

## NON-ISOTROPIC SINGULAR INTEGRALS AND MAXIMAL OPERATORS ALONG SURFACES OF REVOLUTION

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*Abstract.* The authors establish the  $L^p$ -mapping properties for a class of non-isotropic singular integrals along surfaces of revolution as well as the related maximal operators, where the integral kernels are given by functions  $\Omega$  in  $L(\log^+ L)^\alpha(\Sigma)$ .

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### REFERENCES

- [1] A. AL-SALMAN, H. AL-QASSEM, L. C. CHENG AND Y. PAN,  *$L^p$  bounds for the functions of Marcinkiewicz*, Math. Research Lett. **9** (2002), 697–700.
- [2] H. AL-QASSEM, *On the boundedness of maximal operators and singular operators with kernels in  $L(\log L)^\alpha(S^{n-1})$* , J. Inequal. Appl. Art.ID 96732 (2006), 1–16.
- [3] A. AL-SALMAN AND Y. PAN, *Singular integrals with rough kernels in  $L\log L(S^{n-1})$* , J. London Math. Soc. **66**, 2 (2002), 153–174.
- [4] A. P. CALDERÓN AND A. TORCHINSKY, *On singular integrals*, Amer. J. Math. **78** (1956), 289–309.
- [5] L.-K. CHEN AND H. LIN, *A maximal operator related to a class of singular integrals*, Illinois J. Math. **34**, 1 (1990), 120–126.
- [6] Y. DING AND Q. HE, *Weighted boundedness of a rough maximal operator*, Acta Math. Sci. **20B**, 3 (2000), 417–422.
- [7] J. DUOANDIKOETXEA AND J. L. RUBIO DE FRANCIA, *Maximal and singular integral operators via Fourier transform estimates*, Invent. Math. **84** (1986), 541–561.
- [8] H. V. LE, *Maximal operators and singular integral operators along submanifolds*, J. Math. Anal. Appl. **296**, 1 (2004), 44–64.
- [9] N. RIVIÉRE, *Singular integrals and multiplier operators*, Ark. Mat. **9** (1971), 243–278.
- [10] S. SATO, *Estimates for singular integrals along surfaces of revolution*, J. Austr. Math. Soc. (A) **86**, 3 (2009), 413–430.
- [11] E. M. STEIN, *Harmonic Analysis: real-variable methods, orthogonality and oscillatory integral*, Princeton University Press, Princeton, N.J., 1993.
- [12] E. M. STEIN AND S. WAINGER, *Problems in harmonic analysis related to curvature*, Bull. Amer. Math. Soc. **84** (1978), 1239–1295.
- [13] E. M. STEIN AND S. WAINGER, *The estimation of an integral arising in multiplier transformations*, Studia Math. **35** (1970), 101–104.