WEIGHTED NORM INEQUALITIES FOR TOEPLITZ TYPE OPERATOR ASSOCIATED TO SINGULAR INTEGRAL OPERATOR WITH NON–SMOOTH KERNEL

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Abstract. Let $T^{k,1}$ be singular integrals with non-smooth kernels, which are associated with an approximation to the identity or ±I (the identity operator), $T^{k,2}$ and $T^{k,3}$ are the linear operators, $T^{k,4} = ±I$. Denote the Toeplitz type operator by

$$T_b = \sum_{k=1}^{m} (T^{k,1}M_b I_\alpha T^{k,2} + T^{k,3} I_\alpha M_b T^{k,4}),$$

where $M_b f(x) = b(x)f(x)$, and $I_\alpha$ is the fractional integral operator. In this paper, we establish the sharp maximal function estimates for $T_b$ when $b$ belongs to weighted Lipschitz function space. As an application, the boundedness of the operator on weighted Lebesgue space is obtained.


Keywords and phrases: Toeplitz type operator, singular integral operator with non-smooth kernel, fractional integral, weighted Lipschitz space.

REFERENCES


