PREFACE

Interest in domain decomposition methods has increased tremendously in the past two years, with notable advances taking place in the areas of both theory and application. In January 1988, nearly 100 people attended the Second International Symposium on Domain Decomposition Methods at the University of California at Los Angeles. The proceedings from this conference, including 34 of the 40 presented lectures and a broad range of papers representing worldwide state-of-the-art research, is contained in this volume. For the reader's convenience, this proceedings is organized into four parts: theory, algorithms, parallel implementation and applications. Of course, not all of the papers can be neatly classified into these four categories; in fact, many actually are a successful blend of all four aspects.

The field of domain decomposition methods has matured greatly since the first symposium, held in Paris in January 1987. This is evidenced by the 50% increase in the number of papers contained in this proceedings compared to that of 1987, and is reflected by the growing number of researchers working in this area.

Many aspects of domain decomposition methods are now being explored more thoroughly as a result of the information disseminated and exchanged at the first two meetings. One of the most notable examples is the interest in variants of the Schwarz iteration, which was inspired by a paper by P. L. Lions at the Paris meeting. Researchers are also now beginning to extend their techniques to more realistic applications. For instance, there are now several papers on applications to Stokes and Navier Stokes problems and to problems arising in combustion. Papers are also included on the extension of the domain decomposition principle to time dependent problems and on spectral methods and parallel implementation issues.

Future conferences on domain decomposition methods have already been planned for Houston, Texas in 1989 and Moscow, USSR in 1990.

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