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KEY=GRID - EWING ROLLINS

Multi-Grid Methods and Applications

Springer Science & Business Media Multi-grid methods are the most efficient tools for solving elliptic boundary value problems. The reader finds here an elementary introduction to multi-grid algorithms as well as a comprehensive convergence analysis. One section describes special applications (convection-diffusion equations, singular perturbation problems, eigenvalue problems, etc.). The book also contains a complete presentation of the multi-grid method of the second kind, which has important applications to integral equations (e.g. the "panel method") and to numerous other problems. Readers with a practical interest in multi-grid methods will benefit from this book as well as readers with a more theoretical interest.

Numerical Grid Methods and Their Application to

Schrödinger's Equation

Springer Science & Business Media The use of numerical grid methods to solve the Schrodinger equation has rapidly evolved in the past decade.The early attempts to demonstrate the computational viability of grid methods have been largely superseded by applications to specific problems and deeper research into more sophisticated quadrature schemes. Underpinning this research, of course, is the belief that the generic nature of grid methods can enjoy a symbiotic development with advances in computer technology, harnessing this technology in an effective manner. The contributions to this proceedings demonstrate these points in full: several appli cations displayed creative use and extension of existing grid methodology; other research concentrated on the development of new quadrature schemes or mixed numerical meth ods. The research represented ranges from highly specific spectral simulations of van der Waals complexs to general schemes for reactive scattering. The novelty of grid methods in Density Functional Theory calculations should also be highlighted since it represents an alternative to standard basis set expansion techniques and might offer distinct advantages to the standard techniques. A deliberate attempt was made to present research material with more motivational and background discussion than is typical of research publications. It is hoped that these contributed proceedings will be useful to students and researchers outside the field to have a rapid and complete introduction to many of the exciting uses of grid methodology in atomic and molecular physics. Special thanks are due to the NATO Science Committee for its generous support of the activities of this workshop.

Cosmological Applications of Multi-grid Methods

Application of Multi-grid Methods for Solving the Navier-Stokes Equations

Solving Ordinary Differential Equations I

Nonstiff Problems

Springer Science & Business Media "So far as I remember, I have never seen an Author's Pre face which had any purpose but one - to furnish reasons for the publication of the Book. " (Mark Twain) "Gauss' dictum, "when a building is completed no one should be able to see any trace of the scaffolding," is often used by mathematicians as an excuse for neglecting the motivation behind their own work and the history of their field. For tunately, the opposite sentiment is gaining strength, and numerous asides in this Essay show to which side go my sympathies. " (B. B. Mandelbrot, 1982) 'This gives us a good occasion to work out most of the book until the next year. " (the Authors in a letter, dated c. kt. 29, 1980, to Springer Verlag) There are two volumes, one on non-stiff equations, now finished, the second on stiff equations, in preparation. The first volume has three chapters, one on classical mathematical theory, one on Runge Kutta and extrapolation methods, and one on multistep methods. There is an Appendix containing some Fortran codes which we have written for our numerical examples. Each chapter is divided into sections. Numbers of formulas, theorems, tables and figures are consecutive in each section and indi cate, in addition, the section number, but not the chapter number. Cross references to other chapters are rare and are stated explicitly. The end of a proof is denoted by "QED" (quod erat demonstrandum).

Multigrid Methods IV

Proceedings of the Fourth European Multigrid Conference, Amsterdam, July 6–9, 1993

Birkhäuser This volume contains a selection from the papers presented at the Fourth European Multigrid Conference, held in Amsterdam, July 6-9,1993. There were 78 registered participants from 14 different countries, and 56 presentations were given. The preceding conferences in this series were held in Cologne (1981, 1985) and in Bonn (1990). Also at the other side of the Atlantic special multigrid conferences are held regularly, at intervals of two years, always in Copper Mountain, Colorado, US. The Sixth Copper

Mountain Conference on Multigrid Methods took place in April, 1993. Circumstances prevented us from putting a larger time interval between the Copper and Amsterdam meetings. The next European meeting is planned in 1996, a year later than the next Copper Meeting. When the first multigrid conference was held in 1981 there was no doubt about the usefulness of a conference dedicated specially to multigrid, because multigrid was a new and relatively unexplored subject, still in a pioneering stage, and pursued by specialists. The past twenty years have shown a rapid growth in theoretical understanding, useful applications and widespread acceptance of multi grid in the applied disciplines. Hence, one might ask whether there is still a need today for conferences specially dedicated to multigrid. The general consensus is that the answer is affirmative. New issues have arisen that are best addressed or need also be addressed from a special multigrid point of view.

Advances in Electronics and Electron Physics

Academic Press Advances in Electronics and Electron Physics

NASA Technical Paper

Industrial Applications of Holonic and Multi-Agent Systems

8th International Conference, HoloMAS 2017, Lyon, France, August 28–30, 2017, Proceedings

Springer This book constitutes the refereed proceedings of the 8th International Conference on Industrial Applications of Holonic and Multi-Agent Systems, HoloMAS 2017, held in Lyon, France, in August 2017. The 19 revised full papers presented were carefully reviewed and selected from 27 submissions. The papers are organized in the following topical sections: scheduling; knowledge engineering; modeling, simulation and reconfiguration; energy systems;and MAS in various areas.

Linear Iterations as Smoothers in Multi-grid Methods

Theory with Applications to Incomplete Decompositions

Surface Modeling, Grid Generation, and Related Issues in Computational Fluid Dynamic (CFD) Solutions

Proceedings of a Workshop

Multiple Grid Methods for Equations of the Second Kind, with Applications in Fluid Mechanics

Grid and Cloud Computing: Concepts, Methodologies, Tools and Applications

Concepts, Methodologies, Tools and Applications

IGI Global "This reference presents a vital compendium of research detailing the latest case studies, architectures, frameworks, methodologies, and research on Grid and Cloud Computing"--

Multigrid Methods for Process Simulation

Springer It was about 1985 when both of the authors started their work using multigrid methods for process simulation problems. This happened in dependent from each other, with a completely different background and different intentions in mind. At this time, some important monographs appeared or have been in preparation. There are the three "classical" ones, from our point of view: the so-called "1984 Guide" [12J by Brandt, the "Multi-Grid Methods and Applications" [49J by Hackbusch and the so-called "Fundamentals" [132J by Stiiben and Trottenberg. Stiiben and Trottenberg in [132J state a "delayed acceptance, resent ments" with respect to multigrid algorithms. They complain: "Nevertheless, even today's situation is still unsatisfactory in several respects. If this is true for the development of standard methods, it applies all the more to the area of really difficult, complex applications." In spite of all the above mentioned publications and without ignoring important theoretical and practical improvements of multigrid, this situa tion has not yet changed dramatically. This statement is made under the condition that a numerical principle like multigrid is "accepted", if there exist "professional" programs for research and production purposes. "Professional" in this context stands for "solving complex technical prob lems in an industrial environment by a large community of users". Such a use demands not only for fast solution methods but also requires a high robustness with respect to the physical parameters of the problem.

Multigrid

*Elsevier Multigrid presents both an elementary introduction to multigrid methods for solving partial differential equations and a contemporary survey of advanced multigrid techniques and real-life applications. Multigrid methods are invaluable to researchers in scientific disciplines including physics, chemistry, meteorology, fluid and continuum mechanics, geology, biology, and all engineering disciplines. They are also becoming increasingly important in economics and financial mathematics. Readers are presented with an invaluable summary covering 25 years of practical experience acquired by the multigrid research group at the Germany National Research Center for Information Technology. The book presents both practical and theoretical points of view. * Covers the whole field of multigrid methods from its elements up to the most advanced applications * Style is essentially elementary but mathematically rigorous * No other book is so comprehensive and written for both practitioners and students*

Pattern Recognition Applications and Methods

5th International Conference, ICPRAM 2016, Rome, Italy, February 24-26, 2016, Revised Selected Papers

Springer This book contains revised and extended versions of selected papers from the 5th International Conference on Pattern Recognition, ICPRAM 2016, held in Rome, Italy, in February 2016. The 13 full papers were carefully reviewed and selected from 125 initial submissions and describe up-to-date applications of pattern recognition techniques to real-world problems, interdisciplinary research, experimental and/or theoretical studies yielding new insights that advance pattern recognition methods.

Modeling, Simulation and Optimization of Complex Processes

Proceedings of the Third International Conference on High Performance Scientific Computing, March 6-10, 2006, Hanoi, Vietnam

Springer Science & Business Media This proceedings volume covers the broad interdisciplinary spectrum of scientific computing and presents recent advances in theory, development of methods, and applications in practice.

Structured Adaptive Mesh Refinement (SAMR) Grid Methods

Springer Science & Business Media The papers presented here describe research to improve the general understanding of the application of SAMR to practical problems, to identify issues critical to efficient and effective implementation on high performance computers and to stimulate the development of a community code repository for software including benchmarks to assist in the evaluation of software and compiler technologies. The ten chapters have been divided into two parts reflecting two major issues in the topic: programming complexity of SAMR algorithms and the applicability and numerical challenges of SAMR methods.

Grid and Cooperative Computing - GCC 2004

Third International Conference, Wuhan, China, October 21-24, 2004. Proceedings

Springer Welcome to the proceedings of GCC2004 and the city of Wuhan. Grid computing has become a mainstream research area in computer science and the GCC conference has become one of the premier forums for presentation of new and exciting research in all aspectsofgridandcooperativecomputing. Theprogramcommitteeispleasedtopresent the proceedings of the 3rd International Conference on Grid and Cooperative Comp- ing (GCC2004), which comprises a collection of excellent technical papers, posters, workshops, and keynote speeches. The papers accepted cover a wide range of exciting topics, including resource grid and service grid, information grid and knowledge grid, grid monitoring,managementand organizationtools, grid portal, grid service, Web s- vices and their QoS, service orchestration, grid middleware and toolkits, software glue technologies, grid security, innovative grid applications, advanced resource reservation andscheduling,performanceevaluationandmodeling,computer-supportedcooperative work, P2P computing, automatic computing, and meta-information management. The conference continues to grow and this year a record total of 581 manuscripts (including workshop submissions) were submitted for consideration. Expecting this growth, the size of the program committee was increased from 50 members for GCC 2003 for 70 in GCC 2004. Relevant differences from previous

editions of the conf- ence: it is worth mentioning a signi?cant increase in the number of papers submitted by authors from outside China; and the acceptance rate was much lower than for p- vious GCC conferences. From the 427 papers submitted to the main conference, the program committee selected only 96 regular papers for oral presentation and 62 short papers for poster presentation in the program.

Boundary Elements: Implementation and Analysis of Advanced Algorithms

Proceedings of the Twelfth GAMM-Seminar Kiel, January 19–21, 1996

Springer Science & Business Media Englischer Text: The volume contains 21 contributions to the 12th GAMM-Seminar (Kiel, January 1996), which was devoted to advanced algorithms in the field of boundary element methods. The topics were e. g. cubature techniques, multiscale methods, hp-discretisation, error estimation, domain decomposition, and programm design. Deutscher Text: Der Band enthält die 21 Beiträge zum 12. GAMM-Seminar (Kiel, Jaunuar 1996), welches sich mit fortgeschrittenen Algorithmen auf dem Gebiet der Randwertprobleme befaßte.

Computational Fluid Dynamics

A Practical Approach

Butterworth-Heinemann Computational Fluid Dynamics, Second Edition, provides an introduction to CFD fundamentals that focuses on the use of commercial CFD software to solve engineering problems. This new edition provides expanded coverage of CFD techniques including discretisation via finite element and spectral element as well as finite difference and finite volume methods and multigrid method. There is additional coverage of high-pressure fluid dynamics and meshless approach to provide a broader overview of the

application areas where CFD can be used. The book combines an appropriate level of mathematical background, worked examples, computer screen shots, and step-by-step processes, walking students through modeling and computing as well as interpretation of CFD results. It is ideal for senior level undergraduate and graduate students of mechanical, aerospace, civil, chemical, environmental and marine engineering. It can also help beginner users of commercial CFD software tools (including CFX and FLUENT). A more comprehensive coverage of CFD techniques including discretisation via finite element and spectral element as well as finite difference and finite volume methods and multigrid method Coverage of different approaches to CFD grid generation in order to closely match how CFD meshing is being used in industry Additional coverage of high-pressure fluid dynamics and meshless approach to provide a broader overview of the application areas where CFD can be used 20% new content

Scientific and Technical Aerospace Reports

Applications and Developments in Grid, Cloud, and High Performance Computing

IGI Global "This book provides insight into the current trends and emerging issues by investigating grid and cloud evolution, workflow management, and the impact new computing systems have on the education fields as well as the industries"--Provided by publisher.

Handbook of Research on P2P and Grid Systems for Service-Oriented Computing: Models, Methodologies and Applications

Models, Methodologies and Applications

IGI Global Addresses the need for peer-to-peer computing and grid paradigms in delivering efficient service-oriented computing.

Application of a multi-grid method for solving the Navier-Stokes equation in two-dimensional flow problems

Networks for Grid Applications

Second International Conference, GridNets 2008, Beijing, China, October 8-10, 2008. Revised Selected Papers

Springer Science & Business Media This book constitutes the thoroughly refereed post-conference proceedings of the Second International Conference on Networks for Grid Applications, GridNets 2008, held in Beijing, China in October 2008. The 19 revised full papers presented together with 4 invited presentations were carefully reviewed and selected from 37 submissions. The papers address the whole spectrum of grid networks, ranging from formal approaches for grid management to case studies in optical switching.

Third International Symposium on Domain

Decomposition Methods for Partial Differential Equations

SIAM

Computer Vision for Multimedia Applications: Methods and Solutions

Methods and Solutions

IGI Global "This book presents the latest developments in computer vision methods applicable to various problems in multimedia computing, including new ideas, as well as problems in computer vision and multimedia computing"--Provided by publisher.

Discrete-continuum Coupling Method to Simulate Highly Dynamic Multi-scale Problems

Simulation of Laser-induced Damage in Silica Glass

John Wiley & Sons Complex behavior models (plasticity, cracks, visco elascticity) face some theoretical difficulties for the determination of the behavior law at the continuous scale. When homogenization fails to give the right behavior law, a solution is to simulate the material at a meso scale in order to simulate directly a set of discrete properties that are responsible of the macroscopic behavior. The discrete element model has been developed for granular material. The proposed set shows how this method is capable to solve the problem of complex behavior that are linked to discrete meso scale effects. The first book solves the local problem, this second title presents a coupling approach to link the structural effects to the local ones, the third book presents the software workbench that includes all the theoretical developments.

Laser-Induced Periodic Surface Nano- and Microstructures for Tribological Applications

MDPI This book is the printed edition of the Special Issue published in Materials. The book provides an overview of current international research activities in the field of friction and wear management through the laser processing of periodic surface micro- and nanostructures for technical and medical applications. Contributions of renowned scientists from academia and industry provide a bridge between the fields of tribology and laser material processing in order to foster current knowledge and present new ideas for future applications and new technologies.

Sparse Grids and Applications - Munich 2018

Springer Nature

Grid Networks

Enabling Grids with Advanced Communication Technology

John Wiley & Sons A book that bridges the gap between the communities of network and Grid experts. Grid Networks describes the convergence of advanced networking technologies and Grid technologies, with special focus on their symbiotic relationship and the resulting new opportunities. Grid technology is applicable to many implementations, Computational Grids, Data Grids, Service Grids, and Instrumentation Grids. The authors cover a breadth of topics including recent research, featuring both theoretical concepts and empirical results. Beginning with an overview of Grid technologies, an analysis of distinguishing use cases and architectural attributes, and emerging standards. Travostino et al. discuss new directions in multiple networking technologies that are enabling enhanced capabilities for Grids. An appendix also provides an overview of experimental research test-beds and prototype implementations.

These topics will enable network experts to design networks to best match Grid requirements, while Grid experts will learn how to effectively utilize network resources. Grid Networks: Enabling Grids with Advanced Communication Technology: Bridges the gap between the communities of network and Grid experts. Covers new network requirements posed by the Grid, and the paradigm shifts prompted by Grid applications. Discusses basic architectural concepts and directions related to the integration of Grid and networking technologies, especially those that elevate network resources to first class entities within Grid environments. Details new directions in networking technologies for the Grid, including Network Infrastructure & Management, Service Provisioning, High Performance Data Transport, Performance Monitoring, Reliability, and Network-Assisted Service Frameworks. Provides an overview of advanced research testbeds and innovative early implementations of emerging architecture and technology. Many communities will find this book an invaluable resource, including engineers and product managers, research scientists within academia, industry, and government agencies, advanced students and faculty in distributed systems courses, network and systems architects, CIOs, administrators of advanced networks, application developers, and providers of next generation distributed services.

High Performance Computing

5th International Symposium, ISHPC 2003, Tokyo-Odaiba, Japan, October 20-22, 2003, Proceedings

Springer The 5th International Symposium on High Performance Computing (ISHPC–V) was held in Odaiba, Tokyo, Japan, October 20–22, 2003. The symposium was thoughtfully planned, organized, and supported by the ISHPC Organizing C- mittee and its collaborating organizations. The ISHPC-V program included two keynote speeches, several invited talks, two panel discussions, and technical sessions covering theoretical and applied research topics in high–performance computing and representing both academia and industry. One of the regular sessions highlighted the research results of the ITBL project (IT–based research laboratory, http://www.itbl.riken.go.jp/). ITBL is a Japanese national project started in 2001 with the objective of re- izing a virtual joint research environment using information technology. ITBL aims to connect 100 supercomputers located in main Japanese scienti?c research laboratories via high–speed networks. A total of 58 technical contributions from 11 countries were submitted to ISHPC-V. Each paper received at least three peer reviews. After a thorough evaluation process, the program committee selected 14 regular (12-page) papers for presentation at the symposium. In addition, several other papers with fav- able reviews were recommended for a poster

session presentation. They are also included in the proceedings as short (8-page) papers.
Theprogramcommitteegaveadistinguishedpaperawardandabeststudent paper award to two of the regular papers. The distinguished paper award was given for "Code and Data Transformations for Improving Shared Cache P- formance on SMT Processors" by Dimitrios S. Nikolopoulos. The best student paper award was given for "Improving Memory Latency Aware Fetch Policies for SMT Processors" by Francisco J. Cazorla.

Optimal Planning of Smart Grid With Renewable Energy Resources

IGI Global Understanding the recent developments in renewable energy is crucial for a range of fields in today's society. As environmental awareness and the need for a more sustainable future continues to grow, the uses of renewable energy, particularly in areas such as smart grid, must be considered and studied thoroughly to be implemented successfully and move society toward a more sustainable future. Optimal Planning of Smart Grid With Renewable Energy Resources offers a detailed guide to the new problems and opportunities for sustainable growth in engineering by focusing on modeling diverse problems occurring in science and engineering as well as novel effective theoretical methods and robust optimization theories, which can be used to analyze and solve multiple types of problems. Covering topics such as electric drives and energy systems, this publication is ideal for researchers, academicians, industry professionals, engineers, scholars, instructors, and students.

Evolutionary Multi-Criterion Optimization

10th International Conference, EMO 2019, East Lansing, MI, USA, March 10-13, 2019, Proceedings

Springer This book constitutes the refereed proceedings of the 10th International Conference on Evolutionary Multi-Criterion Optimization, EMO 2019 held in East Lansing, MI, USA, in March 2019. The 59 revised full papers were carefully reviewed and selected from 76 submissions. The papers are divided into 8 categories, each representing a key area of current interest in the EMO field today.

They include theoretical developments, algorithmic developments, issues in many-objective optimization, performance metrics, knowledge extraction and surrogate-based EMO, multi-objective combinatorial problem solving, MCDM and interactive EMO methods, and applications.

Issues in Computer Engineering: 2012 Edition

ScholarlyEditions Issues in Computer Engineering / 2012 Edition is a ScholarlyEditions™ eBook that delivers timely, authoritative, and comprehensive information about Circuits Research. The editors have built Issues in Computer Engineering: 2012 Edition on the vast information databases of ScholarlyNews.™ You can expect the information about Circuits Research in this eBook to be deeper than what you can access anywhere else, as well as consistently reliable, authoritative, informed, and relevant. The content of Issues in Computer Engineering: 2012 Edition has been produced by the world's leading scientists, engineers, analysts, research institutions, and companies. All of the content is from peer-reviewed sources, and all of it is written, assembled, and edited by the editors at ScholarlyEditions™ and available exclusively from us. You now have a source you can cite with authority, confidence, and credibility. More information is available at http://www.ScholarlyEditions.com/.

Applications of Evolutionary Computing

16th European Conference, EvoApplications 2013, Vienna, Austria, April 3-5, 2013, Proceedings

Springer This book constitutes the refereed proceedings of the International Conference on the Applications of Evolutionary Computation, EvoApplications 2013, held in Vienna, Austria, in April 2013, colocated with the Evo* 2013 events EuroGP, EvoCOP, EvoBIO, and EvoMUSART. The 65 revised full papers presented were carefully reviewed and selected from 119 submissions. EvoApplications 2013 consisted of the following 12 tracks: EvoCOMNET (nature-inspired techniques for telecommunication networks and other parallel and distributed systems), EvoCOMPLEX (evolutionary algorithms and complex systems), EvoENERGY (evolutionary computation in energy applications), EvoFIN (evolutionary and natural computation in finance and economics), EvoGAMES (bio-inspired algorithms in games), EvoIASP (evolutionary computation in image analysis, signal processing, and pattern recognition),

EvoINDUSTRY (nature-inspired techniques in industrial settings), EvoNUM (bio-inspired algorithms for continuous parameter optimization), EvoPAR (parallel implementation of evolutionary algorithms), EvoRISK (computational intelligence for risk management, security and defence applications), EvoROBOT (evolutionary computation in robotics), and EvoSTOC (evolutionary algorithms in stochastic and dynamic environments).

Quantitative Quality of Service for Grid Computing: Applications for Heterogeneity, Large-Scale Distribution, and Dynamic Environments

Applications for Heterogeneity, Large-Scale Distribution, and Dynamic Environments

IGI Global "This book provides research into parallel & distributed computing, high performance computing, and Grid computing"-- Provided by publisher.

Issues in Biomedical Engineering Research and Application: 2013 Edition

ScholarlyEditions Issues in Biomedical Engineering Research and Application: 2013 Edition is a ScholarlyEditions™ book that delivers timely, authoritative, and comprehensive information about Reproductive Biomedicine. The editors have built Issues in Biomedical Engineering Research and Application: 2013 Edition on the vast information databases of ScholarlyNews.™ You can expect the information about Reproductive Biomedicine in this book to be deeper than what you can access anywhere else, as well as consistently reliable, authoritative, informed, and relevant. The content of Issues in Biomedical Engineering Research and Application:

2013 Edition has been produced by the world's leading scientists, engineers, analysts, research institutions, and companies. All of the content is from peer-reviewed sources, and all of it is written, assembled, and edited by the editors at ScholarlyEditions™ and available exclusively from us. You now have a source you can cite with authority, confidence, and credibility. More information is available at http://www.ScholarlyEditions.com/.

New Perspectives in Multiple Criteria Decision Making

Innovative Applications and Case Studies

Springer This book provides comprehensive coverage of the latest research on multiple criteria research analysis (MCDA) and related areas, gathering a collection of high-quality chapters prepared by leading scholars in the field. By covering the established streams in MCDA research and simultaneously exploring new and emerging areas of application, it offers a unique reference resource for the future development of MCDA. The book approaches MCDA as one of the most active areas in operations research and management science (OR/MS). It presents not only the significant advances achieved to date, but also the new opportunities and challenges arising for both the theory and practice of MCDA. Among many others, the book addresses behavioral and conceptual aspects of decision aiding and decision making, problem structuring issues in the framework of new technological and socio-economic advances, methodological and algorithmic advances for analytical modeling and decision aiding, as well as a number of new application areas in engineering, business, and the social sciences.