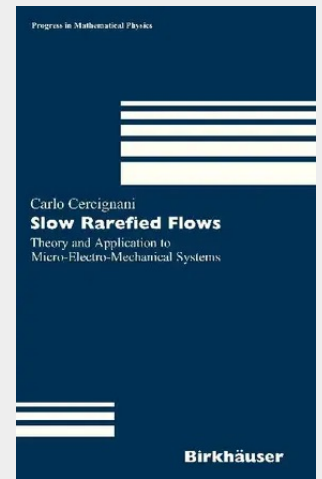


Slow Rarefied Flows

Theory and Application to Micro-Electro-Mechanical Systems

This volume is intended to cover the present status of the mathematical tools used to deal with problems related to slow rarefied flows. The meaning and usefulness of the subject, and the extent to which it is covered in the book, are discussed in some detail in the introduction. In short, I tried to present the basic concepts and the techniques used in probing mathematical questions and problems which arise when studying slow rarefied flows in environmental sciences and micromachines. For the book to be up-to-date without being excessively large, it was necessary to omit some topics, which are treated elsewhere, as indicated in the introduction and, whenever the need arises, in the various chapters of this volume. Their omission does not alter the aim of the book, to provide an understanding of the essential mathematical tools required to deal with slow rarefied flows and give the background for a study of the original literature. Although I have tried to give a rather complete bibliographical coverage, the choice of the topics and of the references certainly reflects a personal bias and I apologize in advance for any omission. I wish to thank Lorenzo Valdettaro, Antonella Abb`a, Silva Lorenzani and Paolo Barbante for their help with pictures and especially Professor Ching Shen for his permission to reproduce his pictures on microchannel flows.

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