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Book review

Foundations of fluid mechanics with applications

by S.P. Kiselev, E.V. Vorozhtsov and V.M. Fomin. Birkhäuser, Basel, Berlin, Boston. 1999. 592 pages. ISBN 0-8176-3995-0, ISBN 3-7643-3995-0. CHF 138

The book addresses the basic concepts of continuum and utilizes the *Mathematica* solver to investigate problems in various fields of fluid mechanics such as: ideal incompressible flows, viscous flows, compressible gas dynamics, turbulent flows, and multiphase flows in heterogeneous media.

The first two chapters are quite general and are devoted to the fundamental derivation of the mass, momentum and energy equations using rigorous invariant tensorial representation. Although not easy to read, they are of high quality and are the best part of the book. Alas, the rest of the book addresses too many topics, none of which is treated in depth. The general approach is to stress the underlying mathematical basis and the use of *Mathematica* and to neglect the physical interpretations of the phenomena.

Consequently, the book is neither for undergraduate students (too difficult) nor would it appeal to graduate students (too brief when discussing applications). At best, the book can be used by researchers who are already familiar with the various topics of fluid mechanics and would like to enhance their problem solving skills using *Mathematica*.

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