

## 1 3 Electrical Smg World

In its 114th year, Billboard remains the world's premier weekly music publication and a diverse digital, events, brand, content and data licensing platform. Billboard publishes the most trusted charts and offers unrivaled reporting about the latest music, video, gaming, media, digital and mobile entertainment issues and trends.

Helps readers understand the physics behind MOS devices for low-voltage and low-energy applications • Based on timely published and unpublished work written by expert authors • Discusses various promising MOS devices applicable to low-energy environmental and biomedical uses • Describes the physical effects (quantum, tunneling) of MOS devices • Demonstrates the performance of devices, helping readers to choose right devices applicable to an industrial or consumer environment • Addresses some Ge-based devices and other compound-material-based devices for high-frequency applications and future development of high performance devices. 'Seemingly innocuous everyday devices such as smartphones, tablets and services such as on-line gaming or internet keyword searches consume vast amounts of energy. Even when in standby mode, all these devices consume energy. The upcoming "Internet of Things" (IoT) is expected to deploy 60 billion electronic devices spread out in our homes, cars and cities. Britain is already consuming up to 16 per cent of all its power through internet use and this rate is doubling every four years. According to The UK's Daily Mail May (2015), if usage rates continue, all of Britain's power supply could be consumed by internet use in just 20 years. In 2013, U.S. data centers consumed an estimated 91 billion kilowatt-hours of electricity, corresponding to the power generated by seventeen 1000-megawatt nuclear power plants. Data center electricity consumption is projected to increase to roughly 140 billion kilowatt-hours annually by 2020, the equivalent annual output of 50 nuclear power plants. (Natural Resources Defense Council, USA, Feb. 2015) All these examples stress the urgent need for developing electronic devices that consume as little energy as possible. The book "MOS Devices for Low-Voltage and Low-Energy Applications" explores the different transistor options that can be utilized to achieve that goal. It describes in detail the physics and performance of transistors that can be operated at low voltage and consume little power, such as subthreshold operation in bulk transistors, fully depleted SOI devices, tunnel FETs, multigate and gate-all-around MOSFETs. Examples of low-energy circuits making use of these devices are given as well. The book "MOS Devices for Low-Voltage and Low-Energy Applications" is a good reference for graduate students, researchers, semiconductor and electrical engineers who will design the electronic systems of tomorrow.' --- Dr. Jean-Pierre Colinge, Taiwan Semiconductor Manufacturing Company (TSMC) "The authors present a creative way to show how different MOS devices can be used for low-voltage and low-power applications. They start with Bulk MOSFET, following with SOI MOSFET, FinFET, gate-all-around MOSFET, Tunnel-FET and others. It is presented the physics behind the devices, models, simulations, experimental results and applications. This book is interesting for researchers, graduate and undergraduate students. The low-energy field is an important topic for integrated circuits in the future and none can stay out of this." --- Prof. Joao A. Martino, University of Sao Paulo, Brazil

This book was written to interest the reader in gun design. The gun industry needs and is due for the next big breakthrough. Every 100 years seems to bring the next big development in firearms technology. In the 1600's the wheel lock was developed and heralded the first use of firearms. In the 1700's came the flintlock musket. In the 1800's came the percussion cap and later in the century the thin brass shell to carry the powder, ball ammunition, and primer was perfected. While the 20th century has seen the invention of liquid propellant, caseless ammunition, and the gyrojet, the thin brass shell has been hard to beat and is still the dominant way to feed ammunition to the firearms of today. We are due for the next big advance, but from where will it come? This book was written to interest the reader on the simplicity and the hidden complexity that good gun designs exhibit and prompt the imagination of the reader to investigate the field of firearms design further. Reading this book will give the reader: • Two ways to calculate the round per minute level of a 9mm caliber submachine gun using the STEN submachine gun as an example and gives sample excel spreadsheets to allow the reader to experiment with different design conditions. • The full technical data package of a reverse engineered STEN Submachine gun. The drawings are shown as individual operation process sheets showing the dimensions for each separate cut on an individual drawing. • The cycle of operations of the STEN with illustrations. • The analysis and sample calculations to design a gun barrel. • A discussion of firearm metallurgy with recommendations on material selection and heat treatment for various components. This book is unique as it is not a picture book of firearms, a combat guide on how to use them, nor discusses their maintenance or care. It does expose the engineering that can go behind a gun design project. This book not only gives the reader the drawings for a gun but also explains the engineering and dynamics behind it.

The Electrical Engineer's Handbook is an invaluable reference source for all practicing electrical engineers and students. Encompassing 79 chapters, this book is intended to enlighten and refresh knowledge of the practicing engineer or to help educate engineering students. This text will most likely be the engineer's first choice in looking for a solution; extensive, complete references to other sources are provided throughout. No other book has the breadth and depth of coverage available here. This is a must-have for all practitioners and students! The Electrical Engineer's Handbook provides the most up-to-date information in: Circuits and Networks, Electric Power Systems, Electronics, Computer-Aided Design and Optimization, VLSI Systems, Signal Processing, Digital Systems and Computer Engineering, Digital Communication and Communication Networks, Electromagnetics and Control and Systems. About the Editor-in-Chief... Wai-Kai Chen is Professor and Head Emeritus of the Department of Electrical Engineering and Computer Science at the University of Illinois at Chicago. He has extensive experience in education and industry and is very active professionally in the fields of circuits and systems. He was Editor-in-Chief of the IEEE Transactions on Circuits and Systems, Series I and II, President of the IEEE Circuits and Systems Society and is the Founding Editor and Editor-in-Chief of the Journal of Circuits,

Systems and Computers. He is the recipient of the Golden Jubilee Medal, the Education Award, and the Meritorious Service Award from the IEEE Circuits and Systems Society, and the Third Millennium Medal from the IEEE. Professor Chen is a fellow of the IEEE and the American Association for the Advancement of Science. \* 77 chapters encompass the entire field of electrical engineering. \* THOUSANDS of valuable figures, tables, formulas, and definitions. \* Extensive bibliographic references.

Microgrids have recently emerged as the building block of a smart grid, combining distributed renewable energy sources, energy storage devices, and load management in order to improve power system reliability, enhance sustainable development, and reduce carbon emissions. At the same time, rapid advancements in sensor and metering technologies, wireless and network communication, as well as cloud and fog computing are leading to the collection and accumulation of large amounts of data (e.g., device status data, energy generation data, consumption data). The application of big data analysis techniques (e.g., forecasting, classification, clustering) on such data can optimize the power generation and operation in real time by accurately predicting electricity demands, discovering electricity consumption patterns, and developing dynamic pricing mechanisms. An efficient and intelligent analysis of the data will enable smart microgrids to detect and recover from failures quickly, respond to electricity demand swiftly, supply more reliable and economical energy, and enable customers to have more control over their energy use. Overall, data-intensive analytics can provide effective and efficient decision support for all of the producers, operators, customers, and regulators in smart microgrids, in order to achieve holistic smart energy management, including energy generation, transmission, distribution, and demand-side management. This book contains an assortment of relevant novel research contributions that provide real-world applications of data-intensive analytics in smart grids and contribute to the dissemination of new ideas in this area. Proceedings of the FISITA 2012 World Automotive Congress are selected from nearly 2,000 papers submitted to the 34th FISITA World Automotive Congress, which is held by Society of Automotive Engineers of China (SAE-China) and the International Federation of Automotive Engineering Societies (FISITA). This proceedings focus on solutions for sustainable mobility in all areas of passenger car, truck and bus transportation. Volume 3: Future Automotive Powertrains (I) focuses on: •Alternative Fuel and New Engine •Advanced Hybrid Electric Vehicle •Plug-in Electric Vehicle Above all researchers, professional engineers and graduates in fields of automotive engineering, mechanical engineering and electronic engineering will benefit from this book. SAE-China is a national academic organization composed of enterprises and professionals who focus on research, design and education in the fields of automotive and related industries. FISITA is the umbrella organization for the national automotive societies in 37 countries around the world. It was founded in Paris in 1948 with the purpose of bringing engineers from around the world together in a spirit of cooperation to share ideas and advance the technological development of the automobile.

Provides instructions for building replicas of firearms, including a desert eagle, jungle carbine, and an AKS-74U.

Little has been published on US armored infantry units and tactics over the years. However, their contribution to the war effort was hugely important. There were a total of 57 armored infantry battalions and two regiments that served throughout the war and in all theaters.

Equipped with halftracks, they fought as part of combined arms teams and combat commands alongside tanks, tank destroyers and artillery battalions. Significantly, they were not simply standard infantry battalions provided with halftracks. Their company and platoon organization was very different from the standard infantry unit and these highly mobile, heavily armed battalions fought in an entirely different manner.

Using period training manuals and combat reports this book provides an exclusive look at the unique tactics developed by US armored infantry units including movement formations and battle drills.

The 10th was the only US mountain division to be raised in World War II, and still has a high profile, being involved in operations from Iraq to Somalia and from Haiti to Afghanistan. It did not arrive in Europe until winter 1944/45, but then fought hard in the harsh mountainous terrain of Northern Italy. The division was special in a number of ways. Its personnel were selected for physical fitness and experience in winter sports, mountaineering, and hunting, unlike the rest of the infantry. It was highly trained in mountain and winter warfare, including the use of skis and snowshoes, while its organization, field clothing, and some personal equipment also differed from that of the usual infantry division. The division made extensive use of pack-mules, and its reconnaissance unit was horse-mounted, conducting the last horse-mounted charge in US history in April 1945. Featuring full-color artwork and rare photographs, this is the gripping story of the US Army's only mountain division in action during the closing months of World War II.

This volume commemorates the 10th anniversary of the discovery of high temperature superconductors (HTS). The historical framework and present status of HTS are reviewed, and the future of the field contemplated so that the HTS science can be unraveled and the HTS technology developed. This book contains the works of about 200 members of the international HTS community — from universities, government centers and laboratories, major industries and small businesses. It focuses on early and major new findings in the physics and mechanisms, materials and applications of HTS, with a projection to the emerging and future areas in science and technology.

Combat Fleets of the World, 1988/89 Their Ships, Aircraft, and Armament Naval Inst Press

Includes a mid-December issue called Buyer guide edition.

The reliability of induction motors is a major requirement in many industrial applications. It is especially important where an unexpected breakdown might result in the interruption of critical services such as military operations, transportation, aviation, and medical applications. Advanced Condition Monitoring and Fault Diagnosis of Electric Machines is a collection of innovative research on various issues related to machinery condition monitoring, signal processing and conditioning, instrumentation and measurements, and new trends in condition monitoring. It also pays special attention to the fault identification process. While highlighting topics including spectral analysis, electrical engineering, and bearing faults, this book is an ideal reference source for electrical engineers, mechanical engineers, researchers, and graduate-level students seeking current research on various methods of maintaining machinery.

Aluminium was one of most cartelised industries in the international economic panorama of the 20th century. Born following the discovery of electrolytic smelting process in 1886, this industry, even in its infancy, established a cartel which characterised its history until nearly 1980. Managers of the aluminium industry from various historical eras and countries shared the same vision about the development of their industry: to keep prices as stable as possible in order to encourage expansions and to provide return on investments. Price instability, which characterised the trade of other commodities, was unknown to the aluminium industry. This book neither argues that cartels are fundamentally evil, nor attempts to demonstrate that cartels are optimal business organisations. It instead provides an in-depth and frank

analysis of the internal working of industrial organisations and of the interplay between cartels and political powers and institutions. The International Aluminium Cartel offers explanations for the construction and collapse of cartels, descriptions of their operations, and an historical interpretation of their experiences. Incorporating information gleaned from a unique collection of private and public archives from several countries, this unique study will appeal to a wide variety of readers, including academics interested in industrial and business history.

These proceedings of the World Congress 2006, the fourteenth conference in this series, offer a strong scientific program covering a wide range of issues and challenges which are currently present in Medical physics and Biomedical Engineering. About 2,500 peer reviewed contributions are presented in a six volume book, comprising 25 tracks, joint conferences and symposia, and including invited contributions from well known researchers in this field.

The development in our understanding of symmetry principles is reviewed. Many symmetries, such as charge conjugation, parity and strangeness, are no longer considered as fundamental but as natural consequences of a gauge field theory of strong and electromagnetic interactions. Other symmetries arise naturally from physical models in some limiting situation, such as for low energy or low mass. Random dynamics and attempts to explain all symmetries — even Lorentz invariance and gauge invariance — without appealing to any fundamental invariance of the laws of nature are discussed. A selection of original papers is reprinted. Contents: Introduction Symmetries from Non-Relativistic Physics Symmetries from the Standard Model Beyond the Standard Model The CPT Theorem The Fundamental

Symmetries Conclusion Readership: All physicists, chemists and mathematicians. Keywords: Symmetries; Gauge Field Theory; Electromagnetic Interactions; Random Dynamics; Lorentz Invariance; Gauge Invariance; Non-Relativistic Physics; Standard Model Der inhaltliche Schwerpunkt des Tagungsbands zur ATZlive-Veranstaltung "Der Antrieb von morgen" liegt beim Paradigmenwechsel durch künftig immer strengere Gesetze zu CO<sub>2</sub>-Emissionen sowie neu gestaltete, anspruchsvollere Prüfzyklen in Labors und realen Fahrsituationen. Die Elektrifizierung schreitet weiter voran. Antriebsstränge müssen noch stärker im Systemverbund Verbrennungsmotor, Getriebe und Elektrifizierung ausgelegt werden. Thematisch wird der Fokus auf die Antriebssynthese gelegt, während Komponenten und deren Fahrzeugintegration die Basis bilden.

A detailed, up-to-date guide to the navies of the world describes and pictures the ships, aircraft, and weapons of each and provides extensive coverage to the major fleets.

Bringing together leading researchers from particle physics, astrophysics, and cosmology, Lepton and Baryon Number Violation in Particle Physics, Astrophysics and Cosmology presents reviews of current theoretical ideas, experimental results, and future perspectives in this topical field. The book covers areas related to baryon number (B) and lepton number (L) violation in particle physics, nuclear physics, rare decays, and cosmology. The main topics include B and L violation and grand unified theories; B and L violation in the early universe, cosmology, and astrophysics; Lepton family number violation; and B and L violation and collider physics.

This volume presents state-of-the-art works from top academic and research institutions in the areas of high performance semiconductor materials, devices, and circuits. A broad coverage of topics relating to high performance devices and circuits is featured here. There are 46 contributed papers covering a wide range of materials, device types, and applications. These papers describe the results of ongoing research in three general areas: high speed technologies for advanced mixed signal and terahertz applications, advanced technologies for high performance optical links and light sources, and high power density and high efficiency technologies for next generation microwave front ends and power electronics.

Indexes the Times, Sunday times and magazine, Times literary supplement, Times educational supplement, and the Times higher education supplement.

Global Perspectives on Sustainable Fashion showcases the global fashion industry's efforts to reduce the negative impacts associated with fashion production and consumption. Illustrated throughout with infographics, photographs and diagrams of creative works, eighteen essays focus on six regions, examining sustainable fashion in the context of local, cultural and environmental concerns. Also included are 18 regional 'Spotlight' sections highlighting the differences and similarities across regions by concentrating on examples of best practice, design innovation and impact on the community.

Uncover the Technology behind Hybrids and Make an Intelligent Decision When Purchasing Your Next Vehicle With one billion cars expected to be on the roads of the world in the near future, the potential for war over oil and the negative environmental effects of emissions will be greater than ever before. Now is the time to seriously consider an alternative to standard automobiles. Exploring practical solutions to these problems, Hybrid Vehicles and the Future of Personal Transportation provides broad coverage of the technologies involved in manufacturing and operating hybrids. It reviews key components of hybrid and pure electric vehicles, including batteries, fuel cells, and ultracapacitors. The book also discusses both concept and production-bound hybrids as well as the economics and safety issues of hybrid ownership. In addition, the author supplies effective tips on how to save gasoline with conventional and hybrid automobiles. Making the jargon of fuel-efficient vehicles accessible to a wide audience, this guide explains the history of hybrids, how they work, and their impact on the environment. It will help you make a sound decision concerning the purchase and operation of a hybrid or electric vehicle.

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