

REDUCTION OF INTEGRATION DOMAIN IN FRACTIONAL SOBOLEV SPACES

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We will show that the Gagliardo seminorm

$$\int_D \int_D (u(x) - u(y))^2 K(x, y) dx dy$$

is comparable to the following one with reduced domain of integration:

$$\int_D \int_{B(y, \epsilon \delta_x)} (u(x) - u(y))^2 K(x, y) dx dy.$$

Here $\delta_x = \text{dist}(x, \partial D)$ and $\epsilon \in (0, 1)$. We extend the result for uniform domains of Prats and Saksman [1] to a wider class of kernels K . We also show that the comparability may hold in non-uniform domains.

Apart from the main results we will present a few examples and discuss the connection of our studies with jump processes.

REFERENCES

- [1] M. Prats, E. Saksman, A $T(1)$ theorem for fractional Sobolev spaces on domains, *J. Geom. Anal.*, 27(3), 2017.
- [2] AR, Reduction of integration domain in Triebel–Lizorkin spaces, arXiv:1810.11353.