

Temlyakov, V. N.

Approximation of functions with bounded mixed derivative. (Priblizhenie funktsij s ogranichennoj smeshanoj proizvodnoj). (Russian) [Zbl 0625.41028](#)

Trudy Matematicheskogo Instituta im. V. A. Steklova, Tom 178. Moskva: "Nauka". 112 p. R. 1.40 (1986).

The main purpose of this monograph is to study the approximations of periodic functions of many variables. The first chapter is devoted to the study of Bernstein's and Jackson-Nikol'skij's inequalities, and to the connections between the best approximations in various metrics. The second chapter deals with approximations by means of trigonometric polynomials of the functions from $W_{q,\alpha}^r$ and H_q^r in the metric L_p , $1 < q \leq p < \infty$ and by means of linear methods. Next, in the third chapter, the widths of $W_{q,\alpha}^r$ and H_q^r in L_p , $1 \leq q \leq p < \infty$, and some extremal problems are studied. In the fourth, and closing, chapter the author presents some generalizations of the Hardy-Littlewood theorem and approximations of periodic functions of several variables by means of bilinear forms.

Reviewer: J.Albrycht

MSC:

- [41A65](#) Abstract approximation theory (approximation in normed linear spaces and other abstract spaces)
- [41-02](#) Research exposition (monographs, survey articles) pertaining to approximations and expansions
- [41A17](#) Inequalities in approximation (Bernstein, Jackson, Nikol'skiĭ-type inequalities)
- [42A10](#) Trigonometric approximation
- [41A46](#) Approximation by arbitrary nonlinear expressions; widths and entropy

Cited in **6** Reviews
Cited in **63** Documents

Keywords:

Bernstein inequality; Jackson-Nikol'skij's inequalities; widths; extremal problems; Hardy-Littlewood theorem