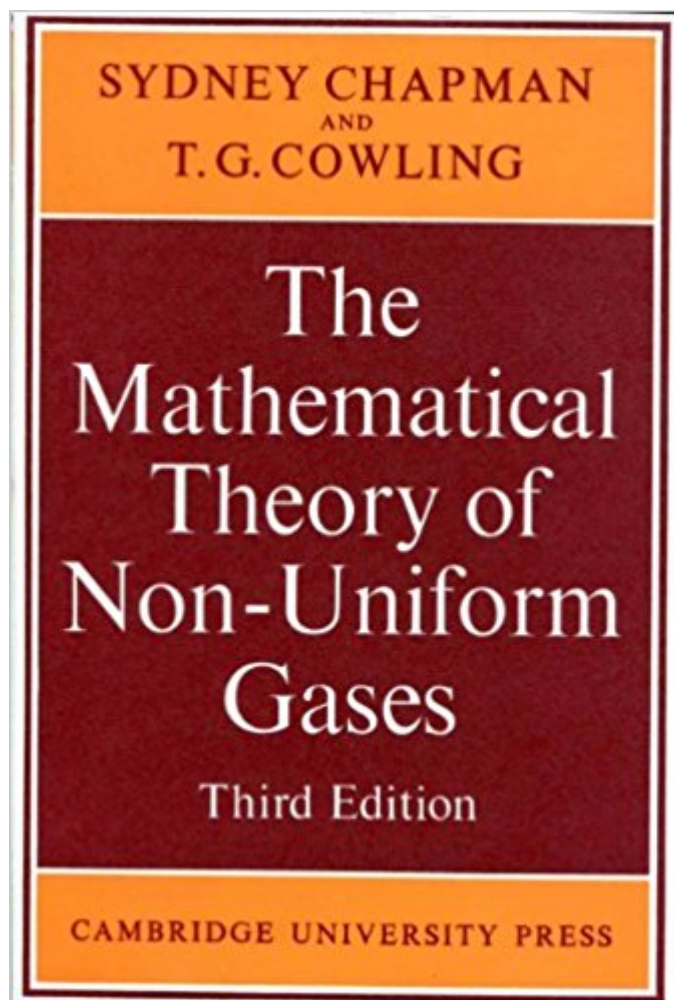


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The Mathematical Theory Of Non-uniform Gases: An Account Of The Kinetic Theory Of Viscosity, Thermal Conduction And Diffusion In Gases (Cambridge Mathematical Library)





Synopsis

This classic book, now reissued in paperback, presents a detailed account of the mathematical theory of viscosity, thermal conduction, and diffusion in non-uniform gases based on the solution of the Maxwell-Boltzmann equations. The theory of Chapman and Enskog, describing work on dense gases, quantum theory of collisions, and the theory of conduction and diffusion in ionized gases in the presence of electric and magnetic fields is also included in the later chapters. This reprint of the third edition, first published in 1970, includes revisions that take account of extensions of the theory to fresh molecular models and of new methods used in discussing dense gases and plasmas.

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edition was first published in 1970 and included revisions to take account of extensions of the theory to fresh molecular models and of new methods used in discussing dense gases and plasmas. This reissue will therefore be of value to mathematicians, theoretical physicists and chemical engineers interested in gas-theory and its applications. Cambridge Mathematical Library Cambridge University Press has a long and honourable history of publishing in mathematics and counts many classics of the mathematical literature within its list. Some of these titles have been out of print for many years now and yet the methods which they espouse are still of considerable relevance today. The Cambridge Mathematical Library will provide an inexpensive edition of these titles in a durable paperback format and at a price which will make the books attractive to individuals wishing to add them to their personal libraries. It is intended that certain volumes in the series will have forewords, written by leading experts in the subject, which will place the title in its historical and mathematical context. --This text refers to the Paperback edition.

It is well written and organized monograph on the Boltzmann equation. One may feel some difficulty to read this book, due to the vector and tensor convention, which is due to the relatively young history of vector-tensor mathematics. Once you adapt to the notation given in this book you may feel the power of systematic approach.

Chapman and Cowling's outstanding work for kinetic theory. This book is regarded as a Classic in this field. However, the notations are not so familiar to me. So I was somewhat perplexed at first. More introductory texts are, J. Jeans 'An introduction to the kinetic theory of gases' E.H. Kennard 'Kinetic theory of gases with an introduction to statistical mechanics'

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The book deals with the classical statistical mechanics approach of describing gases; it shows how properties as pressure, viscosity and heat flux can be derived. It shows this for dense and dilute gases, and for gas-mixtures.

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