

Potapov, M. K.; Berisha, F. M.

Approximation of classes of functions defined by a generalized k -modulus of smoothness.

(English) [Zbl 0932.41006](#)

East J. Approx. 4, No. 2, 217-241 (1998).

The authors' aim is to characterize the best approximation by algebraic polynomials in the space $L_{p,\alpha,\beta}$, $1 \leq p < \infty$, equipped with the norm $\|f\|_{p,\alpha,\beta} := (\int_{-1}^1 (1-x)^\alpha (1+x)^\beta |f(x)|^p dx)^{1/p}$ in terms of a generalized k -th order modulus of smoothness, based on an asymmetric translation operator. The first order modulus of this type was defined in a recent paper of *M. K. Potapov* [On the coincidence of the classes of functions defined by the operator of generalized translation or by the order of the best approximation by algebraic polynomials, *Mat. Zametki*, to appear (in Russian)], where a corresponding characterization theorem has been proved. In the present paper analogous results are obtained for the generalized modulus of smoothness of order k .

Reviewer: [P.Petrov \(Sofia\)](#)

MSC:

[41A10](#) Approximation by polynomials

[33C45](#) Orthogonal polynomials and functions of hypergeometric type (Jacobi, Laguerre, Hermite, Askey scheme, etc.)

[41A25](#) Rate of convergence, degree of approximation

Cited in **2** Documents

Keywords:

approximation by polynomials; generalized modulus of smoothness

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