Journal of Mathematical Inequalities
Volume 11, Number 1 (2017), 261–280
doi:10.7153/jmi-11-24

COMMUTATORS OF GENERALIZED CALDERÓN–ZYGMUND OPERATORS ON WEIGHTED HERZ–TYPE HARDY SPACES

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Abstract. In this paper, the authors establish the boundedness of commutators generated by the generalized Calderón-Zygmund operators and weighted BMO functions or weighted Lipschitz functions on weighted Herz-type Hardy spaces.

Mathematics subject classification (2010): 42B20, 42B35.
Keywords and phrases: Generalized Calderón-Zygmund operator, weighted BMO function, weighted Lipschitz function, commutator.

REFERENCES

[1] D. C. CHANG, J. F. LI, J. XIAO, *Weighted scale estimates for Calderón-Zygmund type operators*, Contemporary Math., **446** (2007), 61–70.
[2] J. GARCIA-CUERVA, *Weighted H^p spaces*, Dissertationes Math., **162** (1979), 1–63.
[3] J. GARCIA-CUERVA, J. L. RUBIO DE FRANCIA, *Weighted Norm Inequalities and Related Topics*, North-Holland, Amsterdam, The Netherlands, 1985.
[4] J. L. JOURNÉ, *Calderón operators, Pseudo-differential operators and the Cauchy integral of Calderón*, Lecture Notes in Math., **994** (1983), 1–127.
[5] Y. LIN, *Strongly singular Calderón-Zygmund operator and commutator on Morrey type spaces*, Acta Math. Sin. (Engl. Ser.), **23** (2007), 2097–2110.
[6] Y. LIN, *Sharp maximal function estimates for Calderón-Zygmund type operators and commutators*, Acta Math. Sci. Ser. A Chin. Ed., **31 (A)** (2011), 206–215.
[7] Y. LIN, Z. G. LIU, W. L. CONG, *Weighted Lipschitz estimates for commutators on weighted Morrey spaces*, J. Inequal. Appl., **338** (2015), 19 pages.
[8] Y. LIN, G. F. SUN, *Generalized Calderón-Zygmund operators and commutators on weighted Morrey spaces*, Panamer. Math. J., **25** (2015), 53–65.
[9] Y. LIN, M. M. ZHANG, *Weighted BMO estimates for Toeplitz operators on weighted Lebesgue spaces*, J. Funct. Spaces, **349535** (2015), 10 pages.
[10] Z. G. LIU, J. LI, *Boundedness of Calderón-Zygmund type operators and their commutators*, Acta. Math. Sin. (Chin. Ser.), **53** (2010), 541–550.
[11] S. Z. LU, Q. WU, D. C. YANG, *Boundedness of commutators on Hardy type spaces*, Sci. China Ser. A, **45** (2002), 984–997.
[12] S. Z. LU, D. C. YANG, *The decomposition of the weighted Herz spaces and its application*, Sci. China Ser. A, **38** (1995), 147–158.
[13] S. Z. LU, D. C. YANG, *The weighted Herz-type Hardy spaces and its applications*, Sci. China Ser. A, **38** (1995), 662–673.
[14] S. Z. LU, D. C. YANG, *The continuity of commutators on Herz-type spaces*, Michigan Math. J., **44** (1997), 255–281.
[15] B. MUCKENHOUPT, *Weighted norm inequalities for the Hardy maximal function*, Trans. Am. Math. Soc., **165** (1972), 207–226.
[16] M. PALUSZYŃSKI, *Characterization of the Besov spaces via the commutator operator of Coifman, Rochberg and Weiss*, Indiana Univ. Math. J., **44** (1995), 1–17.
[17] C. PÉREZ, *Endpoint estimates for commutators of singular integral operators*, J. Funct. Anal., **128** (1995), 163–185.

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[18] R. L. WHEEDEN, *A characterization of some weighted norm inequalities for the fractional maximal function*, Studia Math., **107** (1993), 257–272.