Book review

Fluid-Structure Interaction, Alain Dervieux (Ed.), Kogan Page Science, 2003.

This book is composed of nine chapters by different contributors who are well-known experts in various problems concerning fluid-structure interaction, first published as a special issue on *Fluid-Structure Interaction*, vol. 9, 2000, in the Revue Européenne des Eléments Finis, Hermes Science Publications, Paris.

The editor, Alain Dervieux from INRIA Sophia-Antipolis is an internationally well-recognized expert in CFD for innovative finite volume methods.

This *excellent* book is particularly welcome because the topic concerns *unsteady aeroelasticity* problems with particular emphasis on *compressible fluids*. In particular, in the transonic regime, it is crucial to use the full Navier–Stokes equations. This is mandatory when large vortices occur in unsteady turbulent flows. As a consequence, this collection of well-selected papers, which constitutes the nine chapters of this book is particularly recommended.

The topic is an important specialized part of the fluid-structure discipline and it constitutes an up-to-date base for engineers and researchers in aeroelasticity. It should be noted that the number of books devoted to aeroelasticity is limited to really classical ones and, in this respect, this collection of papers is totally appropriate.

The first chapter is devoted to fundamental basic mathematical tools, followed by a description of partitioned procedures for transient solution of aeroelastic problems.

Then a chapter describes the adequate formulations starting from ALE to transpiration. A special emphasis on sensitivity analysis and shape optimization in the context of aeroelasticity is then presented.

Application of a fully coupled fluid-structure algorithm to a compressor cascade is the subject of the next chapter, followed by three chapters, respectively, on pulsating flow and perforated membrane, thrust inverter possible coupling, and aeroelastic coupling between a thin divergent and high pressure jets.

Each chapter is very well written and is self-consistent with a selected choice of references. Of course, between 2003 and the present, several researchers have made advances on the topic, but this reviewer strongly recommends this very interesting collection of papers under the format of a book, for all those interested in numerical innovative computational methods in aeroelasticity.

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