

## Sanjeev Gupta Electromagnetic Field Theory

*The Architectonics of Meaning is a lucid demonstration of the purposes, methods, and implications of philosophical semantics that both supports and builds on Richard McKeon's and other noted pluralists' convictions that multiple philosophical approaches are viable. Watson ingeniously explores ways to systematize these approaches, and the result is a well-structured instrument for understanding texts. This book exemplifies both general and particular aspects of systematic pluralism, reorienting our understanding of the realms of knowing, doing, and making.*

*Electromagnetic Field Theory and Transmission Lines is an ideal textbook for a single semester, first course on Electromagnetic Field Theory (EMFT) at the undergraduate level. This book uses plain and simple English, diagrammatic representations and real life examples to explain the fundamental concepts, notations, representation and principles that govern the field of EMFT. The chapters cover every aspect of EMFT from electrostatics to advanced topics dealing with Electromagnetic Interference (EMI)/Electromagnetic Compatibility (EMC), EMC standards and design methods for EMC. Careful and deta.*

*Introduction to the Finite-Difference Time-Domain (FDTD) Method for Electromagnetics provides a comprehensive tutorial of the most widely used method for solving Maxwell's equations -- the Finite Difference Time-Domain Method. This book is an essential guide for students, researchers, and professional engineers who want to gain a fundamental knowledge of the FDTD method. It can accompany an undergraduate or entry-level graduate course or be used for self-study. The book provides all the background required to either research or apply the FDTD method for the solution of Maxwell's equations to practical problems in engineering and science. Introduction to the Finite-Difference Time-Domain (FDTD) Method for Electromagnetics guides the reader through the foundational theory of the FDTD method starting with the one-dimensional transmission-line problem and then progressing to the solution of Maxwell's equations in three dimensions. It also provides step by step guides to modeling physical sources, lumped-circuit components, absorbing boundary conditions, perfectly matched layer absorbers, and sub-cell structures. Post processing methods such as network parameter extraction and far-field transformations are also detailed. Efficient implementations of the FDTD method in a high level language are also provided. Table of Contents: Introduction / 1D FDTD Modeling of the Transmission Line Equations / Yee Algorithm for Maxwell's Equations / Source Excitations / Absorbing Boundary Conditions / The Perfectly Matched Layer (PML) Absorbing Medium / Subcell Modeling / Post Processing*

*Proceedings of SoCTA 2018*

*Advanced Semiconductor Devices*

*Marine Auxiliary Machinery*

*A Course In Electrical Technology (For Degree) (13th Edition)*

*Fractional-Order Design*

*ICRCWIP-2014*

This book is a collection of selected peer-reviewed papers presented at the International Conference on Signal Processing and Communication (ICSC 2018). It covers current research and developments in the fields of communications, signal processing, circuits and systems, and embedded systems. The book offers in-depth discussions and analyses of latest problems across different fields of signal processing and communications. The contents of this book will prove to be useful for students, researchers, and professionals working in electronics and electrical engineering, as well as other allied fields.

This is the second work of a set of two volumes on the phenomena of wave propagation in nonreacting and reacting media. The first, entitled *Wave Propagation in Solids and Fluids* (published by Springer-Verlag in 1988), deals with wave phenomena in nonreacting media (solids and fluids). This book is concerned with wave propagation in reacting media—specifically, in electromagnetic materials. Since these volumes were designed to be relatively self-contained, we have taken the liberty of adapting some of the pertinent mathematical methods, especially in the theory of hyperbolic partial differential equations (concerned with electromagnetic wave propagation), variational methods, and Hamilton-Jacobi theory, to the phenomena of electromagnetic waves. The purpose of this volume is similar to the first, except that here we are dealing with electromagnetic waves. We attempt to present a clear and systematic account of the mathematical methods of wave phenomena in electromagnetic materials that will be readily accessible to physicists and engineers. The emphasis is on developing the necessary mathematical techniques, and on showing how these methods of mathematical physics are effective in unifying the physics of wave propagation in electromagnetic media. Chapter 1 presents the theory of time-varying electromagnetic fields, which involves a discussion of Faraday's laws, Maxwell's equations, and their applications to electromagnetic wave propagation under a variety of conditions.

This volume comprises the proceedings of the International Conference on Recent Cognizance in Wireless Communication & Image Processing. It brings together content from academicians, researchers, and industry experts in areas of Wireless Communication, Image Processing. The volume provides a snapshot of current progress in computational creativity and a glimpse of future possibilities. The proceedings include two kinds of paper submissions: (i) regular papers addressing foundation issues, describing original research on creative systems development and modeling; and (ii) position papers describing work-in-progress or research directions for computational creativity. This work will be useful to professionals and researchers working in the core areas of wireless communications and image processing.

*Electrical Machines (Uptu)*

*A Theory Revolutionizing Technology and Science*

*Engineering Mechanics*

*Professional Ethics and Human Values*

*Gene and Cell Therapy: Biology and Applications*

*Electrical Technology*

***Sensors are integral to modern living and are found in a huge number of applications in science, engineering and technology thus it is critical for scientists and technologists to understand the physical principles behind sensor types as well as their characteristics, applications, and how they can be suitably employed in sensor technologies. Whilst there exists a vast literature on the physics and characteristics of traditional sensors, this book provides a broad overview of the range of sensor technologies and attendant topics needed to optimise and utilise these devices in the modern world. Not only reviewing sensors by classification, the book encompasses the physics, design characteristics, simulation and interface electronics, and it includes case***

**studies, future challenges and several other aspects of wider sensor technology to provide an overview of modern sensors and their applications. The broad scope will appeal to industrial and academic researchers and application engineers, especially those developing and implementing real-time hardware implementations employing smart sensors for emerging applications. Key Features Features a broad review of sensor types, including MEMS, wearable and smart sensors Presents application of modern sensors and emerging research directions Incorporates case studies Reviews wider associated technologies such as simulation, materials and interface electronics Interdisciplinary appeal making the text suitable for industrial and academic researchers as well as application engineers**

**The book is a collection of high quality peer reviewed research papers presented in Seventh International Conference on Bio-Inspired Computing (BIC-TA 2012) held at ABV-IIITM Gwalior, India. These research papers provide the latest developments in the broad area of "Computational Intelligence". The book discusses wide variety of industrial, engineering and scientific applications of nature/bio-inspired computing and presents invited papers from the inventors/originators of novel computational techniques.**

**The Extravagant Universe tells the story of a remarkable adventure of scientific discovery. One of the world's leading astronomers, Robert Kirshner, takes readers inside a lively research team on the quest that led them to an extraordinary cosmological discovery: the expansion of the universe is accelerating under the influence of a dark energy that makes space itself expand. In addition to sharing the story of this exciting discovery, Kirshner also brings the science up-to-date in a new epilogue. He explains how the idea of an accelerating universe--once a daring interpretation of sketchy data--is now the standard assumption in cosmology today. This measurement of dark energy--a quality of space itself that causes cosmic acceleration--points to a gaping hole in our understanding of fundamental physics. In 1917, Einstein proposed the "cosmological constant" to explain a static universe. When observations proved that the universe was expanding, he cast this early form of dark energy aside. But recent observations described first-hand in this book show that the cosmological constant--or something just like it--dominates the universe's mass and energy budget and determines its fate and shape. Warned by Einstein's blunder, and contradicted by the initial results of a competing research team, Kirshner and his colleagues were reluctant to accept their own result. But, convinced by evidence built on their hard-earned understanding of exploding stars, they announced their conclusion that the universe is accelerating in February 1998. Other lines of inquiry and parallel supernova research now support a new synthesis of a cosmos dominated by dark energy but also containing several forms of dark matter. We live in an extravagant universe with a surprising number of essential ingredients: the real universe we measure is not the simplest one we could imagine.**

**Fundamentals of Electronic Devices**

**Soft Computing: Theories and Applications**

**Basic Electronics and Linear Circuits**

**Optical Properties of Metal Clusters**

**Theoretical and Observational Consistency of Massive Gravity**

**Advances in Computing and Data Sciences**

Marine Auxiliary Machinery, Seventh Edition is a 16-chapter text that covers the significant advances in marine auxiliary machinery relevant to the certification of competency examinations. The introductory chapters deal with the basic components of marine machineries, such as propulsion system, heat exchanger, valves, and pipelines. The succeeding chapters describe the pumps and pumping system, specifically the tanker and gas carrier cargo pumps. Considerable chapters are devoted to the operation of machinery's major components, including the propeller shaft, steering gear, auxiliary power, bow thrusters, and stabilizers. Other chapters consider the refrigeration, heating, ventilation, and air conditioning systems. The final chapters tackle the safety system of marine auxiliary machinery, particularly the fire protection, safety, instrumentation, and control systems. This book will prove useful to marine and mechanical engineers.

With contributions by numerous experts

This book discusses various aspects of graphene fictionalization strategies from inorganic oxides and organic moieties including preparation, design, and characterization of functionalization material and its applications. Including illustrations and tables summarizing the latest research on manufacturing, design, characterization and applications of graphene functionalization, it describes graphene functionalization using different techniques and materials and highlights the latest technologies in the field of manufacturing and design. This book is a valuable reference resource for lecturers, students, researchers and industrialists working in the field of material science, especially polymer composites.

Fundamentals, Analytical and Preparative Methods

Electro Magnetic Field Theory

Metasurfaces: Physics and Applications

The Extravagant Universe

Devices, Circuits, and Systems

The Architectonics of Meaning

This book is a printed edition of the Special Issue "Metasurfaces: Physics and Applications" that was published in Applied Sciences

This work is a detailed study of both the theoretical and phenomenological consequences of a massive graviton, within the ghost-free theory of massive gravity, the de Rham-Gabadadze-Tolley (dRGT) theory. Its aim is to test the physical viability of the theory. It begins by putting constraints on the parameters of the theory in the decoupling limit based on purely theoretical grounds, like classical stability in the cosmological evolution of self-accelerating and degravitating solutions. The author then constructs a proxy theory to massive gravity from the decoupling limit resulting in non-minimally coupled scalar-tensor interactions as an example of a subclass of

Horndeski theories. Lastly, she addresses the natural question of whether the parameters introduced in the dRGT theory are subject to strong renormalization by quantum loops and shows how the non-renormalization theorem protects the graviton mass from quantum corrections. Beyond the decoupling limit the quantum corrections are found to be proportional to the graviton mass, proving its technical naturalness.

Optical Properties of Metal Clusters deals with the electronic structure of metal clusters determined optically. Clusters - as state intermediate between molecules and the extended solid - are important in many areas, e.g. in air pollution, interstellar matter, clay minerals, photography, heterogeneous catalysis, quantum dots, and virus crystals. This book extends the approaches of optical molecular and solid-state methods to clusters, revealing how their optical properties evolve as a function of size. Cluster matter, i.e. extended systems of many clusters - the most frequently occurring form - is also treated. The combination of reviews of experimental techniques, lists of results and detailed descriptions of selected experiments will appeal to experts, newcomers and graduate students in this expanding field.

Introduction to the Finite-difference Time-domain (FDTD) Method for Electromagnetics

Optimization for Machine Learning

Select Proceedings of ICSC 2018

Physics and Technology of Silicon Carbide Devices

Theory & Performance Of Electrical Machines

Environmental Science

An up-to-date account of the interplay between optimization and machine learning, accessible to students and researchers in both communities. The interplay between optimization and machine learning is one of the most important developments in modern computational science. Optimization formulations and methods are proving to be vital in designing algorithms to extract essential knowledge from huge volumes of data. Machine learning, however, is not simply a consumer of optimization technology but a rapidly evolving field that is itself generating new optimization ideas. This book captures the state of the art of the interaction between optimization and machine learning in a way that is accessible to researchers in both fields. Optimization approaches have enjoyed prominence in machine learning because of their wide applicability and attractive theoretical properties. The increasing complexity, size, and variety of today's machine learning models call for the reassessment of existing assumptions. This book starts the process of reassessment. It describes the resurgence in novel contexts of established frameworks such as first-order methods, stochastic approximations, convex relaxations, interior-point methods, and proximal methods. It also devotes attention to newer themes such as regularized optimization, robust optimization, gradient and subgradient methods, splitting techniques, and second-order methods. Many of these techniques draw inspiration from other fields, including operations research, theoretical computer science, and subfields of optimization. The book will enrich the ongoing cross-fertilization between the machine learning community and these other fields, and within the broader optimization community.

Fractional-Order Design: Devices, Circuits, and Systems introduces applications from the design perspective so that the reader can learn about, and get ready to, design these applications. The book also includes the different techniques employed to comprehensively and straightforwardly design fractional-order systems/devices. Furthermore, a lot of mathematics is available in the literature for solving the fractional-order calculus for system application. However, a small portion is employed in the design of fractional-order systems. This book introduces the mathematics that has been employed explicitly for fractional-order systems. Students and scholars who want to quickly understand the field of fractional-order systems and contribute to its different domains and applications will find this book a welcomed resource. Presents a simple and comprehensive understanding of the field of fractional-order systems Offers practical knowledge on the design of fractional-order systems for different applications Exposes users to the possible new areas of applications of fractional-order systems

Recent advances in stem cell biology, nanotechnology and gene therapy have opened new avenues for therapeutics. The availability of molecular therapeutics that rely on the delivery of DNA, RNA or proteins, harnessing enhanced delivery with nanoparticles, and the regenerative potential of stem cells (adult, embryonic or induced pluripotent stem cells) has had a tremendous impact on translational medicine. The chapters in this book cover a range of strategies for molecular and cellular therapies for human disease, their advantages, and central challenges to their widespread application. Potential solutions to these issues are also discussed in detail. Further, the book addresses numerous advances in the field of molecular therapeutics that will be of interest to the general scientific community. Lastly, the book provides specific examples of disease conditions for which these strategies have been transferred to the clinic. As such, it will be extremely useful for all students, researchers and clinicians working in the field of translational medicine and molecular therapeutics.

Wave Propagation in Electromagnetic Media

Proceedings of Seventh International Conference on Bio-Inspired Computing: Theories and Applications (BIC-TA 2012)

Select Proceedings of VCAS 2018

From Synthesis to Applications

Exploding Stars, Dark Energy, and the Accelerating Cosmos

**An introduction to computational complexity theory, its connections and interactions with mathematics, and its central role in the natural and social sciences, technology, and philosophy Mathematics and Computation provides a broad, conceptual overview of computational complexity theory—the mathematical study of efficient computation. With important practical applications to computer science and industry, computational complexity theory has evolved into a highly interdisciplinary field, with strong links to most mathematical areas and to a growing number of scientific endeavors. Avi Wigderson takes a sweeping survey of complexity theory, emphasizing the field's insights and challenges. He explains the ideas and motivations leading to key models, notions, and results. In particular, he looks at algorithms and complexity, computations and proofs, randomness and interaction, quantum and arithmetic computation, and cryptography and learning, all as parts of a cohesive whole with numerous cross-influences. Wigderson illustrates the immense breadth of the field, its beauty and richness, and its diverse and growing interactions with other areas of mathematics. He ends with a comprehensive look at the theory of computation, its methodology and aspirations, and the unique and fundamental ways in which it has shaped and will further shape science, technology, and society. For further reading, an extensive bibliography is provided for all topics covered. Mathematics and Computation is useful for undergraduate and graduate students in mathematics, computer science, and related fields, as well as**

researchers and teachers in these fields. Many parts require little background, and serve as an invitation to newcomers seeking an introduction to the theory of computation. Comprehensive coverage of computational complexity theory, and beyond High-level, intuitive exposition, which brings conceptual clarity to this central and dynamic scientific discipline Historical accounts of the evolution and motivations of central concepts and models A broad view of the theory of computation's influence on science, technology, and society Extensive bibliography

Silicon (Si) is by far the most widely used semiconductor material for power devices. On the other hand, Si-based power devices are approaching their material limits, which has provoked a lot of efforts to find alternatives to Si-based power devices for better performance. With the rapid innovations and developments in the semiconductor industry, Silicon Carbide (SiC) power devices have progressed from immature prototypes in laboratories to a viable alternative to Si-based power devices in high-efficiency and high-power density applications. SiC devices have numerous persuasive advantages--high-breakdown voltage, high-operating electric field, high-operating temperature, high-switching frequency and low losses. Silicon Carbide (SiC) devices belong to the so-called wide band gap semiconductor group, which offers a number of attractive characteristics for high voltage power semiconductors when compared to commonly used silicon (Si). Recently, some SiC power devices, for example, Schottky-barrier diodes (SBDs), metal-oxide-semiconductor field-effect transistors (MOSFETs), junction FETs (JFETs), and their integrated modules have come onto the market. *Physics and Technology of Silicon Carbide Devices* abundantly describes recent technologies on manufacturing, processing, characterization, modeling, etc. for SiC devices.

This is the most complete handbook on the quantum theory of angular momentum. Containing basic definitions and theorems as well as relations, tables of formula and numerical tables which are essential for applications to many physical problems, the book is useful for specialists in nuclear and particle physics, atomic and molecular spectroscopy, plasma physics, collision and reaction theory, quantum chemistry, etc. The authors take pains to write many formulae in different coordinate systems thus providing users with added ease in consulting this book. Each chapter opens with a comprehensive list of its contents to ease the search for any information needed later. New results relating to different aspects of the angular momentum theory are also included. Containing close to 500 pages this book also gathers together many useful formulae besides those related to angular momentum. The book also compares different notations used by previous authors.

First International Conference, ICACDS 2016, Ghaziabad, India, November 11-12, 2016, Revised Selected Papers

Quantum Theory Of Angular Momentum

Advances in Signal Processing and Communication

Proceedings of the International Conference on Recent Cognizance in Wireless Communication & Image Processing

Proceedings of the 2006 Lester Eastman Conference, Cornell, Ithaca, NY, USA, 26 August 2006

Advances in Modern Sensors

*A revealing and provocative look at the current state of global science We take the advance of science as given. But how does science really work? Is it truly as healthy as we tend to think? How does the system itself shape what scientists do? The Secret Life of Science takes a clear-eyed and provocative look at the current state of global science, shedding light on a cutthroat and tightly tensioned enterprise that even scientists themselves often don't fully understand. The Secret Life of Science is a dispatch from the front lines of modern science. It paints a startling picture of a complex scientific ecosystem that has become the most competitive free-market environment on the planet. It reveals how big this ecosystem really is, what motivates its participants, and who reaps the rewards. Are there too few scientists in the world or too many? Are some fields expanding at the expense of others? What science is shared or published, and who determines what the public gets to hear about? What is the future of science? Answering these and other questions, this controversial book explains why globalization is not necessarily good for science, nor is the continued growth in the number of scientists. It portrays a scientific community engaged in a race for limited resources that determines whether careers are lost or won, whose research visions become the mainstream, and whose vested interests end up in control. The Secret Life of Science explains why this hypercompetitive environment is stifling the diversity of research and the resiliency of science itself, and why new ideas are needed to ensure that the scientific enterprise remains healthy and vibrant.*

*The book gives an exhaustive exposition of the fundamental concepts, techniques and devices in Basic Electronics Engineering. The book covers the basic course in basic electronics of almost all the Indian technical universities and some foreign universities as well. It is particularly well suited undergraduate students of all Engineering disciplines. Diploma students of EEE and ECE will find useful too. Basic Electronics is designed as the one-stop solution for those attempting to teach as well as study a course on Basic Electronics. The carefully developed pedagogy will help the instructor pick thought-provoking questions for tutorials and examinations, as well as allow plenty of practice for the students. Salient Features • Approach modular, and exposition of subject matter through illustrations • Block-diagrams and circuit diagrams used aplenty to enhance understanding • Pedagogy count and features: • Solved Examples- 136 • MCQs- 189 • Review Questions- 235 • Problems- 163 • Diagrams- 409*

*This volume covers five emerging areas of advanced device technology: wide band gap devices, terahertz and millimeter waves, nanometer silicon and silicon-germanium devices, nanoelectronics and ballistic devices, and the characterization of advanced photonic and electronic devices. The papers by leading researchers in high speed and advanced electronic and photonic technology presented many firsts and breakthrough results, as has become a tradition with the Lester Eastman Conference, and will allow readers to obtain up-to-date information about emerging trends and future directions of these technologies. Key papers in each section present snap-shot and mini reviews of state-of-the-art and hot off the press results making the book required reading for engineers, scientists, and students working on advanced and high speed device technology.*

*The Secret Life of Science*

*Engineering Physics (Annual Pattern)*

*Electronics Fundamentals and Applications*

*Cell Separation*

*Electromagnetic Field Theory and Transmission Lines*

*Foundations of the New Pluralism*

**This book constitutes the refereed proceedings of the First International Conference on Advances in Computing and Data Sciences, ICACDS 2016, held in Ghaziabad, India, in November 2016. The 64 full papers were carefully reviewed and selected from 502 submissions. The papers are organized in topical sections on Advanced Computing; Communications; Informatics; Internet of Things; Data Sciences.**

**The book focuses on soft computing and its applications to solve real-world problems in different domains, ranging from medicine and health care, to supply chain management, image processing and cryptanalysis. It includes high-quality papers presented at the International Conference on Soft Computing: Theories and Applications (SoCTA 2018), organized by Dr. B. R. Ambedkar National Institute of Technology, Jalandhar, Punjab, India. Offering significant insights into soft computing for teachers and researchers alike, the book inspires more researchers to work in the field of soft computing.**

**This book comprises select proceedings of the International Conference on VLSI, Communication and Signal processing (VCAS 2018). It looks at latest research findings in VLSI design and applications. The book covers a wide range of topics in electronics and communication engineering, especially in the area of microelectronics and VLSI design, communication systems and networks, and image and signal processing. The contents of this book will be useful to researchers and professionals alike.**

**Advances in VLSI, Communication, and Signal Processing**

**How It Really Works and Why It Matters**

**Basic Electronics**

**Graphene Functionalization Strategies**

**Concepts Of Physics**

**Mathematics and Computation**