$L^p$ BOUNDS FOR SINGULAR INTEGRAL OPERATORS ALONG TWISTED SURFACES

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Abstract. This paper concerns the study singular integrals along twisted surfaces of the form

$$\{(\Phi(|v|)u, \Psi(|u|)v) : (u,v) \in \mathbb{R}^n \times \mathbb{R}^m\}.$$  

We prove $L^p$ bounds for the corresponding operators when the surfaces are defined by mappings more general than polynomials and convex functions, provided that the kernels are in $L(\log L)^2(S^{n-1} \times S^{m-1})$.


Keywords and phrases: Singular integral operators, product domains, twisted surfaces, $L^p$ estimates, maximal functions, convex functions.

REFERENCES