

GB-splines and algorithms of shape preserving approximation

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Abstract. This paper defines a class of functions with shape preserving properties (“isogeometry”) determined by a given set of intervals on the plane \mathbb{R}^2 . Based on the definition, we provide very simple one- and three-point local algorithms for convex and monotone approximation of curves and surfaces by C^2 generalized cubic splines. The generalized splines are represented as a linear combination of GB-splines. In 2-D case tensor-product splines are used. We give the results of some numerical tests.

Key words: GB-splines, shape preserving, isogeometric approximation, tensor product surfaces.

[†] Supported in part by the Russian Fundamental Research fund (93-01-00495)