

# Yunfeng Zhang – Curriculum Vitae

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CONTACT INFORMATION	Department of Mathematical Sciences University of Cincinnati Cincinnati, OH 45221-0025	phone: 513-556-4088 email: zhang8y7@ucmail.uc.edu homepage: yunfengzhang108.github.io
RESEARCH INTERESTS	<b>Dispersive PDE, Euclidean Harmonic Analysis, Analytic Number Theory:</b> in particular, Strichartz estimate for the Schrödinger equation, bound of eigenfunctions of the Laplace–Beltrami operator, global dynamics of dispersive completely integrable partial differential equations; <b>Harmonic Analysis on Lie Groups, Representation Theory:</b> in particular, asymptotic bounds of spherical functions and joint eigenfunctions on symmetric spaces	
EDUCATION	Ph.D. in Mathematics, University of California, Los Angeles – Advisors: Rowan Killip and Monica Visan B.S. in Mathematics, Tsinghua University	2012 – 2018 2008 – 2012
ACADEMIC APPOINTMENTS	Visiting Assistant Professor, University of Cincinnati TAL Assistant Professor, Peking University Assistant Research Professor, University of Connecticut	2024 – 2021 – 2024 2018 – 2021
HONORS AND AWARDS	UCLA Mathematics Graduate Research Presentation Prize Tsinghua University Outstanding Graduate Award Fellowship in the Tsinghua Xuetaang Mathematics Program	2018 2012 2009 – 2012
GRANTS	Co-I, National Key R&D Program of China (PI: Hanlong Fang) Title: Geometry and Analysis of Homogeneous Spaces PI, Fundamental Research Funds for the Central Universities, Peking University Title: Analysis on Lie Groups	2022 – 2024 2021 – 2023
RESEARCH PUBLICATIONS	<ol style="list-style-type: none"> <li>1. Strichartz estimates for the Schrödinger flow on compact Lie groups <i>Analysis &amp; PDE</i> 13 (2020), No. 4, 1173-1219 (47 pp). arXiv:1703.07548</li> <li>2. Strichartz estimates for the Schrödinger equation on products of odd-dimensional spheres <i>Nonlinear Analysis</i> 199 (2020), 112052, 21 pp. arXiv:2301.02823</li> <li>3. Schrödinger equations on compact globally symmetric spaces <i>The Journal of Geometric Analysis</i> 31 (2021), No. 11, 10778-10819 (42 pp). arXiv:2005.00429</li> <li>4. On Fourier restriction type problems on compact Lie groups <i>Indiana University Mathematics Journal</i> 72 (2023), No. 6, 2631-2699 (69 pp). arXiv:2005.11451</li> <li>5. (with Saikatul Haque, Rowan Killip and Monica Visan) Global well-posedness and equicontinuity for modified Korteweg–de Vries equations in modulation spaces <i>Pure and Applied Analysis</i> 7 (2025), No. 3, 615-637 (23 pp). arXiv:2411.05300</li> <li>6. Bounds of restriction of characters to submanifolds Accepted in <i>Mathematische Zeitschrift</i>. arXiv:2402.03178</li> </ol>	
RESEARCH PREPRINTS	<ol style="list-style-type: none"> <li>7. (with Yangkendi Deng and Zehua Zhao) Sharp bilinear eigenfunction estimate, <math>L_{x_2}^\infty L_{t,x_1}^p</math>-type Strichartz estimate, and energy critical NLS Preprint. arXiv:2509.09565</li> <li>8. Local well-posedness for nonlinear Schrödinger equations on compact product manifolds Preprint. arXiv:2503.09442</li> </ol>	

9. (with Hanlong Fang and Xiaocheng Li) Algebraic and analytic properties of invariant differential operators on a homogeneous space of complexity 1  
Preprint. arXiv:2301.00529
10. (with Saikatul Haque, Rowan Killip and Monica Visan) Growth of Fourier–Lebesgue norms for mKdV  
Preprint.

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.

INVITED TALKS

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| “Well-posedness of NLS on $\mathbb{R} \times \mathbb{S}^3$ ”<br>Analysis Seminar, Bielefeld University                                     | Oct. 2025 |
| “On NLS posed on $\mathbb{R} \times \mathbb{S}^3$ ”<br>Workshop on Dispersive PDEs and Control Theory, Beijing Institute of Technology     | Jun. 2025 |
| “Bounds of restriction of characters to submanifolds”<br>Tsinghua University   | May 2025  |
| “The modified KdV equation beyond Sobolev spaces”<br>Analysis Seminar, University of Cincinnati  | Apr. 2025 |
| “Bounds of restriction of characters to submanifolds”<br>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”<br>Beijing Institute of Technology                        | Mar. 2025 |
| “On the modified KdV equation in modulation spaces”<br>Joint Meeting of the NZMS, AustMS and AMS: Special Sessions, University of Auckland | Dec. 2024 |
| “Semiclassical fun with $SU(3)$ ”<br>Prairie Analysis Seminar 2024, University of Kansas   | Oct. 2024 |
| “Semiclassical fun with $SU(3)$ ”<br>Analysis Seminar, University of Cincinnati  | Sep. 2024 |
| “Bounds of restriction of characters to submanifolds”<br>Analysis Seminar, Southern University of Science and Technology                   | Jun. 2024 |
| “The modified KdV in modulation spaces: conservation laws and equicontinuity of solutions”<br>Beijing Institute of Technology              | Jun. 2024 |
| “Bounds of restriction of characters to submanifolds”<br>Analysis Seminar, University of Wisconsin–Madison                                 | May 2024  |
| “Bounds of restriction of characters to submanifolds”<br>Beijing Institute of Technology   | Jan. 2024 |
| “Harmonic analysis on compact symmetric spaces”<br>Global Young Scholars Forum, Beijing Normal University                                  | Dec. 2023 |
| “ $L^p$ norms of Laplacian eigenfunctions on compact symmetric spaces”<br>Young Scholars Forum, ShanghaiTech University                    | Dec. 2023 |
| “ $L^p$ norms of Laplacian eigenfunctions on compact symmetric spaces”<br>Young Mathematician Forum, Shanghai Jiao Tong University         | Dec. 2023 |
| “Harmonic analysis on compact symmetric spaces”<br>Vision Forum for International Young Scholars, Beihang University                       | Dec. 2023 |
| “ $L^p$ norms of Laplacian eigenfunctions on compact symmetric spaces”<br>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
MENTORING	An Nguyen, undergraduate student at the University of Cincinnati	2025 –
SERVICE AND OUTREACH	Referee for: – <i>Beijing Journal of Pure and Applied Mathematics</i> – <i>Bulletin of the London Mathematical Society</i> – <i>Communications on Pure and Applied Analysis</i> – <i>Journal of Functional Analysis</i> – <i>Journal of Pseudo-Differential Operators and Applications</i> – <i>Selecta Mathematica</i> (quick opinion) – <i>Transactions of the American Mathematical Society</i>  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 – Pre Calculus, University of Cincinnati – Calculus I, University of Cincinnati – Applied Calculus I, University of Cincinnati – College Algebra (two sections), University of Cincinnati – Linear Algebra B (“B” stands for “for the Physical Sciences”), Peking University – Linear Algebra B, Peking University – Advanced Mathematics B (i.e. Calculus for the Physical Sciences), Peking University – Partial Differential Equations (two classes), University of Connecticut – Partial Differential Equations (two classes), University of Connecticut – Axiomatic Geometry (two classes), University of Connecticut – Introduction to Complex Variables (two classes), University of Connecticut – Partial Differential Equations (two classes), University of Connecticut – Honors Calculus II, University of Connecticut	Fall 2025 Fall 2025 Spring 2025 Spring 2025 Fall 2024 Fall 2023 Fall 2022 Fall 2021 Spring 2021 Fall 2020 Spring 2020 Fall 2019 Spring 2019 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