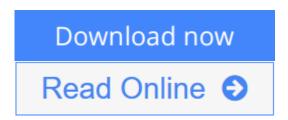# Parallel Iterative Algorithms: From Sequential to Grid Computing (Chapman & Hall/CRC Numerical Analysis and Scientific Computing Series)

By Jacques Mohcine Bahi, Sylvain Contassot-Vivier, Raphael Couturier

Parallel Iterative Algorithms: From Sequential to Grid Computing (Chapman & Hall/CRC Numerical Analysis and Scientific Computing Series) By Jacques Mohcine Bahi, Sylvain Contassot-Vivier, Raphael Couturier

Focusing on grid computing and asynchronism, Parallel Iterative Algorithms explores the theoretical and practical aspects of parallel numerical algorithms. Each chapter contains a theoretical discussion of the topic, an algorithmic section that fully details implementation examples and specific algorithms, and an evaluation of the advantages and drawbacks of the algorithms. Several exercises also appear at the end of most chapters.

The first two chapters introduce the general features of sequential iterative algorithms and their applications to numerical problems. The book then describes different kinds of parallel systems and parallel iterative algorithms. It goes on to address both linear and nonlinear parallel synchronous and asynchronous iterative algorithms for numerical computation, with an emphasis on the multisplitting approach. The final chapter discusses the features required for efficient implementation of asynchronous iterative algorithms.

Providing the theoretical and practical knowledge needed to design and implement efficient parallel iterative algorithms, this book illustrates how to apply these algorithms to solve linear and nonlinear numerical problems in parallel environments, including local, distant, homogeneous, and heterogeneous clusters.

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