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# WEIGHTED ENDPOINT ESTIMATES FOR MULTILINEAR COMMUTATOR OF LITTLEWOOD–PALEY OPERATOR

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*Abstract.* In this paper, we prove the weighted endpoint estimates for multilinear commutator of Littlewood-Paley operator.

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## REFERENCES

[1] J. ALVAREZ, R. J. BABGY, D. S. KURTZ AND C. PÉREZ, *Weighted estimates for commutators of linear operators*, Studia Math., **104** (1993), 195–209.
[2] BUI HUY QUI, *Weighted Hardy spaces*, Math. Nachr., **103** (1981), 45–62.
[3] W. G. CHEN AND G. E. HU, *Weak type* $(H^1,L^1)$ *estimate for a multilinear singular integral operator*, Adv. in Math.(China), **30**, 1 (2001), 63–69.
[4] R. COIFMAN, R. ROCHBERG AND G. WEISS, *Factorization theorems for Hardy spaces in several variables*, Ann. of Math., **103** (1976), 611–635.
[5] J. GARCIA-CUERVA AND J. L. RUBIO DE FRANCIA, *Weighted norm inequalities and related topics*, North-Holland Math., 116, Amsterdam, 1985.
[6] E. HARBOURE, C. SEGOVIA AND J. L. TORREA, *Boundedness of commutators of fractional and singular integrals for the extreme values of* $p$, Illinois J.Math., **41** (1997), 676–700.
[7] L. Z. LIU, *Weighted weak type* $(H^1,L^1)$ *estimates for commutators of Littlewood-Paley operator*, Indian J. of Math., **45** (2003), 71–78.
[8] L. Z. LIU, *Weighted Block-Hardy spaces estimates for commutators of Littlewood-Paley operators*, Southeast Asian Bull. of Math., **27** (2004), 833–838.
[9] C. PÉREZ AND R. TRUJILLO-GONZALEZ, *Sharp weighted estimates for multilinear commutators*, J.London Math. Soc., **65** (2002), 672–692.
[10] E. M. STEIN, *Harmonic Analysis: real variable methods, orthogonality and oscillatory integrals*, Princeton Univ. Press, Princeton NJ., 1993.
[11] A. TORCHINSKY, *Real variable methods in harmonic analysis*, Pure and Applied Math., 123, Academic Press, New York, 1986.


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