

A NOTE OF A ROUGH SINGULAR INTEGRAL OPERATOR

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Abstract. L^p mapping properties will be established in this paper for singular Radon transforms with rough kernels, extending the results of Grafakos and Stefanov.

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REFERENCES

- [1] A. J. AL-HASAN AND D. FAN, L^p boundedness of a singular integral operator, Canadian Math. Bulletin, to appear.
- [2] A. P. CALDERÓN AND A. ZYGMUND, On existence of certain singular integrals, Acta. Math. **88** (1952), 85-129.
- [3] A. P. CALDERÓN AND A. ZYGMUND, On singular integrals, Amer. J. Math. **18** (1956) 289-309.
- [4] W. C. CONNETT, Singular integrals near L^1 , Proc. Sympos. Pure Math. of Amer. Math. Soc. (S. Wainger and G. Weiss, eds.) **35**, I (1979), 163-165.
- [5] L. COLZANI, *Hardy Spaces on Sphere*, Ph.D. Thesis, Washington University, St. Louis, MO, 1982.
- [6] R. R. COIFMAN AND G. WEISS, Extensions of Hardy spaces and their use in analysis, Bull. Amer. Math. Soc. **83** (1977), 569-645.
- [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] D. FAN AND Y. PAN, L^2 boundedness of a singular integral operator, Publicacions Matemàtiques, **41** (1997), 317-333.
- [9] D. FAN AND Y. PAN, Singular integral with rough kernels supported by subvarieties, Amer. J. Math. **119** (1997), 799-839.
- [10] L. GRAFAKOS AND A. STEFANOV, L^p bounds for singular integrals and maximal singular integrals with rough kernels, Indiana Univ. Math. J., to appear.
- [11] F. RICCI AND G. WEISS, A characterization of $H^1(\sum_{n-1})$, Proc. Sympos. Pure Math. of Amer. Math. Soc. (S. Wainger and G. Weiss, eds.), Vol. **35**, I (1979), 289-294.