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Entropy numbers for the classes $B_{p,\theta}^\Omega$ of periodic multivariate functions

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We obtain order estimates for entropy numbers [1] of the classes $B_{p,\theta}^\Omega$ [2] of periodic multivariate functions in the metric of the space L_q , $1 \leq q \leq \infty$. These classes with appropriate function Ω coincide with the Nikol'skii–Besov classes $B_{p,\theta}^r$.

In certain cases, in particular, two-dimensional case, $2 \leq p \leq \infty$, $1 \leq \theta \leq \infty$, $q = \infty$, the exact-order estimates of the entropy numbers of appropriate classes are established.

- [1] K. Höllig, Diameters of classes of smooth functions, *Quantitative approximation. New York Acad. Press*, (1980), P. 163–176.
- [2] S. Yongsheng and W. Heping, Representation and approximation of multivariate periodic functions with bounded mixed moduli of smoothness, *Tr. Mat. Inst. Steklova* **219**, (1997), P. 356–377.