

# Adaptive refinement in isogeometric analysis

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Numerical Simulation via Isogeometric Analysis is based on tensor-product NURBS (Non-Uniform Rational B-spline) parametrizations of planar and spatial computational domains. The NURBS technology has been developed in Computer Aided Geometric Design and is now the prevailing standard for representing free-form objects in CAD systems. However, this mathematical technology does not provide the possibility adaptive refinement, a feature which is strongly desired in numerical simulation. In order to overcome this limitation, several generalizations of tensor-product NURBS representations have been proposed. These include T-splines, hierarchical B-splines and locally refined B-splines. The talk will describe the various approaches and discuss their advantages and disadvantages. In particular we will focus on hierarchical B-splines since they seem to provide the best theoretical and practical properties.

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