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JAX ANGELO

The World of Civil Aerospace John Wiley & Sons
This book explores cutting-edge topics on hydrogen and fuel cell technologies in aviation. Coverage includes comparisons with conventional technologies, hydrogen storage options, energy management strategies, life cycle assessment, and application of fuel cells in different aerial vehicle classes. It also offers insights into recent progress and new technological developments in the field, along with case studies and practical applications. Fuel Cell and Hydrogen Technologies in Aviation is an invaluable guide for students, researchers, and engineers working on sustainable air transportation and the performance and environmental analysis of fuel cell-powered aerial vehicles.
The ESD Handbook Springer Nature
The aircraft landing gear and its associated systems represent a compelling design challenge: simultaneously a system, a structure, and a machine, it supports the aircraft on the ground, absorbs landing and braking energy, permits maneuvering, and retracts to minimize aircraft drag. Yet, as it is not required during flight, it also represents dead weight and significant effort must be made to minimize its total mass. The Design of Aircraft Landing Gear, written by R. Kyle Schmidt, PE (B.A.Sc. - Mechanical Engineering, M.Sc. - Safety and Aircraft Accident Investigation, Chairman of the SAE A-5 Committee on Aircraft Landing Gear), is designed to guide the reader through the key principles of landing system design and to provide additional references when available. Many problems which must be confronted have already been addressed by others in the past, but the information is not known or shared, leading to the observation that there are few new problems, but many new people. The Design of Aircraft Landing Gear is intended to share much of the existing information and provide avenues for further exploration. The design of an aircraft and its associated systems, including the landing system, involves iterative loops as the impact of each modification to a system or component is evaluated against the whole. It is rare to find that the lightest possible landing gear represents the best solution for the aircraft: the lightest landing gear may require attachment structures which don't exist and which would require significant weight and compromise on the part of the airframe structure design. With

those requirements and compromises in mind,The Design of Aircraft Landing Gear starts with the study of airfield compatibility, aircraft stability on the ground, the correct choice of tires, followed by discussion of brakes, wheels, and brake control systems. Various landing gear architectures are investigated together with the details of shock absorber designs. Retraction, kinematics, and mechanisms are studied as well as possible actuation approaches. Detailed information on the various hydraulic and electric services commonly found on aircraft, and system elements such as dressings, lighting, and steering are also reviewed. Detail design points, the process of analysis, and a review of the relevant requirements and regulations round out the book content. The Design of Aircraft Landing Gear is a landmark work in the industry, and a must-read for any engineer interested in updating specific skills and students preparing for an exciting career.

Global Aeronautical Distress and Safety Systems (GADSS) CRC Press

A perennial bestseller, the Digital Avionics Handbook offers a comprehensive view of avionics. Complete with case studies of avionics architectures as well as examples of modern systems flying on current military and civil aircraft, this Third Edition includes: Ten brand-new chapters covering new topics and emerging trends Significant restructuring to deliver a more coherent and cohesive story Updates to all existing chapters to reflect the latest software and technologies Featuring discussions of new data bus and display concepts involving retina scanning, speech interaction, and synthetic vision, the Digital Avionics Handbook, Third Edition provides practicing and aspiring electrical, aerospace, avionics, and control systems engineers with a pragmatic look at the present state of the art of avionics.

Proceedings of the International Conference of Fluid Power and Mechatronic Control Engineering (ICFPMCE 2022) John Wiley & Sons

This book discusses selected issues of modern electrical metrology in the fields of sensor technology, signal processing and measurement systems, addressing theoretical problems and applications regarding measurements in electrical engineering, mechanics, telecommunications, medicine and geology, as well as in the aviation and transport industries. It presents selected papers from the XXII International Seminar of Metrology “Methods and Techniques of Signal Processing in Physical Measurements” (MSM2018) held in Rzeszów-Arłamów, Poland on September 17–20, 2018. The conference was organized by the Rzeszow University of Technology, Department of Metrology and Diagnostic Systems (Poland) and Lviv Polytechnic National University, Department of Information Measuring Technology (Ukraine). The book provides researchers and practitioners with insights into the state of the art in these areas, and also serves as a source of new ideas for further development and cooperation.

Proceedings of the International Conference on Aerospace System Science and Engineering 2020 IGI Global

This Handbook presents a complete and rigorous overview of the fundamentals, methods and applications of the multidisciplinary field of Global Navigation Satellite Systems (GNSS), providing an exhaustive, one-stop reference work and a state-of-the-art description of GNSS as a key technology for science and society at large. All global and regional satellite navigation systems, both those currently in operation and those under development (GPS, GLONASS, Galileo, BeiDou, QZSS, IRNSS/NAVIC, SBAS), are examined in detail. The functional principles of receivers and antennas, as well as the advanced algorithms and models for GNSS parameter estimation, are rigorously discussed. The book covers the broad and diverse range of land, marine, air and space applications, from everyday GNSS to high-precision scientific applications and provides detailed descriptions of the most widely used GNSS format standards, covering receiver formats as well as IGS product and meta-data formats. The full coverage of the field of GNSS is presented in seven parts, from its fundamentals, through the treatment of global and regional navigation satellite systems, of receivers and antennas, and of algorithms and models, up to the broad and diverse range of applications in the areas of positioning and navigation, surveying, geodesy and geodynamics, and remote sensing and timing. Each chapter is written by international experts and amply illustrated with figures and photographs, making the book an invaluable resource for scientists, engineers, students and institutions alike.

Industrial Communication Technology Handbook Artech House

Today the world faces unparalleled threats from human-made disasters that can be attributed to failure of industrial and energy installation as well as to terrorism. Added to this is the unparalleled threat of emerging and re-emerging diseases, with scientists predicting events such as an influenza pandemic.

Modelling in Engineering 2020: Applied Mechanics Elsevier

This book features the latest theoretical results and techniques in the field of guidance, navigation, and control (GNC) of vehicles and aircrafts. It covers a wide range of topics, including but not limited to, intelligent computing communication and control; new methods of navigation, estimation and tracking; control of multiple moving objects; manned and autonomous unmanned systems; guidance, navigation and control of miniature aircraft; and sensor systems for guidance, navigation and control etc. Presenting recent advances in the form of illustrations, tables, and text, it also provides detailed information of a number of the studies, to offer readers insights for their own research. In addition, the book addresses fundamental concepts and studies in the development of GNC, making it a valuable resource for both beginners and researchers wanting to further their understanding of guidance, navigation, and control.

Anechoic Range Design For Electromagnetic Measurements Springer

INTRODUCTION TO ELECTROMAGNETIC COMPATIBILITY The revised new edition of the classic textbook is an essential resource for anyone working with today’s advancements in both digital and analog devices, communications systems, as well as power/energy generation and distribution. Introduction to Electromagnetic Compatibility provides thorough coverage of the techniques and methodologies used to design and analyze electronic systems that function acceptably in their electromagnetic environment. Assuming no prior familiarity with electromagnetic compatibility, this user-friendly textbook first explains fundamental EMC concepts and technologies before moving on to more advanced topics in EMC system design. This third edition reflects the results of an extensive detailed review of the entire second edition, embracing and maintaining the content that has “stood the test of time”, such as from the theory of electromagnetic phenomena and associated mathematics, to the practical background information on U.S. and international regulatory requirements. In addition to converting Dr. Paul’s original SPICE exercises to contemporary utilization of LTSPICE, there is new chapter material on antenna modeling and simulation. This edition will continue to provide invaluable information on computer modeling for EMC, circuit board and system-level EMC design, EMC test practices, EMC measurement procedures and equipment, and more such as: Features fully-worked examples, topic reviews, self-assessment questions, end-of-chapter exercises, and numerous high-quality images and illustrations Contains useful appendices of phasor analysis methods, electromagnetic field equations and waves. The ideal

textbook for university courses on EMC, Introduction to Electromagnetic Compatibility, Third Edition is also an invaluable reference for practicing electrical engineers dealing with interference issues or those wanting to learn more about electromagnetic compatibility to become better product designers.

Electric Flight Technology Springer Nature

With the evolution of semiconductor technology and global diversification of the semiconductor business, testing of semiconductor devices to systems for electrostatic discharge (ESD) and electrical overstress (EOS) has increased in importance. ESD Testing: From Components to Systems updates the reader in the new tests, test models, and techniques in the characterization of semiconductor components for ESD, EOS, and latchup. Key features: Provides understanding and knowledge of ESD models and specifications including human body model (HBM), machine model (MM), charged device model (CDM), charged board model (CBM), cable discharge events (CDE), human metal model (HMM), IEC 61000-4-2 and IEC 61000-4-5. Discusses new testing methodologies such as transmission line pulse (TLP), to very fast transmission line pulse (VF-TLP), and future methods of long pulse TLP, to ultra-fast TLP (UF-TLP). Describes both conventional testing and new testing techniques for both chip and system level evaluation. Addresses EOS testing, electromagnetic compatibility (EMC) scanning, to current reconstruction methods. Discusses latchup characterization and testing methodologies for evaluation of semiconductor technology to product testing. ESD Testing: From Components to Systems is part of the authors' series of books on electrostatic discharge (ESD) protection; this book will be an invaluable reference for the professional semiconductor chip and system-level ESD and EOS test engineer. Semiconductor device and process development, circuit designers, quality, reliability and failure analysis engineers will also find it an essential reference. In addition, its academic treatment will appeal to both senior and graduate students with interests in semiconductor process, device physics, semiconductor testing and experimental work.

Aeronautical Radio Communication Systems and Networks SAE International

In the aerospace industry, avoiding operating issues, especially in regard to space missions and satellite structures, is crucial. The vast majority of these issues can be traced to disturbances in the electromagnetic fields used. Electromagnetic Compatibility for Space Systems Design is a critical scholarly resource that examines the applications of electromagnetic compatibility and electromagnetic interference in the space industry. Featuring coverage on a wide range of topics, such as magnetometers, electromagnetic environmental effects, and electromagnetic shielding, this book is geared toward managers, engineers, and researchers seeking current research on the applications of electromagnetic technologies in the aerospace field.

Electromagnetic Compatibility Engineering Springer Nature

Die Arbeit betrachtet die Einflüsse und Auswirkungen leistungsstarker elektromagnetischer Störungen auf drahtlose Übertragungssysteme aus dem 2,4-GHz-ISM-Frequenzband wie Bluetooth und Wireless LAN. Dabei wird speziell die Kopplung von leistungsstarken periodischen Störungen, wie Navigationsradare, und leistungsstarken transienten Störungen, wie ultrabreitbandige Pulse, auf drahtlose digitale Übertragungssysteme aus dem 2,4-GHz-ISM-Frequenzband untersucht. Die resultierenden Einflüsse und Auswirkungen werden zum einen innerhalb des Basisbandes eines Übertragungssystems und zum anderen an kommerziellen drahtlosen Übertragungssystemen analysiert. Eine abschließende Worst-Case-Untersuchung bestimmt die Leistungsfähigkeit der verwendeten drahtlosen Übertragungssysteme gegenüber beliebigen leistungsstarken elektromagnetischen Störungen mit variabler Wiederholrate und Störddauer. This work deals with the influences and effects of high power electromagnetic disturbances on wireless communication systems operating inside the 2.4 GHz ISM frequency band such as Bluetooth and Wireless LAN. Especially the coupling of high power periodic disturbances (e.g. navigation radars) and high power transient disturbances (e.g. ultra wideband pulses) on wireless digital communication systems operating in the 2.4 GHz ISM frequency band are investigated. The resulting influences and effects are analyzed: on the one hand in the baseband of a wireless communication system and on the other hand on commercial wireless communication systems. Finally, a worst case analysis provides information on the performance of the wireless communication systems under influence of high power electromagnetic disturbances with variable repetition frequencies and length of disturbance.

Standard Handbook for Aerospace Engineers, Second Edition Butterworth-Heinemann

A practical and comprehensive reference that explores Electrostatic Discharge (ESD) in semiconductor components and electronic systems The ESD Handbook offers a comprehensive reference that explores topics relevant to ESD design in semiconductor components and explores ESD in various systems. Electrostatic discharge is a common problem in the semiconductor environment and this reference fills a gap in the literature by discussing ESD protection. Written by a noted expert on the topic, the text offers a topic-by-topic reference that includes illustrative figures, discussions, and drawings. The handbook covers a wide-range of topics including ESD in manufacturing (garments, wrist straps, and shoes); ESD Testing; ESD device physics; ESD semiconductor process effects; ESD failure mechanisms; ESD circuits in different technologies (CMOS, Bipolar, etc.); ESD circuit types (Pin, Power, Pin-to-Pin, etc.); and much more. In addition, the text includes a glossary, index, tables, illustrations, and a variety of case studies. Contains a well-organized reference that provides a quick review on a range of ESD topics Fills the gap in the current literature by providing information from purely scientific and physical aspects to practical applications Offers information in clear and accessible terms Written by the accomplished author of the popular ESD book series Written for technicians, operators, engineers, circuit designers, and failure analysis engineers, The ESD Handbook contains an accessible reference to ESD design and ESD systems.

Einfluss leistungsstarker elektromagnetischer Störquellen auf drahtlose digitale Übertragungssysteme im 2,4-GHz-ISM-Frequenzband IEEE Standards Office

This is a self-contained book on the foundations and applications of optical and microwave technologies to telecommunication networks application, with an emphasis on access, local, road, cars, trains, vessels and airplanes, indoor and in-car data transmission as well as for long-distance fiber-systems and application in outer space and automation technology. The book provides a systematic discussion of physics/optics, electromagnetic wave theory, optical fibre technology, and the potential and limitations of optical and microwave transmission.

Methods and Techniques of Signal Processing in Physical Measurements CRC Press

This text constitutes proceedings from the Digital Avionics Systems Conference (DAC), which took place in 1999. Topics covered include processes and methods, safety, certification and standards, and hardware engineering.

EMC for Product Designers John Wiley & Sons

GROUNDS FOR GROUNDING Gain a comprehensive

understanding of all aspects of grounding theory and application in this new, expanded edition Grounding design and installation are crucial to ensure the safety and performance of any electrical or electronic system irrespective of size. Successful grounding design requires a thorough familiarity with theory combined with practical experience with real-world systems. Rarely taught in schools due to its complexity, identifying and implementing the appropriate solution to grounding problems is nevertheless a vital skill in the industrial world for any electrical engineer. In Grounds for Grounding, readers will discover a complete and thorough approach to the topic that blends theory and practice to demonstrate that a few rules apply to many applications. The book provides basic concepts of Electromagnetic Compatibility (EMC) that act as the foundation for understanding grounding theory and its applications. Each avenue of grounding is covered in its own chapter, topics from safety aspects in facilities, lightning, and NEMP to printed circuit board, cable shields, and enclosure grounding, and more. Grounds for Grounding readers will also find: Revised and updated information presented in every chapter New chapters on grounding for generators, uninterruptible power sources (UPSs) New appendices including a grounding design checklist, grounding documentation content, and grounding verification procedures Grounds for Grounding is a useful reference for engineers in circuit design, equipment, and systems, as well as power engineers, platform, and facility designers.

Advances in Guidance, Navigation and Control Springer

The environmental impact of hydrocarbon-burning aircraft is one of the main motivations for the move to electric propulsion in aerospace. Also, cars, buses, and trucks are incorporating electric or hybrid-electric propulsion systems, reducing the pressure on hydrocarbons and lowering the costs of electrical components. The economies of scale necessitated by the automotive industry will help contain costs in the aviation sector as well. The use of electric propulsion in airplanes is not a new phenomenon. However, it is only recently that it has taken off in a concrete manner with a viable commercial future. The Electric Flight Technology: Unfolding of a New Future reviews the history of this field, discusses the key underlying technologies, and describes how the future for these technologies will likely unfold, distinguishing between all-electric (AE) and hybrid-electric (HE) architectures. Written by Dr. Ravi Rajamani, it covers the essential information needed to understand this new technology wave taking hold in the aerospace industry. The Electric Flight Technology: Unfolding of a New Future covers fundamental topics such as: • The history of electric propulsion, including its evolution from using traditional electricity, to solar power to batteries as sources to sustain propulsion and flight. • The various architectures being considered for electric aircraft, specifically small general aviation (GA) aircraft and larger business jets; single-aisle commercial aircraft; and larger twin-aisle commercial aircraft. • The various systems and subsystems of an electric aircraft, along with how various subsystems in the vehicle can be integrated in a more optimal manner. In the future, the existing tube-and-wing configuration will not be the only available architecture; instead we will be more likely to find an architecture where the propulsion system is embedded within the airframe. • The future trends in this arena and what we can expect to see in the next decade or so.

Electrical Overstress (EOS) Editions Eyrolles

Original research on SHM sensors, quantification strategies, system integration and control for a wide range of engineered materials New applications in robotics, machinery, as well as military aircraft, railroads, highways, bridges, pipelines, stadiums, tunnels, space exploration and energy production Continuing a critical book series on structural health monitoring (SHM), this two-volume set (with full-text searchable CD-ROM) offers, as its subtitle implies, a guide to greater integration and control of SHM systems. Specifically, the volumes contain new research that will enable readers to more efficiently link sensor detection, diagnostics/quantification, overall system functionality, and automated, e.g., robotic, control, thus further closing the loop from inherent signal-based damage detection to responsive real-time maintenance and repair. SHM performance is demonstrated in monitoring the behavior of composites, metals, concrete, polymers and selected nanomaterials in a wide array of surroundings, including harsh environments, under extreme (e.g., seismic) loading and in space. New information on smart sensors and network optimization is enhanced by novel statistical and model-based methods for signal processing and data quantification. A special feature of the book is its explanation of emerging control technologies. Research in these volumes was initially presented in September 2013 at the 9th International Workshop on Structural Health Monitoring (IWSHM), held at Stanford University and sponsored by the Air Force Office of Scientific Research, the Army Research Laboratory, and the Office of Naval Research.

Guide pratique du pilote de ligne John Wiley & Sons

ESD: Circuits and Devices 2nd Edition provides a clear picture of layout and design of digital, analog, radio frequency (RF) and power applications for protection from electrostatic discharge (ESD), electrical overstress (EOS), and latchup phenomena from a generalist perspective and design synthesis practices providing optimum solutions in advanced technologies. New features in the 2nd edition: Expanded treatment of ESD and analog design of passive devices of resistors, capacitors, inductors, and active devices of diodes, bipolar junction transistors, MOSFETs, and FINFETs. Increased focus on ESD power clamps for power rails for CMOS, Bipolar, and BiCMOS. Co-synthesizing of semiconductor chip architecture and floor planning with ESD design practices for analog, and mixed signal applications Illustrates the influence of analog design practices on ESD design circuitry, from integration, synthesis and layout, to symmetry, matching, inter-digitation, and common centroid techniques. Increased emphasis on system-level testing conforming to IEC 61000-4-2 and IEC 61000-4-5. Improved coverage of low-capacitance ESD, scaling of devices and oxide scaling challenges. ESD: Circuits and Devices 2nd Edition is an essential reference to ESD, circuit & semiconductor engineers and quality, reliability &analysis engineers. It is also useful for graduate and undergraduate students in electrical engineering, semiconductor sciences, microelectronics and IC design.

ESD McGraw Hill Professional

A perennial bestseller, the Digital Avionics Handbook offers a comprehensive view of avionics. Complete with case studies of avionics architectures as well as examples of modern systems flying on current military and civil aircraft, this Third Edition includes: Ten brand-new chapters covering new topics and emerging trends Significant restructuring to deliver a more coherent and cohesive story Updates to all existing chapters to reflect the latest software and technologies Featuring discussions of new data bus and display concepts involving retina scanning, speech interaction, and synthetic vision, the Digital Avionics Handbook, Third Edition provides practicing and aspiring electrical, aerospace, avionics, and control systems engineers with a pragmatic look at the present state of the art of avionics.

Digital Avionics Handbook Artech House

Electrical Overstress (EOS) continues to impact semiconductor manufacturing, semiconductor components and systems as technologies scale from micro- to nano-electronics. This

bookteaches the fundamentals of electrical overstress and how to minimize and mitigate EOS failures. The text provides a clear picture of EOS phenomena, EOS origins, EOS sources, EOS physics, EOS failure mechanisms, and EOS on-chip and system design. It provides an illuminating insight into the sources of EOS in manufacturing, integration of on-chip, and system level EOS protection networks, followed by examples in specific technologies, circuits, and chips. The book is unique in covering the EOS manufacturing issues from on-chip design and electronic design automation to factory-level EOS program management in today’s modern world. Look inside for extensive coverage on: Fundamentals of electrical overstress, from EOS physics, EOS time scales, safe operating area (SOA), to physical models for EOS phenomena EOS sources in today’s semiconductor manufacturing environment, and EOS program management, handling and EOS auditing processing to avoid EOS failures EOS failures in both semiconductor devices, circuits and system

Discussion of how to distinguish between EOS events, and electrostatic discharge (ESD) events (e.g. such as human body model (HBM), charged device model (CDM), cable discharge events (CDM), charged board events (CBE), to system level IEC 61000-4-2 test events) EOS protection on-chip design practices and how they differ from ESD protection networks and solutions Discussion of EOS system level concerns in printed circuit boards (PCB), and manufacturing equipment Examples of EOS issues in state-of-the-art digital, analog and power technologies including CMOS, LDMOS, and BCD EOS design rule checking (DRC), LVS, and ERC electronic design automation (EDA) and how it is distinct from ESD EDA systems EOS testing and qualification techniques, and Practical off-chip ESD protection and system level solutions to provide more robust systems Electrical Overstress (EOS): Devices, Circuits and Systems is a continuation of the author’s series of books on ESD protection. It is an essential reference and a useful insight into the issues that confront modern technology as we enter the nano-electronic era.