Geodesic finite elements

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Geodesic finite elements are a novel way to discretize problems involving functions with values on a Riemannian manifold. Examples for such problems include Cosserat materials and liquid crystals. Geodesic finite elements are conforming and invariant under isometries of the value manifold. Numerical evidence suggests that the discretization error rate behaves optimally. We present the theory of geodesic finite elements and give a few example applications.

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