1. Record Nr. UNINA9910158735903321

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| Titolo | Splitting Methods in Communication, Imaging, Science, and Engineering / / edited by Roland Glowinski, Stanley J. Osher, Wotao Yin |
| Pubbl/distr/stampa | Cham : , : Springer International Publishing : , : Imprint : Springer, , 2016 |
| Edizione | [1st ed. 2016.] |
| Descrizione fisica | 1 online resource (822 pages) |
| Collana | Scientific Computation, , 1434-8322 |
| Disciplina | 515.724 |
| Soggetti | Computer mathematics<br>Optical data processing<br>Physics<br>Mathematical optimization<br>Computational Mathematics and Numerical Analysis<br>Image Processing and Computer Vision<br>Numerical and Computational Physics, Simulation<br>Optimization |
| Lingua di pubblicazione | Inglese |
| Formato | Materiale a stampa |
| Livello bibliografico | Monografia |
| Nota di bibliografia | Includes bibliographical references at the end of each chapters and index. |
| Nota di contenuto | Introduction -- Some Facts about Operator-Splitting and Alternating Direction Methods -- Operator Splitting -- Convergence Rate Analysis of Several Splitting Schemes -- Self Equivalence of the Alternating Direction Method of Multipliers -- Application of the Strictly Contractive Peaceman-Rachford Splitting Method to Multi-block Separable Convex Programming -- Nonconvex Sparse Regularization and Splitting Algorithms -- ADMM and Non-convex Variational Problems -- Operator Splitting Methods in Compressive Sensing and Sparse Approximation -- First Order Algorithms in Variational Image Processing -- A Parameter Free ADI-like Method for the Numerical Solution of Large Scale Lyapunov Equations -- Splitting Enables Overcoming the Curse of Dimensionality -- ADMM Algorithmic Regularization Paths for Sparse Statistical Machine Learning -- Decentralized Learning for Wireless Communications and Networking |

-- Splitting Methods for SPDEs: From Robustness to Financial Engineering, Optimal Control and Nonlinear Filtering -- Application of Operator Splitting Methods in Finance -- A Numerical Method to Solve Multi-marginal Optimal Transport Problems with Coulomb Cost -- Robust Split-step Fourier Methods for Simulating the Propagation of Ultra-short Pulses in Single- and Two-mode Optical Communication Fibers -- Operator Splitting Methods with Error Estimator and Adaptive Time-stepping: Application to the Simulation of Combustion Phenomena -- Operator Splitting Algorithms for Free Surface Flows: Application to Extrusion Processes -- An Operator Splitting Approach to the Solution of Fluid-structure Interaction Problems with Hemodynamics -- On Circular cluster Formation in a Rotating Suspension of Non-Brownian Settling Particles in a Fully Filled Circular Cylinder: An Operator Splitting Approach to the Numerical Simulation.

Sommario/riassunto

This book is about computational methods based on operator splitting. It consists of twenty-three chapters written by recognized splitting method contributors and practitioners, and covers a vast spectrum of topics and application areas, including computational mechanics, computational physics, image processing, wireless communication, nonlinear optics, and finance. Therefore, the book presents very versatile aspects of splitting methods and their applications, motivating the cross-fertilization of ideas. .