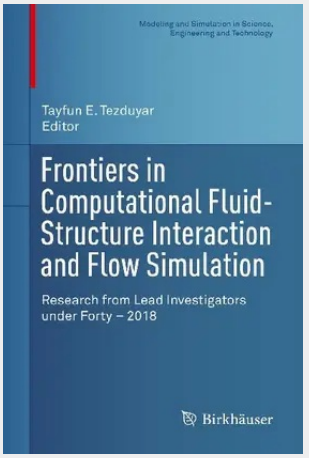
Tezduyar

Frontiers in Computational Fluid-Structure Interaction and Flow Simulation

Research from Lead Investigators under Forty - 2018



Computational fluid-structure interaction and flow simulation are challenging research areas that bring solution and analysis to many classes of problems in science, engineering, and technology. Young investigators under the age of 40 are conducting much of the frontier research in these areas, some of which is highlighted in this book. The first author of each chapter took the lead role in carrying out the research presented. The topics covered include

- Computational aerodynamic and FSI analysis of wind turbines,
- Simulating free-surface FSI and fatigue-damage in wind-turbine structural systems,
- Aorta flow analysis and heart valve flow and structure analysis,
- Interaction of multiphase fluids and solid structures,
- Computational analysis of tire aerodynamics with actual geometry and road contact, and
- A general-purpose NURBS mesh generation method for complex geometries.

This book will be a valuable resource for early-career researchers and students — not only those interested in computational fluid-structure interaction and flow simulation, but also other fields of engineering and science, including fluid mechanics, solid mechanics and computational mathematics – as it will provide them with inspiration and guidance for conducting their own successful research. It will also be of interest to senior researchers looking to learn more about successful research led by those under 40 and possibly offer collaboration to these researchers.

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