

ON 3-MONOTONE APPROXIMATION BY MULTIVARIATE PIECEWISE POLYNOMIALS

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Abstract

We consider 3-monotone approximation by piecewise polynomials of several variable with prescribed knots. A general theorem is proved, which reduces the problem of 3-monotone uniform approximation of a 3-monotone function, to convex local L_1 approximation of the derivative of the function. As the corollary we obtain Jackson-type estimates on the degree of 3-monotone approximation by piecewise polynomials of several variable with prescribed knots. Such estimates are well known for monotone and convex approximation, and to the contrary, they in general are not valid for higher orders of monotonicity.

Key Words : *3-monotone approximation by piecewise polynomials , Degree of multiapproximation.*