



Some Recent Advances in IsoGeometric Analysis

The first topic to be presented is a novel implementation of Analysis Suitable T-splines that works independent of the spatial dimension, hence, extending [1] from surfaces to the n-variate case.

As a second topic, we develop high order approximations [2] of the consistent inverse of the isogeometric collocation mass matrix and use these to perform explicit structural dynamics simulations. Instead of solving a linear system at every time-step, we perform a sparse matrix-vector multiply. Some initial numerical test-cases show that we maintain high order convergence rates that are comparable with solving for the consistent inverse.

References:

- [1] Scott et al. Local refinement of analysis-suitable T-splines. (2012)
- [2] Lyche, et al. Local spline approximation methods. (1975)

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Via Ferrata, 3 – Pavia