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

KÔZÔ YABUTA

Received March 30, 2015 ; revised August 19, 2015

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 $\dot{F}^\alpha_{p,q}(\mathbb{R}^n)$ with $\alpha \in \mathbb{R}$, $1 < p, q < \infty$ for $\Omega \in H^1(S^{n-1})$ and $\Omega$ belonging to some class $\mathcal{W}F_\alpha(S^{n-1})$, 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.