ON THE KERNEL OF A SINGULAR INTEGRAL OPERATOR WITH SHIFT

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Abstract. Some estimates for the dimension of the kernel of the singular integral operator $I - cU P_+ : L^p_{\mathbb{T}} \to L^p_{\mathbb{T}}$, $p \in (1, \infty)$, with a non-Carleman shift are obtained, where $P_+$ is the Cauchy projector, $U$ is an isometric shift operator and $c(t)$ is a continuous matrix function on the unit circle $\mathbb{T}$. It is supposed that the shift has a finite set of fixed points and all the eigenvalues of the matrix $c(t)$ at the fixed points, simultaneously belong either to the interior of the unit circle $\mathbb{T}$ or to its exterior. The case of an operator with a general shift is also considered. Some relations between those estimates and the resolvent set of the operator $cU$ are pointed out.

Keywords and phrases: Singular integral operators with shift, kernel dimension, resolvent set.

REFERENCES


