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### KEY=ROCKET - ERICKSON AVILA

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**Rocket Ranch The Nuts and Bolts of the Apollo Moon Program at Kennedy Space Center** *Springer* Jonathan Ward takes the reader deep into the facilities at Kennedy Space Center to describe NASA's first computer systems used for spacecraft and rocket checkout and explain how tests and launches proceeded. Descriptions of early operations include a harrowing account of the heroic efforts of pad workers during the Apollo 1 fire. A companion to the author's book Countdown to a Moon Launch: Preparing Apollo for Its Historic Journey, this explores every facet of the facilities that served as the base for the Apollo/Saturn missions. Hundreds of illustrations complement the firsthand accounts of more than 70 Apollo program managers and engineers. The era of the Apollo/Saturn missions was perhaps the most exciting period in American space exploration history. Cape Canaveral and Kennedy Space Center were buzzing with activity. Thousands of workers came to town to build the facilities and launch the missions needed to put an American on the Moon before the end of the decade. Work at KSC involved much more than just launching rockets. It was a place like none other on Earth. Technicians performed intricate operations, and hazards abounded everywhere, including lightning, fire, highly-toxic fuels, snakes, heat, explosives, LOX spills, and even plutonium. The reward for months of 7-day workweeks under intense pressure was witnessing a Saturn V at liftoff. For anyone who ever wished they had worked at Kennedy Space Center during the Apollo era, this book is the next best thing. The only thing missing is the smell of rocket fuel in the morning. Spacelab Payloads Prepping Experiments and Hardware for Flight *Springer Nature* Spacelab was a reusable laboratory facility that was flown on the Space Shuttle from 1983 to 1998. Completing 22 major missions and contributing to many other NASA goals, Spacelab stands as one of the Shuttle program's most resounding successes. The system comprised multiple components, including a pressurized laboratory module, unpressurized carrier pallets and other related hardware, all housed in the Shuttle's Payload Bay and crew compartment. But how did all those varied components actually come together? The answer is the little-known "Level-IV"-- a team of managers and engineers who molded separate elements of hardware into cohesive and safe payloads. Without the dedication and drive of the Level-IV team, the huge successes of the Spacelab missions would not have been achieved. This is their story. You will learn herein how Level-IV was formed, who was involved, and the accomplishments, setbacks and problems faced along the way, in a story that blends both the professional and personal sides of Level-IV operations and its legacy. Upon reading this book, you will gain a new appreciation for this crucial team and understand what is meant when you hear the term "Level-IV" Doing the Impossible George E. Mueller and the Management of NASA's Human Spaceflight Program *Springer Science & Business Media* Apollo was known for its engineering triumphs, but its success also came from a disciplined management style. This excellent account of one of the most important personalities in early American human spaceflight history describes for the first time how George E. Mueller, the system manager of the human spaceflight program of the 1960s, applied the SPO methodology and other special considerations such as "all-up" testing, resulting in the success of the Apollo Program. Wernher von Braun and others did not readily accept such testing or Mueller's approach to system management, but later acknowledged that without them NASA would not have landed astronauts on the Moon by 1969. While Apollo remained Mueller's priority, from his earliest days at the agency, he promoted a robust post-Apollo Program which resulted in Skylab, the Space Shuttle and the International Space Station. As a result of these efforts, Mueller earned the sobriquet: "the father of the space shuttle." Following his success at NASA, Mueller returned to industry. Although he did not play a leading role in human spaceflight again, in 2011 the National Air and Space Museum awarded him their lifetime achievement trophy for his contributions. Following the contributions of George E. Mueller, in this unique book Arthur L. Slotkin answers such questions as: exactly how did the methods developed for use in the Air Force ballistic missile programs get modified and used in the Apollo Program? How did George E. Mueller, with the help of others, manage the Apollo Program? How did NASA centers, coming from federal agencies with cultures of their own, adapt to the new structured approach imposed from Washington? George E. Mueller is the ideal central character for this book. He was instrumental in the creation of Apollo extension systems leading to Apollo, the Shuttle, and today's ISS and thus was a pivotal figure in early American human spaceflight history. Wings in Orbit Scientific and Engineering Legacies of the Space Shuttle, 1971-2010 *Government Printing Office* NOTE: NO FURTHER DISCOUNT FOR THIS PRINT PRODUCT- OVERTOCK SALE -- Significantly reduced list price Wings in Orbit is an authoritative documentation of the many accomplishments of the NASA Space Shuttle Program. Starting with a foreword written by astronauts John Young and Robert Crippen, this compelling book provides accurate, authentic and easily understood accounts from NASA's best subject matter experts and external resources. The book captures the passion of those who devoted their energies to the Program's success for more than three decades. It focuses on their science and engineering accomplishments, the rich history of the program and the shuttle as an icon in U.S. history. No other book on the market has accumulated as many experts and resources on this subject nor broken it down in such easy to understand language with compelling imagery. With the Shuttle Program coming to a close, consumers will be inclined to purchase this book as it provides comprehensive information on this historic program as it ends its 30 year run. The promotions for this book will definitely benefit from the publicity of this historic event. Other related products: NASA's Contributions to Aeronautics, Vols. 1-2 is available here: <https://bookstore.gpo.gov/products/sku/033-000-01334-5> Leadership in Space: Selected Speeches of NASA Administrator Michael Griffin, May 2005-October 2008 is available here: <https://bookstore.gpo.gov/products/sku/033-000-01314-1> Dressing for Altitude: U.S. Aviation Pressure Suits, Wiley Post to Space Shuttle --ePub format is available for purchase through the Apple iBookstore-- Please use ISBN: 9780160915604 to search for this title in their platform. Revolutionary Atmosphere: The Story of the Altitude Wind Tunnel and the Space Power Chambers is available here: <https://bookstore.gpo.gov/products/sku/033-000-01342-6> Other products produced by NASA can be found here: <https://bookstore.gpo.gov/agency/550> Wings in Orbit Scientific and Engineering Legacies of the Space Shuttle 1971-2010 *Government Printing Office* Explains how the space shuttle works and describes a shuttle trip from lift-off to touchdown. NASA's Scientist-Astronauts *Springer Science & Business Media* This book provides unique access to the story of how scientists were accepted into the American Space Programme, and reveals how, after four difficult decades, the role of the heroic test pilot astronaut has been replaced by men and women who are science orientated space explorers. Emerging Space Powers The New Space Programs of Asia, the Middle East and South-America *Springer Science & Business Media* This work introduces the important emerging space powers of the world. Brian Harvey describes the origins of the Japanese space program, from rocket designs based on WW II German U-boats to tiny solid fuel 'pencil' rockets, which led to the launch of the first Japanese satellite in 1970. The next two chapters relate how Japan expanded its space program, developing small satellites into astronomical observatories and sending missions to the Moon, Mars, comet Halley, and asteroids. Chapter 4 describes how India's Vikram Sarabhai developed a sounding rocket program in the 1960s. The following chapter describes the expansion of the Indian space program. Chapter 6 relates how the Indian space program is looking ahead to the success of the moon probe Chandrayan, due to launch in 2008, and its first manned launching in 2014. Chapters 7, 8, and 9 demonstrate how, in Iran, communications and remote sensing drive space technology. Chapter 10 outlines Brazil's road to space, begun in the mid-1960's with the launch of the Sonda sounding rockets. The following two chapters describe Brazil's satellites and space launch systems and plans for the future. Chapters 13 and 14 study Israel's space industry. The next chapters look at the burgeoning space programs of North and South Korea. The book ends by contrasting and comparing all the space programs and speculating how they may evolve in the future. An appendix lists all launches and launch attempts to date of the emerging space powers. Space Architecture Education for Engineers and Architects Designing and Planning Beyond Earth *Springer* This book considers two key educational tools for future generations of professionals with a space architecture background in the 21st century: (1) introducing the discipline of space architecture into the space system engineering curricula; and (2) developing space architecture as a distinct, complete training curriculum. Professionals educated this way will help shift focus from solely engineering-driven transportation systems and "sortie" missions towards permanent off-world human presence. The architectural training teaches young professionals to operate at all scales from the "overall picture" down to the smallest details, to provide directive intention-not just analysis-to design opportunities, to address the relationship between human behavior and the built environment, and to interact with many diverse fields and disciplines throughout the project lifecycle. This book will benefit individuals and organizations responsible for planning transportation and habitat systems in space, while also providing detailed information on work and design processes for architects and engineers. Apollo The Definitive Sourcebook *Springer Science & Business Media* This book provides an overview of the origins of the Apollo program and descriptions of the ground facilities, launch vehicles and spacecraft that were developed in the quest to reach - and return from - the surface of the moon. It will serve as an invaluable single-volume sourcebook for space enthusiasts, space historians, journalists, and others. The text includes a comprehensive collection of tables listing facts and figures for each mission. Countdown to a Moon Launch Preparing Apollo for Its Historic Journey *Springer* Thousands of workers labored at Kennedy Space Center around the clock, seven days a week, for half a year to prepare a mission for the liftoff of Apollo 11. This is the story of what went on during those hectic six months. Countdown to a Moon Launch provides an in-depth look at the carefully choreographed workflow for an Apollo mission at KSC. Using the Apollo 11 mission as an example, readers will learn what went on day by day to transform partially completed stages and crates of parts into a ready-to-fly Saturn V. Firsthand accounts of launch pad accidents, near misses, suspected sabotage, and last-minute changes to hardware are told by more than 70 NASA employees and its contractors. A companion to Rocket Ranch, it includes many diagrams and photographs, some never before published, to illustrate all aspects of the process. NASA's groundbreaking use of computers for testing and advanced management techniques are also covered in detail. This book will demystify the question of how NASA could build and launch Apollo missions using 1960s technology. You'll discover that there was no magic involved - just an abundance of discipline, willpower, and creativity. The Apollo Guidance Computer Architecture and Operation *Springer Science & Business Media* The technological marvel that facilitated the Apollo missions to the Moon was the on-board computer. In the 1960s most computers filled an entire room, but the spacecraft's computer was required to be compact and low power. Although people today find it difficult to

accept that it was possible to control a spacecraft using such a 'primitive' computer, it nevertheless had capabilities that are advanced even by today's standards. This is the first book to fully describe the Apollo guidance computer's architecture, instruction format and programs used by the astronauts. As a comprehensive account, it will span the disciplines of computer science, electrical and aerospace engineering. However, it will also be accessible to the 'space enthusiast'. In short, the intention is for this to be the definitive account of the Apollo guidance computer. Frank O'Brien's interest in the Apollo program began as a serious amateur historian. About 12 years ago, he began performing research and writing essays for the Apollo Lunar Surface Journal, and the Apollo Flight Journal. Much of this work centered on his primary interests, the Apollo Guidance Computer (AGC) and the Lunar Module. These Journals are generally considered the canonical online reference on the flights to the Moon. He was then asked to assist the curatorial staff in the creation of the Cradle of Aviation Museum, on Long Island, New York, where he helped prepare the Lunar Module simulator, a LM procedure trainer and an Apollo space suit for display. He regularly lectures on the Apollo computer and related topics to diverse groups, from NASA's computer engineering conferences, the IEEE/ACM, computer festivals and university student groups. NASA's First Space Shuttle Astronaut Selection Redefining the Right Stuff *Springer Nature* Unofficially they called themselves the TFNG, or the Thirty-Five New Guys. Officially, they were NASAs Group 8 astronauts, selected in January 1978 to train for orbital missions aboard the Space Shuttle. Prior to this time only pilots or scientists trained as pilots had been assigned to fly on Americas spacecraft, but with the advent of the innovative winged spacecraft the door was finally opened to non-pilots, including women and minorities. In all, 15 of those selected were categorised as Pilot Astronauts, while the other 20 would train under the new designation of Mission Specialist. Altogether, the Group 8 astronauts would be launched on a total of 103 space missions; some flying only once, while others flew into orbit as many as five times. Sadly, four of their number would perish in the Challenger tragedy in January 1986. In their latest collaborative effort, the authors bring to life the amazing story behind the selection of the first group of Space Shuttle astronauts, examining their varied backgrounds and many accomplishments in a fresh and accessible way through deep research and revealing interviews. Throughout its remarkable 30-year history as the workhorse of NASAs human spaceflight exploration, twice halted through tragedy, the Shuttle fleet performed with magnificence. So too did these 35 men and women, swept up in the dynamic thrust and ongoing development of Americas Space Shuttle program. This book on the Group 8 Astronauts, the TFNGs, is an excellent summation of the individuals first selected for the new Space Shuttle Program. It provides insight into what it took to first get the Space Shuttle flying. For any space enthusiast it is a must read. Robert L. Crippen PLT on STS-1. Destination Moon The Remarkable and Improbable Voyage of Apollo 11 *Roaring Brook Press* The history of NASA's Apollo program from Earth orbital missions to lunar landings in a propulsive nonfiction narrative. Only now, it is becoming clear how exceptional and unrepeatable Apollo was. At its height, it employed almost half a million people, many working seven days a week and each determined that "it will not fail because of me." Beginning with fighter pilots in World War II, Maurer traces the origins of the Apollo program to a few exceptional soldiers, a Nazi engineer, and a young eager man who would become president. Packed with adventure, new stories about familiar people, and undeniable danger, Destination Moon takes an unflinching look at a tumultuous time in American history, told expertly by nonfiction author Richard Maurer. Women Spacefarers Sixty Different Paths to Space *Springer* This book tells the fascinating stories of the valiant women who broke down barriers to join the space program. Beginning with the orbital flight of USSR cosmonaut Valentina Tereshkova in 1963, they became players in the greatest adventure of our time. The author contextualizes their accomplishments in light of the political and cultural climate, from the Cold War in the background to the changing status of women in society at large during the Seventies. The book includes the biographies of, and in some cases interviews with, the sixty women who flew in space in the first half century of space history. It reports their achievements and some little known details. The result is a gallery of pioneering women who reached for the stars: women who, with exceptional skill, hard work, and dedication, reached impressive careers as accomplished pilots, researchers, and engineers; many are now in high level managerial positions both at NASA or in public and private organizations, and all left a legacy of strength. Materials and Processes for Spacecraft and High Reliability Applications *Springer* The objective of this book is to assist scientists and engineers select the ideal material or manufacturing process for particular applications; these could cover a wide range of fields, from light-weight structures to electronic hardware. The book will help in problem solving as it also presents more than 100 case studies and failure investigations from the space sector that can, by analogy, be applied to other industries. Difficult-to-find material data is included for reference. The sciences of metallic (primarily) and organic materials presented throughout the book demonstrate how they can be applied as an integral part of spacecraft product assurance schemes, which involve quality, material and processes evaluations, and the selection of mechanical and component parts. In this successor edition, which has been revised and updated, engineering problems associated with critical spacecraft hardware and the space environment are highlighted by over 500 illustrations including micrographs and fractographs. Space hardware captured by astronauts and returned to Earth from long durations in space are examined. Information detailed in the Handbook is applicable to general terrestrial applications including consumer electronics as well as high reliability systems associated with aeronautics, medical equipment and ground transportation. This Handbook is also directed to those involved in maximizing the reliability of new materials and processes for space technology and space engineering. It will be invaluable to engineers concerned with the construction of advanced structures or mechanical and electronic sub-systems. The Saturn V F-1 Engine Powering Apollo into History *Springer* When the mighty Rocketdyne F-1 engine was conceived in the late 1950s for the U.S. Air Force, it had no defined mission and there was no launch vehicle it could power. It was a bold concept to push the technological envelope of rocket propulsion in order to put massive payloads into Earth orbit. Few realized at the time that the F-1 would one day propel American astronauts to the Moon. In The Saturn V F-1 Engine, Anthony Young tells the amazing story of unbridled vision, bold engineering, explosive failures during testing, unrelenting persistence to find solutions, and ultimate success in launching the Saturn V with a 100 percent success rate. The book contains personal interviews with many Rocketdyne and NASA personnel involved in the engine's design, development, testing and production; is lavishly illustrated with black-and-white and color photographs, many never previously published is the first complete history of the most powerful rocket engine ever built. The F-1 engine remains the high point in U.S. liquid rocket propulsion - it represents a period in American history when nothing was impossible. Animals in Space From Research Rockets to the Space Shuttle *Springer Science & Business Media* This book is as a detailed, but highly readable and balanced account of the history of animal space flights carried out by all nations, but principally the United States and the Soviet Union. It explores the ways in which animal high-altitude and space flight research impacted on space flight biomedicine and technology, and how the results - both successful and disappointing - allowed human beings to then undertake that same hazardous journey with far greater understanding and confidence. This complete and authoritative book will undoubtedly become the ultimate authority on animal space flights. Fundamentals of Aerospace Medicine *Lippincott Williams & Wilkins* Encompassing all occupants of aircraft and spacecraft—passengers and crew, military and civilian—Fundamentals of Aerospace Medicine, 5th Edition, addresses all medical and public health issues involved in this unique medical specialty. Comprehensive coverage includes everything from human physiology under flight conditions to the impact of the aviation industry on public health, from an increasingly mobile global populace to numerous clinical specialty considerations, including a variety of common diseases and risks emanating from the aerospace environment. This text is an invaluable reference for all students and practitioners who engage in aeromedical clinical practice, engineering, education, research, mission planning, population health, and operational support. Space 2.0 Revolutionary Advances in the Space Industry *Springer* A true revolution has rocked the space industry, as Silicon Valley and new startup companies around the world have shaken up the status quo. This has in turn triggered a hefty response among traditional aerospace companies, launching the sector into the new Space 2.0. This book explains how and why this remarkable change has happened, starting from the industry's origins during the Space Age and working its way to the present day. No other industry in the world has experienced the dramatic shift in technology and services as rapidly as the field of satellite services and rocket launch systems has. This book analyzes the dynamic shift over the past decade in how satellites are designed, manufactured, launched, and operated. It also turns an eye to the future, discussing the amazing feats and potential issues we can expect from this shifting arena by 2030. With its beginner-friendly writing style and plethora of illustrations, this book serves as a perfect introductory text to students and professionals alike wishing to learn more about the key trends in the field of space applications and launch systems. Rocket and Spacecraft Propulsion Principles, Practice and New Developments *Springer Science & Business Media* The revised edition of this practical, hands-on book discusses the launch vehicles in use today throughout the world, and includes the latest details on advanced systems being developed, such as electric and nuclear propulsion. The author covers the fundamentals, from the basic principles of rocket propulsion and vehicle dynamics through the theory and practice of liquid and solid propellant motors, to new and future developments. He provides a serious exposition of the principles and practice of rocket propulsion, from the point of view of the user who is not an engineering specialist. How Apollo Flew to the Moon *Springer Science & Business Media* Stung by the pioneering space successes of the Soviet Union - in particular, Gagarin being the first man in space, the United States gathered the best of its engineers and set itself the goal of reaching the Moon within a decade. In an expanding 2nd edition of How Apollo Flew to the Moon, David Woods tells the exciting story of how the resulting Apollo flights were conducted by following a virtual flight to the Moon and its exploration of the surface. From launch to splashdown, he hitches a ride in the incredible spaceships that took men to another world, exploring each step of the journey and detailing the enormous range of disciplines, techniques, and procedures the Apollo crews had to master. While describing the tremendous technological accomplishment involved, he adds the human dimension by calling on the testimony of the people who were there at the time. He provides a wealth of fascinating and accessible material: the role of the powerful Saturn V, the reasoning behind trajectories, the day-to-day concerns of human and spacecraft health between two worlds, the exploration of the lunar surface and the sheer daring involved in traveling to the Moon and the mid-twentieth century. Given the tremendous success of the original edition of How Apollo Flew to the Moon, the second edition will have a new chapter on surface activities, inspired by reader's comment on Amazon.com. There will also be additional detail in the existing chapters to incorporate all the feedback from the original edition, and will include larger illustrations. The Design and Engineering of Curiosity How the Mars Rover Performs Its Job *Springer* This book describes the most complex machine ever sent to another planet: Curiosity. It is a one-ton robot with two brains, seventeen cameras, six wheels, nuclear power, and a laser beam on its head. No one human understands how all of its systems and instruments work. This essential reference to the Curiosity mission explains the engineering behind every system on the rover, from its rocket-powered jetpack to its radioisotope thermoelectric generator to its fiendishly complex sample handling system. Its lavishly illustrated text explains how all the instruments work -- its cameras, spectrometers, sample-cooking oven, and weather station -- and describes the instruments' abilities and limitations. It tells you how the systems have functioned on Mars, and how scientists and engineers have worked around problems developed on a faraway planet: holey wheels and broken focus lasers. And it explains the grueling mission operations schedule that keeps the rover working day in and day out. Spacesuit Fashioning Apollo *MIT Press* How the twenty-one-layer Apollo spacesuit, made by Playtex, was a triumph of intimacy over engineering. When Neil Armstrong and Buzz Aldrin stepped onto the lunar surface in July of 1969, they wore spacesuits made by Playtex: twenty-one layers of fabric, each with a distinct yet interrelated function, custom-sewn for them by seamstresses whose usual work was fashioning bras and girdles. This book is the story of that spacesuit. It is a story of the triumph over the military-industrial complex by the International Latex Corporation, best known by its consumer brand of "Playtex"—a victory of elegant softness over engineered hardness, of adaptation over cybernetics. Playtex's spacesuit went up against hard armor-like spacesuits designed by military contractors and favored by NASA's engineers. It was only when those attempts failed—when traditional engineering firms could not integrate the body into mission requirements—that Playtex, with its intimate expertise, got the job. In Spacesuit, Nicholas de Monchaux tells the story of the twenty-one-layer spacesuit in twenty-one chapters addressing twenty-one topics relevant to

the suit, the body, and the technology of the twentieth century. He touches, among other things, on eighteenth-century androids, Christian Dior's New Look, Atlas missiles, cybernetics and cyborgs, latex, JFK's carefully cultivated image, the CBS lunar broadcast soundstage, NASA's Mission Control, and the applications of Apollo-style engineering to city planning. The twenty-one-layer spacesuit, de Monchaux argues, offers an object lesson. It tells us about redundancy and interdependence and about the distinctions between natural and man-made complexity; it teaches us to know the virtues of adaptation and to see the future as a set of possibilities rather than a scripted scenario. Exploring the Moon The Apollo Expeditions *Springer Science & Business Media* In this comprehensive overview of Man's relationship with his planet's nearest neighbor, David Harland opens with a review of the robotic probes, namely the Rangers which returned television before crashing into the Moon, the Surveyors which 'soft landed' in order to investigate the nature of the surface, and the Lunar Orbiters which mapped prospective Apollo landing sites. He then outlines the historic landing by Apollo 11 and the final three missions of comprehensive geological investigations. He concludes with a review of the robotic spacecraft that made remote-sensing observations of the Moon. This Commemorative Edition includes a foreword by one of the original astronauts as well as an extra section reviewing the prospect of renewed exploration there. New graphics and images are also included. European-Russian Space Cooperation From de Gaulle to ExoMars *Springer Nature* The story of European-Russian collaboration in space is little known and its importance all too often understated. Because France was the principal interlocutor between these nations, such cooperation did not receive the attention it deserved in English-language literature. This book rectifies that history, showing how Russia and Europe forged a successful partnership that has continued to the present day. Space writer Brian Harvey provides an in-depth picture of how this European-Russian relationship evolved and what factors—scientific, political and industrial—propelled it over the decades. The history begins in the cold war period with the first collaborative ventures between the Soviet Union and European countries, primarily France, followed later by Germany and other European countries. Next, the chapters turn to the missions when European astronauts flew to Russian space stations, the Soyuz rocket made a new home in European territory in the South American jungle and science missions were flown to study deep space. Their climax is the joint mission to explore Mars, called ExoMars, which has already sent a mission to Mars. Through this close examination of these European-Russian efforts, readers will appreciate an altogether new perspective on the history of space exploration, no longer defined by competition, but rather by collaboration and cooperation. The Birth of NASA The Work of the Space Task Group, America's First True Space Pioneers *Springer* This is the story of the work of the original NASA space pioneers; men and women who were suddenly organized in 1958 from the then National Advisory Committee on Aeronautics (NACA) into the Space Task Group. A relatively small group, they developed the initial mission concept plans and procedures for the U. S. space program. Then they boldly built hardware and facilities to accomplish those missions. The group existed only three years before they were transferred to the Manned Spacecraft Center in Houston, Texas, in 1962, but their organization left a large mark on what would follow. Von Ehrenfried's personal experience with the STG at Langley uniquely positions him to describe the way the group was structured and how it reacted to the new demands of a post-Sputnik era. He artfully analyzes how the growing space program was managed and what techniques enabled it to develop so quickly from an operations perspective. The result is a fascinating window into history, amply backed up by first person documentation and interviews. Space Mining and Manufacturing Off-World Resources and Revolutionary Engineering Techniques *Springer Nature* This book produces convincing evidence that exploiting the potential of space could help solve many environmental and social issues affecting our planet, such as pollution, overcrowding, resource depletion and conflicts, economic inequality, social unrest, economic instability and unemployment. It also touches on the legal problems that will be encountered with the implementation of the new technologies and new laws that will need to be enacted and new organizations that will need to be formed to deal with these changes. This proposition for a space economy is not science fiction, but well within the remit of current or under development technologies. Numerous technologies are described and put together to form a coherent and feasible road map that, if implemented, could lead humankind towards a brighter future. On the Shoulders of Titans A History of Project Gemini The International Handbook of Space Technology *Springer* This comprehensive handbook provides an overview of space technology and a holistic understanding of the system-of-systems that is a modern spacecraft. With a foreword by Elon Musk, CEO and CTO of SpaceX, and contributions from globally leading agency experts from NASA, ESA, JAXA, and CNES, as well as European and North American academics and industrialists, this handbook, as well as giving an interdisciplinary overview, offers, through individual self-contained chapters, more detailed understanding of specific fields, ranging through: · Launch systems, structures, power, thermal, communications, propulsion, and software, to · entry, descent and landing, ground segment, robotics, and data systems, to · technology management, legal and regulatory issues, and project management. This handbook is an equally invaluable asset to those on a career path towards the space industry as it is to those already within the industry. SpaceX Making Commercial Spaceflight a Reality *Springer Science & Business Media* This first account of commercial spaceflight's most successful venture describes the extraordinary feats of engineering and human achievement that have placed SpaceX at the forefront of the launch industry and made it the most likely candidate for transporting humans to Mars. Since its inception in 2002, SpaceX has sought to change the space launch paradigm by developing a family of launch vehicles that will ultimately reduce the cost and increase the reliability of space access tenfold. Coupled with the newly emerging market for governmental, private, and commercial space transport, this new model will re-ignite humanity's efforts to explore and develop space. Formed in 2002 by Elon Musk, the founder of PayPal and the Zip2 Corporation, SpaceX has already developed two state-of-the-art new launch vehicles, established an impressive launch manifest, and been awarded COTS funding by NASA to demonstrate delivery and return of cargo to the ISS. This book describes how simplicity, low-cost, and reliability can go hand in hand, as promoted in the philosophy of SpaceX. It explains how, by eliminating the traditional layers of internal management and external sub-contractors and keeping the vast majority of manufacturing in house, SpaceX reduces its costs while accelerating decision making and delivery, controls quality, and ensures constant liaison between the design and manufacturing teams. Exoplanets Detection, Formation, Properties, Habitability *Springer Science & Business Media* This is the first collection of review articles in one volume covering the very latest developments in exoplanet research. This edited, multi-author volume will be an invaluable introduction and reference to all key aspects in the field this field. The reviews cover topics such as the properties of known exoplanets and searching for exoplanets in the stellar graveyard. The book provides an easily accessible point of reference in a fast moving and exciting field. Soviet and Russian Lunar Exploration *Springer Science & Business Media* This book tells the story of the Soviet and Russian lunar programme, from its origins to the present-day federal Russian space programme. Brian Harvey describes the techniques devised by the USSR for lunar landing, from the LK lunar module to the LOK lunar orbiter and versions tested in Earth's orbit. He asks whether these systems would have worked and examines how well they were tested. He concludes that political mismanagement rather than technology prevented the Soviet Union from landing cosmonauts on the moon. The book is well timed for the return to the moon by the United States and the first missions there by China and India. Middle Range Theory for Nursing, Fourth Edition *Springer Publishing Company* Three-time recipient of the AJN Book of the Year Award! Praise for the third edition: "This is an outstanding edition of this book. It has great relevance for learning about, developing, and using middle range theories. It is very user friendly, yet scholarly." Score: 90, 4 Stars -Doody's Medical Reviews The fourth edition of this invaluable publication on middle range theory in nursing reflects the most current theoretical advances in the field. With two additional chapters, new content incorporates exemplars that bridge middle range theory to advanced nursing practice and research. Additional content for DNP and PhD programs includes two new theories: Bureaucratic Caring and Self-Care of Chronic Illness. This user-friendly text stresses how theory informs practice and research in the everyday world of nursing. Divided into four sections, content sets the stage for understanding middle range theory by elaborating on disciplinary perspectives, an organizing framework, and evaluation of the theory. Middle Range Theory for Nursing, Fourth Edition presents a broad spectrum of 13 middle range theories. Each theory is broken down into its purpose, development, and conceptual underpinnings, and includes a model demonstrating the relationships among the concepts, and the use of the theory in research and practice. In addition, concept building for research through the lens of middle range theory is presented as a rigorous 10-phase process that moves from a practice story to a conceptual foundation. Exemplars are presented clarifying both the concept building process and the use of conceptual structures in research design. This new edition remains an essential text for advanced practice, theory, and research courses. New to the Fourth Edition: Reflects new theoretical advances Two completely new chapters New content for DNP and PhD programs Two new theories: Bureaucratic Caring and Self-Care of Chronic Illness Two articles from Advances in Nursing Science documenting a historical meta-perspective on middle range theory development Key Features: Provides a strong contextual foundation for understanding middle range theory Introduces the Ladder of Abstraction to clarify the range of nursing's theoretical foundation Presents 13 middle range theories with philosophical, conceptual, and empirical dimensions of each theory Includes Appendix summarizing middle range theories from 1988 to 2016 Live from the Moon Film, Television and the Space Race *I.B. Tauris* Man's exploration of space and its climax in the American moon landings have provided the world with iconic sounds and images of the late twentieth century. Travelling across millions of miles, these sounds and images have become lodged in the public conscious as the most powerful of collective memories. They speak both of breathtaking technological achievement and of the courage of the men, and woman, who risked their lives in striving to be more than human and to be more than just of this Earth. As John F. Kennedy said, "We choose to go to the Moon, not because it is easy but because it is hard." This is the first comprehensive exploration of the role played by film and television systems in enabling these feats of interplanetary exploration to be witnessed by audiences of hundreds of millions of people. Using material from the NASA archives, expert and enthusiast Michael Allen traces the parallel development and interdependency of space and media technologies during the Space Race -- of satellite surveillance and interplanetary probes, early Russian successes and the American missions that landed men on the moon. He also chronicles the part played by film and television in recording what was, and is, man's greatest leap: the exploration of outer space and other planets. US Spacesuits *Springer Science & Business Media* \* the most accurate and comprehensive work on U.S. spacesuits ever published. \*A unique insight into the development of US spacesuits through to the present day. \* Presents in context the authors' unique collection of 172 black and white photographs. \* Explains why spacesuits are a last refuge for astronauts for survival. \* Details many technically and historically interesting developments, but which never achieved fruition. English for Academic Purposes in Neoliberal Universities: A Critical Grounded Theory *Springer* The critical grounded theory presented in this book offers valuable insights on the social processes and strategies used by Blended English for Academic Purposes Professionals (BLEAPs) at higher education institutions, as they struggle to negotiate the challenges arising from a new focus on recruiting international students and hunting for other resources for their universities. Drawing from in-depth interviews with numerous research participants at over eleven higher educational institutions in the UK, Japan and the United States, this work focuses on those who have been precariously placed as middle manager at many EAP and TESOL programs. Lacking in both positional power or permanence, these 'BLEAPs' are faced with many challenges as they seek to understand their changing role in higher educational institutions, and engage in strategies that can help them gain greater control over issues in their profession. InSAR Imaging of Aleutian Volcanoes Monitoring a Volcanic Arc from Space *Springer Science & Business Media* Interferometric synthetic aperture radar (InSAR) is a relatively new remote sensing tool that is capable of measuring ground-surface deformation with centimeter-to-subcentimeter precision at a spatial resolution of tens of meters over an area of hundreds to thousands of square kilometers. With its global coverage and all-weather imaging capability, InSAR has become an increasingly important technique for studying volcanoes in remote regions such as the Aleutian Islands. The spatial distribution of surface deformation data derived from InSAR images enables the construction of detailed mechanical models to enhance the study of magmatic processes. InSAR Imaging of Aleutian Volcanoes: • Provides a theoretical framework for InSAR observations and capabilities • Discusses state-of-the-art InSAR analysis techniques • Describes the structure, eruptive history, and magma composition of volcanoes along the entire Aleutian arc •

Presents conceptual models for the magma plumbing systems of Aleutian volcanoes based on InSAR results combined with geophysical, geological and geochemical observations. • Synthesizes observations of deformation along the Aleutian arc and compares those results to other active arcs around the world. • Is illustrated throughout with high-resolution color satellite radar images

**Bringing Columbia Home The Untold Story of a Lost Space Shuttle and Her Crew** *Simon and Schuster* The “gripping and dramatic” inside story of the epic search and recovery operation after the Columbia shuttle disaster that united thousands of Americans (Booklist). Voted the Best Space Book of the Year by the Space Hipsters On February 1, 2003, Columbia disintegrated on reentry before the nation’s eyes, and all seven astronauts aboard were lost. Mike Leinbach, Launch Director of the space shuttle program at NASA’s John F. Kennedy Space Center, was a key leader in the search and recovery effort as NASA, FEMA, the FBI, the US Forest Service, and dozens more federal, state, and local agencies combed an area of rural east Texas the size of Rhode Island for every piece of the shuttle and her crew they could find. Assisted by hundreds of volunteers, it would become the largest ground search operation in US history—an effort that was instrumental in piecing together what happened so the shuttle program could return to flight and complete the International Space Station. Written by Leinbach, this is the definitive inside story of the disaster, the recovery, and the inspiring response, sharing the deeply personal stories that emerged as NASA employees looked for lost colleagues and searchers overcame immense physical, logistical, and emotional challenges and worked together to accomplish the impossible. Featuring a foreword and epilogue by astronauts Robert Crippen and Eileen Collins, and dedicated to the astronauts and recovery search persons who lost their lives, this is “a gripping account of a fatal tragedy and the impressive and deeply emotional human response that ensued” (Kirkus Reviews, starred review). “Despite the dramatic tragedy at the beginning of the book, it’s the quiet stories of perseverance and camaraderie that will linger longest.” —Christian Science Monitor “Vividly capture[s] the intensity of those very difficult days...The book also reminded me of the spirit of the American people who selflessly worked together to help NASA in its hour of greatest need. It’s a message we all need to remember these days.” —Scott Kelly Space Physiology and Medicine 2009 life science book award from IAA. **Engaged Fatherhood for Men, Families and Gender Equality Healthcare, Social Policy, and Work Perspectives** *Springer Nature* This aim of this open access book is to launch an international, cross-disciplinary conversation on fatherhood engagement. By integrating perspective from three sectors -- Health, Social Policy, and Work in Organizations -- the book offers a novel perspective on the benefits of engaged fatherhood for men, for families, and for gender equality. The chapters are crafted to engaged broad audiences, including policy makers and organizational leaders, healthcare practitioners and fellow scholars, as well as families and their loved ones.