A METHOD OF CONSTRUCTION OF LOCAL PARABOLIC SPLINES WITH ADDITIONAL KNOTS

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We propose a general method for the construction of local parabolic splines with an arbitrary arrangement of knots for functions given on grid subsets of the numerical axis or its segment. Special cases of this scheme are Yu. N. Subbotin's and B. I. Kvasov's splines. For Kvasov's splines, we consider boundary conditions different from those suggested by Kvasov. We study the approximating and smoothing properties of these splines in the case of uniform knots. In particular, we find two-sided estimates of the error of approximation of the function classes W_∞^2 and W_∞^3 by these splines in the uniform metric and calculate the exact uniform Lebesgue constants and the norms of the second derivatives on the class W_∞^2. These properties are compared with the corresponding properties of Subbotin's splines.

Keywords: local parabolic splines, approximation, interpolation, equally spaced knots.

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