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Bivariate Barycentric-Coordinate Bernstein-Bezier Polynomial & C1 Quadratic Vertex Spline

Rui Jiang
Illinois Wesleyan University

Tian-Xiao He, Faculty Advisor
Illinois Wesleyan University

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Poster Presentation P14

**BIVARIATE BARYCENTRIC-COORDINATE BERSTEIN-BEZIER
POLYNOMIAL & C^1 QUADRATIC VERTEX SPLINE**

Rui Jiang and Tian-Xiao He*

Mathematics Department, Illinois Wesleyan University

By using simplex, a local coordinate system is defined, referred to barycentric coordinates. Based on barycentric coordinates, Bernstein-Bezier polynomial is defined, which brings a great convenience to present the smoothness of vertex spline. In this poster, we will show how to obtain Bernstein-Bezier polynomial of simplex in barycentric coordinates, and to present the proof of necessary and sufficient conditions of smoothness of vertex spline. By giving two examples, we will show two different subdivisions of simplexes into 6 and 12 triangles respectively so that Bezier nets of C^1 quadratic finite elements can be shown.