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CLOSED SMOOTH SURFACE DEFINED FROM CUBIC TRIANGULAR SPLINES

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摘要
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CLOSED SMOOTH SURFACE DEFINED FROM CUBIC TRIANGULAR SPLINES

Ren-zhong Feng (1), Ren-hong Wang (2)

Abstract In order to construct closed surfaces with continuous unit normal, we introduce a new spline space on an arbitrary closed mesh of three-sided faces. Our approach generalizes an idea of Goodman and is based on the concept of 'Geometric continuity' for piecewise polynomial parametrizations. The functions in the spline space restricted to the faces are cubic triangular polynomials. A basis of the spline space is constructed of positive functions which sum to 1. It is also shown that the space is suitable for interpolating data at the midpoints of the faces.

Key words Closed triangular mesh Triangular Bernstein polynomial Smooth spline Geometric continuity

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通讯作者