Zane Kun Li

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Affiliation

08/2023 - Present	Assistant Professor, North Carolina State University
05/2024 - 06/2024	Visiting Scholar, School of Mathematics & Statistics, University of Sydney
08/2022 - 08/2023	RTG Postdoctoral Fellow, University of Wisconsin-Madison
08/2019 - 07/2022	NSF & Zorn Postdoctoral Fellow, Indiana University Bloomington

Education

09/2013 - 06/2019	Ph.D, Mathematics, University of California, Los Angeles Advisor: Terence Tao
09/2009 - 06/2013	A.B. magna cum laude, Mathematics, Princeton University

Grants

2022-2025	NSF Award DMS-2409803 (formerly DMS-2154531 and DMS-2311174) *Decoupling theory and exponential sum estimates*, PI ($102063)

Fellowships

2019-2022	NSF Mathematical Sciences Postdoctoral Research Fellowship, DMS-1902763
2018-2019	Girsky Fellowship Award, Department of Mathematics, UCLA
2013-2018	NSF Graduate Research Fellowship

Journal Articles

1. Shival Dasu, Hongki Jung, Zane Kun Li, José Madrid, *Mixed norm l^2 decoupling for paraboloids*, **International Mathematics Research Notices**, Vol. 2023, no. 20, 17972-18000.

2. Brian Cook, Kevin Hughes, Zane Kun Li, Akshat Mudgal, Olivier Robert, and Po-Lam Yung, *A decoupling interpretation of an old argument for Vinogradov's Mean Value Theorem*, **Mathematika** 70 (2024), no.1, e12231.

3. Shaoming Guo, Zane Kun Li, and Po-Lam Yung, *Improved discrete restriction for the parabola*, **Mathematical Research Letters**, 30 (2023), no. 5, 1375-1409.

4. Alan Chang, Jaume de Dios Pont, Rachel Greenfeld, Asgar Jamneshan, Zane Kun Li, and José Madrid, *Decoupling for fractal subsets of the parabola*, **Mathematische Zeitschrift** 301 (2022), 1851-1879.

5. Shaoming Guo, Zane Kun Li, Po-Lam Yung, and Pavel Zorin-Kranich, *A short proof of l^2 decoupling for the moment curve*, **American Journal of Mathematics** 143 (2021), no. 6, 1983–1998.

6. Shaoming Guo, Zane Kun Li, and Po-Lam Yung, *A bilinear proof of decoupling for the cubic moment curve*, **Transactions of the American Mathematical Society** 374 (2021), no. 8, 5405-5432.

7. Zane Kun Li, *An l^2 decoupling interpretation of efficient congruencing: the parabola*, **Revista Matemática Iberoamericana** 37 (2021), no. 5, 1761-1802.

8. Zane Kun Li (with an appendix by Jean Bourgain and Zane Kun Li), *Effective l^2 decoupling for the parabola*, **Mathematika** 66 (2020), no. 3, 681-712.
9. Zane Kun Li, *Decoupling for the parabola and connections to efficient congruencing*, Ph.D. thesis, 2019, available at `https://escholarship.org/uc/item/0cz3756c`.
10. Zane Kun Li, *Quadratic twists of elliptic curves with 3-Selmer rank 1*, **International Journal of Number Theory** 10 (2014), no. 5, 1191-1217.
11. David Corwin, Tony Feng, Zane Kun Li, and Sarah Trebat-Leder, *Elliptic curves with full 2-torsion and maximal adelic Galois representations*, **Mathematics of Computation** 83 (2014), no. 290, 2925-2951.
12. Zane Kun Li and Alexander W. Walker, *Arithmetic properties of Picard-Fuchs equations and holonomic recurrences*, **Journal of Number Theory** 133 (2013), no. 8, 2770-2793.
13. Zane Kun Li, *A normal form for cubic surfaces*, **International Journal of Algebra** 4 (2010), no. 5, 233-239.
14. Zane Kun Li, *On a special case of the intersection of quadric and cubic surfaces*, **Journal of Pure and Applied Algebra** 214 (2010), no. 11, 2078-2086.
15. Stephen P. Humphries and Zane Kun Li, *Counting powers of words in monoids*, **European Journal of Combinatorics** 30 (2009), no. 5, 1297-1308.

Conference Proceedings

1. Jianhui Li, Zane Kun Li, Po-Lam Yung, *Strichartz inequalities: some recent developments*, arXiv:2310.15306, to appear in a memorial volume dedicated to Robert Strichartz.
2. Zane Kun Li, *An introduction to decoupling and harmonic analysis over $\mathbb{Q}_p$*, **Contemporary Mathematics** 792 (2024), 67–94.

Invited Seminar Talks

2025	February	Auburn University	Seminar on Analysis and Stochastic Analysis
2024	December	National Taiwan University	NCTS Nonlinear PDE and Analysis Seminar
	June	Monash University	Analysis Seminar
	June	Australian National University	PDE & Analysis Seminar
	May	University of New South Wales	Pure Mathematics Seminar
	May	UCLA	Analysis Seminar
	April	Virginia Tech	Analysis and Mathematical Physics Seminar
	March	UNC Chapel Hill	Analysis Seminar
	January	North Carolina State University	Differential Equations/Nonlinear Analysis Seminar
2023	October	Washington University of St. Louis	Analysis Seminar
	October	Duke University	Applied Math & Analysis Seminar
	July	Australian National University	Colloquium
	July	University of New South Wales	Number Theory Seminar
	February	University of California, Santa Cruz	Colloquium
2022	November	University of Georgia	Colloquium
	November	North Carolina State University	Colloquium
	September	University of Wisconsin-Madison	Analysis Seminar
	May	University of California, Riverside	Colloquium
	March	–	Virtual Harmonic Analysis Seminar
	March	Australian National University	(virtual) Analysis Seminar
	February	Caltech	Discrete Analysis Seminar

	February	UCLA	Analysis Seminar
	January	Caltech	(virtual) Discrete Analysis Seminar
2021	November	Shandong University	(virtual) Number Theory Seminar
	October	University of Kansas	(virtual) Analysis Seminar
	April	MIT	(virtual) PDE/Analysis Seminar
	March	Indiana University	(virtual) Analysis Seminar
2020	December	–	(virtual) Chinese Webinar on APDE
	February	Caltech	UCLA/Caltech Joint Analysis Seminar
	February	University of Chicago	Calderòn-Zygmund Analysis Seminar
	February	UW Madison	Analysis Seminar
	January	Indiana University	Analysis Seminar
2019	November	UIUC	Harmonic Analysis & Diff Eq Seminar
	October	University of Rochester	Combinatorics Seminar
	October	Purdue University	Analytic NT & Harmonic Analysis Sem.
	February	UC Davis	PDE and Applied Math Seminar
	January	University of British Columbia	Harmonic Analysis Seminar
2018	December	Chinese University of Hong Kong	Two one hour talks
	December	University of Bristol	Analysis & Geometry Seminar
	May	Caltech	Analysis Seminar
	May	UCLA	Analysis Participating Seminar

Invited Conference Talks

2025	February	4th Harmonic Analysis Workshop in Seoul
2024	May	MATRIX Harmonic Analytic Connections
	April	AMS Spring Eastern Sectional – Special Session on HA and their Applications to PDE
	March	Pittsburgh Links among Analysis and Number Theory (PLANT)
2023	September	NC State College of Sciences Excellence Symposium
	April	AMS Spring Central Sectional – Special Session on GMT and HA
	March	Harmonic Analysis and Fractal Sets 2023
	March	AMS Spring Southeastern Sectional – Special Session on Harmonic Analysis
2022	June	Fourier Analysis @200 – Young Researchers Symposium
	March	(virtual) AMS Spring Central Sectional – Special Session on Harmonic Analysis
2021	November	(virtual) The 17th Prairie Analysis Seminar
	August	(prerecorded short talk) HIM Trimester Program Harmonic Analysis & Analytic NT
	March	(prerecorded) Fourier restriction online 2021
	February	(virtual) AIM workshop: Arithmetic Stat., Discrete Restriction, & Fourier Analysis
2020	December	(virtual) Canadian Math. Society Winter Meeting – Session on Discrete Analysis
	August	(virtual) The Eighth Pacific Rim Conference in Mathematics
2019	September	AMS Fall Central Sectional – Special Session on Recent Dev. in Harmonic Analysis
	June	(Heilbronn Inst., Bristol) Efficient Cong. & Decoupling Focused Research Workshop
	January	(JMM) AMS Special Session on Counting Methods in Number Theory
	January	(JMM) AMS Special Session on HA: Recent Dev. on Oscillatory Integrals
2017	October	HCM Summer School on Decoupling and Polynomial Methods in Analysis (Kopp, DE)

Invited Lecture Series

2025	March	University of Göttingen	RTG2491 Spring School on Decoupling and More (4 hours)
2022	Apr-May	NCTS/National Taiwan University	10 hour lecture series on decoupling
2020	Oct-Nov	Discrete Analysis Working Group	(virtual) Four one hour talks on decoupling

Professional Service

- Co-organizer of NC State's Stochastics/Discrete Analysis Seminar, Fall 2024 to present

- Co-organizer of AIM Restriction Community on Fourier Restriction and Related Problems, Fall 2024 to present
- Co-organizer of OARS (Online Analysis Research Seminar), Fall 2020 to present
- Co-organizer of the following conferences:
  - NCTS Workshop on Harmonic Analysis, Taipei, TW, December 2024
  - 2025 AMS Spring Central Sectional Meeting, Special Session on Recent Trends in Harmonic Analysis and PDE, Lawrence, KS, March 2025
  - Summer School on "Discrete directions in harmonic analysis", Kopp, DE, October 2025
- Referee for Analysis & PDE, Essential Number Theory, Geometric and Functional Analysis, IMRN, Journal d'Analyse Mathématique, Journal of Fourier Analysis and Applications, Mathematische Zeitschrift, Proceedings of the Edinburgh Mathematical Society, Revista Matemática Iberoamericana
- Reviewer for Math Reviews, 2021-present
- Editor for an AMS Contemporary Mathematics volume based on the AMS Special Session on Harmonic Analysis held in March 2022

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