

ADVANCED SPLINE METHODS FOR ISOGEOMETRIC ANALYSIS

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ABSTRACT

This mini-symposium presents recent developments in advanced spline methods for Isogeometric Analysis (IGA). It brings together theoretical and computational perspectives on the construction and analysis of spline spaces, with a focus on approximation, adaptivity, efficiency, and flexibility. Particular attention is given to modern spline technologies that enable refined and adaptive discretizations, improved computational performance, and the treatment of complex geometries and challenging problems. The mini-symposium aims to provide an overview of current trends in spline-based IGA and to foster discussion on new developments, challenges, and future directions in the field.

SPEAKERS

1. Maria Roberta Belardo (Scuola Superiore Meridionale, Naples): Optimal convergence of IGA collocation methods.
2. Leonardo Beretta (University of Pavia): Parameter identification in a Cahn–Hilliard model for tumor growth with nutrient dynamics.
3. Andrea Bressan (IMATI–CNR, Pavia): Overlapping subspaces, singular systems and IGA.

4. Tadej Kanduč (University of Ljubljana): Lattice Hierarchical B-splines Part I: Definition and properties.
5. Mattia Matucci (Centre Inria de l'Université Côte d'Azur): Fast formation of isogeometric matrices with THB-splines.
6. Francesca Pelosi (University of Siena): Advanced spline spaces for space-time isogeometric analysis.
7. Thomas Takacs (Johann Radon Institute for Computational and Applied Mathematics): Adaptive optimization of isogeometric multi-patch discretizations by reparameterization.
8. Hugo Verhelst (Dutch Defense Academy): Lattice Hierarchical B-splines Part II: Isogeometric analysis applications.