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Bernstein-Nikol'skij inequalities for functions of several variables, that are the best as concerns the choice of harmonics. (English. Russian original) [Zbl 0783.41012](#)
Mosc. Univ. Math. Bull. 47, No. 6, 1-4 (1992); translation from *Vestn. Mosk. Univ.*, Ser. I 1992, No. 6, 3-6 (1992).

The author considers terms of the following type

$$T_N(r, p, q) = \inf_{K_N} \sup_{x \in L(K_N), x \neq 0} \|x^{(r)}\|_p / \|x\|_q,$$

where K_N is any set of N -harmonic multi-indices in \mathbb{Z}_0^N and $L(K_N)$ the linear span of $\{e^{i(k,t)} \mid k \in K_N\}$. Thus, the quantities $T_N(r, p, q)$ represent the best constants (for all possible choices of sets K_N) for Bernstein-Nikol'skij inequalities for polynomials from the spaces $L(K_N)$. The author proves a theorem that establishes growth estimates for $T_N(r, p, q)$ in terms of N different choices of the parameters r , p and q .

Reviewer: [E.Quak \(Schwerte\)](#)

MSC:

[41A17](#) Inequalities in approximation (Bernstein, Jackson, Nikol'skiĭ-type inequalities)
[42A10](#) Trigonometric approximation

Keywords:

[Bernstein-Nikol'skij inequalities](#)