

1. Record Nr.	UNINA9910782280603321
Titolo	Lecture notes on the discretization of the Boltzmann equation [[electronic resource] /] / editors Nicola Bellomo, Renee Gatignol
Pubbl/distr/stampa	River Edge, NJ, : World Scientific, c2003
ISBN	1-281-94792-X 9786611947927 981-279-690-8
Descrizione fisica	1 online resource (317 p.)
Collana	Series on advances in mathematics for applied sciences ; ; v. 63
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Disciplina	530.13/8
Soggetti	Transport theory Finite element method Differential equations - Asymptotic theory
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	CONTENTS ; Preface ; Chapter 1. From the Boltzmann Equation to Discretized Kinetic Models ; 1.1 Introduction ; 1.2 The Nonlinear Boltzmann Equation ; 1.3 The Discrete and Semicontinuous Boltzmann Equation ; 1.4 Plan of the Lecture Notes ; 1.5 References Chapter 2. Discrete Velocity Models for Gas Mixtures 2.1 Introduction ; 2.2 DVM for mixtures ; 2.3 Models with a finite number of velocities and the problem of spurious invariants ; 2.4 Constructing DVM with arbitrarily many velocities ; 2.5 Concluding remarks ; 2.6 References Chapter 3. Discrete Velocity Models with Multiple Collisions 3.1 Introduction ; 3.2 Discrete Models with Multiple Collisions ; 3.3 Macroscopic Description ; 3.4 Boundary Conditions for Discrete Models ; 3.5 Conclusion ; 3.6 References

Chapter 4. Discretization of the Boltzmann Equation and the Semicontinuous Model

4.1 Introduction ; 4.2 Splitting and Energy Formulation ;
; 4.3 Working in a Finite Energy Interval ;
4.4 Energy Discretization and Kinetic Model
4.5 Conservation and Euler Equations for the Discretized Model
4.6 Energy Formulation of the Collision Dynamics
; 4.7 Concluding Remarks ; 4.8 References
; Chapter 5. Semi-continuous Extended Kinetic Theory
; 5.1 Introduction ; 5.2 Continuous Kinetic Equations
5.3 Semi-continuous Kinetic Equations

Sommario/riassunto

This book presents contributions on the following topics: discretization methods in the velocity and space, analysis of the conservation properties, asymptotic convergence to the continuous equation when the number of velocities tends to infinity, and application of discrete models. It consists of ten chapters. Each chapter is written by applied mathematicians who have been active in the field, and whose scientific contributions are well recognized by the scientific community.

Contents:

- From the Boltzmann Equation to Discretized Kinetic Models (N Bellomo & R Gatignol)
