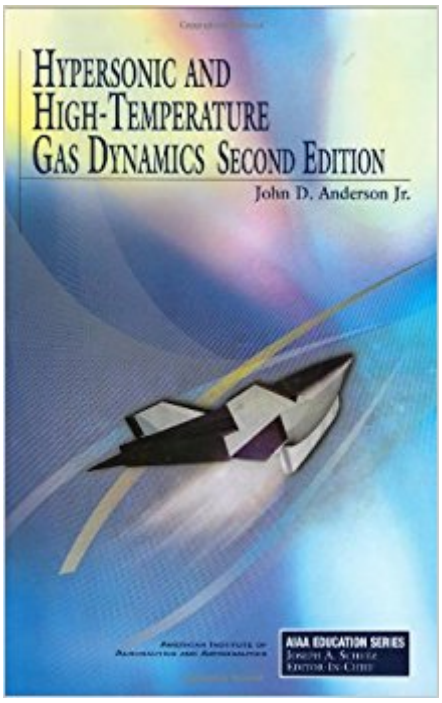
Hypersonic And High-Temperature Gas Dynamics, Second Edition (AIAA Education)



Synopsis

This book is the second edition of a successful, self-contained text for those students and readers interested in learning hypersonic flow and high-temperature gas dynamics. Like the first edition, it assumes no prior familiarity with either subject on the part of the reader. If you have never studied hypersonic and/or high-temperature gas dynamics before, and if you have never worked extensively in the area, then this book is for you. On the other hand, if you have worked and/or are working in these areas, and you want a cohesive presentation of the fundamentals, a development of important theory and techniques, a discussion of the salient results with emphasis on the physical aspects, and a presentation of modern thinking in these areas, then this book is also for you. In other words, this book is designed for two roles: 1) as an effective classroom text that can be used with ease by the instructor, and understood with ease by the student; and 2) as a viable, professional working tool for engineers, scientists, and managers who have any contact in their jobs with hypersonic and/or high-temperature flow. Because of its success, most of the first edition has been carried over to the second edition with the addition of much new material. This second Edition has updated figures and data to compliment the presentation and discussion of the fundamentals. New to this edition are some educational tools that the author has found successful in previous books, namely the inclusion of: (1) previews of each chapter written in plain language to inform the reader why it is important to read and understand the material in the chapter, to highlight the important aspects , and to whip up the readerÃ¢â ¬â„¢s passion to consume the chapter; (2) design examples scattered throughout the book to illustrate the application of the fundamentals to the design of hypersonic vehicles and ground test facilities; and (3) roadmaps at the beginning of each chapter to guide the reader comfortably through the material. New subjects discussed in the Second Edition include shock-shock interactions, hypersonic waveriders, and aspects of hypersonic propulsion devices, always in light of the fundamentals emphasized in the main part of the book. Finally, this book is for you Ã¢â ¬â œ the reader Ã¢â ¬â œ to take you through an enjoyable tour of the world of Hypersonic and High Temperature Gasdynamics.

Book Information

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Customer Reviews

"John Anderson’s books are consistently well written. It’s an excellent book I’ll keep for years to come."

Dr. John Anderson, Jr. received his Ph.D. in Aeronautical and Astronautical Engineering in 1966 from the Ohio State University. Dr. Anderson served as professor of Aerospace Engineering at the University of Maryland where he became the Glenn L. Martin Distinguished Professor for Education in Aerospace Engineering. He is an Honorary Fellow of AIAA and a Fellow of the Royal Aeronautical Society. Among his numerous accomplishments, he was awarded the AIAA Pendray Aerospace Literature Award ""for writing textbooks in aerospace engineering which have received worldwide acclaim."" In 1999 he retired from the University of Maryland and was appointed Professor Emeritus. He is currently the Curator for Aerodynamics at the National Air and Space Museum.

This is my favorite Anderson text, next to Modern Compressible Flow and Computational Fluid Dynamics. Both are 5 star texts.There are a surprising amount of typos in the text. Just be careful. I found them because I parsed the text carefully during my outlines of the chapter material. You find about 1-2 typos per chapter.Looking at it in front of me, it’s a beast. I did not formally cover the first 445 pages of Hypersonics but I did cover the last half of the book while studying High-Temperature Gas Dynamics. The high-temp sections offer a very good roadmap for learning. All of the topics are brought together very well during this portion of the text.The information on Hypersonics appeared exhaustive. If it is recommended for hypersonics, I would get it. It covers inviscid AND viscous hypersonic flow in parts 1 and 2. Part 3 is high-temp. This is an excellent INTRODUCTORY text for graduate level students. The author does recommend many texts that will allow the reader to delve further into the subject matter.

A subject that continues to be a focus of Aeronautical Engineering research by the finest author of my generation. A reasonably priced classic.

great

Another great book by Anderson. Very clear and concise. The binding always falls apart on these AIAA published books though.

This book in conjunction with Anderson’s "Modern Compressible Flow with Historical Perspective" will give you and excellent fundamental background in high temp gas dynamics. I think the third section alone of this book (which introduces stastical mechanics, kinetic theory, chemically reacting flows, equilibrium and nonequilibrium flows) is worth the price.

I just finished reading an old edition, whihc is late 80’s and it’s incredible, I can’t wait to get this new edition. If you like aerodynamics and are interested in space re-entry vehicles, for sure you should have this book in your personal library.

While this description refers to an out of print edition by McGraw-Hill, the book has been republished by the American Institute of Aeronautics and Astronautics (AIAA) with the ISBN 156347459X.

Second Edition An Introduction to the Mathematics and Methods of Astrodynamics, Revised Edition (Aiaa Education Series) Introduction to Aeronautics, Third Edition (AIAA Education Series) Aircraft Design: A Conceptual Approach, Fourth Edition (AIAA Education) Introduction to Aeronautics: A Design Perspective, 2nd Edition (Aiaa Education Series) Introduction to Flight Testing and Applied Aerodynamics (Aiaa Education Series) Fundamentals of Aircraft and Airship Design (AIAA Education Series)