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Approximation characteristics of the isotropic Nikol’skii-Besov functional classes. (English)  
Zbl 07482118  

Summary: In the paper, we investigate the isotropic Nikol’skii-Besov classes $B_{p,\theta}^r(\mathbb{R}^d)$ of non-periodic functions of several variables, which for $d = 1$ are identical to the classes of functions with a dominant mixed smoothness $S_{p,\theta}^r B(\mathbb{R})$. We establish the exact-order estimates for the approximation of functions from these classes $B_{p,\theta}^r(\mathbb{R}^d)$ in the metric of the Lebesgue space $L_q(\mathbb{R}^d)$, by entire functions of exponential type with some restrictions for their spectrum in the case $1 \leq p \leq q \leq \infty$, $(p, q) \neq \{(1, 1), (\infty, \infty)\}$, $d \geq 1$. In the case $2 < p = q < \infty$, $d = 1$, the established estimate is also new for the classes $S_{p,\theta}^r B(\mathbb{R})$.

MSC:  
41A30 Approximation by other special function classes  
41A50 Best approximation, Chebyshev systems  
41A63 Multidimensional problems  
42A38 Fourier and Fourier-Stieltjes transforms and other transforms of Fourier type

Keywords:  
isotropic Nikol’skii-Besov classes; entire function of exponential type; support of function; Fourier transform

Full Text: DOI

References:  
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