

Iterated Norms in Spaces of Nikol'skiĭ-Besove's type with generalized smoothness

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Abstract

In the works of V.I.Burenkov [1] using a theorem on iterated norms for Nikol'skiĭ-Besove spaces, it is proved that every classical solution of the partial differential equation with constant coefficients is infinitely continuously differentiable. In our work we consider the Nikol'skiĭ-Besov spaces with iterated norms $\mathcal{B}_\theta^{\vec{\varphi}(\cdot)}(\dots \mathcal{B}_\theta^{\vec{\varphi}(\cdot)}(L_p(\Omega)) \dots)$ with generalized smoothness $\vec{\varphi}$ where $\vec{\varphi} \in \Phi(\vec{\sigma}, \theta)$ and for every parallelepiped G with faces parallel to the coordinate planes. The aim of this work is to generalize the imbedding and show that

$$\mathcal{B}_\theta^{\vec{\varphi}(\cdot)}(\dots \mathcal{B}_\theta^{\vec{\varphi}(\cdot)}(L_p(\Omega)) \dots) \hookrightarrow \mathcal{B}_{p,\theta}^{\vec{\varphi}^k}(G).$$

References

- [1] V.I. Burenkov(1989): A theorem on iterated norms for Nikol'skiĭ -besov spaces and its applications.Proceeding of the stelkov Institute of Mathematics Issue 4, English transl. in American Math. Soc. 0081-5438/90, 1990.
- [2] Tsegaye G. Ayele (1999): Spaces of Iterated norms in Nikol'skiĭ-Besove type with generalized smoothness. Moscow, Dep V VINITI RAN 31.03.99 No. 1027-B99