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

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Poster Presentation P14

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

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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.