex Variables) at UBC, 2021-22 Term 2

MATH 105 (Integral Calculus with Applications to Commerce and Social Sciences) at UBC, 2018-19 Term 2

Diversity in Mathematics (high school summer camp for underrepresented groups), Vancouver, BC, Canada (Aug 2019)

## ACADEMIC VISITS AND EVENTS

#### Invited talks:

UBC analysis seminar, Vancouver, BC, Canada (Sep 2024) CUHK analysis seminar, Hong Kong, China (Jun 2024) SUSTech analysis conference, Shenzhen, Guangdong, China (Jun 2024) Joint Mathematics Meetings 2024, San Francisco, CA, United States (Jan 2024) UCLA analysis seminar, Los Angeles, CA, United States (Oct 2023) Online seminar, Great Bay University, Dongguan, Guangdong, China (Sep 2023) HAFS 2023, Ohio State University, Columbus, OH, United States (Mar 2023) Short talk at El Escorial XI, El Escorial, Madrid, Spain (Jun 2022) Online analysis seminar by Hubei University, Wuhan, Hubei, China (May 2022) Analysis seminar at University of Wisconsin, Madison, WI, United States (Feb 2022) HAPPY (Harmonic Analysis Peoples Presentations on YouTube), online (Jan 2022) UCLA Analysis seminar, Los Angeles, CA, United States (Dec 2021) 17th Prairie Analysis Seminar by Kansas State University, online (Nov 2021) Special Session on Analysis, Combinatorics and Geometry of Fractals, AMS virtual meeting (invited but unable to attend) (May 2021) Fourier Restriction Online 2021 (Mar 2021) Colloquium for receiving Graduate research Award at UBC, Vancouver, BC, Canada (Jan 2021) Winter Meeting of Canadian Mathematical Society (online) (Dec 2020) Harmonic Analysis Seminar at UBC, Vancouver, BC, Canada (Nov 2020) The Eight Pacific Rim Conference in Mathematics, online (Aug 2020) Madison Lectures in Fourier Analysis, University of Wisconsin, Madison, WI, United States (May 2019) HAPDE, University of Connecticut, Mansfield, CT, United States (Mar 2019)

Winter Meeting of Canadian Mathematical Society, Vancouver, BC, Canada (Dec 2018)

Mid Atlantic Analysis Meeting, Blacksburg, VA, United States (Nov 2018)

#### Summer schools, workshops, etc:

Hausdorff summer school: Maximal Operators and Applications, Bonn, Germany (Jul 2024)

Hausdorff summer school: Uniformity and Stability of Oscillatory Integrals, Bonn, Germany (Jul 2024)

On the Interface of Geometric Measure Theory and Harmonic Analysis, Banff, AB, Canada (Jun 2024)

Study guide writing workshop, University of Pennsylvania, Philadelphia, PA, United States (Aug 2023)

Fourier Analysis @200 and Young Researchers Symposium, Edinburgh, Scotland, United Kingdom (Jun 2022)

Workshop on harmonic analysis and related topics, Centre de Recerca Matemàtica, Barcelona, Catalonia, Spain (Jun 2022)

Summer school in Harmonic Analysis and PDE in the Basque Center for Applied Mathematics, Bilbao, Basque, Spain (Jul 2019)

Summer School in harmonic analysis at the Park City Mathematics Institute, Park City, UT, United States (Jul 2018)

International Conference of Chinese Mathematicians, Beijing, China (Aug 2016)

Summer school at the Yau Mathematical Sciences Center, Beijing, China (Jun-Aug 2016)

REU in the Faculty of Mathematics, University of Waterloo, Waterloo, ON, Canada (Jun-Aug 2014)

### PROFESSIONAL SERVICES

#### Referee for:

Journal of Fourier Analysis and Applications (2024)

Proceedings of the Edinburgh Mathematical Society (2023)

International Mathematics Research Notices (2023)

Mathematische Annalen (2021)

Journal of Integer Sequences (2020)

(As of October 2024)