

MATRIX-BASED MULTIGRID:

Theory and Applications
Second Edition

YAIR SHAPIRA

Matrixbased Multigrid Theory And Applications

S Marginson



Matrixbased Multigrid Theory And Applications:

Matrix-Based Multigrid Yair Shapira, 2003 This is an introduction to and analysis of the multigrid approach for the numerical solution of large sparse linear systems arising from the discretization of elliptic partial differential equations. It gives special attention to the powerful matrix based multigrid approach which is particularly useful for problems with variable coefficients and nonsymmetric and indefinite problems, grids but also to more realistic applications with complicated grids and domains and discontinuous coefficients. The dissertation draws connections between multigrid and other iterative methods such as domain decomposition. The theoretical background provides insight about the nature of multigrid algorithms and how and why they work. The theory is written in simple algebraic terms and therefore requires preliminary knowledge only to basic linear algebra and calculus.

Matrix-Based Multigrid Yair Shapira, 2008-11-01 Matrix Based Multigrid introduces and analyzes the multigrid approach for the numerical solution of large sparse linear systems arising from the discretization of elliptic partial differential equations. Special attention is given to the powerful matrix based multigrid approach which is particularly useful for problems with variable coefficients and nonsymmetric and indefinite problems. This book can be used as a textbook in courses in numerical analysis, numerical linear algebra and numerical PDEs at the advanced undergraduate and graduate levels in computer science, math and applied math departments. The theory is written in simple algebraic terms and therefore requires preliminary knowledge only in basic linear algebra and calculus.

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James Wells,2004 Mathematical Reviews ,2004 multigrid methods McCormick,1988-05-24 This book is a collection of research papers on a wide variety of multigrid topics including applications computation and theory It represents proceedings of the Third Copper Mountain Conference on Multigrid Methods which was held at Copper Mountain Colorado

International Aerospace Abstracts ,1987 *Application of Krylov Subspace Iterative Techniques to the Numerical Solution of the Neutron Transport Equation* Bruce Wayne Patton,1996 **Topics in Numerical Analysis** G. Alefeld,Xiaojun

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