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   Nota di bibliografia   Includes bibliographical references.

   Nota di contenuto   Peng Chen and Christoph Schwab: Adaptive Sparse Grid Model Order
                       Reduction for Fast Bayesian Estimation and Inversion -- Fabian
                       Franzelin and Dirk Pflüger: From Data to Uncertainty: An E_cient
                       Integrated Data-Driven Sparse Grid Approach to Propagate Uncertainty
                       -- Helmut Harbrecht and Michael Peters: Combination Technique Based
                       Second Moment Analysis for Elliptic PDEs on Random Domains --
                       Brendan Harding: Adaptive sparse grids and extrapolation techniques
                       -- Philipp Hupp and Riko Jacob: A Cache-Optimal Alternative to the
                       Unidirectional Hierarchization Algorithm -- Valeriy Khakhutskyy and
                       Markus Hegland: Spatially-Dimension- Adaptive Sparse Grids for Online
                       Learning -- Katharina Kormann and Eric Sonnendrücker: Sparse Grids
                       for the Vlasov–Poisson Equation -- Fabio Nobile, Lorenzo Tamellini,
                       Francesco Tesei and Raul Tempone: An Adaptive Sparse Grid Algorithm
                       for Elliptic PDEs with Lognormal Diffusion Coefficient -- David Pfander,
                       Alexander Heinecke, and Dirk Pflüger: A New Subspace-Based
                       Algorithm for E_cient Spatially Adaptive Sparse Grid Regression,
                       Classification and Multi- Evaluation -- Sharif Rahman, Xuchun Ren, and
                       Vaibhav Yadav: High-Dimensional Stochastic Design Optimization by
                       Adaptive-Sparse Polynomial Dimensional Decomposition -- Jie Shen,

Yingwei Wang, and Haijun Yu: E_cient Spectral-Element Methods for the Electronic Schrödinger Equation -- Hoang Tran, Clayton G. Webster, and Guannan Zhang: A Sparse Grid Method for Bayesian Uncertainty Quantification with Application to Large Eddy Simulation Turbulence Models -- Julian Valentin and Dirk Pflüger: Hierarchical Gradient-Based Optimization with BSplines on Sparse Grids.

| Sommario/riassunto | This volume of LNCSE is a collection of the papers from the proceedings of the third workshop on sparse grids and applications. Sparse grids are a popular approach for the numerical treatment of high-dimensional problems. Where classical numerical discretization schemes fail in more than three or four dimensions, sparse grids, in their different guises, are frequently the method of choice, be it spatially adaptive in the hierarchical basis or via the dimensionally adaptive combination technique. 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. The book also discusses a range of applications, including uncertainty quantification and plasma physics. |