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Book Reviews

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IUTAM Symposium on Integrated Modeling of Fully Coupled Fluid Structure Interactions Using Analysis, Computations and Experiments

Edited by Haym Benaroya and Timothy Wei, Kluwer Academic Publishers, Dordrecht, The Netherlands, 2004, 536 pp., $204.00

This volume is a collection of papers presented at an IUTAM Symposium on fluid structure interaction held at Rutgers University in New Jersey during 2–6 June 2003. The meeting brought together largely researchers working on problems of interest to the ocean engineering program of the Office of Naval Research at Arlington, Virginia. Fluid structure interaction is important in many areas of science and technology spanning ocean engineering to biological sciences and extends over a vast range of Reynolds numbers, geometries, three-dimensionality, mass ratio, and viscoelastic properties. In this symposium, the focus was on ocean and civil engineering topics such as deformable oceanic systems, easily deployable buoys, cables, and risers as they pertain to mine sweeping and other marine platforms. These topics are normally not treated in conventional engineering research on fluid structural interaction. In that sense, this volume is an uncommon collection. Furthermore, due to changing priorities, programs, barring a minimal core, are sometimes phased out. In such an eventuality, for the purpose of later revival, the present volume would provide useful pointers to investments and directions for future research.

Some of the authors bring many years of experience to their papers, and so the volume contains several excellent reviews and insightful papers. The first that comes to mind is by Palo, who gives a broad yet thorough inventory of practical naval issues and identifies the computational needs, which is the subject of the symposium. This review also depicts the great divide between the geometries and properties of practical interest and what is being simulated by many researchers. Most of the papers describe experimental results, and there is a clear dearth of efforts on modeling. One wishes the papers had statements of uncertainties. The reviews by Rockwell et al., Vandiver and Marcollo, Triantafyllou et al., and Benaroya and Wei, to name only a few, are insightful and distill the science that comes from the lifetime of contributions by the authors.

Some minor criticisms are as follows: It would have been useful to group the papers into subtopics so readers could more readily understand what is being integrated for effective modeling. Several papers are only abstracts and at least one does not seem to belong in this volume. The page space is not always uniformly filled and the font size is not always uniform either. The customary and useful alphabetical author and systematic index at the end of volumes is not included. The volume would have benefited from a more rigorous and uniform editorial review process.

Although the present volume may not be the first time that some of the papers have appeared, I believe that this collection is a useful desk reference of the state of the art.

Promode R. Bandyopadhyay
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