1. Record Nr. UNISALENTO991003636149707536

Autore	C.I.M.E. Summer School "Splines and PDEs" <2017 ; Cetraro, Italy>
Titolo	Splines and PDEs: from approximation theory to numerical linear algebra [e-book] : Cetraro, Italy 2017 / by Angela Kunoth, Tom Lyche, Giancarlo Sangalli, Stefano Serra-Capizzano ; edited by Tom Lyche, Carla Manni, Hendrik Speleers
Pubbl/distr/stampa	Cham : Springer, 2018
ISBN	331994911X 9783319949116 9783319949109
Descrizione fisica	1 online resource (ix, 318 pages) : illustrations (some color)
Collana	Lecture notes in mathematics (Springer-Verlag). CIME Foundation subseries Lecture Notes in Mathematics, 0075-8434 ; 2219 C.I.M.E. Foundation Subseries ; 2219
Classificazione	AMS 65-06
Altri autori (Persone)	Kunoth, Angelaauthor Lyche, Tomauthor Sangalli, Giancarlo Serra-Capizzano, Stefano Manni, Carla Speleers, Hendrik
Disciplina	515.353
Soggetti	Numerical analysis Differential equations, partial
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Foundations of Spline Theory: B-Splines, Spline Approximation, and Hierarchical Refinement ; Adaptive Multiscale Methods for the Numerical Treatment of Systems of PDEs ; Generalized Locally Toeplitz Sequences: A Spectral Analysis Tool for Discretized Differential Equations ; Isogeometric Analysis: Mathematical and Implementational Aspects, with Applications
Sommario/riassunto	This book takes readers on a multi-perspective tour through state-of-the-art mathematical developments related to the numerical treatment of PDEs based on splines, and in particular isogeometric methods. A

wide variety of research topics are covered, ranging from approximation theory to structured numerical linear algebra. More precisely, the book provides (i) a self-contained introduction to B-splines, with special focus on approximation and hierarchical refinement, (ii) a broad survey of numerical schemes for control problems based on B-splines and B-spline-type wavelets, (iii) an exhaustive description of methods for computing and analyzing the spectral distribution of discretization matrices, and (iv) a detailed overview of the mathematical and implementational aspects of isogeometric analysis. The text is the outcome of a C.I.M.E. summer school held in Cetraro (Italy), July 2017, featuring four prominent lecturers with different theoretical and application perspectives. The book may serve both as a reference and an entry point into further research.