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| Nota di contenuto | Preface; CONTENTS; CHAPTER 1 Gas Properties; CHAPTER 2 The Non-Equilibrium Equations and the Relaxation of the Internal Degrees of Freedom; CHAPTER 3 The Fundamental Equations of Gas Dynamics; CHAPTER 4 Isoentropic Flow. Characteristic Lines; CHAPTER 5 The Method of Characteristics; CHAPTER 6 The Shock Waves; CHAPTER 7 The Flow in Nozzles and Jets; CHAPTER 8 The Supersonic Free Jet; CHAPTER 9 Application of the Boltzmann Equation to a Jet of Monatomic Gas; CHAPTER 10 Characterisation of a Particle Source and Extraction of the Molecular Beam CHAPTER 11 The Condensation in a Supersonic Free JetCHAPTER 12 Some Different Topics; Appendix A.1 Different Forms of Eq. (1.2.2); Appendix A.2 Intermolecular Potential Energy; Appendix A.3 Molecular Energy Levels; Appendix B.1 Deduction of Eqs. (2.5.8; 9; 10); Appendix C.1 Deduction of Eqs. (3.9.10; 13); Appendix C.2 Alternative Deduction of the Bernoulli Equation; Appendix D.1 Use of the Prandtl-Meyer Function in the Method of Characteristics; Appendix D.2 Planar Flow Classification; Appendix D.3 Characteristic Lines and Weak |

Discontinuities; Appendix E.1 Spherical Symmetry Source
Appendix E.2 A New Determination of the Flow Field Appendix E.3
Deduction of Eqs. (8.5.1; 2); Appendix F.1 Deduction of Eqs. (9.2.9; 10;
11; 12); Appendix F.2 Deduction of Eqs. (9.3.5; 6); Appendix F.3
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and \int_2 in Eqs. (12.4.7; 14); Index

Sommario/riassunto

Introduction to Molecular Beams Gas Dynamics is devoted to the theory and phenomenology of supersonic molecular beams. The book describes the main physical idea and mathematical methods of the gas dynamics of molecular beams, while the detailed derivation of results and equations is accompanied by an explanation of their physical meaning. The phenomenology of supersonic beams can appear complex to those not experienced in supersonic gas dynamics and the few existing reviews on the topic generally presume specific knowledge of the subject. The book begins with a quantitative description of the
