

1. Record Nr.	UNINA9910299963203321
Titolo	Sparse Grids and Applications - Munich 2012 // edited by Jochen Garcke, Dirk Pflüger
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2014
ISBN	3-319-04537-7
Edizione	[1st ed. 2014.]
Descrizione fisica	1 online resource (345 p.)
Collana	Lecture Notes in Computational Science and Engineering, , 1439-7358 ; ; 97
Disciplina	004.36
Soggetti	Computer mathematics Computational Mathematics and Numerical Analysis Computational Science and Engineering
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Gerrit Buse, Dirk Pflüger, and Riko Jacob: Efficient Pseudorecursive Evaluation Schemes for Non-Adaptive Sparse Grids -- Oliver G. Ernst and Björn Sprungk: Stochastic Collocation for Elliptic PDEs with Random Data – The Lognormal Case -- Michael Griebel and Helmut Harbrecht: On the Convergence of the Combination Technique -- Michael Griebel and Jan Hamaekers: Fast Discrete Fourier Transform on Generalized Sparse Grids -- Michael Griebel and Jens Oettershagen: Dimension-adaptive Sparse Grid Quadrature for Integrals with Boundary Singularities -- Max Gunzburger, Clayton G. Webster, and Guannan Zhang: An Adaptive Wavelet Stochastic Collocation Method for Irregular Solutions of Partial Differential Equations with Random Input Data -- Brendan Harding and Markus Hegland: Robust Solutions to PDEs with Multiple Grids -- Riko Jacob: Efficient Regular Sparse Grid Hierarchization by a Dynamic Memory Layout -- Valeriy Khakhutskyy and Dirk Pflüger: Alternating Direction Method of Multipliers for Hierarchical Basis Approximators -- Christoph Kowitz and Markus Hegland: An Opticom Method for Computing Eigenpairs -- Benjamin Peherstorfer, Fabian Franzelin, Dirk Pflüger, and Hans-Joachim Bungartz: Classification with Probability Density Estimation on Sparse Grids -- Bettina Schieche and Jens Lang: Adjoint Error Estimation for

Stochastic Collocation Methods -- Sebastian Ullmann and Jens Lang:
POD-Galerkin Modeling and Sparse-Grid Collocation for a Natural
Convection Problem with Stochastic Boundary Conditions -- Matthias
Wong and Markus Hegland: Opticom and the Iterative Combination
Technique for Convex Minimisation. .

Sommario/riassunto

Sparse grids have gained increasing interest in recent years for the numerical treatment of high-dimensional problems. Whereas classical numerical discretization schemes fail in more than three or four dimensions, sparse grids make it possible to overcome the “curse” of dimensionality to some degree, extending the number of dimensions that can be dealt with. This volume of LNCSE collects the papers from the proceedings of the second workshop on sparse grids and applications, demonstrating once again the importance of this numerical discretization scheme. The selected articles present recent advances on the numerical analysis of sparse grids as well as efficient data structures, and the range of applications extends to uncertainty quantification settings and clustering, to name but a few examples.
