Romanyuk, A. S.; Yanchenko, S. Ya.
Estimates of approximating characteristics and the properties of the operators of best approximation for the classes of periodic functions in the space $B_{1,1}$. (English. Ukrainian original) 

Summary: We obtain the exact-order estimates for the orthoprojection widths and similar approximating characteristics of the Sobolev classes $W^{r,p}_{p,\alpha}$ and Nikol’skii-Besov classes $B^{r,p}_{p,\theta}$ of periodic functions of one and several variables in the norm of the space $B_{1,1}$. In addition, it is established that the sequence of norms of linear operators realizing the orders of the best approximations for the classes $B^{r}_{1,\theta}$ in the space $B_{1,1}$ with the help of trigonometric polynomials with “numbers” of harmonics from step hyperbolic crosses is unbounded in the many-dimensional case.

MSC:
41A50 Best approximation, Chebyshev systems
41A35 Approximation by operators (in particular, by integral operators)
41A46 Approximation by arbitrary nonlinear expressions; widths and entropy
42B35 Function spaces arising in harmonic analysis
46E35 Sobolev spaces and other spaces of “smooth” functions, embedding theorems, trace theorems

Full Text: DOI

References:


