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Many of them laid foundations that triggered the transformation of the island, including sportspeople whose records have stood the test of time. They were a people of their time whose work many may not know but which we hope will inspire others. This book is timely, for those who want to get a snapshot appreciation of the contributions of Singaporean South Asians. 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That on Solid State Physics covers 6 chapters, namely, behavior of electron in solid, dielectrics, magnetism, superconductivity, optical properties of solids, semiconductor. The book can be used as Lecture Notes without any modification at all. Undergraduate students will benefit from getting a book that can be used as a study guide. The write-up is scholarly and elucidations of Physics are remarkable. Recent developments in microelectronics technologies have created a great demand for interlayer dielectric materials with a very low dielectric constant. They will play a crucial role in the future generation of IC devices (VLSI/UISI and high speed IC packaging). Considerable efforts have been made to develop new low as well as high dielectric constant materials for applications in electronics industries. Besides achieving either low or high dielectric

constants, other materials' properties such as good processability, high mechanical strength, high thermal and environmental stability, low thermal expansion, low current leakage, low moisture absorption, corrosion resistant, etc., are of equal importance. Many chemical and physical strategies have been employed to get desired dielectric materials with high performance. This is a rapidly growing field of science--both in novel materials and their applications to future packing technologies. The experimental data on inorganic and organic materials having low or high dielectric constant remail scattered in the literature. It is timely, therfore, to consolidate the current knowledge on low and high dielectric constant materials into a sigle reference source. Handbook of Low and High Dielectric Constant Materials and Their Applications is aimed at bringing together under a sigle cover (in two volumes) all low and high dielectric constant materials currently studied in academic and industrial research covering all spects of inorgani an organic materials from their synthetic chemistry, processing techniques, physics, structure-property relationship to applications in IC devices. This book will summarize the current status of the field covering important scientific developments made over the past decade with contributions from internationally recognized experts from all over the world. Fully cross-referenced, this book has clear, precise, and wide appeal as an essential reference source for all those interested in low and high dielectric constant material. The topics covered in this book provide a qualitative and sometimes quantitative classic description of the wide-band 0-THz dielectric spectra of polar liquids, molecular libration-rotation (which is the reason for dielectric loss and absorption of electromagnetic waves), simple molecular models differing by the intermolecular-potential profiles, and present a comparison between the theoretical and experimental dependencies and derivation of the main results. A new feature is the application of a number of analytical models to different substances, including strongly absorbing nonassociating liquids, liquid water, water bound by macromolecules, and gas-like liquids. The presentation of the theory in this book is also new. It is based on the dynamic method in which the Brownian reorientations are considered implicitly, without direct solution of stochastic equations. This approach simplifies the theory. Senior students and experimentalists will find many of the results valuable. 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Physics for Scientists and Engineers combines outstanding pedagogy with a clear and direct narrative and applications that draw the student into the physics. The new edition also features an unrivaled suite of media and on-line resources that enhance the understanding of physics. This book is written for students. It aims to explain physics in a readable and interesting manner that is accessible and clear, and to teach students by anticipating their needs and difficulties without oversimplifying. Physics is a description of reality, and thus each topic begins with concrete observations and experiences that students can directly relate to. We then move on to the generalizations and more formal treatment of the topic. Not only does this make the material more interesting and easier to understand, but it is closer to the way physics is actually practiced. 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Chapter wise & topic wise presentation for ease of learning Quick Review for in depth study mind Maps to unlock the imagination and come up with new ideas Know the links R & br>D based links to empower the students with the latest information on the given topic tips & tricks useful guideline for attempting questions in minimum time without any mistake expert advice how to score more suggestions and ideas shared some commonly Made Errors highlight the most common and unidentified mistakes made by students at all levels ". The standard (Markovian) transport model based on the Boltzmann equation cannot describe some non-equilibrium processes called anomalous that take place in many disordered solids. Causes of anomality lie in non-uniformly scaled (fractal) spatial heterogeneities, in which particle trajectories take cluster form. Furthermore, particles can be located in some domains of small sizes (traps) for a long time. Estimations show that path length and waiting time distributions are often characterized by heavy tails of the power law type. This behavior allows the introduction of time and space derivatives of fractional orders. Distinction of path length distribution from exponential is interpreted as a consequence of media fractality, and analogous property of waiting time distribution as a presence of memory. In this book, a novel approach using equations with derivatives of fractional orders is applied to describe anomalous transport and relaxation in disordered semiconductors, dielectrics and quantum dot systems. A relationship between the self-similarity of transport, the Levy stable limiting distributions and the kinetic equations with fractional derivatives is established. It is shown that unlike the well-known Scher–Montroll and Arkhipov–Rudenko models, which are in a sense alternatives to the normal transport model, fractional differential equations provide a unified mathematical framework for describing normal and dispersive transport. The fractional differential formalism allows the equations of bipolar transport to be written down and transport in distributed dispersion systems to be described. The relationship between fractional transport equations and the generalized limit theorem reveals the probabilistic aspects of the phenomenon in which a dispersive to Gaussian transport transition occurs in a time-of-flight experiment as the applied voltage is decreased and/or the sample thickness increased. Recent experiments devoted to studies of transport in quantum dot arrays are discussed in the framework of dispersive transport models. The memory phenomena in systems under consideration are discussed in the analysis of fractional

equations. It is shown that the approach based on the anomalous transport models and the fractional kinetic equations may be very useful in some problems that involve nano-sized systems. These are photon counting statistics of blinking single quantum dot fluorescence, relaxation of current in colloidal quantum dot arrays, and some others. Contents:Statistical GroundsFractional Kinetics of Dispersive TransportTransient Processes in Disordered Semiconductor StructuresFractional Kinetics in Quantum Dots and WiresFractional Relaxation in DielectricsThe Scale Correspondence Principle Readership: Students and post-graduate students, engineers, applied mathematicians, material scientists and physicists, specialists in theory of solids, in mathematical modeling and numerical simulations of complex physical processes, and to all who wish to make themselves more familiar with fractional differentiation method. Keywords:Fractional Calculus;Anomalous Diffusion;Disordered Solids;Nanosystems This title provides an up-to-date account of the basic principles of dielectrics. It is ideal for advanced undergraduates and graduates in the field, and includes the authoritative coverage needed to develop an understanding of the macroscopic behavior of dielectric materials. Readers will find full derivations of many important formulas as well as a useful listing of references and further readings. Much progress has been made in the understanding of the general properties of the dielectric function and in the calculation of this quantity for many classes of media. This volume gathers together the considerable information available and presents a detailed overview of the present status of the theory of electromagnetic response functions, whilst simultaneously covering a wide range of problems in its application to condensed matter physics. The following subjects are covered: - the dielectric function of the homogeneous electron gas, of crystalline systems, and of inhomogeneous matter; - electromagnetic fluctuations and molecular forces in condensed matter; - electrodynamics of superlattices. This title contains an Access Code along with instructions to access the Online Material. In case you face any difficulty, write to us at ebooks.support@aiets.co.in. • The book “40 Years IIT-JEE Advanced + 16 yrs JEE Main/ AIEEE Topic-wise Solved Paper PHYSICS with Free ebook” is the first integrated book, which contains Topic-wise collection of past JEE Advanced (including 1978-2012 IIT-JEE & 2013-16 JEE Advanced) questions from 1978 to 2016 and past JEE Main (including 2002-2012 AIEEE & 2013-16 JEE Main) questions from 2002 to 2016. • The new edition has been designed in 2-colour layout and comes with a Free ebook which gives you the power of accessing your book anywhere - anytime through web and tablets. • The book is divided into 17 chapters. The flow of chapters has been aligned as per the NCERT books. • Each divides the questions into 9 categories (as per the NEW IIT pattern) - Fill in the Blanks, True/False, MCQ 1 correct, MCQ more than 1 correct, Passage Based, Assertion-Reason, Multiple Matching, Integer Answer MCQs and Subjective Questions. • All the Screening and Mains papers of IIT-JEE have been incorporated in the book. • Detailed solution of each and every question has been provided for 100% conceptual clarity of the student. Well elaborated detailed solutions with user friendly language provided at the end of each chapter. • Solutions have been given with enough diagrams, proper reasoning to bring conceptual clarity. • The students are advised to attempt questions of a topic immediately after they complete a topic in their class/school/home. The book contains around 3200+ MILESTONE PROBLEMS IN PHYSICS. How does the FREE ebook help? • Provides the Digital version of the book which can be accessed through tablets and web in both online and offline mediums. • Also provides the AIEEE Rescheduled 2011 paper and 1997 IIT-JEE cancelled paper. • Alternate Solutions to a number of Questions. • Quick Revision Material.