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Titolo	Numerical Fourier analysis // by Gerlind Plonka, Daniel Potts, Gabriele Steidl, Manfred Tasche
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Edizione	[1st ed. 2018.]
Descrizione fisica	1 online resource (XVI, 618 p. 51 illus., 30 illus. in color.)
Collana	Applied and Numerical Harmonic Analysis, , 2296-5009
Disciplina	515.785 515.2433
Soggetti	Harmonic analysis Numerical analysis Information theory Matrix theory Algebra Abstract Harmonic Analysis Numerical Analysis Information and Communication, Circuits Linear and Multilinear Algebras, Matrix Theory
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Fourier series -- Fourier transforms -- Discrete Fourier transforms -- Multidimensional Fourier methods -- Fast Fourier transforms -- Chebyshev methods and fast DCT algorithms -- Fast Fourier transforms for nonequispaced data -- High dimensional FFT -- Numerical applications of DFT -- Prony method for reconstruction of structured functions.
Sommario/riassunto	This book offers a unified presentation of Fourier theory and corresponding algorithms emerging from new developments in function approximation using Fourier methods. It starts with a detailed discussion of classical Fourier theory to enable readers to grasp the construction and analysis of advanced fast Fourier algorithms introduced in the second part, such as nonequispaced and sparse FFTs in higher dimensions. Lastly, it contains a selection of numerical

applications, including recent research results on nonlinear function approximation by exponential sums. The code of most of the presented algorithms is available in the authors' public domain software packages. Students and researchers alike benefit from this unified presentation of Fourier theory and corresponding algorithms.
