

Preface

This book contains state-of-the-art contributions in the field of Coupled Problems in Engineering. A selected specialist has written each chapter as an extended version of the paper presented at the conference “Fifth Computational Methods for Coupled Problems in Science and Engineering” held in Ibiza in July 2013. This Conference brought together more than 400 participants from 41 countries and was dedicated to celebrate the 60th birthday of Prof. Eugenio Oñate.

The Conference was included as one of the Thematic Conferences of the European Community on Computational Methods in Applied Sciences (ECCOMAS) and a Special Interest Conference of the International Association for Computational Mechanics (IACM). It was also supported by other scientific organizations in Europe and worldwide.

This book contains 16 chapters written by distinguished authors, who present and discuss mathematical models, numerical methods, and computational techniques for solving Coupled Problems of multidisciplinary character. The goal of this book is to take a step forward in the formulation and solution of real life problems with a multidisciplinary vision, accounting for all the complex couplings involved in the physical description of the problem.

Topics treated in the various chapters include developments and applications of Coupled Problems in a wide variety of situations such as Non-Linear Materials, Cardiovascular Fluid Mechanics, Multi-Fluid Flows, or Fluid-Structure Interactions, using different techniques like particle methods, reduced order models or partitioned parallelization techniques.

This book includes contributions submitted directly by authors. The editor cannot accept responsibility for any inaccuracies, comments, and opinions contained in the text.

The editor would like to take this opportunity for thanking all authors for submitting their excellent contributions on time. Many thanks also to ECCOMAS and Springer for accepting the publication of this book in the series “Computational Methods in Applied Sciences.”

Sergio R. Idelsohn

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Idelsohn, S. (Ed.)

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