

# Book Review

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## ***Methods for the Localization of Singularities in Numerical Solutions of Gas Dynamics Problems***

E. V. Vorozhtsov and N. N. Yanenko, Springer-Verlag, New York, 1990, 406 pp., \$110.00.

The emphasis of this book is on methods for locating shocks and contact discontinuities in one- and two-dimensional flows. The title, however, seems to limit the range of the book, a good portion of which also contains discussions on methods to treat shocks and contact discontinuities once they have been located. A good feature is the attention paid to contact discontinuities, a subject often neglected in numerical gas dynamics. In this respect, the book is stimulating; here we find ideas and inspiration for work on the rarely considered problem of gases not obeying the usual equation of state. Unfortunately, the results obtained by the authors do not seem to be extremely good.

An attempt to present the material in a readable form, without indulging in the Bourbakian style that makes most of the current literature a playground for the anointed, falters and becomes somewhat heavy at times. The book reflects many original ideas, although they are compared with techniques that are definitely outdated. It must be kept in mind that the original Russian version is dated 1985, the bulk of it probably having been structured in the early 1980s. Shock capturing has received a great deal of attention in the last decade, but despite some brief mention of several modern attempts, one gets the feeling that the treatment of shock capturing described in this book is somewhat obsolete.

There is a problem with the cited literature, which includes about 600 references (some of them repeated). Many details that I consider crucial for a better understanding of the authors' ideas are mentioned only

through references. Most of them are not in the open literature and are available only in Russian. I think that the authors should make an effort to explain all topics with full details. If a subject is considered worthy of mention, that mention must be clear and complete. If the author is at a loss with someone else's paper, he should say so, or not attempt to reference it. Otherwise, he should become an interpreter of the paper, injecting his own bias but making the quotation as clear as possible.

It is beyond my reach to analyze the reasons for so many citations and to understand whether they are justified. Nevertheless, I have serious doubts on the validity of such an impressive display of references. I myself have been quoted twice (in two different chapters) in connection with my shock-fitting techniques. My two papers mentioned here are probably the only two where not a single mention was made of shock fitting. I wonder where all the editors have gone, and proofreaders as well: "Information and location" do not belong to the English language. Even the name of one of the authors seems to be a problem; sometimes it is Yanenko, sometimes Janenko. The names of cited authors sometimes are given in all capital letters, sometimes not. Should we, perhaps, advise the publishers that they are not dealing with a mass market and remind them of the old Latin, *Festina lente* (make haste slowly), which appears in no publisher's logo?

G. Moretti  
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