Yunfeng Zhang – Curriculum Vitae

CONTACT INFORMATION

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RESEARCH INTERESTS

Harmonic analysis on Lie groups: in particular, asymptotic bounds of spherical functions and joint eigenfunctions on symmetric spaces; Euclidean harmonic analysis, analytic number theory, and dispersive PDEs: in particular, Strichartz estimates for the Schrödinger equation, bounds of eigenfunctions of the Laplace–Beltrami operator, well-posedness for dispersive completely integrable PDEs

ACADEMIC APPOINTMENTS

Visiting Assistant Professor, University of Cincinnati	2024 –
TAL Assistant Professor, Peking University	2021 – 2024
Assistant Research Professor, University of Connecticut	2018 – 2021

EDUCATION

Ph.D. in Mathematics, UCLA – Advisors: Rowan Killip and Monica Visan	2012 – 2018
B.S. in Mathematics, Tsinghua University	2008 – 2012

HONORS AND AWARDS

UCLA Mathematics Graduate Research Presentation Prize	2018
Tsinghua University Outstanding Graduate Award	2012
Fellowship in the Tsinghua Xuetang Mathematics Program	2009 – 2012

GRANTS

Co-I, National Key R&D Program of China (PI: Hanlong Fang) 2022 – 2024
Title: Geometry and Analysis of Homogeneous Spaces

PI, Fundamental Research Funds for the Central Universities, Peking University 2021 – 2023
Title: Analysis on Lie Groups

RESEARCH PREPRINTS

10. (with Saikatul Haque, Rowan Killip and Monica Visan) Growth of Fourier–Lebesgue norms for mKdV
Preprint.

9. (with Yangkendi Deng and Zehua Zhao) Sharp bilinear eigenfunction estimate, $L^{\infty}_{x_2} L^{p}_{t,x_1}$-type Strichartz estimate, and energy critical NLS
Preprint, submitted. arXiv:2509.09565

8. Local well-posedness for nonlinear Schrödinger equations on compact product manifolds
Preprint, submitted. arXiv:2503.09442

7. Bounds of restriction of characters to submanifolds
Preprint, submitted. arXiv:2402.03178

6. (with Hanlong Fang and Xiaocheng Li) Algebraic and analytic properties of invariant differential operators on a homogeneous space of complexity 1
Preprint, submitted. arXiv:2301.00529

RESEARCH PUBLICATIONS

5. (with Saikatul Haque, Rowan Killip and Monica Visan) Global well-posedness and equicontinuity for modified Korteweg–de Vries equations in modulation spaces
Pure and Applied Analysis 7 (2025), No. 3, 615-637 (23 pp). arXiv:2411.05300

4. On Fourier restriction type problems on compact Lie groups
Indiana University Mathematics Journal 72 (2023), No. 6, 2631-2699 (69 pp). arXiv:2005.11451

3. Schrödinger equations on compact globally symmetric spaces
The Journal of Geometric Analysis 31 (2021), No. 11, 10778-10819 (42 pp). arXiv:2005.00429

2. Strichartz estimates for the Schrödinger equation on products of odd-dimensional spheres
Nonlinear Analysis 199 (2020), 112052, 21 pp. arXiv:2301.02823

1. Strichartz estimates for the Schrödinger flow on compact Lie groups
Analysis & PDE 13 (2020), No. 4, 1173-1219 (47 pp). arXiv:1703.07548

Expository Publications

1. Analysis on compact symmetric spaces: eigenfunctions and nonlinear Schrödinger equations
In: Methusalem Lectures, Trends in Mathematics vol. 3 (2024), 235-240, Birkhäuser, Cham.

Talks

"Well-posedness of NLS on $\mathbb{R} \times \mathbb{S}^3$"
Analysis Seminar, Bielefeld University — Oct. 2025

"On NLS posed on $\mathbb{R} \times \mathbb{S}^3$"
Workshop on Dispersive PDEs and Control Theory, Beijing Institute of Technology — Jun. 2025

"Bounds of restriction of characters to submanifolds"
Tsinghua University — May 2025

"The modified KdV equation beyond Sobolev spaces"
Analysis Seminar, University of Cincinnati — Apr. 2025

"Bounds of restriction of characters to submanifolds"
AMS Sectional Meeting on Recent Trends in Harmonic Analysis and PDE, U. of Kansas — Mar. 2025

"Multi-linear multi-parameter eigenfunction bounds and NLS on compact manifolds"
Beijing Institute of Technology — Mar. 2025

"On the modified KdV equation in modulation spaces"
Joint Meeting of the NZMS, AustMS and AMS: Special Sessions, University of Auckland — Dec. 2024

"Semiclassical fun with SU(3)"
Prairie Analysis Seminar 2024, University of Kansas — Oct. 2024

"Semiclassical fun with SU(3)"
Analysis Seminar, University of Cincinnati — Sep. 2024

"Bounds of restriction of characters to submanifolds"
Analysis Seminar, Southern University of Science and Technology — Jun. 2024

"The modified KdV in modulation spaces: conservation laws and equicontinuity of solutions"
Beijing Institute of Technology — Jun. 2024

"Bounds of restriction of characters to submanifolds"
Analysis Seminar, University of Wisconsin–Madison — May 2024

"Bounds of restriction of characters to submanifolds"
Beijing Institute of Technology — Jan. 2024

"Harmonic analysis on compact symmetric spaces"
Global Young Scholars Forum, Beijing Normal University — Dec. 2023

"L^p norms of Laplacian eigenfunctions on compact symmetric spaces"
Young Scholars Forum, ShanghaiTech University — Dec. 2023

"L^p norms of Laplacian eigenfunctions on compact symmetric spaces"
Young Mathematician Forum, Shanghai Jiao Tong University — Dec. 2023

"Harmonic analysis on compact symmetric spaces"
Vision Forum for International Young Scholars, Beihang University — Dec. 2023

"L^p norms of Laplacian eigenfunctions on compact symmetric spaces"
Global Forum for Young Mathematicians, SUSTech — Nov. 2023

"L^p norms of Laplacian eigenfunctions on compact Lie groups"
Teli Forum for International Young Scholars, Beijing Institute of Technology — Nov. 2023

"Discrete Fourier restriction and the Kloosterman circle method"
Colloquium, Huaibei Normal University — Sep. 2023

"Fourier restriction type problems on compact Lie groups "
Beijing Institute of Technology — Sep. 2023

"Nonlinear Schrödinger equation on compact symmetric spaces"
Methusalem Junior Analysis & PDE Seminar, Ghent University — Nov. 2021

"Fourier restriction bounds on compact symmetric spaces"
Conference on Harmonic Analysis and Symmetric Spaces, UW–Madison — Oct. 2021

"Strichartz estimate for the Schrödinger equation on compact globally symmetric spaces"
Oberseminar Analysis, Bielefeld University — Apr. 2021

"Schrödinger equations on compact globally symmetric spaces"
Weekly Seminar on Geometric and Functional Inequalities and Applications, UConn — Feb. 2021

"Size of Laplacian eigenfunctions on compact symmetric spaces"
AMS Sectional Meeting on Geometric Inequalities and Nonlinear PDEs, UTEP — Sep. 2020

"Strichartz estimates for the Schrödinger equation on compact symmetric spaces"
AMS Sectional Meeting on Analysis on Homogeneous Spaces, Tufts U. (Cancelled over Covid) — Mar. 2020

Service and Outreach

Referee for:
– *Beijing Journal of Pure and Applied Mathematics*
– *Bulletin of the London Mathematical Society*
– *Communications on Pure and Applied Analysis*
– *Journal of Functional Analysis*
– *Journal of Pseudo-Differential Operators and Applications*
– *Selecta Mathematica* (quick opinion)
– *Transactions of the American Mathematical Society*

Co-organizer of the Analysis and Probability Seminar at the U. of Connecticut, Fall 2020 and Spring 2021

Reviewer for Mathematical Reviews and zbMATH Open

Judge for the 40th Annual UC Math Bowl, a high school and middle school math contest

Teaching Experience

As Instructor:

– Calculus II (two sections), University of Cincinnati	Fall 2025
– Pre Calculus, University of Cincinnati	Fall 2025
– Calculus I, University of Cincinnati	Spring 2025
– Applied Calculus I, University of Cincinnati	Spring 2025
– College Algebra (two sections), University of Cincinnati	Fall 2024
– Linear Algebra B ("B" stands for "for the Physical Sciences"), Peking University	Fall 2023
– Linear Algebra B, Peking University	Fall 2022
– Advanced Mathematics B (i.e. Calculus for the Physical Sciences), Peking University	Fall 2021
– Partial Differential Equations (two classes), University of Connecticut	Spring 2021
– Partial Differential Equations (two classes), University of Connecticut	Fall 2020
– Axiomatic Geometry (two classes), University of Connecticut	Spring 2020
– Introduction to Complex Variables (two classes), University of Connecticut	Fall 2019
– Partial Differential Equations (two classes), University of Connecticut	Spring 2019
– Honors Calculus II, University of Connecticut	Fall 2018
– Honors Multivariable Calculus, University of Connecticut	Fall 2018
– Calculus for Life Sciences Students II, UCLA	Summer 2017

As Teaching Assistant:

– Probability Theory II, UCLA	Spring 2018, Spring 2017, Winter 2017, Winter 2016
– Algebra for Applications, UCLA	Winter 2018
– Analysis I, UCLA	Fall 2017, Winter 2016, Fall 2015
– Probability Theory I, UCLA	Winter 2017, Winter 2015
– Differential and Integral Calculus, UCLA	Fall 2016
– Linear & Nonlinear Systems of Differential Equations, UCLA	Fall 2015, Spring 2015, Winter 2014
– Mathematical Game Theory, UCLA	Summer 2015
– Partial Differential Equations, UCLA	Spring 2015
– Discrete Structures, UCLA	Winter 2015
– Precalculus, UCLA	Fall 2014, Fall 2012
– Calculus for Life Sciences Students I, UCLA	Fall 2014
– Linear Algebra I, UCLA	Summer 2014
– Differential Geometry II, UCLA	Spring 2014
– Ordinary Differential Equations, UCLA	Spring 2014, Winter 2014
– Integration and Infinite Series, UCLA	Fall 2013
– Complex Analysis for Applications, UCLA	Spring 2013
– Differential Equations, UCLA	Winter 2013

REFERENCE

Rowan Killip	killip@math.ucla.edu
Simon Marshall	marshall@math.wisc.edu
Terence Tao	tao@math.ucla.edu
Monica Visan	visan@math.ucla.edu