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Handbook of Automotive Power Electronics and Motor Drives CRC Press

In our modern age of remote sensing, wireless communication, and the nearly endless list of other antenna-based applications, complex problems require increasingly sophisticated solutions. Conventional antenna systems are no longer suited to high-noise or low-signal applications such as intrusion detection. Detailing highly effective approaches to non-Gaussian weak signal detection, *Adaptive Antennas and Receivers* provides an authoritative introduction to state-of-the-art research on the modeling, testing, and application of these technologies. Edited by innovative researcher and eminent expert Melvin M. Weiner, this book is the first to integrate three advanced approaches to non-Gaussian weak signal detection into a single reference: homogeneous partitioning of the surveillance volume, adaptive antennas, and adaptive receivers. Comprising self-contained chapters contributed by renowned experts such as Donald D. Weiner and Ronald Fante, each chapter explores the techniques, theoretical basis, and applications of the approach under discussion. The book considers signal detection in the presence of external noise such as clutter residue, interference, atmospheric noise, jammers, external thermal noise, in vivo surrounding tissue, and camouflaging material, making it ideal for use across a broad spectrum of applications. This authoritative reference supplies more than 750 figures and tables, 1460 equations, and 640 references. *Adaptive Antennas and Receivers* is an ideal resource for improving performance in surveillance, communication, navigation, artificial intelligence, computer tomography, neuroscience, and intrusion detection systems, to name only a few.

Electric Motor Handbook CRC Press

This newly revised and updated reference presents sensible approaches to the design, selection, and usage of high-voltage circuit breakers—highlighting compliance issues concerning new and aging equipment to the evolving standards set forth by the American National Standards Institute and the International Electrotechnical Commission. This edition

Handbook of Electrical Engineering Calculations CRC Press

This text reveals all key components of rectification, inversion, cycloconversion, and conversion circuits. It authoritatively describes switching, voltage and current relationships, and converter properties, operation, control, and performance as utilized in most practical applications. Authored jointly by a veteran scholar and an accomplished researcher in the field *Power Converter Circuits* highlights methods grounded in classical mathematics and includes an abundance of numerical worked examples. Features hundreds of chapter-specific problems, with solutions provided separately at the end of the book

How to Wire Your Car from Scratch CRC Press

When it's time to wire your car, whether it's a restoration project, race car, kit car, trailer, or street rod, don't be intimidated; wire it yourself. Jim Horner shares his years of experience and cuts through the technical jargon to show you how. Learn about basic electrical theory, how various electrical components work and drawing circuit diagrams. Includes tips on using electrical test equipment and troubleshooting electrical circuits. Choose the right components, build your own wiring harness, and install them by following the step-by-step instructions. Profusely illustrated with over 350 photos, drawings, and diagrams. Suppliers list included.

High-Voltage Engineering CRC Press

Electric Motor Handbook aims to give practical knowledge in a wide range of capacities such as plant design, equipment specification, commissioning, operation and maintenance. The book covers topics such as the modeling of steady-state motor performance; polyphase induction, synchronous, and a.c. commutator motors; ambient conditions, enclosures, cooling and loss dissipation; and electrical supply systems and motor drives. Also covered are topics such as variable-speed drives and motor control; materials and motor components; insulation types, systems, and techniques; and the installation, site testing, commissioning, and maintenance. The text is recommended for engineers who are in need of a convenient guide in the installation, usage, and maintenance of electric motors.

Columbia University Bulletin CRC Press

To be accredited, a power electronics course should cover a significant amount of design content and include extensive use of computer-aided

analysis with simulation tools such as SPICE. Based upon the authors' experience in designing such courses, *SPICE for Power Electronics and Electric Power, Second Edition* integrates a SPICE simulator with a po

Handbook of Electric Motors CRC Press
The *Industrial Electronics Handbook, Second Edition* combines traditional and newer, more specialized knowledge that will help industrial electronics engineers develop practical solutions for the design and implementation of high-power applications. Embracing the broad technological scope of the field, this collection explores fundamental areas, including analog and digital circuits, electronics, electromagnetic machines, signal processing, and industrial control and communications systems. It also facilitates the use of intelligent systems—such as neural networks, fuzzy systems, and evolutionary methods—in terms of a hierarchical structure that makes factory control and supervision more efficient by addressing the needs of all production components. Enhancing its value, this fully updated collection presents research and global trends as published in the *IEEE Transactions on Industrial Electronics Journal*, one of the largest and most respected publications in the field. *Power Electronics and Motor Drives* facilitates a necessary shift from low-power electronics to the high-power varieties used to control electromechanical systems and other industrial applications.

This volume of the handbook: Focuses on special high-power semiconductor devices Describes various electrical machines and motors, their principles of operation, and their limitations Covers power conversion and the high-efficiency devices that perform the necessary switchover between AC and DC Explores very specialized electronic circuits for the efficient control of electric motors Details other applications of power electronics, aside from electric motors—including lighting, renewable energy conversion, and automotive electronics Addresses power electronics used in very-high-power electrical systems to transmit energy Other volumes in the set: *Fundamentals of Industrial Electronics Control and Mechatronics Industrial Communication Systems Intelligent Systems Electric Drives* McGraw Hill Professional
Written by experienced teachers and recognized experts in electrical engineering, *Handbook of Electrical Engineering Calculations* identifies and solves the seminal problems with numerical techniques for the principal branches of the field -- electric power, electromagnetic fields, signal analysis, communication systems, control systems, and computer engineering. It covers electric power engineering, electromagnetics, algorithms used in signal analysis, communication systems, algorithms used in control systems, and computer engineering. Illustrated with detailed equations, helpful drawings, and easy-to-understand tables, the book serves as a practical, on-the-job reference.

Electromagnetic Modeling by Finite Element Methods CRC Press

Written for professionals who work in electric motors; this covers updated traction applications; the latest on solid-state motor-drive controllers; electrical and mechanical parameters; specifications; shapes; performance; protection; and more. -- *Power Converter Circuits* Pearson Educaci ó n

Examining numerous examples of highly sensitive products, this book reviews basic reliability mathematics, describes robust design practices, and discusses the process of selecting suppliers and components. He focuses on the specific issues of thermal management, electrostatic discharge, electromagnetic compatibility, printed wiring assembly, enviro *Electrical Machines, Drives, and Power Systems* Elsevier
This text concentrates on the fundamentals of protective relaying and aims to provide lasting information in intelligible language. It covers the relative qualities of modern transmission line systems, communications channels, three-terminal applications and program design for microprocessors, and also supplies an encyclopaedic bibliography listing professional papers useful to the relay engineer. *Complete Handbook of Electric Motor Controls* CRC Press

This practical reference remains the most comprehensive guide to the fundamental theories, techniques, and strategies used for battery operation and design. It includes new and revised chapters focusing on the safety, performance, quality, and enhancement of various batteries and battery systems. From automotive, electrochemical, and high-energy applications to system implementation, selection, and standardization, the *Second Edition* presents expert discussions on electrochemical energy storage, the advantages of battery-powered traction, the disposal and recycling of used batteries, hazard prevention, and the chemistry and physics of lithium primary batteries.

Handbook of Small Electric Motors Routledge

Electric Generators Handbook, Second Edition: Two-Volume Set supplies state-of-the-art tools necessary to design, validate, and deploy the right power generation technologies to fulfill tomorrow's complex energy needs. The first volume,

Synchronous Generators, explores large- and medium-power synchronous generator topologies, steady state, modeling, transients, control, design, and testing. Numerous case studies, worked-out examples, sample results, and illustrations highlight the concepts. Fully revised and updated to reflect the last decade's worth of progress in the field, the *Second Edition* adds coverage of high-power wind generators with fewer or no PMs, PM-assisted DC-excited salient pole synchronous generators, autonomous synchronous generators' control, line switching parameter identification for isolated grids, synthetic back-to-back load testing with inverter supply, and more. The second volume, *Variable Speed Generators*, provides extensive coverage of variable speed generators in distributed generation and renewable energy applications around the world. Numerous design and control examples illustrate the exposition. Fully revised and updated to reflect the last decade's worth of progress in the field, the *Second Edition* adds material on doubly fed induction generator control under unbalanced voltage sags and nonlinear loads, interior permanent magnet claw-pole-alternator systems, high power factor Vernier PM generators, PM-assisted reluctance synchronous motors/generators for electric hybrid vehicles, and more.

Handbook of Electric Motors CRC Press

Various factors affect the performance of electrical contacts, including tribological, mechanical, electrical, and materials aspects. Although these behaviors have been studied for many years, they are not widely used or understood in practice. Combining approaches used across the globe, *Electrical Contacts: Fundamentals, Applications, and Technology* integrates advances in research and development in the tribological, material, and analytical aspects of electrical contacts with new data on electrical current transfer at the micro- and nanoscales. Taking an application-oriented approach, the authors illustrate how material characteristics, tribological behavior, and loading impact the degradation of contacts, formation of intermetallics, and overall reliability and performance. Coverage is divided broadly into three sections, with the first focused on mechanics, tribology, materials, current and heat transfer, and basic reliability issues of electrical contacts. The next section explores applications, such as power connections, electronic connections, and sliding contacts, while the final section presents the diagnostic and monitoring techniques used to investigate and measure phenomena occurring at electrical contact interfaces. Numerous references to current literature reflect the fact that this book is the most comprehensive survey in the field. Explore an impressive collection of data, theory, and practical applications in *Electrical Contacts: Fundamentals, Applications, and Technology*, a critical tool for anyone investigating or designing electrical equipment with improved performance and reliability in mind.

Adaptive Antennas and Receivers CRC Press

A guide on how to convert any gas- or diesel-powered vehicle to electric power. Includes ownership advantages, basic EV operation, subsystems, components, basic EV operation, project vehicles, and conversion kits.

Battery Technology Handbook Pennwell Books

This detailed reference provides guidelines for the selection and utilization of electric motors for improved reliability, performance, energy-efficiency, and life-cycle cost. Completely revised and expanded, the book reflects the recent state of the field, as well as recent developments in control electronics, the economics of energy-efficient motors and systems, and advanced power electronic drivers. It includes five new chapters covering key topics such as the fundamentals of power electronics applicable to electric motor drives, adjustable speed drives and their applications, advanced switched reluctance motor drives, and permanent magnet and brushless DC motor drives.

Pilot Protective Relaying Prentice Hall

This authoritative reference provides up-to-date information on theory, design, and practical applications for anyone concerned with electric and electronic motor controls. The reader is guided step by step through every conceivable application for controlling motors in residential, commercial and industrial installations. Also covered are starting and stopping motors, overload protection, overcurrent protection, reversing, changing speed, jogging, plugging and sequence control. Of special interest are energy management systems and programmable controllers. For the second edition, a new chapter has been added on the subject of solid state devices.

Gaseous Electronics Elsevier

Electric Motors and Drives: Fundamentals, Types and Applications provides information regarding the inner workings

of motor and drive system. The book is comprised of nine chapters that cover several aspects and types of motor and drive systems. Chapter 1 discusses electric motors, and Chapter 2 deals with power electronic converters for motor drives. Chapter 3 covers the conventional d.c. motors, while Chapter 4 tackles induction motors – rotating field, slip, and torque. The book also talks about the operating characteristics of induction motors, and then deals with the inverter-fed induction motor drives. The stepping motor systems; the synchronous, switched reluctance, and brushless d.c. drives; and the motor/drive selection are also covered. The text will be of great use to individuals who wish to familiarize themselves with motor and drive systems.

Practical Reliability Of Electronic Equipment And Products CRC Press

Energy is the mainstay of industrial societies, and without an adequate supply of energy the social, political and economic stability of nations is put into jeopardy. With supplies of inexpensive fossil fuels decreasing, and climate change factors becoming more threatening, the need to conserve energy and move steadily to more sustainable energy sources is more urgent than ever before. The updated Second Edition of this successful handbook includes chapters from leading experts on the economics and fiscal management of energy, with a focus on the tools available to advance efficiency and conservation measures. Updated coverage of renewable energy sources, energy storage technologies, energy audits for buildings and building systems, and demand-side management is provided. The appendix of the handbook provides extensive data resources for analysis and calculation.

The Electric Vehicle Conversion Handbook HP1568 Handbook of Electric Motors

Initially, the only electric loads encountered in an automobile were for lighting and the starter motor. Today, demands on performance, safety, emissions, comfort, convenience, entertainment, and communications have seen the working-in of seemingly innumerable advanced electronic devices. Consequently, vehicle electric systems require larger capacities and more complex configurations to deal with these demands. Covering applications in conventional, hybrid-electric, and electric vehicles, the Handbook of Automotive Power Electronics and Motor Drives provides a comprehensive reference for automotive electrical systems. This authoritative handbook features contributions from an outstanding international panel of experts from industry and academia, highlighting existing and emerging technologies. Divided into five parts, the Handbook of Automotive Power Electronics and Motor Drives offers an overview of automotive power systems, discusses semiconductor devices, sensors, and other components, explains different power electronic converters, examines electric machines and associated drives, and details various advanced electrical loads as well as battery technology for automobile applications. As we seek to answer the call for safer, more efficient, and lower-emission vehicles from regulators and consumer insistence on better performance, comfort, and entertainment, the technologies outlined in this book are vital for engineering advanced vehicles that will satisfy these criteria.