

Computational Acoustics

Scattering, Supercomputing and Propagation

3rd IMACS Symposium on
Computational Acoustics
Cambridge, MA, USA, 26-28 June, 1991

Volume 1: Scattering, Supercomputing and Propagation
Volume 2: Acoustic Propagation



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Volume 1

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PREFACE

This book contains invited and contributed lectures in the areas of supercomputing, scattering, computational methods, and nonlinear problems presented at the Third IMACS (International Association for Mathematics and Computers in Simulation) International Symposium on Computational Acoustics held 26-28 June 1991 at Harvard University, Cambridge, Massachusetts, U.S.A. This symposium was sponsored jointly by the U.S. Office of Naval Research (ONR), IMACS, Harvard University, and the U.S. Naval Underwater Systems Center (NUSC).

One objective of this symposium was to provide a forum for active researchers to report their state-of-the-art research and important contributions in Computational Acoustics covering: (1) developments in computational aspects of 3-dimensional problems in long-range propagations, (2) significant developments in the application of effective methods to solve acoustics problems, (3) accuracy and capability issues in model development, (4) finding a solution for global extrema and inverse problems, (5) time-domain computations, and (6) solutions to acoustic problems by supercomputers, etc. The other objective was to bring together researchers from different areas of acoustics to exchange new ideas and to stimulate future research.

The U.S. ONR has been a strong supporter of theoretical and applied research in the above areas. ONR, thus, created numerous opportunities for recipients to make useful technical contributions as evidenced by the ONR-sponsored articles, contained in this book. Consequently, the scientific community was benefited substantially by these useful contributions.

Participants came from 10 countries, representing 33 universities and 20 research laboratories. Their contributions and enthusiasms have made this symposium a success.

On behalf of the Technical Committee, for the excellent lectures, I wish to thank Prof. Martin H. Schultz of Yale University (U.S.A.) for his "Prospects for Massively Parallel Supercomputers," Prof. John E. Ffowcs Williams of the University of Cambridge (England) for his "Computing the Sources of Sound," and Prof. Allan R. Robinson of Harvard University (U.S.A.) for his "Acoustic Propagation Through Dynamically Forecast Oceanographic Fields: Regional and Model Dependencies." My gratitude also goes to the General Chairman of the symposium, Prof. Robert Vichnevetsky of Rutgers University (U.S.A.) for his continuous guidance in the preparation for this event.

I would like to thank a group of referees who made a great effort to review these contributed manuscripts and made valuable comments for the improvement of the contents and the structure of these articles. Also, I would like to thank all the authors for their contributions and their cooperation.

Without the sponsors' support, this symposium would not have become possible. I wish to express my deep gratitude to ONR technical managers Drs. Richard L. Lau, Robert Obrochta, Marshall Orr, and Ralph Baer. My gratitude also goes to Drs. William I. Roderick and Kenneth Lima of NUSC for their continuous encouragement and cooperation.

My particular thanks go to Prof. Allan R. Robinson for his successful local arrangements. The continuous diligent efforts of my editorial assistant Anna Mastan (NUSC) and the symposium secretary Marsha G. Cormier (Harvard) deserve my special thanks. Next, I thank Mr. Chen Shuh-Kuen, the Director of the China Coordination Council for North American Affairs (Boston Office) as well as Eddy and Jade Lin of the Chinese American Culture Society (Boston) for their preparation of a very interesting and entertaining banquet program. Lastly, I thank Aileen Lee for doing a wonderful job in hosting the banquet.

Ding Lee
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on Computational Acoustics