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A much-needed summary of the importance, synthesis and applications of metal nanoparticles in pharmaceutical sciences, with a focus on gold, silver, copper and platinum nanoparticles. After a brief introduction to the history of metal complexes in medicine and fundamentals of nanotechnology, the chapters continue to describe different methods for preparation of metal nanoparticles. This section is followed by representative presentations of current biomedical applications, such as drug delivery, chemotherapy, and diagnostic imaging. Aimed at stimulating further research in this field, the book serves as an reference guide for academics and professionals working in the field of chemistry and nanotechnology.

Taking stock of the urban transport scenario in Indian cities, this is the first full-length study of the metro rail system in India. In recent times the metro rail has come up as a favoured alternative of mass transport in urban spaces faced with growing population, heightened vehicular traffic, and increased pollution. Using data, analysis, and first-hand information, this book tells the story of metro rail as proposed and undertaken across India from Kolkata in the east and Mumbai in the west to Delhi and Jaipur in the north and Chennai, Bangalore, Hyderabad, and Kochi in the south. Focusing on the complexities of project planning and contrasting the Indian experience with those of its global counterparts, this volume distils important lessons for future infrastructure projects. While the metro rail system has considerably improved inter-city connectivity, the metro story in India is an ongoing one. With a Foreword by E. Sreedharan setting the stage, this volume will appeal to anybody keen to know more about urban transport in India, as well as policymakers, management professionals, and students and researchers of economics and business studies.

This lucid and captivating book takes the reader back to the early history of all the sciences, starting from antiquity and ending roughly at the time of Newton — covering the period which can legitimately be called the “dawn” of the sciences. Each of the 24 chapters focuses on a particular and significant development in the evolution of science, and is connected in a coherent way to the others to yield a smooth, continuous narrative. The at-a-glance diagrams showing the “When” and “Where” give a brief summary of what was happening at the time, thereby providing the broader context of the scientific events highlighted in that chapter. Embellished with colourful photographs and illustrations, and “boxed” highlights scattered throughout the text, this book is a must-read for everyone interested in the history of science, and how it shaped our world today.

Vanadium is one of the more abundant elements in the Earth’s crust and exhibits a wide range of oxidation states in its compounds making it potentially a more sustainable and more economical choice as a catalyst than the noble metals. A wide variety of reactions have been found to be catalysed by homogeneous, supported and heterogeneous vanadium complexes and the number of applications is growing fast. Bringing together the research on the catalytic uses of this element into one essential resource, including theoretical perspectives on proposed mechanisms for vanadium catalysis and an overview of its relevance in biological processes, this book is a useful reference for industrial and academic chemists alike.

The new edition of this intensive care manual brings clinicians fully up to date with the

latest advances in the diagnosis and management of acute cardiac emergencies and related medical disorders. Organised by organ system, the book also covers pulmonary emergencies, stroke, endocrine and central nervous system disorders, and rheumatology. The fifth edition has been thoroughly revised to present the latest guidelines in intensive care, and provides up to date descriptions of unique presentations, differential diagnosis, and management of critical diseases and disorders. The comprehensive text is further enhanced by clinical photographs, diagrams, and tables. Key points Comprehensive guide to diagnosis and management of acute cardiac emergencies and related disorders Also covers critical care of disorders in other organ systems Thoroughly revised new edition presenting latest guidelines in intensive care Previous edition (9789350907405) published in 2014 Robust chaos is defined by the absence of periodic windows and coexisting attractors in some neighborhoods in the parameter space of a dynamical system. This unique book explores the definition, sources, and roles of robust chaos. The book is written in a reasonably self-contained manner and aims to provide students and researchers with the necessary understanding of the subject. Most of the known results, experiments, and conjectures about chaos in general and about robust chaos in particular are collected here in a pedagogical form. Many examples of dynamical systems, ranging from purely mathematical to natural and social processes displaying robust chaos, are discussed in detail. At the end of each chapter is a set of exercises and open problems intended to reinforce the ideas and provide additional experiences for both readers and researchers in nonlinear science in general, and chaos theory in particular.

TERRAINS OF CONSCIOUSNESS emerges from an Indian-German-Swiss research collaboration. The book makes a case for a phenomenology of globalization that pays attention to locally situated socioeconomic terrains, everyday practices, and cultures of knowledge. This is exemplified in relation to three topics: - the tension between 'terrain' and 'territory' in Defoe's 'Robinson Crusoe' as a pioneering work of the globalist mentality (chapter 1) - the relationship between established conceptions of feminism and the concrete struggles of women in India since the 19th century (chapter 2) - the exploration of urban space and urban life in writings on India's capital - from Ahmed Ali to Arundhati Roy (chapter 3).

Wave Optics: Basic Concepts and Contemporary Trends combines classical optics with some of the latest developments in the field to provide readers with an appreciation and understanding of advanced research topics. Requiring only a basic knowledge of electromagnetic theory and mathematics, this book: Covers the fundamentals of wave optics, such as oscillations, scalar and vector waves, reflection and refraction, polarization, interference and diffraction, and rays and beams Focuses on concepts related to advances in negative materials and superresolution, reflectionless potentials, plasmonics, spin-orbit interaction, optical tweezers, Pendry lensing, and more Includes MATLAB® codes for specific research problems, offering readers a behind-the-scenes look at the computational practices as well as an opportunity to extend the research Drawing parallels with corresponding quantum problems whenever possible to broaden the horizon and outlook, Wave Optics: Basic Concepts and Contemporary Trends gives readers a taste of what is happening in modern optics today and

shows why wave optics remains one of the most interesting and challenging areas of physics.

"Wind Electrical Systems provides an integrated and comprehensive treatment of wind energy conversion without assuming any background of the subject. Beginning with the basics of wind energy, the book goes on to discuss conversion of wind energy into electrical energy, wind energy integration with the local grid, stand-alone generation and consumption, and variable-speed wind generators. The book ends with a discussion of hybrid power systems where wind energy is integrated with another energy source such as solar energy or diesel generators to provide reliable power." "With its wide inter-disciplinary coverage, the book would serve as an indispensable text for students of electrical, mechanical, and energy engineering as well as practising engineers."--BOOK JACKET.

The Percy family has amassed a tremendous amount of wealth, but the Mississippi River is threatening to break its levees in 1927 and wash away everything they've worked so hard to achieve. To make sure they keep what is theirs, they and other whites force thousands of African-Americans at gunpoint to shore up the levees. Three escape and begin an epic journey North. Among escapees is Cora Mae, a servant who works for Henry Ford and gathers the knowledge and secrets that help guide her family through the Great Depression and the civil rights movement of the 1960s. Meanwhile, Bully, another survivor, begins a sixty-year love affair with Sarah, a woman he wants to call his own in spite of a mother who keeps them apart with a shotgun. Matthew escapes Panther Burn to find a love and fortune worth dying for on the streets of Detroit. Take an epic 60 year journey through the personal struggles of a family as it battles poverty, racism and seemingly insurmountable odds to find their dreams as *The Children of Panther Burn*.

Modelling and analysis of dynamical systems is a widespread practice as it is important for engineers to know how a given physical or engineering system will behave under specific circumstances. This text provides a comprehensive and systematic introduction to the methods and techniques used for translating physical problems into mathematical language, focusing on both linear and nonlinear systems. Highly practical in its approach, with solved examples, summaries, and sets of problems for each chapter, *Dynamics for Engineers* covers all aspects of the modelling and analysis of dynamical systems. Key features: Introduces the Newtonian, Lagrangian, Hamiltonian, and Bond Graph methodologies, and illustrates how these can be effectively used for obtaining differential equations for a wide variety of mechanical, electrical, and electromechanical systems. Develops a geometric understanding of the dynamics of physical systems by introducing the state space, and the character of the vector field around equilibrium points. Sets out features of the dynamics of nonlinear systems, such as limit cycles, high-period orbits, and chaotic orbits. Establishes methodologies for formulating discrete-time models, and for

developing dynamics in discrete state space. Senior undergraduate and graduate students in electrical, mechanical, civil, aeronautical and allied branches of engineering will find this book a valuable resource, as will lecturers in system modelling, analysis, control and design. This text will also be useful for students and engineers in the field of mechatronics.

Despite a number of books on biophotonics imaging for medical diagnostics and therapy, the field still lacks a comprehensive imaging book that describes state-of-the-art biophotonics imaging approaches intensively developed in recent years. Addressing this shortfall, *Advanced Biophotonics: Tissue Optical Sectioning* presents contemporary methods and applications of biophotonics imaging. Gathering research otherwise scattered in numerous physical, chemical, biophysical, and biomedical journals, the book helps researchers, bioengineers, and medical doctors understand major recent bioimaging technologies and the underlying biophotonics science. Well-known international experts explore a variety of "hot" biomedical optics and biophotonics problems, including the use of photoacoustic imaging to investigate the molecular and cellular processes in living systems. The book also covers Monte Carlo modeling, tissue optics and tissue optical clearing, nonlinear optical microscopy, various aspects of optical coherence tomography, multimodal tomography, adaptive optics, and signal imaging. With 58 color images, this book represents a valuable contribution to the biomedical and biophotonics literature. Designed for researchers and practitioners in biophotonics, the book is also a useful resource for scientists in laser physics and technology, fiber optics, spectroscopy, materials science, biology, and medicine as well as students studying biomedical physics and engineering, biomedical optics, and biophotonics.

The Indian National Academy of Engineering (INAE) promotes the endeavour of the practitioners of engineering and technology and related sciences to solve the problems of national importance. The book is an initiative of the INAE and a reflection of the experiences of some of the Fellows of the INAE in the fields of science, technology and engineering. The book is about the reminiscences, eureka moments, inspirations, challenges and opportunities in the journey the professionals took toward self-realisation and the goals they achieved. The book contains 58 articles on diverse topics that truly reflects the way the meaningful mind of an engineer works.

The recycling of atmospheric molecules for use as fuels and chemicals is a goal which can only be achieved through a deeper understanding of catalytic processes, particularly electrocatalysis whereby redox transformations can be interfaced with solar or nuclear energy input. Carbon dioxide is a prototypical small molecule in many regards since it is chemically inert. In addition, because of the likely role of carbon dioxide in global temperature cycles, it will be imperative in the future to regulate the output from industrial processes. The purpose of this book is to present a unified discussion of the carbon dioxide chemistry which is necessary for the understanding and design of

electrochemically-driven processes for the reduction of carbon dioxide and to provide an impetus for the further development of electrocatalytic carbon dioxide chemistry.

The mountain of the moon is a story about taking a chance dare which, with its wings of imagination, leads you to the silver lining after a storm. Shankar, an ordinary young boy from rural India, crosses many skies and seas to explore an altogether different world—Africa. There, he joins a seasoned Portuguese Explorer, Diego Alvarez on a daring mission. But is the destination worth the toil of the journey? Moreover, will Shankar get to the peak of his mountain of dreams? The Storyline, with a series of adventures, is a testimony to the eternal virtues of courage, curiosity and compassion. It gradually becomes a tantalizing tale of an unusual friendship that evolved in the spectacular but dangerous African forests and grasslands teeming with mysterious wildlife, people and their folklores. Experience this classic adventurous narrative in English that will lead you again to an era of picaresque, when one dared to dream. This book has also been adapted into a popular Bengali movie.

This useful reference provides recent results as well as entirely new material on control problems for partial differential equations.

The contributions of leading international experts assembled in this volume provide an authoritative description of current research in the highly topical area of the optical properties of semiconductor structures in the nanometer range. .

Bedside Assessment of the Dizzy Patient. Abnormal Eye Movements in Dizzy Patients. Visual Symptoms and Vertigo. Migrainous Vertigo. Psychiatric Disorders in Otolaryngology Patients. Change-in-support Balance Reactions in Older Persons - An Emerging Research Area of Clinical Importance. Older Adults and Balance Dysfunction. Balance Disorders in Children. Pharmacologic Treatments of Persons with Dizziness. Physical Therapy for Balance Disorders. Surgical Treatment of Vestibular Disorders. Tinnitus. Hearing Loss and Hearing Aids. Illustrative Cases.

The College Street Coffee House is still a much-revered institution in Kolkata. Its mystique lingers, despite its dilapidated appearance that evokes another era. Intellectuals from a range of disciplines met to discuss compelling ideas in a free-flowing style – the quintessential Bengali adda, punctuated with many cups of coffee. Twenty-six intellectual, political, and cultural icons including Rabin Mandal, Soumitra Chatterjee, Usha Ganguly, Gayatri Chakravorty Spivak, Sabyasachi Bhattacharya, and Ashim Chatterjee share their memories of Coffee House. Their portrait photos and absorbing reminiscences capture the tumultuous and changing intellectual, political, and cultural currents that surged through Bengal from the 1950s to the 1990s. “Such a pleasure to have this account of a great unofficial institution from a disarming multiplicity of perspectives - photographic, personal, and intellectual - and to listen in on its hubbub.” Amit Chaudhuri

This revised edition of Solar Astrophysics describes our current understanding of the sun - from its deepest interior, via the layers of the directly observable atmosphere to the solar wind, right out to its farthest extension into interstellar space. It includes a comprehensive account of the history of solar astrophysics, along with an overview of the key instruments throughout the various periods. In contrast to other books on this topic, the choice of material deals evenhandedly with the entire scope of important topics covered in solar research. The authors make the advances in our understanding

of the sun accessible to students and non-specialists by way of careful use of relatively simple physical concepts. The book offers an incisive, reliable, and well-planned look at all that is fascinating and new in studies of the sun.

The first handbook on this emerging field provides a comprehensive overview of transition metal-catalyzed coupling reactions in the presence of an oxidant. Following an introduction to the general concept and mechanism of this reaction class, the team of authors presents chapters on C-C cross-coupling reactions using organometallic partners, C-Heteroatom bond forming reactions via oxidative couplings, and C-H couplings via C-H activation. The text also covers such groundbreaking topics as recent achievements in the fields of C-C and C-X bond formation reactions as well as C-H activation involving oxidative couplings. With its novel and concise approach towards important building blocks in organic chemistry and its focus on synthetic applications, this handbook is of great interest to all synthetic chemists in academia and industry alike.

The Nato Advanced Study Institute "Phase Transitions in Liquid Crystals" was held May 2-12, 1991, in Erice, Sicily. This was the 16th conference organized by the International School of Quantum Electronics, under the auspices of the "Ettore Majorana" Centre for Scientific Culture. The subject of "Liquid Crystals" has made amazing progress since the last ISQE Course on this subject in 1985. The present Proceedings give a tutorial introduction to today's most important areas, as well as a review of current results by leading researchers. We have brought together some of the world's acknowledged experts in the field to summarize both the present state of their research and its background. Most of the lecturers attended all the lectures and devoted their spare hours to stimulating discussions. We would like to thank them all for their admirable contributions. The Institute also took advantage of a very active audience; most of the students were active researchers in the field and contributed with discussions and seminars. Some of these student seminars are also included in these Proceedings. We did not modify the original manuscripts in editing this book, but we did group them according to the following topics: 1) "Theoretical Foundations"; 2) "Thermotropic Liquid Crystals"; 3) "Ferroelectric Liquid Crystals"; 4) "Polymeric Liquid Crystals"; and 5) "Lyotropic Liquid Crystals". We don't see them on TV, in textbooks or in newspapers, and most of us can't name a single one. But there are thousands of women scientists in India, who perform experiments in laboratories, peer through powerful telescopes and camp out in harsh and extreme conditions. This unique book presents the stories of thirty-one of these trailblazing women who work in a diverse array of fields, from environmental biotechnology to particle physics, palaeobiology to astrophysics. Through their research, they uncover the mysteries of the universe, find more sustainable ways of living, cure life-threatening diseases and study animals and plants that are long gone. Find out what drew them to science, read about how they deal with the difficulties and pressures of their work, and learn how they push the boundaries of human knowledge further and further every day. With this handbook the distinguished team of editors has combined the expertise

of leading nanomaterials scientists to provide the latest overview of this field. The authors cover the whole spectrum of nanomaterials, ranging from theory, synthesis, properties, characterization to application, including such new developments as: · quantum dots, nanoparticles, nanoporous materials, as well as nanowires, nanotubes and nanostructural polymers · nanocatalysis, nanolithography, nanomanipulation · methods for the synthesis of nanoparticles. The book can thus be recommended for everybody working in nanoscience: Beginners can acquaint themselves with the exciting subject, while specialists will find answers to all their questions plus helpful suggestions for further research. In an epoch when particle physics is awaiting a major step forward, the Large Hydron Collider (LHC) at CERN, Geneva will soon be operational. It will collide a beam of high energy protons with another similar beam circulation in the same 27 km tunnel but in the opposite direction, resulting in the production of many elementary particles some never created in the laboratory before. It is widely expected that the LHC will discover the Higgs boson, the particle which supposedly lends masses to all other fundamental particles. In addition, the question as to whether there is some new law of physics at such high energy is likely to be answered through this experiment. The present volume contains a collection of articles written by international experts, both theoreticians and experimentalists, from India and abroad, which aims to acquaint a non-specialist with some basic issues related to the LHC. At the same time, it is expected to be a useful, rudimentary companion of introductory exposition and technical expertise alike, and it is hoped to become unique in its kind. The fact that there is substantial Indian involvement in the entire LHC endeavour, at all levels including fabrication, physics analysis procedures as well as theoretical studies, is also amply brought out in the collection.

Brings the knowledge of 24 experts in this maturing field out from the narrow confines of academic circles, and makes it accessible to graduate students and power electronics professionals alike. * Provides practicing engineers with the knowledge to predict power requirement behavior. * The insights gained from this all-inclusive compilation will ultimately lead to better design methodologies.

In the popular imagination, Calcutta is a packed and pestilential sprawl, made notorious by the Black Hole and the works of Mother Teresa. Kipling called it a City of Dreadful Night, and a century later V.S. Naipaul, Gunter Grass and Louis Malle revived its hellish image. This is the place where the West first truly encountered the East. Founded in the 1690s by East India Company merchants beside the Hugli River, Calcutta grew into India's capital during the Raj and the second city of the British Empire. Named the City of Palaces for its neoclassical mansions, Calcutta was the city of Clive, Hastings, Macaulay and Curzon. It was also home to extraordinary Bengalis such as Rabindranath Tagore, the first Asian Nobel laureate, and Satyajit Ray, among the geniuses of world cinema. Above all, Calcutta (renamed Kolkata in 2001) is a city of extremes, where exquisite refinement rubs shoulders with coarse commercialism and political violence.

Krishna Dutta explores these multiple paradoxes, giving personal insight into Calcutta's unique history and modern identity as reflected in its architecture, literature, cinema and music. CITY OF ARTISTS: Modern India's cultural capital; home city of

In the great Bengali poet's autobiographical writings we discover what his translators describe as a heart of love, a mind at its service that can cut like a knife, and in some sense the spirit of a child.' The six prose pieces, centering on the poet's quest, were composed at landmark moments during the second half of his life and published posthumously. At each point he looks back on a long creative journey. Here in their first English translation, the essays offer an insight into the intellectual and spiritual world of a twentieth-century genius.

Rabindranath Tagore (1861-1941) became the first non-Westerner to win the Nobel Prize for Literature in 1913. He was poet and writer of fiction, composer and artist and playwright, educationalist and reformer. Among writers who translated his work were Gide, Neruda, Pasternak and Akhmatova. His world tours featured debates with figures as diverse as his friend and admirer Gandhi, Einstein, Ezra Pound and H.G. Wells. The national anthems of both India and Bangladesh are Tagore's compositions. Devadatta Joardar (born 1965) is a resident of Calcutta and a Bengali scholar. He works as an engineer but his interests take him into other fields. He occasionally writes for English-language dailies in India. Born in London in 1943, Joe Winter taught English before taking early retirement. He has lived in Calcutta since 1994. Anvil has published his translations of Rabindranath Tagore's Song Offerings (Gitanjali), his selection of poems by Jibanananda Das, Naked Lonely Hand and Das's collection of sonnets Bengal the Beautiful (Rupasi Bangla), and his own Calcutta poems Guest and Host.

This second edition of Advanced Laparoscopic Surgery, Techniques and Tips represents a comprehensive description of the current laparoscopic techniques. It supplies surgeons with all the information necessary to successfully accomplish laparoscopic surgery. It is a hands-on manual that helps the surgeon avoid pitfalls and acquire the necessary laparoscopic skills quickly and efficiently. It is a ready source of practical help when trouble-shooting is necessary. Advanced laparoscopic surgery is an excellent merger of a textbook and atlas for the surgeon who wants to extend and refine his laparoscopic techniques.

'When the house of history is on fire, journalists are often the first-responders, pulling victims away from the flames. Deep Halder is one of them.' - Amitava Kumar In 1978, around 1.5 lakh Hindu refugees, mostly belonging to the lower castes, settled in Marichjhapi an island in the Sundarbans, in West Bengal. By May 1979, the island was cleared of all refugees by Jyoti Basu's Left Front government. Most of the refugees were sent back to the central India camps they came from, but there were many deaths: of diseases, malnutrition resulting from an economic blockade, as well as from violence unleashed by the police on the orders of the government. Some of the refugees who survived Marichjhapi say the number of those who lost their lives could be as high as 10,000, while the-then government officials maintain that there were less than ten victims. How does an entire island population disappear? How does one unearth the truth and the details of one of the worst atrocities of post-Independent India? Journalist Deep Halder reconstructs the buried history of the 1979 massacres through his interviews with survivors, erstwhile reporters, government officials and activists with a rare

combination of courage, conscientiousness and empathy.

"The variable activity of stars such as the Sun is mediated through stellar magnetic fields, radiative and energetic particle fluxes, stellar winds, and magnetic storms manifested as stellar flares and coronal mass ejections. This activity influences planetary atmospheres, climate and habitability: on the one hand it drives life-sustaining processes on planets, but on the other hand can adversely impact planetary environments rendering them uninhabitable. Studies of this intimate relationship between the parent star, its astrosphere and the planets that it hosts have reached a certain level of maturity in our own Solar System. Based on this understanding, the first attempts are being made to characterize the interactions between distant stars and their planets and understand their coupled evolution, which is relevant for the search for habitable exoplanets. IAU Symposium 328 brings together diverse, interdisciplinary reviews and research papers which address the themes of star-planet interactions and habitability."-- Publisher's description.

This book expounds an integral approach to healing. The relationships between health & the psychic being, faith, Yoga & culture are discussed in the light of Sri Aurobindo's teachings, as well as the impact of the different planes of human consciousness on health. Illustrative case studies & a glossary are included.

Abiotic stresses such as drought, flooding, high or low temperatures, metal toxicity and salinity can hamper plant growth and development. Improving Abiotic Stress Tolerance in Plants explains the physiological and molecular mechanisms plants naturally exhibit to withstand abiotic stresses and outlines the potential approaches to enhance plant abiotic stress tolerance to extreme conditions. Synthesising developments in plant stress biology, the book offers strategies that can be used in breeding, genomic, molecular, physiological and biotechnological approaches that hold the potential to develop resilient plants and improve crop productivity worldwide. Features · Comprehensively explains molecular and physiological mechanism of multiple abiotic stress tolerance in plants · Discusses recent advancements in crop abiotic stress tolerance mechanism and highlights strategies to develop abiotic stress tolerant genotypes for sustainability · Stimulates synthesis of information for plant stress biology for biotechnological applications · Presents essential information for large scale breeding and agricultural biotechnological programs for crop improvement Written by a team of expert scientists, this book benefits researchers in the field of plant stress biology and is essential reading for graduate students and researchers generating stress tolerant crops through genetic engineering and plant breeding. It appeals to individuals developing sustainable agriculture through physiological and biotechnological applications.

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