

Design Of Rogowski Coil With External Integrator For

Computer, Intelligent Computing and Education Technology
 The Design and Development of Rogowski Coil Probes for Measurement of Current Density Distribution in a Plasma Pinch
 Plasma Physics, Fuel Cycle System, Operation and Maintenance
 Issues in Nuclear Energy Technologies: 2013 Edition
 Research Anthology on Emerging Technologies and Ethical Implications in Human Enhancement
 Test bench design for power measurement of inverter-operated machines in the medium voltage range
 Measurement, Instrumentation, and Sensors Handbook
 The Electromagnetic Hammer
 Power Quality
 Transient Analysis of Power Systems
 Ultra-Wideband, Short-Pulse Electromagnetics 6
 Research and Technology Development on Superconducting Current Limiting Transformers
 Scientific and Technical Aerospace Reports
 2013 International Conference on Electrical, Control and Automation Engineering(ECAE2013)
 Novel Advances in Microsystems Technologies and Their Applications
 Transformer Design Principles With Applications 3e
 Interfacing Between the AC Grid and Renewable Power Sources
 Fusion Energy Update
 Power Electronics Design
 Proceedings of the National Science Council, Republic of China
 Energy Research Abstracts
 Magnetic Sensors and Magnetometers, Second Edition
 Proceedings of the 2015 International Conference on Electric, Electronic and Control Engineering (ICEECE 2015), Phuket Island, Thailand, 5-6 March 2015
 Fusion Technology 1992
 Integrated Wide-Bandwidth Current Sensing
 Fault Analysis and Protection System Design for DC Grids
 Design of Integrated Current and Temperature Sensors in Power Electronic Modules Using GMR Point-field Detectors
 Physical science and engineering
 Uwb Sp6
 Novel Magnetic Nanostructures
 Gas Insulated Substations
 Smart Sensors for Industrial Applications
 Introduction to High Power Pulse Technology
 Handbook of Switchgears
 Monitoring, Analysis and Enhancement
 Unique Properties and Applications
 Fusion Reactor Design

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Computer, Intelligent Computing and Education Technology KIT Scientific Publishing

To reduce the amount of Rare-earth Elements in high efficient permanent magnet electric motors, the magnetic stray flux has to be reduced. Additionally, a temperature reduction inside the motor reduces the necessary amount of the so called Heavy Rare-earth Elements, which account for the bulk part of the magnet material costs. In this thesis a permanent magnet motor in wet rotor configuration for an automotive application is designed. It was shown that by simple thermal improvements of the electric insulation system the maximum temperature of the stator can be reduced. Extensive

measurements on different combinations of insulation material of the stator and the development of a new thermal model for orthocyclic wound stators were performed. Due to the use of fiber cans eddy current losses could be eliminated and the stray flux minimized. In a second stage a magnetizing fixture was build up, which is able to magnetize the buried magnets inside the rotor. The rotor and the magnetizing fixture was developed, so that the magnets can be optimal magnetized. To check the quality of the magnets the magnetizing coil was developed in a way, such that the hysteresis curve of every single magnet during magnetization can be measured. Different magnets were tested and ways to calculate parasitics are given. Um die Menge an Selten Erden in hoch-effizienten permanent erregten Elektromotoren zu reduzieren, muss der magnetische Streufluss verringert werden. Eine

Temperaturreduktion im Motor verringert zudem die nötige Menge an so genannten schweren Selten Erden, welche einen Großteil der Kosten der Magnetmaterialien ausmachen. In dieser Arbeit wird dazu ein permanent erregter Nasläufer für eine automotiv Anwendung ausgelegt. Es konnte gezeigt werden, dass durch einfache Maßnahmen im Bereich der elektrischen Isolation die maximale Temperatur im Stator reduziert werden konnte. Umfangreiche Messungen an verschiedenen Kombinationen von elektrischen Isolationen des Stators und die Entwicklung eines neuen thermischen Modells für orthozyklisch gewickelte Statoren wurden getätigt. Durch Einsatz von Spaltrohren aus Faserverbundwerkstoffen konnten die Wirbelstromverluste beseitigt werden und der Streufluss minimiert werden. In einem zweiten Schritt wurde eine Magnetisiervorrichtung aufgebaut, mit der

die zu Anfang unmagnetisierten eingebetteten Magneten im Rotor aufmagnetisiert werden konnten. Der Rotor wurde zudem zusammen mit der Magnetisierungsspule so ausgelegt, dass die Magnete optimal magnetisiert werden können. Um die Qualität der Magnete zu testen wurde die Magnetisierungsspule zudem so ausgelegt, dass eine Messung der Hysteresekurve jedes einzelnen Magneten während der Magnetisierung möglich ist. Verschiedene Magnete wurden vermessen und Möglichkeiten zur Bestimmung von parasitären Effekten gegeben.

The Design and Development of Rogowski Coil Probes for Measurement of Current Density Distribution in a Plasma Pinch
BecomeShakespeare.com

Along with the introduction of technology in nearly every facet of human life comes the question of the ethical side of using technology to improve the human condition, whether that be physically or mentally. The capabilities of human enhancement technologies have created a dual-sided approach to discussing human enhancement: the critical approach of attempting to reach human perfection and the ethics within that idea and the endless capabilities of technology that have greatly impacted the medical field. It is essential to discuss both aspects within these emerging technologies, whether as separate entities or as cohesive units. Ranging from disease detection and treatment to implants and prosthetics to robotics and genetic engineering, human enhancement technologies are widespread and multi-purposed. By going beyond the capabilities of human hands, these technologies have propelled modern medicine and healthcare to new levels that have allowed humans to face new treatments or assistive technologies not seen before. The Research Anthology on Emerging Technologies and Ethical Implications in Human Enhancement covers the primary technologies and tools being used in medicine and healthcare along with discussions on the ethics of enhancing the human body. Topics covered include prosthetics and implants, robotics, human disorders/diseases and treatments and smart technologies, along with law and theory. This publication serves as a valuable reference work for doctors, medical professionals, researchers, students, professionals, and practitioners involved in fields that include ethics, medicine, computer science, robotics, genetics, assistive technologies, nanotechnology, biomedical engineering, and biotechnology.

Plasma Physics, Fuel Cycle System, Operation and Maintenance CRC Press

This textbook is intended for engineering students taking courses in power electronics, renewable energy sources, smart grids or static power converters. It is also appropriate for students preparing a capstone project where they need to understand, model, supply, control and specify the grid side power converters. The main goal of the book is developing in students the skills that are required to design, control and use static power converters that serve as an interface between the ac grid and renewable power sources. The same skills can be used to design, control and use the static power converters used within the micro-grids and nano-grids, as the converters that provide the interface between such grids and the external grid. The author's approach starts with basic functionality and the role of grid connected power converters in their typical applications, and their static and dynamic characteristics. Particular effort is dedicated to developing simple, concise, intuitive and easy-to-use mathematical models that summarize the essence of the grid side converter dynamics. Mathematics is reduced to a necessary minimum, solved examples are used extensively to introduce new concepts, and exercises are used to test mastery of new skills.

Issues in Nuclear Energy Technologies: 2013 Edition Tata McGraw-Hill Education
Electric, Electronic and Control Engineering contains the contributions presented at the 2015 International Conference on Electric, Electronic and Control Engineering (ICEECE 2015, Phuket Island, Thailand, 5-6 March 2015). The book is divided into four main topics: - Electric and Electronic Engineering - Mechanic and Control Engineering - Informati

Research Anthology on Emerging Technologies and Ethical Implications in Human Enhancement Springer

Novel Magnetic Nanostructures: Unique Properties and Applications reviews the synthesis, design, characterization and unique properties of emerging nanostructured magnetic materials. It discusses the most promising and relevant applications, including data storage, spintronics and biomedical applications. Properties investigated include electronic, self-assembling, multifunctional, and magnetic properties, along with magnetic phenomena. Structures range from magnetic nanoclusters, nanoparticles, and nanowires, to multilayers and self-assembling nanosystems. This book provides a better understanding of the static and dynamic magnetism in new nanostructures for important applications. Provides an overview of the latest

research on novel magnetic nanostructures, including molecular nanomagnets, metallacrown magnetic nanostructures, magnetic dendrimers, self-assembling magnetic structures, multifunctional nanostructures, and much more. Reviews the synthesis, design, characterization and detection of useful properties in new magnetic nanostructures. Highlights the most relevant applications, including spintronic, data storage and biomedical applications.

Test bench design for power measurement of inverter-operated machines in the medium voltage range CRC Press

This proceedings set contains selected Computer, Information and Education Technology related papers from the 2014 International Conference on Computer, Intelligent Computing and Education Technology (CICET 2014), held March 27-28, 2014 in Hong Kong. The proceedings aims to provide a platform for researchers, engineers and academics as well as industry professionals from all over the world to present their research results and development activities in Computer Science, Information Technology and Education Technology.

Measurement, Instrumentation, and Sensors Handbook Springer Science & Business Media

Issues in Nuclear Energy Technologies / 2013 Edition is a ScholarlyEditions™ book that delivers timely, authoritative, and comprehensive information about Fusion Energy. The editors have built *Issues in Nuclear Energy Technologies: 2013 Edition* on the vast information databases of ScholarlyNews.™ You can expect the information about Fusion Energy 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 Energy Technologies: 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/>.
Springer Science & Business Media
The Second Edition of the bestselling *Measurement, Instrumentation, and Sensors Handbook* brings together all aspects of the design and implementation of measurement, instrumentation, and

sensors. Reflecting the current state of the art, it describes the use of instruments and techniques for performing practical measurements in engineering, physics, chemistry, and the life sciences and discusses processing systems, automatic data acquisition, reduction and analysis, operation characteristics, accuracy, errors, calibrations, and the incorporation of standards for control purposes. Organized according to measurement problem, the Electromagnetic, Optical, Radiation, Chemical, and Biomedical Measurement volume of the Second Edition: Contains contributions from field experts, new chapters, and updates to all 98 existing chapters Covers sensors and sensor technology, time and frequency, signal processing, displays and recorders, and optical, medical, biomedical, health, environmental, electrical, electromagnetic, and chemical variables A concise and useful reference for engineers, scientists, academic faculty, students, designers, managers, and industry professionals involved in instrumentation and measurement research and development, Measurement, Instrumentation, and Sensors Handbook, Second Edition: Electromagnetic, Optical, Radiation, Chemical, and Biomedical Measurement provides readers with a greater understanding of advanced applications.

The Electromagnetic Hammer

Universitätsverlag der TU Berlin

This book is a printed edition of the Special Issue "Power Transformer Diagnostics, Monitoring and Design Features" that was published in *Energies Power Quality* John Wiley & Sons

This thesis gives an overview of test bench design for inverter operated Medium Voltage (MV) drives with the focus on the active power measurement. The sources of measurement setup uncertainty are analysed and methods are shown to assess these uncertainties. Further, a possibility is shown to do quantitative uncertainty estimations which are verified with measurements through different measurement setups for MV drives operated with multilevel converters. The influence of measurement transducers, voltage dividers, power meters and data acquisition boards are considered. The digital signal processing is analysed and the possibilities to reduce its uncertainty contribution on an active power measurement is shown. An analysis is made with the conventional measurement devices in the MV-range. The transfer behaviour of the devices and the characteristics of the uncertainty are investigated. Measurements are done on typical medium voltage drives with an

uncertainty analysis, which shows the essential aspects of active power measurement. The results show the significance of a measurement setup performance. The investigations on the drives are used to indicate the impact on the determination of the drive efficiency and gives a significant input for further standardisation processes. The handling of measurement uncertainties during active power measurement of drives is shown concerning the permanent topic of energy saving and its efficient use. The work proposes a way of categorising electrical drives in energy efficiency classes and to make their determination comparable. Die vorliegende Dissertation gibt einen Überblick über den Prüfstandsaufbau von umrichtergetriebenen Mittelspannungsantrieben. Die Unsicherheitsquellen werden analysiert und Methoden werden aufgezeigt um die Messunsicherheit zu bewerten. Des Weiteren werden die Machbarkeit von Unsicherheitsabschätzungen gezeigt, welche mit Messungen an typischen Mittelspannungsantrieben mit Umrichterspeisung verglichen werden. Der Einfluss von Messwandlern, Spannungsteilern, Leistungsmessern und Messkarten zur Signalerfassung wird berücksichtigt. Die digitale Signalverarbeitung wird analysiert um den Unsicherheitsbeitrag zur Wirkleistungsmessung zu reduzieren. Es werden konventionellen Messwandler und -teiler im Mittelspannungsbereich bezüglich ihres Übertragungsverhaltens sowie Messunsicherheiten untersucht. Die Ergebnisse der Untersuchungen verdeutlichen die Signifikanz eines performanten Messaufbaus. Des Weiteren werden Auswirkungen auf die Bestimmung der Effizienz aufgezeigt. Die Arbeit liefert einen wesentlichen Beitrag für weitere Standardisierungsprozesse. Der Umgang mit Messunsicherheiten der Wirkleistungsmessung wird betrachtet im Hinblick auf Energieeinsparpotenziale und deren effiziente Nutzung. Die Arbeit schlägt eine Möglichkeit vor, wie elektrische Antriebe in Energieeffizienzklassen kategorisiert werden können um diese vergleichbar zu machen.

Transient Analysis of Power Systems

Springer Nature

This book offers a comprehensive reference guide to the important topics of fault analysis and protection system design for DC grids, at various voltage levels and for a range of applications. It bridges a much-needed research gap to enable wide-scale implementation of energy-efficient DC grids. Following an

introduction, DC grid architecture is presented, covering the devices, operation and control methods. In turn, analytical methods for DC fault analysis are presented for different types of faults, followed by separate chapters on various DC fault identification methods, using time, frequency and time-frequency domain analyses of the DC current and voltage signals. The unit and non-unit protection strategies are discussed in detail, while a dedicated chapter addresses DC fault isolation devices. Step-by-step guidelines are provided for building hardware-based experimental test setups, as well as methods for validating the various algorithms. The book also features several application-driven case studies.

Ultra-Wideband, Short-Pulse

Electromagnetics 6 CRC Press

In the newest edition, the reader will learn the basics of transformer design, starting from fundamental principles and ending with advanced model simulations. The electrical, mechanical, and thermal considerations that go into the design of a transformer are discussed with useful design formulas, which are used to ensure that the transformer will operate without overheating and survive various stressful events, such as a lightning strike or a short circuit event. This new edition includes a section on how to correct the linear impedance boundary method for non-linear materials and a simpler method to calculate temperatures and flows in windings with directed flow cooling, using graph theory. It also includes a chapter on optimization with practical suggestions on achieving the lowest cost design with constraints.

Research and Technology

Development on Superconducting Current Limiting Transformers

John Wiley & Sons

2013 International Conference on Electrical, Control and Automation Engineering (ECAE2013) aims to provide a forum for accessing to the most up-to-date and authoritative knowledge from both Electrical, Control and Automation Engineering. ECAE2013 features unique mixed topics of Electrical Engineering, Automation, Control Engineering and so on. The goal of this conference is to bring researchers, engineers, and students to the areas of Electrical, Control and Automation Engineering to share experiences and original research contributions on those topics. Researchers and practitioners are invited to submit their contributions to ECAE2013 *Scientific and Technical Aerospace Reports* CRC Press

Comprehensive reference covering all aspects of gas insulated substations including basic principles, technology, use & application, design, specification, testing and ownership issues. This book provides an overview on the particular development steps of gas insulated high-voltage switchgear, and is based on the information given with the editor's tutorial. The theory is kept low only as much as it is needed to understand gas insulated technology, with the main focus of the book being on delivering practical application knowledge. It discusses some introductory and advanced aspects in the meaning of applications. The start of the book presents the theory of Gas Insulated Technology, and outlines reliability, design, safety, grounding and bonding, and factors for choosing GIS. The third chapter presents the technology, covering the following in detail: manufacturing, specification, instrument transformers, Gas Insulated Bus, and the assembly process. Next, the book goes into control and monitoring, which covers local control cabinet, bay controller, control schemes, and digital communication. Testing is explained in the middle of the book before installation and energization. Importantly, operation and maintenance is discussed. This chapter includes information on repair, extensions, retrofit or upgrade, and overloading. Finally applications are covered along with concepts of layout, typical layouts, mixed technology substations, and then other topics such as life cycle assessment, environmental impact, and project management. A one-stop, complete reference text on gas insulated substations (GIS), large-capacity and long-distance electricity transmission, which are of increasing importance in the power industry today. Details advanced and basic material, accessible for both existing GIS users and those planning to adopt the technology. Discusses both the practical and theoretical aspects of GIS. Written by acknowledged GIS experts who have been involved in the development of the technology from the start.

2013 International Conference on Electrical, Control and Automation Engineering (ECAE2013) CRC Press

This book is designed primarily to meet two objectives. It is intended to serve as a textbook for a one-semester university course for graduate or senior undergraduate students in the physical sciences, electrical engineering and other related disciplines, or it may be used as a reference book for those who are working in the field. For those intending to use the

book for self-study, a general knowledge of electromagnetism, electrical circuitry and plasma and discharge physics is necessary. In order to meet these diverse objectives, the authors have attempted to make the book reasonably compact so that it can fit in a one-semester schedule while retaining its comprehensiveness in serving as a reference book. The contents are arranged so that theory and practice are proportionally balanced and each topic consists of essentially four basic elements: fundamental principles, mathematical expressions and formulas, examples and illustrations, numerical data and applications. In order to keep its compactness, lengthy theoretical discussions and detailed mathematical derivations are avoided whenever possible.

Novel Advances in Microsystems Technologies and Their Applications John Wiley & Sons

This important book presents a selection of new research on wind turbine technology, including aerodynamics, generators and gear systems, towers and foundations, control systems, and environmental issues. This informative book:

- Introduces the principles of wind turbine design
- Presents methods for analysis of wind turbine performance
- Discusses approaches for wind turbine improvement and optimization
- Covers fault detection in wind turbines
- Describes mediating the adverse effects of wind turbine use and installation

Transformer Design Principles With Applications 3e MDPI

Ultra-Wideband Short-Pulse Electromagnetics 6 was held at the American Electromagnetics 2002 conference June 3-7, 2002 at the U.S. Naval Academy in Annapolis, Maryland. Topics include: UWB Radar Systems; UWB Antennas; Scattering; Pulsed Power; Short-Pulse Measurement Techniques; Time-Domain Computation Techniques; Time-Domain Signal Processing; UWB Polarimetry; UWB Sensing of Terrain; Wavelets & Multi-Resolution Algorithms; Target Detection & Discrimination; Propagation; Underground & Subsurface Propagation; Electromagnetic Theory; New Canonical Problems, Benchmark Solutions; Signal Processing.

Interfacing Between the AC Grid and Renewable Power Sources Springer Nature

With success of ICEEE 2010 in Wuhan, China, and December 4 to 5, 2010, the second International Conference of Electrical and Electronics Engineering (ICEEE 2011) will be held in Macau, China, and December 1 to 2, 2011. ICEEE is an

annual conference to call together researchers, engineers, academicians as well as industrial professionals from all over the world to present their research results and development activities in Electrical and Electronics Engineering along with Computer Science and Technology, Communication Technology, Artificial Intelligence, Information Technology, etc. This year ICEEE is sponsored by International Industrial Electronics Center, Hong Kong. And based on the deserved reputation, more than 750 papers have been submitted to ICEEE 2011, from which about 98 high quality original papers have been selected for the conference presentation and inclusion in the "Electrical and Electronics Engineering" book based on the referees' comments from peer-refereed. We expect that the Electrical and Electronics Engineering book will be a trigger for further related research and technology improvements in the importance subject including Power Engineering, Telecommunication, Integrated Circuit, Electronic amplifier, Nano-technologies, Circuits and networks, Microelectronics, Analog circuits, Digital circuits, Circuits design, Silicon devices, Thin film technologies, VLSI, Sensors, CAD tools, Molecular computing, Superconductivity circuits, Antennas technology, System architectures, etc.

Fusion Energy Update

Universitätsverlag der TU Berlin

The handbook further addresses the issue of protection of switchgears, including protection schemes for medium voltage switchgears, generator protection for large generators, EHV transmission system control and protection, and integrated protection and control systems for substations. The erection, commissioning, operation and maintenance aspects of switchgears under various conditions are also included, with experience-based information on the dos and don'ts of site work, inspection, and maintenance procedures. With its coverage of general concepts as well as consolidated information in the context of Indian conditions, this book is an essential reference for all practicing switchgear engineers, institutions, and academicians.

Power Electronics Design Artech House

The Design and Development of Rogowski Coil Probes for Measurement of Current Density Distribution in a Plasma Pinch Test bench design for power measurement of inverter-operated machines in the medium voltage range. Universitätsverlag der TU Berlin