

ieee transactions on nuclear science

ieee transactions on nuclear science is a leading peer-reviewed journal dedicated to the dissemination of innovative research and developments in the field of nuclear science and engineering. This publication serves as a vital resource for professionals, researchers, and academics focused on nuclear instrumentation, radiation detection, and related technologies. Covering a broad spectrum of topics including nuclear physics, radiation measurements, nuclear electronics, and applications in medical imaging and space science, the journal provides comprehensive insights into advancements shaping this dynamic field. The **ieee transactions on nuclear science** emphasizes cutting-edge experimental techniques, theoretical analyses, and practical implementations that impact nuclear science and technology. This article explores the journal's scope, editorial standards, key research areas, submission process, and its influence on the global scientific community. The following sections provide an in-depth look into the various facets of this prestigious publication.

- Overview of IEEE Transactions on Nuclear Science
- Scope and Key Research Areas
- Editorial Standards and Peer Review Process
- Submission Guidelines and Publication Process
- Impact and Contributions to Nuclear Science
- Access and Audience

Overview of IEEE Transactions on Nuclear Science

The **ieee transactions on nuclear science** is published by the Institute of Electrical and Electronics Engineers (IEEE), a globally recognized organization known for its technical standards and scholarly journals. Established to cater to the needs of the nuclear science community, this journal provides a platform for sharing significant findings, innovative methodologies, and emerging technologies. Its periodic issues contain original research articles, review papers, and technical notes that cover a wide array of topics related to nuclear science and engineering disciplines. The journal supports the advancement of nuclear science by facilitating collaboration and communication among scientists and engineers worldwide.

History and Evolution

The IEEE Transactions on Nuclear Science has evolved considerably since its inception, adapting to the rapid technological advancements in nuclear research. Initially focused on instrumentation and measurement techniques, the journal has expanded to include multidisciplinary approaches encompassing computational methods, nuclear medicine, and radiation safety. This evolution reflects the growing complexity and interdisciplinary nature of nuclear science and its applications.

Publication Frequency and Format

The journal is typically published on a monthly or bimonthly basis, ensuring a steady flow of current research to the scientific community. Published in both print and digital formats, IEEE Transactions on Nuclear Science offers accessibility and convenience to readers worldwide. The digital platform often includes supplementary materials such as datasets, multimedia, and extended experimental details to support reproducibility and further research.

Scope and Key Research Areas

The scope of IEEE Transactions on Nuclear Science encompasses a broad range of topics within nuclear science and technology. It focuses on both fundamental and applied research, addressing challenges and innovations in the detection, measurement, and application of nuclear phenomena. The journal targets contributions from experimental, theoretical, and computational studies.

Nuclear Instrumentation and Measurement

This area includes developments in detectors, sensors, and electronics used to measure radiation and nuclear particles. Research papers often explore novel detector materials, signal processing techniques, and instrumentation design to improve sensitivity, resolution, and reliability.

Nuclear Physics and Radiation Science

Articles in this category delve into the fundamental interactions of nuclear particles, radiation transport, and nuclear reactions. Studies may focus on particle accelerators, nuclear decay processes, or radiation shielding and dosimetry.

Medical Applications and Imaging

The journal also covers advancements in nuclear medicine, including imaging technologies such as PET and SPECT, radiopharmaceuticals, and radiation therapy techniques. Research aimed at improving diagnostic accuracy and treatment efficacy is highly relevant.

Space Science and Radiation Effects

Exploration of nuclear science in space environments, including cosmic radiation effects on electronics and materials, is an important research theme. Papers may address radiation hardening, space instrumentation, and nuclear propulsion.

Radiation Safety and Nuclear Security

Topics related to radiation protection, environmental monitoring, nuclear safeguards, and security measures are critical to the journal's mission. Contributions focus on risk assessment, regulatory frameworks, and technological solutions to enhance safety.

Editorial Standards and Peer Review Process

Maintaining high editorial standards is a cornerstone of *IEEE Transactions on Nuclear Science*. The journal employs a rigorous peer review process to ensure the publication of credible, high-quality research. Manuscripts undergo evaluation by experts in the relevant fields, who assess the originality, technical soundness, and scientific impact of the submissions.

Peer Review Methodology

The peer review process is typically double-blind or single-blind, depending on the editorial policy at the time. Reviewers provide detailed feedback aimed at improving clarity, accuracy, and completeness. This process upholds the integrity and scholarly value of the journal's content.

Ethical Guidelines

Authors and reviewers are expected to adhere to strict ethical standards, including originality of work, disclosure of conflicts of interest, and proper citation practices. The journal implements policies to detect and prevent plagiarism, data fabrication, and other unethical behaviors.

Submission Guidelines and Publication Process

Authors interested in publishing in *IEEE Transactions on Nuclear Science* must follow well-defined submission guidelines to facilitate efficient processing. The journal provides comprehensive instructions covering manuscript formatting, figure preparation, and supplementary data inclusion.

Manuscript Preparation

Submissions should be clear, concise, and structured according to the journal's template. Emphasis is placed on the novelty of research, reproducibility of results, and relevance to the nuclear science community. Proper use of technical terminology and adherence to IEEE style are mandatory.

Review and Revision

After initial submission, manuscripts undergo editorial screening followed by peer review. Authors may be requested to revise their manuscripts based on reviewer comments. Timely and thorough responses to reviewer feedback are crucial for successful publication.

Acceptance and Publication

Once accepted, articles are copyedited and formatted for final publication. The journal often offers early access through online publication ahead of print. Authors receive proofs for final approval before the article is officially published.

Impact and Contributions to Nuclear Science

The *IEEE Transactions on Nuclear Science* has a significant impact on the field by promoting cutting-edge research and fostering innovation. Its articles frequently contribute to the development of new technologies, enhanced safety protocols, and improved understanding of nuclear phenomena.

Influence on Research and Industry

The journal's influence extends beyond academia into industry sectors such as nuclear power, medical diagnostics, aerospace, and national security. Research published in the journal often informs the design and optimization of nuclear systems and instrumentation.

Recognition and Citation Metrics

With a strong reputation and high citation rates, IEEE Transactions on Nuclear Science is considered an authoritative source within the scientific community. Its impact factor and other metrics reflect the journal's role in shaping ongoing research trends and technological advancements.

Access and Audience

The journal targets a diverse audience of researchers, engineers, and professionals involved in nuclear science and technology. Access is provided primarily through institutional subscriptions, IEEE Xplore digital library, and select open access options.

Audience Profile

Readers include academic researchers, nuclear engineers, radiological scientists, medical physicists, and policy makers interested in nuclear technology and safety. The interdisciplinary nature of the content attracts a wide range of specialists.

Availability and Distribution

The IEEE Transactions on Nuclear Science is widely distributed globally, ensuring that key developments reach a broad spectrum of stakeholders. Digital access facilitates rapid dissemination and integration of new knowledge into research and practice.

Benefits of Reading IEEE Transactions on Nuclear Science

- Stay updated on the latest innovations in nuclear instrumentation and measurement
- Gain insights into emerging nuclear physics research and radiation science
- Explore advances in medical imaging and nuclear medicine applications
- Understand radiation effects in space and related engineering challenges
- Learn about current practices in radiation safety and nuclear security

Frequently Asked Questions

What is the focus of IEEE Transactions on Nuclear Science?

IEEE Transactions on Nuclear Science focuses on the dissemination of research and developments in the field of nuclear science, including nuclear instrumentation, radiation detection, nuclear physics, and related technologies.

How often is IEEE Transactions on Nuclear Science published?

IEEE Transactions on Nuclear Science is a bimonthly peer-reviewed journal, publishing six issues per year.

Who can submit papers to IEEE Transactions on Nuclear Science?

Researchers, scientists, and engineers working in the fields related to nuclear science and technology can submit their original research papers for peer review and publication.

What types of articles are published in IEEE Transactions on Nuclear Science?

The journal publishes original research articles, review papers, technical notes, and occasionally special issues on emerging topics in nuclear science and technology.

Is IEEE Transactions on Nuclear Science an open access journal?

IEEE Transactions on Nuclear Science operates under a hybrid model, offering both subscription-based access and open access options for authors who choose to pay article processing charges.

What are common topics covered in IEEE Transactions on Nuclear Science?

Common topics include nuclear instrumentation, radiation detectors and measurements, particle accelerators, nuclear physics experiments, medical imaging technologies, and radiation effects on materials.

How can I access articles from IEEE Transactions on Nuclear Science?

Articles can be accessed through the IEEE Xplore digital library, institutional subscriptions, or by purchasing individual articles. Some articles may be available as open access.

What is the impact factor of IEEE Transactions on Nuclear Science?

The impact factor varies yearly; readers should refer to the latest Journal Citation Reports or the IEEE Xplore website for the most current impact factor information.

Are there any special issues or thematic collections in IEEE Transactions on Nuclear Science?

Yes, the journal periodically publishes special issues focusing on specific emerging areas or significant conferences related to nuclear science and technology.

Additional Resources

1. *Radiation Detection and Measurement*

This comprehensive book covers the principles and applications of radiation detection technologies. It explores various detector types, including scintillation counters, semiconductor detectors, and gas-filled detectors. The text is essential for understanding nuclear instrumentation and measurement techniques used in nuclear science research and industry.

2. *Nuclear Reactor Physics*

Focusing on the theoretical and practical aspects of nuclear reactors, this book delves into neutron transport, reactor kinetics, and thermal-hydraulics. It provides insights into reactor design, safety analysis, and operational behavior. Ideal for graduate students and professionals working in reactor engineering and nuclear science.

3. *Advances in Nuclear Science and Technology*

This volume compiles recent developments and research breakthroughs in nuclear science, including nuclear materials, radiation effects, and nuclear instrumentation. It highlights cutting-edge technologies and methodologies in the field. The book serves as a valuable reference for researchers and practitioners in nuclear science.

4. *Nuclear Electronics: Instruments and Methods*

Covering the electronic systems used in nuclear measurements, this book explains the design and operation of nuclear instrumentation modules, signal processing, and data acquisition systems. It discusses both analog and

digital electronics tailored for nuclear science applications. A crucial resource for engineers and scientists involved in nuclear instrumentation.

5. *Radiation Effects in Materials*

This text examines how various types of radiation interact with materials at the atomic and molecular levels. Topics include radiation damage, defect formation, and material degradation in nuclear environments. The book is particularly useful for those working on materials for nuclear reactors and radiation shielding.

6. *Medical Imaging and Nuclear Medicine Physics*

Bridging nuclear science and healthcare, this book focuses on the physics behind imaging modalities like PET, SPECT, and CT scans. It covers radiation safety, dosimetry, and instrumentation specific to medical applications. Essential reading for medical physicists and nuclear medicine specialists.

7. *Monte Carlo Methods for Radiation Transport*

This book introduces Monte Carlo simulation techniques used to model the transport of radiation through matter. It details algorithms, variance reduction methods, and practical implementations for nuclear science problems. It serves as a guide for researchers and engineers performing computational nuclear analyses.

8. *Radiation Shielding and Dosimetry*

Focusing on methods to protect against radiation exposure, this book discusses shielding materials, design principles, and dosimetric techniques. It includes theoretical foundations and practical considerations for radiation safety in nuclear facilities. A key text for health physicists and nuclear engineers.

9. *Fundamentals of Nuclear Science and Engineering*

Providing a broad overview of nuclear science, this book covers nuclear reactions, decay processes, radiation detection, and reactor principles. It integrates theoretical concepts with practical applications in engineering and research. Suitable for students and professionals seeking a foundational understanding of nuclear science.

[Ieee Transactions On Nuclear Science](#)

Find other PDF articles:

<https://admin.nordenson.com/archive-library-204/Book?ID=dGx03-7849&title=crime-gun-intelligenc-e-center.pdf>

ieee transactions on nuclear science: *IEEE Transactions on Nuclear Science* , 1967-02
ieee transactions on nuclear science: Commemorative Special Issue of the IEEE Transactions on Nuclear Science , 2003

ieee transactions on nuclear science: Commemorative Special Issue of the IEEE Transactions on Nuclear Science J. R. Srouf, Timothy R. Oldham, F. W. Sexton, Institute of Electrical and Electronics Engineers, 2003

ieee transactions on nuclear science: Permuted Index to IRE (IEEE) Transactions on Nuclear Science, NS1-13, 1954-1966 , 1968

ieee transactions on nuclear science: *Methodology and Technology for Power System Grounding* Jinliang He, Rong Zeng, Bo Zhang, 2012-11-28 Grounding is the fundamental measures to ensure the safe operation of power systems, including power apparatus and control/monitoring systems, and guarantee the personal safety. Grounding technology is an interdisciplinary involving electrical engineering, high voltage technology, electric safety, electromagnetics, numerical analysis, and geological exploration *Methodology and Technology for Power System Grounding: Covers all topics related to power system grounding Presents fundamentals and theories of grounding systems Well balances technology and methodology related to grounding system design Helps to understand the grounding analysis softwares Highlights the advanced research works in the field of grounding systems Comprehensively introduces numerical analysis methods Discovers impulse ionization phenomenon of soil around the grounding conductors Touches on lightning impulse characteristics of grounding devices for towers and buildings As a comprehensive treatment of the topic, Methodology and Technology for Power System Grounding is ideal for engineers and researchers in power system, lightning protection, and grounding. The book will also better equip postgraduates, senior undergraduate students in electrical engineering.*

ieee transactions on nuclear science: *Extreme Environment Electronics* John D. Cressler, H. Alan Mantooth, 2017-12-19 Unfriendly to conventional electronic devices, circuits, and systems, extreme environments represent a serious challenge to designers and mission architects. The first truly comprehensive guide to this specialized field, *Extreme Environment Electronics* explains the essential aspects of designing and using devices, circuits, and electronic systems intended to operate in extreme environments, including across wide temperature ranges and in radiation-intense scenarios such as space. The Definitive Guide to Extreme Environment Electronics Featuring contributions by some of the world's foremost experts in extreme environment electronics, the book provides in-depth information on a wide array of topics. It begins by describing the extreme conditions and then delves into a description of suitable semiconductor technologies and the modeling of devices within those technologies. It also discusses reliability issues and failure mechanisms that readers need to be aware of, as well as best practices for the design of these electronics. Continuing beyond just the paper design of building blocks, the book rounds out coverage of the design realization process with verification techniques and chapters on electronic packaging for extreme environments. The final set of chapters describes actual chip-level designs for applications in energy and space exploration. Requiring only a basic background in electronics, the book combines theoretical and practical aspects in each self-contained chapter. Appendices supply additional background material. With its broad coverage and depth, and the expertise of the contributing authors, this is an invaluable reference for engineers, scientists, and technical managers, as well as researchers and graduate students. A hands-on resource, it explores what is required to successfully operate electronics in the most demanding conditions.

ieee transactions on nuclear science: Integrated Circuit Design for Radiation Environments Stephen J. Gaul, Nicolaas van Vonne, Steven H. Voldman, Wesley H. Morris, 2019-12-31 A practical guide to the effects of radiation on semiconductor components of electronic systems, and techniques for the designing, laying out, and testing of hardened integrated circuits This book teaches the fundamentals of radiation environments and their effects on electronic components, as well as how to design, lay out, and test cost-effective hardened semiconductor chips not only for today's space systems but for commercial terrestrial applications as well. It provides a historical perspective, the fundamental science of radiation, and the basics of semiconductors, as well as radiation-induced failure mechanisms in semiconductor chips. *Integrated Circuits Design for Radiation Environments* starts by introducing readers to semiconductors and radiation environments

(including space, atmospheric, and terrestrial environments) followed by circuit design and layout. The book introduces radiation effects phenomena including single-event effects, total ionizing dose damage and displacement damage) and shows how technological solutions can address both phenomena. Describes the fundamentals of radiation environments and their effects on electronic components Teaches readers how to design, lay out and test cost-effective hardened semiconductor chips for space systems and commercial terrestrial applications Covers natural and man-made radiation environments, space systems and commercial terrestrial applications Provides up-to-date coverage of state-of-the-art of radiation hardening technology in one concise volume Includes questions and answers for the reader to test their knowledge Integrated Circuits Design for Radiation Environments will appeal to researchers and product developers in the semiconductor, space, and defense industries, as well as electronic engineers in the medical field. The book is also helpful for system, layout, process, device, reliability, applications, ESD, latchup and circuit design semiconductor engineers, along with anyone involved in micro-electronics used in harsh environments.

ieee transactions on nuclear science: Inside NAND Flash Memories Rino Micheloni, Luca Crippa, Alessia Marelli, 2010-07-27 Digital photography, MP3, digital video, etc. make extensive use of NAND-based Flash cards as storage media. To realize how much NAND Flash memories pervade every aspect of our life, just imagine how our recent habits would change if the NAND memories suddenly disappeared. To take a picture it would be necessary to find a film (as well as a traditional camera...), disks or even magnetic tapes would be used to record a video or to listen a song, and a cellular phone would return to be a simple mean of communication rather than a multimedia console. The development of NAND Flash memories will not be set down on the mere evolution of personal entertainment systems since a new killer application can trigger a further success: the replacement of Hard Disk Drives (HDDs) with Solid State Drives (SSDs). SSD is made up by a microcontroller and several NANDs. As NAND is the technology driver for IC circuits, Flash designers and technologists have to deal with a lot of challenges. Therefore, SSD (system) developers must understand Flash technology in order to exploit its benefits and countermeasure its weaknesses. Inside NAND Flash Memories is a comprehensive guide of the NAND world: from circuits design (analog and digital) to Flash reliability (including radiation effects), from testing issues to high-performance (DDR) interface, from error correction codes to NAND applications like Flash cards and SSDs.

ieee transactions on nuclear science: Comprehensive Biomedical Physics , 2014-07-25 Comprehensive Biomedical Physics, Ten Volume Set is a new reference work that provides the first point of entry to the literature for all scientists interested in biomedical physics. It is of particularly use for graduate and postgraduate students in the areas of medical biophysics. This Work is indispensable to all serious readers in this interdisciplinary area where physics is applied in medicine and biology. Written by leading scientists who have evaluated and summarized the most important methods, principles, technologies and data within the field, Comprehensive Biomedical Physics is a vital addition to the reference libraries of those working within the areas of medical imaging, radiation sources, detectors, biology, safety and therapy, physiology, and pharmacology as well as in the treatment of different clinical conditions and bioinformatics. This Work will be valuable to students working in all aspect of medical biophysics, including medical imaging and biomedical radiation science and therapy, physiology, pharmacology and treatment of clinical conditions and bioinformatics. The most comprehensive work on biomedical physics ever published Covers one of the fastest growing areas in the physical sciences, including interdisciplinary areas ranging from advanced nuclear physics and quantum mechanics through mathematics to molecular biology and medicine Contains 1800 illustrations, all in full color

ieee transactions on nuclear science: Single-Event Effects, from Space to Accelerator Environments Ygor Quadros de Aguiar, Frédéric Wrobel, Jean-Luc Autran, Rubén García Alía, 2024-10-17 This book describes the fundamental concepts underlying radiation-induced failure mechanisms in electronic components operating in harsh environments, such as in space missions or

in particle accelerators. In addition to providing an extensive overview of the dynamics and composition of different radiation environments, the authors discuss the failure mechanisms, known as single-event effects (SEEs), and dedicated failure modeling and prediction methodologies. Additionally, novel radiation-hardening-by-design (RHBD) techniques at physical layout and circuit levels are described. Readers who are newcomers to this field will learn the fundamental concepts of particle interaction physics and electronics hardening design, starting from the composition and dynamics of radiation environments and their effects on electronics, to the qualification and hardening of components. Experienced readers will enjoy the comprehensive discussion of the state-of-the-art in modeling, simulation, and analysis of radiation effects developed in the recent years, especially the outcome of the recent European project, RADSAGA. Describes both the fundamental concepts underlying radiation effects in electronics and state-of-the-art hardening methodologies Addresses failure mechanisms, known as single-event effects (SEEs), and dedicated failure modeling and prediction methodologies Reveals novel radiation-hardening-by-design (RHBD) techniques at physical layout and circuit levels Offers readers the first book in which particle accelerator applications will be extensively included in the radiation effects context This is an open access book.

ieee transactions on nuclear science: Nanoscale Semiconductor Memories Santosh K. Kurinec, Krzysztof Iniewski, 2017-07-28 Nanoscale memories are used everywhere. From your iPhone to a supercomputer, every electronic device contains at least one such type. With coverage of current and prototypical technologies, Nanoscale Semiconductor Memories: Technology and Applications presents the latest research in the field of nanoscale memories technology in one place. It also covers a myriad of applications that nanoscale memories technology has enabled. The book begins with coverage of SRAM, addressing the design challenges as the technology scales, then provides design strategies to mitigate radiation induced upsets in SRAM. It discusses the current state-of-the-art DRAM technology and the need to develop high performance sense amplifier circuitry. The text then covers the novel concept of capacitorless 1T DRAM, termed as Advanced-RAM or A-RAM, and presents a discussion on quantum dot (QD) based flash memory. Building on this foundation, the coverage turns to STT-RAM, emphasizing scalable embedded STT-RAM, and the physics and engineering of magnetic domain wall racetrack memory. The book also discusses state-of-the-art modeling applied to phase change memory devices and includes an extensive review of RRAM, highlighting the physics of operation and analyzing different materials systems currently under investigation. The hunt is still on for universal memory that fits all the requirements of an ideal memory capable of high-density storage, low-power operation, unparalleled speed, high endurance, and low cost. Taking an interdisciplinary approach, this book bridges technological and application issues to provide the groundwork for developing custom designed memory systems.

ieee transactions on nuclear science: Soft Errors in Modern Electronic Systems Michael Nicolaidis, 2010-09-24 This book provides a comprehensive presentation of the most advanced research results and technological developments enabling understanding, qualifying and mitigating the soft errors effect in advanced electronics, including the fundamental physical mechanisms of radiation induced soft errors, the various steps that lead to a system failure, the modelling and simulation of soft error at various levels (including physical, electrical, netlist, event driven, RTL, and system level modelling and simulation), hardware fault injection, accelerated radiation testing and natural environment testing, soft error oriented test structures, process-level, device-level, cell-level, circuit-level, architectural-level, software level and system level soft error mitigation techniques. The book contains a comprehensive presentation of most recent advances on understanding, qualifying and mitigating the soft error effect in advanced electronic systems, presented by academia and industry experts in reliability, fault tolerance, EDA, processor, SoC and system design, and in particular, experts from industries that have faced the soft error impact in terms of product reliability and related business issues and were in the forefront of the countermeasures taken by these companies at multiple levels in order to mitigate the soft error

effects at a cost acceptable for commercial products. In a fast moving field, where the impact on ground level electronics is very recent and its severity is steadily increasing at each new process node, impacting one after another various industry sectors (as an example, the Automotive Electronics Council comes to publish qualification requirements on soft errors), research and technology developments and industrial practices have evolve very fast, outdating the most recent books edited at 2004.

ieee transactions on nuclear science: Issues in Nuclear and Plasma Science and Technology: 2013 Edition , 2013-05-01 Issues in Nuclear and Plasma Science and Technology: 2013 Edition is a ScholarlyEditions™ book that delivers timely, authoritative, and comprehensive information about Plasma Science. The editors have built Issues in Nuclear and Plasma Science and Technology: 2013 Edition on the vast information databases of ScholarlyNews.™ You can expect the information about Plasma Science in this book to be deeper than what you can access anywhere else, as well as consistently reliable, authoritative, informed, and relevant. The content of Issues in Nuclear and Plasma Science and Technology: 2013 Edition has been produced by the world's leading scientists, engineers, analysts, research institutions, and companies. All of the content is from peer-reviewed sources, and all of it is written, assembled, and edited by the editors at ScholarlyEditions™ and available exclusively from us. You now have a source you can cite with authority, confidence, and credibility. More information is available at <http://www.ScholarlyEditions.com/>.

ieee transactions on nuclear science: Soft Errors Jean-Luc Autran, Daniela Munteanu, 2017-12-19 Soft errors are a multifaceted issue at the crossroads of applied physics and engineering sciences. Soft errors are by nature multiscale and multiphysics problems that combine not only nuclear and semiconductor physics, material sciences, circuit design, and chip architecture and operation, but also cosmic-ray physics, natural radioactivity issues, particle detection, and related instrumentation. Soft Errors: From Particles to Circuits addresses the problem of soft errors in digital integrated circuits subjected to the terrestrial natural radiation environment—one of the most important primary limits for modern digital electronic reliability. Covering the fundamentals of soft errors as well as engineering considerations and technological aspects, this robust text: Discusses the basics of the natural radiation environment, particle interactions with matter, and soft-error mechanisms Details instrumentation developments in the fields of environment characterization, particle detection, and real-time and accelerated tests Describes the latest computational developments, modeling, and simulation strategies for the soft error-rate estimation in digital circuits Explores trends for future technological nodes and emerging devices Soft Errors: From Particles to Circuits presents the state of the art of this complex subject, providing comprehensive knowledge of the complete chain of the physics of soft errors. The book makes an ideal text for introductory graduate-level courses, offers academic researchers a specialized overview, and serves as a practical guide for semiconductor industry engineers or application engineers.

ieee transactions on nuclear science: Physics of PET and SPECT Imaging Magnus Dahlbom, 2017-02-17 PET and SPECT imaging has improved to such a level that they are opening up exciting new horizons in medical diagnosis and treatment. This book provides a complete introduction to fundamentals and the latest progress in the field, including an overview of new scintillator materials and innovations in photodetector development, as well as the latest system designs and image reconstruction algorithms. It begins with basics of PET and SPECT physics, followed by technology advances and computing methods, quantitative techniques, multimodality imaging, instrumentation, pre-clinical and clinical imaging applications.

ieee transactions on nuclear science: MEMS and Microstructures in Aerospace Applications Robert Osiander, M. Ann Garrison Darrin, John L. Champion, 2018-10-03 The promise of MEMS for aerospace applications has been germinating for years, and current advances bring the field to the very cusp of fruition. Reliability is chief among the challenges limiting the deployment of MEMS technologies in space, as the requirement of zero failure during the mission is quite stringent for this burgeoning field. MEMS and Microstructures in Aerospace Applications provides all the necessary tools to overcome these obstacles and take MEMS from the lab bench to beyond the exosphere. The

book begins with an overview of MEMS development and provides several demonstrations of past and current examples of MEMS in space. From this platform, the discussion builds to fabrication technologies; the effect of space environmental factors on MEMS devices; and micro technologies for space systems, instrumentation, communications, thermal control, guidance navigation and control, and propulsion. Subsequent chapters explore factors common to all of the described systems, such as MEMS packaging, handling and contamination control, material selection for specific applications, reliability practices for design and application, and assurance practices. Edited and contributed by an outstanding team of leading experts from industry, academia, and national laboratories, *MEMS and Microstructures in Aerospace Applications* illuminates the path toward qualifying and integrating MEMS devices and instruments into future space missions and developing innovative satellite systems.

ieee transactions on nuclear science: *SiGe-based Re-engineering of Electronic Warfare Subsystems* Wynand Lambrechts, Saurabh Sinha, 2016-10-19 This book provides readers a thorough understanding of the applicability of new-generation silicon-germanium (SiGe) electronic subsystems for electronic warfare and defensive countermeasures in military contexts. It explains in detail the theoretical and technical background, and addresses all aspects of the integration of SiGe as an enabling technology for maritime, land, and airborne / spaceborne electronic warfare, including research, design, development, and implementation. The coverage is supported by mathematical derivations, informative illustrations, practical examples, and case studies. While SiGe technology provides speed, performance, and price advantages in many markets, to date only limited information has been available on its use in electronic warfare systems, especially in developing nations. Addressing that need, this book offers essential engineering guidelines that especially focus on the speed and reliability of current-generation SiGe circuits and highlight emerging innovations that help to ensure the sustainable long-term integration of SiGe into electronic warfare systems.

ieee transactions on nuclear science: *Ionizing Radiation Effects in Electronics* Marta Bagatin, Simone Gerardin, 2018-09-03 *Ionizing Radiation Effects in Electronics: From Memories to Imagers* delivers comprehensive coverage of the effects of ionizing radiation on state-of-the-art semiconductor devices. The book also offers valuable insight into modern radiation-hardening techniques. The text begins by providing important background information on radiation effects, their underlying mechanisms, and the use of Monte Carlo techniques to simulate radiation transport and the effects of radiation on electronics. The book then: Explains the effects of radiation on digital commercial devices, including microprocessors and volatile and nonvolatile memories—static random-access memories (SRAMs), dynamic random-access memories (DRAMs), and Flash memories Examines issues like soft errors, total dose, and displacement damage, together with hardening-by-design solutions for digital circuits, field-programmable gate arrays (FPGAs), and mixed-analog circuits Explores the effects of radiation on fiber optics and imager devices such as complementary metal-oxide-semiconductor (CMOS) sensors and charge-coupled devices (CCDs) Featuring real-world examples, case studies, extensive references, and contributions from leading experts in industry and academia, *Ionizing Radiation Effects in Electronics: From Memories to Imagers* is suitable both for newcomers who want to become familiar with radiation effects and for radiation experts who are looking for more advanced material or to make effective use of beam time.

ieee transactions on nuclear science: *Advanced X-ray Detector Technologies* Krzysztof (Kris) Iniewski, 2022-01-10 This book offers readers an overview of some of the most recent advances in the field of detectors for X-ray imaging. Coverage includes both technology and applications, with an in-depth review of the research topics from leading specialists in the field. Emphasis is on high-Z materials like CdTe, CZT and perovskites, since they offer the best implementation possibilities for direct conversion X-ray detectors. Authors discuss material challenges, detector operation physics and technology and readout integrated circuits required to detect signals processes by high-Z sensors.

ieee transactions on nuclear science: *Integrated Time-Based Signal Processing Circuits for Harsh Radiation Environments* Arijit Karmakar, Valentijn De Smedt, Paul Leroux, 2023-10-11

This book covers the most recent, advanced methods for designing mixed-signal integrated circuits, for radiation-hardened sensor readouts (capacitive) and frequency synthesizers (quadrature, digitally controlled oscillators and all-digital PLL etc.). The authors discuss the ionizing radiation sources, complex failure mechanisms as well as several mitigation strategies for avoiding such failures. Readers will benefit from an introduction to the essential theory and fundamentals of ionizing radiation and time-based signal processing, with the details of the implementation of several radiation-hardened IC prototypes. The radiation-hardening methods and solutions described are supported by theory and experimental data with, underlying tradeoffs. Discusses the basics of time-based signal processing and its effectiveness in mitigating ionizing radiation Provides mitigation strategies and recommendations for reducing radiation induced effects in Integrated Circuits Includes coverage of devices used in measuring radiation, focusing on semiconductor-based radiation sensors

Related to ieee transactions on nuclear science

IEEE - The world's largest technical professional organization IEEE members share their expertise, develop industry standards, and work together to advance technology. From Societies focused on your technical interests to special interest groups

Institute of Electrical and Electronics Engineers - Wikipedia [6] The IEEE has a corporate office in New York City and an operations center in Piscataway, New Jersey. The IEEE was formed in 1963 as an amalgamation of the American Institute of

This question is for testing whether you are a human - IEEE Xplore This question is for testing whether you are a human visitor and to prevent automated spam submission. What code is in the image? Your support ID is: 8203162027156638420

Institute of Electrical and Electronics Engineers (IEEE) | Britannica Institute of Electrical and Electronics Engineers (IEEE), international organization of engineers and scientists in electrical engineering, electronics, and allied fields, formed in

IEEE Xplore: Advanced Search IEEE Xplore, delivering full text access to the world's highest quality technical literature in engineering and technology. | IEEE Xplore

About IEEE IEEE is a global network of over 486,000 engineering and STEM professionals. Our core purpose is to foster technological innovation and excellence for the benefit of humanity

Maker Faires Could Help IEEE Create The Future - Forbes 1 day ago Maker Faires are the sort of events that IEEE should engage with to attract the next generation of technologist, the people who will create the future

Browse Journals & Magazines - IEEE Xplore Sitemap Privacy & Opting Out of Cookies A not-for-profit organization, IEEE is the world's largest technical professional organization dedicated to advancing technology for the benefit of

CSF 2026 - 39th IEEE Computer Security Foundations Symposium July 26-29, Lisbon Portugal (colocated with FLoC 2026) The Computer Security Foundations Symposium (CSF) is an annual conference for researchers in computer security,

IEEE at a Glance An overview of where IEEE stands today. This page highlights IEEE quick facts and its key offerings in areas of membership, publications, standards, societies, education and other entities

IEEE - The world's largest technical professional organization IEEE members share their expertise, develop industry standards, and work together to advance technology. From Societies focused on your technical interests to special interest groups

Institute of Electrical and Electronics Engineers - Wikipedia [6] The IEEE has a corporate office in New York City and an operations center in Piscataway, New Jersey. The IEEE was formed in 1963 as an amalgamation of the American Institute of

This question is for testing whether you are a human - IEEE Xplore This question is for testing whether you are a human visitor and to prevent automated spam submission. What code is in the image? Your support ID is: 8203162027156638420

Institute of Electrical and Electronics Engineers (IEEE) | Britannica Institute of Electrical and Electronics Engineers (IEEE), international organization of engineers and scientists in electrical engineering, electronics, and allied fields, formed in

IEEE Xplore: Advanced Search IEEE Xplore, delivering full text access to the world's highest quality technical literature in engineering and technology. | IEEE Xplore

About IEEE IEEE is a global network of over 486,000 engineering and STEM professionals. Our core purpose is to foster technological innovation and excellence for the benefit of humanity

Maker Faires Could Help IEEE Create The Future - Forbes 1 day ago Maker Faires are the sort of events that IEEE should engage with to attract the next generation of technologist, the people who will create the future

Browse Journals & Magazines - IEEE Xplore Sitemap Privacy & Opting Out of Cookies A not-for-profit organization, IEEE is the world's largest technical professional organization dedicated to advancing technology for the benefit of

CSF 2026 - 39th IEEE Computer Security Foundations Symposium July 26-29, Lisbon Portugal (colocated with FLoC 2026) The Computer Security Foundations Symposium (CSF) is an annual conference for researchers in computer security,

IEEE at a Glance An overview of where IEEE stands today. This page highlights IEEE quick facts and its key offerings in areas of membership, publications, standards, societies, education and other entities

IEEE - The world's largest technical professional organization IEEE members share their expertise, develop industry standards, and work together to advance technology. From Societies focused on your technical interests to special interest groups

Institute of Electrical and Electronics Engineers - Wikipedia [6] The IEEE has a corporate office in New York City and an operations center in Piscataway, New Jersey. The IEEE was formed in 1963 as an amalgamation of the American Institute of

This question is for testing whether you are a human - IEEE Xplore This question is for testing whether you are a human visitor and to prevent automated spam submission. What code is in the image? Your support ID is: 8203162027156638420

Institute of Electrical and Electronics Engineers (IEEE) | Britannica Institute of Electrical and Electronics Engineers (IEEE), international organization of engineers and scientists in electrical engineering, electronics, and allied fields, formed in

IEEE Xplore: Advanced Search IEEE Xplore, delivering full text access to the world's highest quality technical literature in engineering and technology. | IEEE Xplore

About IEEE IEEE is a global network of over 486,000 engineering and STEM professionals. Our core purpose is to foster technological innovation and excellence for the benefit of humanity

Maker Faires Could Help IEEE Create The Future - Forbes 1 day ago Maker Faires are the sort of events that IEEE should engage with to attract the next generation of technologist, the people who will create the future

Browse Journals & Magazines - IEEE Xplore Sitemap Privacy & Opting Out of Cookies A not-for-profit organization, IEEE is the world's largest technical professional organization dedicated to advancing technology for the benefit of

CSF 2026 - 39th IEEE Computer Security Foundations Symposium July 26-29, Lisbon Portugal (colocated with FLoC 2026) The Computer Security Foundations Symposium (CSF) is an annual conference for researchers in computer security,

IEEE at a Glance An overview of where IEEE stands today. This page highlights IEEE quick facts and its key offerings in areas of membership, publications, standards, societies, education and other entities