Ballistics Theory And Design Of Guns And Ammunition Second Edition

Rapid Fire
Low-Energy Lunar Trajectory Design
Celestial Mechanics and Astrodynamics
The Science of Small Arms Ballistics
A Theory of the Drone
Introduction to Sports Biomechanics
Introduction to Rocket Technology
New Principles of Gunnery
Terminal Ballistics
Armour
Metallurgy, Ballistics and Epistemic Instruments
Modern Exterior Ballistics
Propellants and Explosives
Engineering Design
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Terminal Ballistics
Ballistics
Collected Works of H. S. Tsien (1938-1956)
The Theory of the Interior Ballistics of Guns
Ballistics
The Basics of Firearms
Close Up at a Distance
Orbital Mechanics for Engineering Students
BALLISTICS 2016
Applied Ballistics for Long Range Shooting
High Energy Materials
Ballistic Imaging
Wound Ballistics
Armament Engineering
Architectural Acoustics
Manned Spacecraft Design Principles
Shooting Incident Reconstruction
Introduction to the Physics of Gyrotrons
Brassey's Essential Guide to Military Small Arms
Re-Entry and Vehicle Design
Ballistics
The Future of the U.S. Intercontinental Ballistic Missile Force
Handbook of Firearms and Ballistics
Ballistics
Big Book of Ballistics
Explosive Effects and Applications

Rapid Fire
Dr. H. S. Tsien (also known as Dr. Qian Xuesen), is celebrated as the leader of the research that produced China's first ballistic missiles, its first satellite, and the Silkworm anti-ship missile. This volume collects the scientific works of Dr. H. S. Tsien (also known as Dr. Qian Xuesen)
and his co-authors, which published between 1938—1956 when he was studying and working in the United States as a graduate student, scientist and professor, when aeronautic exploration stepped up from low speed to high speed regimes and astronomic technology entered its infant stage. The author is one of the most significant Chinese scientists in the past 70 years. Focuses on a series of key problems in aerodynamics, stability of shells, rocket ballistics and engine analyses. Collects Tsien's work as author and co-author from his time working in the US.

Low-Energy Lunar Trajectory Design With new chapters, homework problems, case studies, figures, and examples, Ballistics: Theory and Design of Guns and Ammunition, Third Edition encourages superior design and innovative applications in the field of ballistics. It examines the analytical and computational tools for predicting a weapons behavior in terms of pressure, stress, and velocity, demonstrating their applications in ammunition and weapons design. New coverage in the Third Edition includes gas-powered guns, and naval ordinance. With its thorough coverage of interior, exterior and terminal ballistics, this new edition continues to be the standard resource for those studying the technology of guns and ammunition.

Celestial Mechanics and Astrodynamics This work deals with the classification, construction, design and theory of different kinds of small arms (hand-firing weapons, heavy machine guns and small-calibre automatic cannons). It provides the necessary knowledge and information to designers, workers in research and development, students at military colleges and all those with an interest in firearms.
The Science of Small Arms Ballistics A comprehensive account of the heavy automatic weapons developed in every nation throughout the 20th century. Contains tabulated data for the weapons and ammunition as well as a cartridge identification guide.

A Theory of the Drone Even the earliest weapon developers faced the need to understand how and why guns and ammunition work in order to improve their effectiveness. As weapons became more sophisticated, the field of ballistics naturally divided into three main areas of specialization: interior, exterior, and terminal ballistics. Providing unique coverage of all three ar

Introduction to Sports Biomechanics This is a broad-based text on the fundamentals of explosive behavior and the application of explosives in civil engineering, industrial processes, aerospace applications, and military uses.

Introduction to Rocket Technology Authored by an insider with over 40 years of high energy materials (HEMs) experience in academia, industry and defense organizations, this handbook and ready reference covers all important HEMs from the 1950s to the present with their respective properties and intended purposes. Written at an attainable level for professionals, engineers and technicians alike, the book provides a comprehensive view of the current status and suggests further directions for research and development. An introductory chapter on the chemical and thermodynamic basics allows the reader to become acquainted with the fundamental features of explosives, before moving on to the important safety aspects in processing, handling, transportation and storage of high energy materials. With its collation of results and formulation strategies hitherto
scattered in the literature, this should be on the shelf of every HEM researcher and developer.

New Principles of Gunnery Part of the Army Material Commands series on gun design. This book is a must have for anyone interested in the actual design that goes into any firearm.

Terminal Ballistics Weapons design has been one of the most intense and continuous efforts of mankind for over 1000 years. This is a major statement about the dynamics and importance of weapons in forging the history of mankind. Weapons design has covered the spectrum from a more efficient spear to the present day guided munitions. This book focuses on the design and function of firearms such as small arms and long arms, pistols and rifles; both semi-auto, full-auto, revolvers and hybrids. This includes designs of receivers, barrels, triggers, stocks, magazines and many of the new integrated firearms platforms including the various rail systems.

Armour The authors assess alternatives for a next-generation intercontinental ballistic missile (ICBM) across a broad set of potential characteristics and situations. They use the current Minuteman III as a baseline to develop a framework to characterize alternative classes of ICBMs, assess the survivability and effectiveness of possible alternatives, and weigh those alternatives against their cost.

Metallurgy, Ballistics and Epistemic Instruments Orbital Mechanics for Engineering Students, Second Edition, provides an introduction to the basic concepts of space mechanics. These include vector kinematics in three dimensions; Newton’s laws of motion and gravitation; relative motion; the
vector-based solution of the classical two-body problem; derivation of Kepler’s equations; orbits in three dimensions; preliminary orbit determination; and orbital maneuvers. The book also covers relative motion and the two-impulse rendezvous problem; interplanetary mission design using patched conics; rigid-body dynamics used to characterize the attitude of a space vehicle; satellite attitude dynamics; and the characteristics and design of multi-stage launch vehicles. Each chapter begins with an outline of key concepts and concludes with problems that are based on the material covered. This text is written for undergraduates who are studying orbital mechanics for the first time and have completed courses in physics, dynamics, and mathematics, including differential equations and applied linear algebra. Graduate students, researchers, and experienced practitioners will also find useful review materials in the book. NEW: Reorganized and improved discussions of coordinate systems, new discussion on perturbations and quaternions NEW: Increased coverage of attitude dynamics, including new Matlab algorithms and examples in chapter 10 New examples and homework problems

Modern Exterior Ballistics Ballistics Explained In Plain Language! The physics of firearms and ammunition can be difficult to understand, with numerous technical terms and definitions that warrant explanation. In Big Book of Ballistics, author and ballistics expert Philip Massaro lifts the veil. He explains interior, exterior and terminal ballistics in plain language. Massaro takes you on a journey that starts inside the cartridge case and terminates on the other side of a blasted-out target. Whether new or experienced, your knowledge of bullet performance and choice will be pushed to the absolute limit, as the world of factory and custom bullet and component choices is revealed. No dry technical manual, Big Book of Ballistics relies on Massaro's worldwide pursuit of small, medium and
dangerous game adventure in heart-pounding true stories that make the science of ballistics as real as it gets. Inside the book: The terminology of ballistics in plain language How to choose the best ammunition Successful long-range shooting principles Terminal ballistics of hunting, target and self-defense bullets Illustrative charts/graphs depict comparisons between bullet shapes, trajectories and wind drift Modern developments in bullet technology can greatly enhance hunting and shooting performance. Understand the ballistic benefits with Big Book of Ballistics.

Propellants and Explosives

Engineering Design Handbook Gun Series A commented edition of the work with which modern ballistics emerged in the 16th century.

Terminal Ballistics

Ballistics Presents high-level research on various caliber guns, cannon, mortars, drones, warheads, shells, bullets, drills and other launchers and penetrants, as well as their impact effects on natural and designed materials, including large-scale targets and body armors Provides new modeling and test data on projectile design and guidance, propellants, charges and explosives for military, aerospace and civil engineering applications Over 250 presentations in two printed volumes, plus searchable CD This book makes available original ballistics technology from around the world on a wide variety of weapons and their effects, including the design and trajectory/stability control of dozens of projectiles ranging from shells to missiles. The book's authors discuss the efficacy and
development of propellants, munitions, and igniters and offer new approaches for modeling and testing. Also investigated in Volume 1 are shielding and protection strategies for individual persons and other targets. Volume 2 offers research on the mechanical behavior of multiple types of explosives, as well as impact and penetration data from projectile effects on surfaces ranging from natural phenomena such as water and soils to metallic plating and material-engineered armors. Papers in these volumes were presented at a conference organized by the National Defense Industrial Association (NDIA) with the International Ballistics Society.

Collected Works of H. S. Tsien (1938-1956) It should appeal to plasma physicists interested in charged-particle dynamics, as well as to applied physicists needing to know more about micro- and millimeter-wave technologies.

Theory of the Interior Ballistics of Guns The science of small arms ballistics is seriously underdeveloped and underappreciated. This unique and different book is a comprehensive study that fills a legitimate need for a work that covers the engineering and theory of small arms ballistics. The author shares his extensive research on working out the science of small arm ballistics mathematically and explains his theories, such as the field-effect and the field-effect over trajectory and time, along with new theories on interior, exterior, and terminal ballistics. Each equation describes a mathematical relationship, such as transfer of energy, and has an engineering application to help solve a design problem. Some equations, such as the calculation of bullet length with a given muzzle velocity and rate of twist, represent manipulations of those equations. Some other equations represent a set of mathematical instructions to resolve a technical problem, such as the computation
of trajectory or depth of penetration of living tissue in real-time.

Ballistics Ballistic Imaging assesses the state of computer-based imaging technology in forensic firearms identification. The book evaluates the current law enforcement database of images of crime-related cartridge cases and bullets and recommends ways to improve the usefulness of the technology for suggesting leads in criminal investigations. It also advises against the construction of a national reference database that would include images from test-fires of every newly manufactured or imported firearm in the United States. The book also suggests further research on an alternate method for generating an investigative lead to the location where a gun was first sold: "microstamping," the direct imprinting of unique identifiers on firearm parts or ammunition.

The Basics of Firearms Maps poised at the intersection of art, architecture, activism, and geography trace a profound shift in our understanding and experience of space. The maps in this book are drawn with satellites, assembled with pixels radioed from outer space, and constructed from statistics; they record situations of intense conflict and express fundamental transformations in our ways of seeing and of experiencing space. These maps are built with Global Positioning Systems (GPS), remote sensing satellites, or Geographic Information Systems (GIS): digital spatial hardware and software designed for such military and governmental uses as reconnaissance, secrecy, monitoring, ballistics, the census, and national security. Rather than shying away from the politics and complexities of their intended uses, in Close Up at a Distance Laura Kurgan attempts to illuminate them. Poised at the intersection of art, architecture, activism, and geography, her analysis uncovers the implicit biases of the new views, the means of recording information they present, and the new
spaces they have opened up. Her presentation of these maps reclaims, repurposes, and discovers new and even inadvertent uses for them, including documentary, memorial, preservation, interpretation, political, or simply aesthetic. GPS has been available to both civilians and the military since 1991; the World Wide Web democratized the distribution of data in 1992; Google Earth has captured global bird's-eye views since 2005. Technology has brought about a revolutionary shift in our ability to navigate, inhabit, and define the spatial realm. The traces of interactions, both physical and virtual, charted by the maps in Close Up at a Distance define this shift.

Close Up at a Distance This book comprehensively discusses essential aspects of terminal ballistics, combining experimental data, numerical simulations and analytical modeling. Employing a unique approach to numerical simulations as a measure of sensitivity for the major physical parameters, the new edition also includes the following features: new figures to better illustrate the problems discussed; improved explanations for the equation of state of a solid and for the cavity expansion process; new data concerning the Kolsky bar test; and a discussion of analytical modeling for the hole diameter in a thin metallic plate impacted by a shaped charge jet. The section on thick concrete targets penetrated by rigid projectiles has now been expanded to include the latest findings, and two new sections have been added: one on a novel approach to the perforation of thin concrete slabs, and one on testing the failure of thin metallic plates using a hydrodynamic ram.

Orbital Mechanics for Engineering Students Introduction to Rocket Technology focuses on the dynamics, technologies, aerodynamics, ballistics, theory of servomechanisms, principles of navigation instruments, and electronics involved in rocket technology. The publication first takes a look at the
basic relationships in the theory of reactive motion; types of jet propelled aircraft and their basic construction; and types of reaction motors and their construction. Discussions focus on air breathing motors, anti-aircraft rockets, long range bombardment rockets, surface to surface, short range bombardment missiles, thrust of a rocket motor, and operating efficiency of a rocket motor. The text then examines rocket motor fuels and processes in the combustion chamber of a rocket motor. The manuscript ponders on the flow of combustion products through the nozzle of a rocket motor and forces and moments acting on the rocket in flight. Topics include stabilizing and damping moments, steering forces, aerodynamic forces, properties of supersonic nozzle, gas flow in a supersonic nozzle, cooling of liquid rocket motors, and basic laws of gas flow. The book then elaborates on rocket flight trajectory, basic principles of stabilization and steering, and ground equipment and launching devices. The publication is a valuable source of information for engineers and researchers interested in rocket technology.

BALLISTICS 2016 Modern Exterior Ballistics is a comprehensive text covering the basic free flight dynamics of symmetric projectiles. The book provides a historical perspective of early developments in the 19th century, the technology leading to World War I and that through World War II into the modern post-war era. Historical topics include the first ballistic firing tables, early wind tunnel experiments, the development of free flight spark ranges and the first supercomputer, ENIAC, which was designed to compute artillery trajectories for the U.S. Army Ballistic Research Laboratory. The level of the text requires an undergraduate education in mathematics, physics, and mechanical or aerospace engineering. The basic principles of ballistic science are developed from a comprehensive definition of the aerodynamic forces that control the flight dynamics of symmetric projectiles. The
author carefully starts with the basic vacuum point mass trajectory, adds the effects of drag, discusses the action of winds, simple flat fire approximations, Coriolis effects and concludes with the classic modified point mass trajectories. Included in the discussion are analytical methods, change of variables from time to distance, numerical solutions and a chapter on the Siacci Method. The Siacci Method provides a historical perspective for computing flat fire trajectories by simple quadrature and is used in the sporting arms industry. The final six chapters of the book present an extensive physical and mathematical analysis of the motion of symmetric projectiles. The linearized equations of angular and swerving motion are derived in detail. The effects of mass asymmetry, in-bore yaw, cross wind and launch in a slipstream are discussed. Special consideration is given to the derivation and explanation of aerodynamic jump. These subjects are then expanded to include a complete chapter on nonlinear aerodynamic forces and moments. The final chapter in the book presents an overview of experimental methods for measuring the flight dynamics of projectiles. The great forte of Modern Exterior Ballistics is the author's effort to provide many fine specific examples of projectile motion illustrating key flight behaviors. The extensive collection of data on projectiles from small arms to artillery used to substantiate calculations and examples is alone a valuable reference. The ultimate joy of the book is the incomparable comprehensive set of flow field shadow graphs illustrating the entire spectrum of projectile flight from subsonic, through transonic and supersonic. The volume is a necessary addition to any undergraduate or graduate course in flight dynamics.

Applied Ballistics for Long Range Shooting With new chapters, homework problems, case studies, figures, and examples, Ballistics: Theory and Design of Guns and Ammunition, Third Edition encourages superior design and innovative applications in the field of ballistics. It examines the
analytical and computational tools for predicting a weapon’s behavior in terms of pressure, stress, and velocity, demonstrating their applications in ammunition and weapons design. New coverage in the Third Edition includes gas-powered guns, and naval ordinance. With its thorough coverage of interior, exterior and terminal ballistics, this new edition continues to be the standard resource for those studying the technology of guns and ammunition.

High Energy Materials Ballistic Missile and Space Technology, Volume IV: Re-Entry and Vehicle Design focuses on the advancements of processes, methodologies, and technologies involved in re-entry and vehicle design, including hypersonics, material structures, propulsion, and communications. The selection first offers information on the pyrolysis of plastics in a high vacuum arc image furnace and aerothermodynamic feasibility of graphite for hypersonic glide vehicles. Discussions focus on aerothermochemical behavior of graphite, transient heat conduction, equilibrium glide trajectory, and apparatus and pyrolysis procedure. The text then takes a look at an engineering analysis of the weights of ablating systems for manned reentry vehicles and trajectories of lifting bodies entering planetary atmospheres at shallow angles. The manuscript ponders on propulsive control of atmospheric entry lifting trajectories, re-entry engineering mechanics, and rocket casing behavior predicted by laboratory tests. Topics include description of testing program, full-scale casing results, camera design, theoretical correlation, approximate thrust vector optimization, and propellant weight estimation. The selection is a dependable reference for astronauts and researchers interested in re-entry and vehicle design.

Ballistic Imaging
Wound Ballistics The Parisian research scholar and author of Manhunts offers a philosophical perspective on the role of drone technology in today's changing military environments and the implications of drone capabilities in enabling democratic choices. 12,500 first printing.

Armament Engineering This book comprehensively discusses essential aspects of terminal ballistics, combining experimental data, numerical simulations and analytical modeling. This new, 3rd edition reflects a number of recent advances in materials science, such as the use of polyurea layers on metallic plates in order to improve their ballistics. In addition, more data and analyses are now available on dwell and interface defeat in ceramic tiles coated with polymers, and are presented here. Lastly, the new edition includes new results, numerical and empirical, concerning the DIF issue in brittle solids, as well as the “upturn” phenomenon in the stress–strain curves of ductile solids. The author also added a new analysis of concrete penetration experiments which accounts for the scaling issue in this field. This is a new, and important, addition which we are happy to announce. They also added some new insights into the interaction of EEP’s and FSP projectiles with metallic plates. Throughout the book, the authors demonstrate the advantages of the simulation approach in terms of understanding the basic physics behind the phenomena investigated, making it a must-read for all professionals who need to understand terminal ballistics.

Architectural Acoustics Celestial Mechanics and Astrodynamics

Manned Spacecraft Design Principles Based on years of research conducted at the NASA Jet Propulsion Laboratory, Low-Energy Lunar Trajectory Design provides high-level information to
mission managers and detailed information to mission designers about low-energy transfers between Earth and the moon. The book answers high-level questions about the availability and performance of such transfers in any given month and year. Low-energy lunar transfers are compared with various other types of transfers, and placed within the context of historical missions. Using this book, designers may reconstruct any transfer described therein, as well as design similar transfers with particular design parameters. An Appendix, “Locating the Lagrange Points,” and a useful list of terms and constants completes this technical reference. Surveys thousands of possible trajectories that may be used to transfer spacecraft between Earth and the moon, including transfers to lunar libration orbits, low lunar orbits, and the lunar surface. Provides information about the methods, models, and tools used to design low-energy lunar transfers. Includes discussion about the variations of these transfers from one month to the next, and the important operational aspects of implementing a low-energy lunar transfer. Additional discussions address navigation, station-keeping, and spacecraft systems issues.

Shooting Incident Reconstruction The updated second edition of Handbook of Firearms and Ballistics includes recent developed analytical techniques and methodologies with a more comprehensive glossary, additional material, and new case studies. With a new chapter on the determination of bullet caliber via x-ray photography, this edition includes revised material on muzzle attachments, proof marks, non-toxic bullets, and gunshot residues. Essential reading for forensic scientists, firearms examiners, defense and prosecution practitioners, the judiciary, and police force, this book is also a helpful reference guide for undergraduate and graduate forensic science students.
Introduction to the Physics of Gyrotrons The definitive interdisciplinary reference work for wound ballistics Fundamentals in Physics, arms and ammunition, ballistics Simulating gunshot wounds: Virtopsy – a virtual autopsy method, combining CT, MRT and surface scanning and Materials that reproduce the interaction of soft tissue, bone and blood vessels with a bullet that penetrates the body. Wound ballistics for Short-range and long-range weapons, fragments, such as those from bombs and hand grenades, gas jets from blanks, gas weapons, etc., “Non-lethal” weapons as used by the police, in military operations or in urban settings Specialist knowledge and reference detailed tables: ballistic tables for typical ammunition, ballistic values for numerous types of ammunition, including older types, materials properties, plus additional, hard-to-find data. Most tables are in both metric and U.S. units., an extensive trilingual glossary of specialized terminology in German, English and French NEW: the latest diagnostic / simulation methods and the latest types of ammunition The practice and application of wound ballistics in: forensic medicine, surgery – especially emergency and war surgery and international conventions Globalized conflict zones, terrorism and crime – these issues affect a wider circle than just the armed forces and medical services abroad. Police officers, surgeons, forensics specialists and criminalists also need to be familiar with ballistics and gunshot wounds and must be able to assess the complex factors involved. The practice and application of wound ballistics in forensic medicine. surgery – especially emergency and war surgery and International conventions. Globalized conflict zones, terrorism and crime – these issues affect a wider circle than just the armed forces and medical services abroad. Police officers, surgeons, forensics specialists and criminalists also need to be familiar with ballistics and gunshot wounds and must be able to assess the complex factors involved.
Brassey's Essential Guide to Military Small Arms Highlights Recent Advances in Materials/Armour Technology As long as conflict exists in the world, protection technologies will always be in demand. Armour: Materials, Theory, and Design describes the existing and emerging protection technologies that are currently driving the latest advances in armour systems. This book explains the theory, applications, and material science aspects of modern armour design as they are used in relation to vehicles, ships, personnel, and buildings, and explores the science and technology used to provide protection against blasts and ballistic attacks. It covers materials technologies used in protection; addresses the system effects of adding blast-wave shaping to vehicles, as well as the effect on the human body; and outlines ballistic testing techniques. Takes a Look at How Armour Works The book discusses ceramics for armour applications; transparent armour; and metals for armour applications (including aluminium alloys, magnesium alloys, titanium alloys and steels); as well as composite armour systems; explosive reactive armour systems with reference to defensive aid suites for vehicles; and wound ballistics. In addition, the author lists more than 100 references for advanced study and further reading. Armour: Materials, Theory, and Design introduces a variety of armour technologies, outlines modern threats and dangers applicable to protection technology, and aids readers in implementing protective structures that can be used in battle, conflict, military zones, and other related environments.

Re-Entry and Vehicle Design Probably a first in the field since Elements of Ordnance by Haynes, published in the 1900's, this is a book with a practical and up to date approach to a complex subject. Intended for the mechanical engineer concerned with large calibre gun engineering, it puts mechanical engineering and weapon uniqueness into clear perspective and prepares the groundwork
for the intricacies of gun design. A wealth of engineering information is covered in seven chapters, including, gun barrels, breech assemblies, recoil systems, muzzle brakes, supporting structures, elevating and traversing mechanisms and balancing. The analyses contained in each chapter are illustrated by worked examples supported by straightforward computer applications. In all, a valuable book for both teacher and student in a field where published works are almost impossible to come by. This volume found acceptance as a text book and reference material at colleges in the US, Canada, UK, Spain, Germany, Finland and Czechoslovakia

Ballistics Introduction to Sports Biomechanics has been developed to introduce you to the core topics covered in the first two years of your degree. It will give you a sound grounding in both the theoretical and practical aspects of the subject. Part One covers the anatomical and mechanical foundations of biomechanics and Part Two concentrates on the measuring techniques which sports biomechanists use to study the movements of the sports performer. In addition, the book is highly illustrated with line drawings and photographs which help to reinforce explanations and examples.

The Future of the U.S. Intercontinental Ballistic Missile Force Shooting Incident Reconstruction, Third Edition, offers a thorough explanation of matters from simple to complex to help the reader understand the factors surrounding ballistics, trajectory, and shooting scenes. Forensic scientists, law enforcement, and crime scene investigators are often tasked with reconstruction of events based on crime scene evidence, along with the subsequent analysis of that evidence. The use and misuse of firearms to perpetrate crimes from theft to murder necessitates numerous invitations to reconstruct shooting incidents. The discharge of firearms and the behavior of projectiles create many forms of
physical evidence that, through proper testing and interpretation by a skilled forensic scientist, can establish what did and what did not occur. Written by the world's most well-respected shooting scene and ballistics experts, the book addresses the terminology, science, and factors involved in reconstructing shooting incident events to solve forensic cases. It covers the full range of related topics including: the range from which a firearm was discharged; the sequence of shots in a multiple discharge shooting incident; the position of a firearm at the moment of discharge; and the position of a victim at the moment of impact. The probable flight path of a projectile and the manner in which a firearm was discharged are also discussed. Case studies illustrate real-world application of technical concepts, supported by over 200 full-color diagrams and photographs. This book will be of value to practicing forensic scientists (firearm and toolmark examiners), ballistics experts, crime scene personnel, police departments, forensic consultants (generalists), attorneys and judges, medical examiners (coroners), and forensic pathologists. New chapters on special reconstructive properties and value of shootings involving sub-machine guns or pseudo automatic firearms, rate of fire with special attention on shot-to-shot time intervals, human factors in shooting incidents Updated and revised glossary terms to fit with new technology and the emergence of standardization of terms by groups such as the Organization of Scientific Advisory Committees Provides clear practice standards and ethical guidelines for those involved in reconstructing shooting scenes

Handbook of Firearms and Ballistics This third edition of the classic on the thermochemical aspects of the combustion of propellants and explosives is completely revised and updated and now includes a section on green propellants and offers an up-to-date view of the thermochemical aspects of combustion and corresponding applications. Clearly structured, the first half of the book presents an
introduction to pyrodynamics, describing fundamental aspects of the combustion of energetic materials, while the second part highlights applications of energetic materials, such as propellants, explosives and pyrolants, with a focus on the phenomena occurring in rocket motors. Finally, an appendix gives a brief overview of the fundamentals of aerodynamics and heat transfer, which is a prerequisite for the study of pyrodynamics. A detailed reference for readers interested in rocketry or explosives technology.

Ballistics Providing new chapters, homework problems, case studies, figures, and examples, Ballistics: Theory and Design of Guns and Ammunition, Second Edition encourages superior design and innovative applications in the field of ballistics. It examines the analytical and computational tools used to predict a weapon’s behavior in terms of pressure, stress, and velocity, demonstrating their applications in ammunition and weapons design. What's New in the Second Edition: Includes computer examples in Mathcad (available on the CRC website) Adds a section of color plates, to better help readers visualize the physical concepts of ballistics Contains sections on modern explosives equations of state for detonation physics modeling and on probability of hit Provides a solutions manual for those teaching college and training courses This book covers exterior ballistics, exploring the physics behind trajectories, including linear and nonlinear aeroballistics, and focuses on the effects of projective impact, including details on shock physics, shaped charges, penetration, fragmentation, and wound ballistics. Reviews and integrates the fundamental science and engineering concepts involved in guns and ammunition Uses straightforward, easy-to-read style, and careful development of complex topics Shares insights rooted in the experience of renowned experts, many associated with the National Defense Industrial Association (NDIA) and International
Ballistics Society The field of ballistics comprises three main areas of specialization: interior, exterior, and terminal ballistics. This book explains all three areas, offering a seamless presentation of the complex phenomena that occur during the launch, flight, and impact of a projectile.

Big Book of Ballistics Architectural Acoustics, Second Edition presents a thorough technical overview of the discipline, from basic concepts to specific design advice. Beginning with a brief history, it reviews the fundamentals of acoustics, human perception and reaction to sound, acoustic noise measurements, noise metrics, and environmental noise characterization. In-depth treatment is given to the theoretical principles and practical applications of wave acoustics, sound transmission, vibration and vibration isolation, and noise transmission in floors and mechanical systems. Chapters on specific design problems demonstrate how to apply the theory, including treatment of multifamily dwellings, office buildings, rooms for speech, rooms for music, multipurpose rooms, auditoriums, sanctuaries, studios, listening rooms, and the design of sound reinforcement systems. Detailed figures illustrate the practical applications of acoustic principles, showing how to implement design ideas in actual structures. This compendium of theoretical and practical design information brings the relevant concepts, equations, techniques, and specific design problems together in one place, including both fundamentals and more advanced material. Practicing engineers will find it an invaluable reference for their daily work, while advanced students will appreciate its rigorous treatment of the basic building blocks of acoustical theory. Considered the most complete resource in the field – includes basic fundamental relations, derived from first principles, and examples needed to solve real engineering problems. Provides a well-organized text for students first approaching the subject as well as a reliable reference for experienced practitioners looking to refresh their technical
knowledge base. New content for developing professionals includes case studies and coverage of specific focus areas such as audio visual design, theaters, and concert halls.

Explosive Effects and Applications Manned Spacecraft Design Principles presents readers with a brief, to-the-point primer that includes a detailed introduction to the information required at the preliminary design stage of a manned space transportation system. In the process of developing the preliminary design, the book covers content not often discussed in a standard aerospace curriculum, including atmospheric entry dynamics, space launch dynamics, hypersonic flow fields, hypersonic heat transfer, and skin friction, along with the economic aspects of space flight. Key concepts relating to human factors and crew support systems are also included, providing users with a comprehensive guide on how to make informed choices from an array of competing options. The text can be used in conjunction with Pasquale Sforza's, Commercial Aircraft Design Principles to form a complete course in Aircraft/Spacecraft Design. Presents a brief, to-the-point primer that includes a detailed introduction to the information required at the preliminary design stage of a manned space transportation system Involves the reader in the preliminary design of a modern manned spacecraft and associated launch vehicle Includes key concepts relating to human factors and crew support systems Contains standard, empirical, and classical methods in support of the design process Culminates in the preparation of a professional quality design report

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