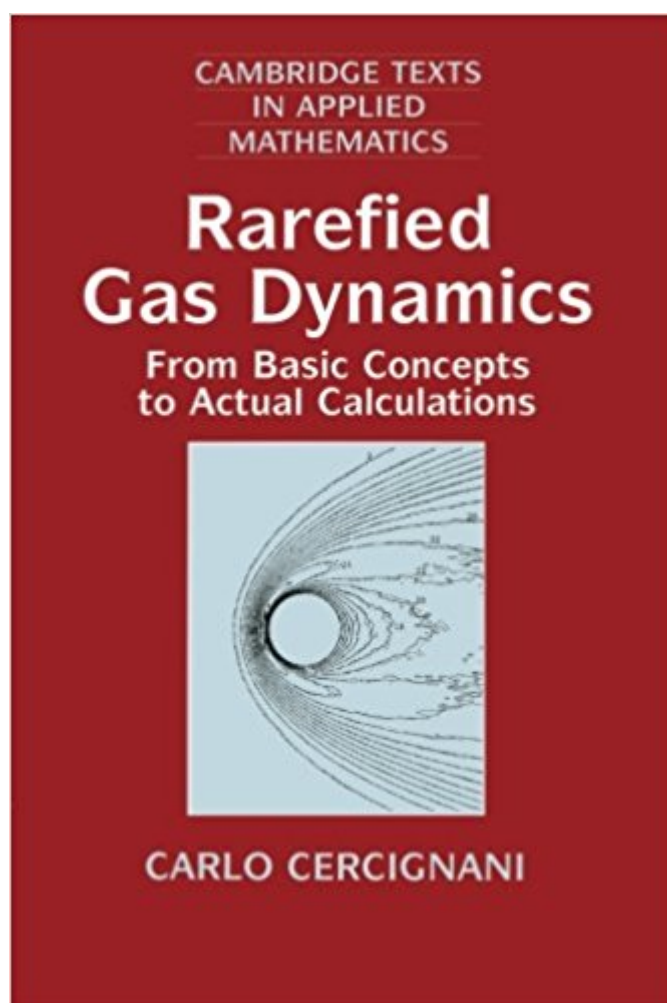


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# Rarefied Gas Dynamics: From Basic Concepts To Actual Calculations (Cambridge Texts In Applied Mathematics)



## Synopsis

This work presents the concepts, methods and applications of kinetic theory to rarefied gas dynamics. After introducing the basic tools, Carlo Cercignani treats problems in plane geometry using all the approximation techniques. He later uses these same techniques to deal with two- and three-dimensional problems. The models include not only monatomic but also polyatomic gases, mixtures, chemical reactions. A special chapter is devoted to evaporation and condensation phenomena. Each section is accompanied by helpful problems. The book can be used in a range of graduate courses in aerospace engineering or applied mathematics.

## Book Information

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## Customer Reviews

"...Carlo Cercignani has produced a unique book that may be a harbinger of the future." *AIAA Journal*"...for persons not too familiar with kinetic theory, it presents a readable and carefully written introduction to the basics of the theory." *Mathematical Reviews*" Rarefield Gas Dynamics: From Basic Concept to Actual Calculations is a great comprehensive reference that is certainly worth the low cost." *Appl Mech Rev* vol 54, no 5 Sept 01

The aim of this book is to present the concepts, methods and applications of kinetic theory to rarefied gas dynamics. After introducing the basic tools, problems in plane geometry are treated using approximation techniques (perturbation and numerical methods). These same techniques are

later used to deal with two- and three-dimensional problems. The models include not only monatomic but also polyatomic gases, mixtures, chemical reactions. A special chapter is devoted to evaporation and condensation phenomena. Each section is accompanied by problems which are mainly intended to demonstrate the use of the material in the text and to outline additional subjects, results and equations. This will help ensure that the book can be used for a range of graduate courses in aerospace engineering or applied mathematics.

Good book. I'm mostly interested in evaporation/condensation phenomena in a gas, the book provides review of history of development of the field (with references), and also provides comprehensive analysis with derivations.

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