

Remark on the Triebel-Lizorkin space boundedness of rough singular integrals associated to surfaces

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ABSTRACT. In the present paper, we consider the boundedness of the rough singular integral operator $T_{\Omega, h, \phi}$ along a surface $\Gamma = \{x = \phi(|y|)y/|y|\}$ on the Triebel-Lizorkin space $\dot{F}_{p, q}^\alpha(\mathbb{R}^n)$ with $\alpha \in \mathbb{R}$, $1 < p, q < \infty$ for $\Omega \in H^1(S^{n-1})$ and Ω belonging to some class $W\mathcal{F}_\alpha(S^{n-1})$, which relates to the Grafakos-Stefanov class. We improve recent results about these operators.

Key words and phrases. Singular integrals; Triebel-Lizorkin spaces; rough kernel .