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Titolo	Splines and PDEs: From Approximation Theory to Numerical Linear Algebra [[electronic resource]] : Cetraro, Italy 2017 / / by Angela Kunoth, Tom Lyche, Giancarlo Sangalli, Stefano Serra-Capizzano ; edited by Tom Lyche, Carla Manni, Hendrik Speleers
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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.