

Xi Cen

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| Address | School of Science, China University of Mining and Technology (Beijing), Beijing 100083, People's Republic of China | Email | xicenmath@gmail.com |
| | | ResearchGate | ResearchGate-Link |
| | | CV-Online | https://xicenmath.github.io/homepage/cv.pdf |

Personal Profile

My research interests mainly focus on Euclidean harmonic analysis, which can be divided into the following aspects:

- (1) The property of multilinear oscillatory integral operators, multilinear Fourier integral operators, multilinear pseudo-differential operators, multilinear Fourier multipliers.
- (2) Sparse bounds and sharp weighted bounds of the important operators.
- (3) Multilinear extrapolation theory and multilinear dyadic representation theory.
- (4) The singular integral operators and maximal operators along the curve.
- (5) Boundedness extended to the weighted multi-exponent function spaces (weighted Besov spaces, weighted Triebel spaces, weighted Sobolev spaces).

Education

2025.9–now Master student – China University of Mining and Technology (Beijing)
Advisor: [Prof. Xinfeng Wu](#)

2018.9–2022.6 Bachelor of Science – Southwest University of Science and Technology

Professional services

Referee for "Journal of Function Spaces" and "AIMS Mathematics" in 2024.

Publications

1. Xi Cen, **The multilinear Littlewood-Paley square operators and their commutators on weighted Morrey spaces**, *Indian J. Pure Appl. Math.*, 2024, 55(2): 749-775.
2. Xi Cen, **Fractional maximal operators on weighted variable Lebesgue spaces over the spaces of homogeneous type**, *Anal.Math.Phys.* 14, 94 (2024).
3. Xi Cen, Qianjun He, Zichen Song, Zihan Wang, **New fractional type weights and the boundedness of some operators**, *Anal.Math.Phys.* 15, 26 (2025).

4. Xi Cen, **New variable weighted conditions for fractional maximal operators over spaces of homogeneous type**, <https://arxiv.org/abs/2408.04544>
5. Xi Cen, Zichen Song, **The multilinear fractional sparse operator theory I: pointwise domination and weighted estimate**, (Under Review in J. Geom. Anal.)
6. Xi Cen, Zichen Song, **The multilinear fractional bounded mean oscillation operator theory I: sparse domination, sparse $T1$ theorem, off-diagonal extrapolation, quantitative weighted estimate—for generalized commutators**, <https://arxiv.org/abs/2506.23486>
7. Xi Cen, **Improving sparse bounds I: Sparse domination for multilinear pseudo-differential operators**, *J. Geom. Anal.* **36**, 20 (2026).
8. Xi Cen, **Sparse bounds and sharp weighted bounds for multilinear pseudo-differential operators and their commutators**, (Under Review in Bull. London Math. Soc.)
9. Xi Cen, **Quantitative weighted multi-exponent improvements for pseudo-differential Operators**, (Under Review in J. Geom. Anal.)
10. Xi Cen, **The sharp weighted and unweighted boundedness theory for multilinear oscillatory integral operators**, (Submitted).
11. Xi Cen, **The standard sparse domination and standard sharp weighted estimates for multilinear oscillatory integral operators**, (Under Review in Banach J. Math. Anal.).
12. Xi Cen, Zichen Song, **The new weak-type boundedness of multilinear pseudo-differential operators**, (Submitted).
13. Xi Cen, Zichen Song, **The off-diagonal improving weighted estimates for pseudo-differential operators**, (Under Review in Banach J. Math. Anal.)
14. Xi Cen, Zichen Song, **The off-diagonal improved weighted estimates for pseudo-differential operators II: via off-diagonal sharp maximal function estimates**, (Under Review in J. Fourier Anal. Appl.)
15. Xi Cen, Zihan Wang, **The off-diagonal quantitative weighted improvements for oscillatory integral operators**, (Submitted)
16. Xi Cen, Zichen Song, Xinfeng Wu, **The Quantitative weighted estimate improvements for multilinear pseudo-differential operators and their commutators**, (Submitted)
17. Xi Cen, **The roughness improvements of multilinear oscillatory integral operators on local Hardy spaces**, (Revised in J. Fourier Anal. Appl.)

18. Xi Cen, **Sharp maximal function estimates and weighted estimates for multilinear oscillatory integral operators and their commutators**, (Submitted)
19. Xi Cen, Zichen Song, **Off-Diagonal Quantitative Weighted Improvements Theory for Multilinear Operators with Integral Regularity: Beyond Multilinear Oscillatory Integral Operators**, (Submitted)

Math is hard. So is life. Get over it!