

1. Record Nr.	UNISA996485662303316
Titolo	Geometric Challenges in Isogeometric Analysis [[electronic resource] /] / edited by Carla Manni, Hendrik Speleers
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2022
ISBN	3-030-92313-4
Edizione	[1st ed. 2022.]
Descrizione fisica	1 online resource (386 pages)
Collana	Springer INdAM Series, , 2281-5198 ; ; 49
Disciplina	511.42
Soggetti	Mathematics - Data processing Mathematics Computer science - Mathematics Algorithms Computational Mathematics and Numerical Analysis Applications of Mathematics Mathematical Applications in Computer Science Geometria combinatoria Congressos Llibres electrònics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	1 Carolina Vittoria Beccari and Hartmut Prautzsch, Quadrilateral Orbifold Splines -- 2 Timothy Boafu-Adade et al., B-Symmetric Univariate Splines and Euler Numbers -- 3 Nora Engleitner and Bert Jüttler, DPB-Splines: The Decoupled Basis of Patchwork Splines -- 4 Antonella Falini et al., A Collocation IGA-BEM for 3D Potential Problems on Unbounded Domains -- 5 Tom Lyche et al., Simplex-Splines on the Clough-Tocher Split with Arbitrary Smoothness -- 6 Florian Martin and Ulrich Reif, Trimmed Spline Surfaces with Accurate Boundary Control -- 7 Benjamin Marussig, Fast Formation and Assembly of Isogeometric Galerkin Matrices for Trimmed Patches -- 8 Jörg Peters and Kstutis Kariauskas, Subdivision and G-Spline Hybrid Constructions for High-Quality Geometric and Analysis-Suitable Surfaces -- 9 Malcolm A. Sabin, Meshing as the Choice of Basis Functions for Finite Element

Analysis -- 10 Vibeke Skytt and Tor Dokken, Scattered Data Approximation by LR B-Spline Surfaces: A Study on Refinement Strategies for Efficient Approximation -- 11 Roel Tielen et al., A Block ILUT Smoother for Multipatch Geometries in Isogeometric Analysis -- 12 Nelly Villamizar et al., Completeness Characterization of Type-I Box Splines -- 13 Xiaodong Wei, THU-Splines: Highly Localized Refinement on Smooth Unstructured Splines -- 14 Yuxuan Yu et al., HexGen and Hex2Spline: Polycube-Based Hexahedral Mesh Generation and Spline Modeling for Isogeometric Analysis Applications in LS-DYNA -- 15 Mehrdad Zareh and Xiaoping Qian, C1 Triangular Isogeometric Analysis of the von Karman Equations.

Sommario/riassunto

This book collects selected contributions presented at the INdAM Workshop "Geometric Challenges in Isogeometric Analysis", held in Rome, Italy on January 27-31, 2020. It gives an overview of the forefront research on splines and their efficient use in isogeometric methods for the discretization of differential problems over complex and trimmed geometries. A variety of research topics in this context are covered, including (i) high-quality spline surfaces on complex and trimmed geometries, (ii) construction and analysis of smooth spline spaces on unstructured meshes, (iii) numerical aspects and benchmarking of isogeometric discretizations on unstructured meshes, meshing strategies and software. Given its scope, the book will be of interest to both researchers and graduate students working in the areas of approximation theory, geometric design and numerical simulation. Chapter 10 is available open access under a Creative Commons Attribution 4.0 International License via link.springer.com.
