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Nota di contenuto	Foreword for the Proceedings Volume; Preface; Contents; Multipatch Discontinuous Galerkin Isogeometric Analysis; 1 Introduction; 2 Multipatch dG IgA for PDEs in 3d Computational Domains; 2.1 Multipatch dG IgA Discretization; 2.2 Auxiliary Results; 2.3 Analysis of the dG IgA Discretization; 2.4 Numerical Examples; 2.4.1 Smooth and Low-Regularity Solutions; 2.4.2 Non-matching Meshes; 2.5 Graded Mesh Partitions for the dG IgA Methods; 2.5.1 Regularity Properties of the Solution Around the Boundary Singular Points; 2.5.2 The Graded Mesh for TH() and Global Approximation Estimates

2.5.3 Numerical Examples3 Multipatch dG IgA for PDEs on Surfaces; 3.1 Diffusion Problems on Open and Closed Surfaces; 3.2 Multipatch dG IgA Discretization; 3.3 Discretization Error Estimates; 3.4 Numerical Examples; 3.4.1 Sphere; 3.4.2 Torus; 3.4.3 Car; 4 The G+Smo C++ Library; 4.1 Description of the Main Modules; 4.2 Development Framework; 4.3 Additional Features and Extensions; 4.4 Plugins for Third-Party Platforms; References; The Influence of Quadrature Errors on Isogeometric Mortar Methods; 1 Introduction; 2 Isogeometric Mortar Methods; 2.1 Isogeometric Parametrization
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3.3 Description of the Algorithm3.4 Surface Extension; Examples; 3.5 T-Joint Removal; 4 Hexahedron Parameterization; 5 Simulation; 5.1 The Linear Elasticity Problem; 5.2 Isogeometric Treatment with Multi-patch Domain; 5.3 TERRIFIC Demonstrator; 5.4 Chair Stand; 6 Conclusions and Further Work; References; Domain Decomposition Methods and Kirchhoff-Love Shell Multipatch Coupling in Isogeometric Analysis; 1 Introduction; 2 Theory; 2.1 The Strong Form of the Problem; 2.2 The Weak Form of the Decoupled Problem; 2.3 The Weak Form of the Penalty Approach
2.4 The Weak Form of the Lagrange Multipliers Approach2.5 The Weak Form of the Augmented Lagrange Multipliers Approach; 3 Discretization; 3.1 Discrete Spaces; 3.2 Discrete Equation System of the Decoupled Problem; 3.3 Discrete Equation System of the Penalty Approach; 3.4 Discrete Equation System of the Lagrange Multipliers Approach; 3.5 Discrete Equation System of the Augmented Lagrange Multipliers Approach; 4 Numerical Results; 4.1 Circular Plate Subject to Uniform Pressure Load; 4.2 Scordelis-Lo Roof; 4.3 Slit Annular Plate Subject to Tip Lifting Line Force
4.4 Cantilever Subjected to End Moment

Sommario/riassunto

Isogeometric Analysis is a groundbreaking computational approach that promises the possibility of integrating the finite element method into conventional spline-based CAD design tools. It thus bridges the gap between numerical analysis and geometry, and moreover it allows to tackle new cutting edge applications at the frontiers of research in science and engineering. This proceedings volume contains a selection of outstanding research papers presented at the second International Workshop on Isogeometric Analysis and Applications, held at Annweiler, Germany, in April 2014.