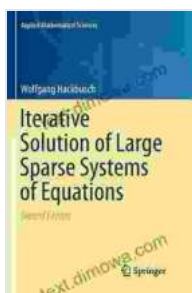


Iterative Solution of Large Sparse Systems of Equations: Applied Mathematical

This book provides an to the iterative solution of large sparse systems of equations. It is written for students and researchers in mathematics, computer science, and engineering who need to solve such systems. The book covers a wide range of topics, including: the basic theory of iterative methods, the design and analysis of preconditioners, and the implementation of iterative methods on high-performance computers.

The Basic Theory of Iterative Methods

The first part of the book covers the basic theory of iterative methods. This includes a discussion of the convergence properties of iterative methods, the role of preconditioners, and the implementation of iterative methods on high-performance computers.



Iterative Solution of Large Sparse Systems of Equations (Applied Mathematical Sciences Book 95)

by Michael D. Ryall

★★★★★ 5 out of 5

Language : English

Paperback : 69 pages

Item Weight : 6.7 ounces

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File size : 11299 KB

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The Design and Analysis of Preconditioners

The second part of the book covers the design and analysis of preconditioners. A preconditioner is a matrix that is used to improve the convergence properties of an iterative method. The book discusses a variety of preconditioners, including: incomplete LU factorization, sparse approximate inverse preconditioners, and multigrid methods.

The Implementation of Iterative Methods on High-Performance Computers

The third part of the book covers the implementation of iterative methods on high-performance computers. This includes a discussion of the challenges of implementing iterative methods on such computers, and the techniques that can be used to overcome these challenges.

Applications

The book concludes with a discussion of the applications of iterative methods. These applications include: the solution of linear systems arising from the discretization of partial differential equations, the solution of linear systems arising from the optimization of mathematical models, and the solution of linear systems arising from the simulation of physical systems.

This book provides a comprehensive to the iterative solution of large sparse systems of equations. It is written for students and researchers in mathematics, computer science, and engineering who need to solve such systems. The book covers a wide range of topics, and provides a detailed discussion of the basic theory, the design and analysis of preconditioners, and the implementation of iterative methods on high-performance computers.



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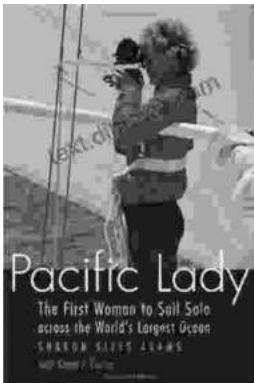
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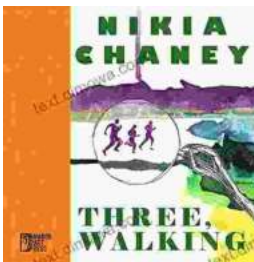
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