

Estimate of the norm of the Lagrange interpolation operator in the multidimensional weighted Sobolev space

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Abstract

© 2016, Pleiades Publishing, Ltd. An estimate of the norm of the Lagrange interpolation operator in the multidimensional weighted Sobolev space is obtained. It is shown that, under a certain choice of the sequence of multi-indices, the interpolating polynomials converge to the interpolated function and the rate of convergence is of the order of the best approximation of this function by algebraic polynomials in this space.

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Keywords

approximation by algebraic polynomials, Chebyshev polynomials, Fourier coefficients of a polynomial, interpolating polynomials, Lagrange interpolation operator, weighted Sobolev space