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Microfluidics and Nanofluidics Handbook Jun 25 2020 This comprehensive handbook presents fundamental aspects, fabrication techniques, introductory materials on microbiology and chemistry, measurement techniques, and applications of microfluidics and nanofluidics. The second volume focuses on topics related to experimental and numerical methods. It also covers fabrication and applications in a variety of areas, from aerospace to biological systems. Reflecting the inherent nature of microfluidics and nanofluidics, the book includes as much interdisciplinary knowledge as possible. It provides the fundamental science background for newcomers and advanced techniques and concepts for experienced researchers and professionals.

Environmental Protection Sep 09 2021

Essential Computational Modeling in Chemistry Apr 16 2022 Essential Computational Modeling in Chemistry presents key contributions selected from the volume in the Handbook of Numerical Analysis: Computational Modeling in Chemistry Vol. 10(2005). Computational Modeling is an active field of scientific computing at the crossroads between Physics, Chemistry, Applied Mathematics and Computer Science. Sophisticated mathematical models are increasingly complex and extensive computer simulations are on the rise. Numerical Analysis and scientific software have emerged as essential steps for validating mathematical models and simulations based on these models. This guide provides a quick reference of computational methods for use in understanding chemical reactions and how to control them. By demonstrating various computational methods in research, scientists can predict such things as molecular properties. The reference offers a number of techniques and the numerical analysis needed to perform rigorously founded computations. Various viewpoints of methods and applications are available for researchers to chose and experiment with; Numerical analysis and open problems is useful for experimentation; Most commonly used models and techniques for the molecular case is quickly accessible

APICS, the Performance Advantage May 17 2022

ERDA Energy Research Abstracts Oct 10 2021

Quantitative Biology: Dynamics of Living Systems May 05 2021 With the emergence of Systems Biology, there is a greater realization that the whole behavior of a living system may not be simply described as the sum of its elements. To represent a living system using mathematical principles, practical quantities with units are required. Quantities are not only the bridge between mathematical description and biological observations; they often stand as essential elements similar to genome information in genetics. This important realization has greatly rejuvenated research in the area of Quantitative Biology. Because of the increased need for precise quantification, a new era of technological development has opened. For example, spatio-temporal high-resolution imaging enables us to track single molecule behavior in vivo. Clever artificial control of experimental conditions and molecular structures has expanded the variety of quantities that can be directly measured. In addition, improved computational power and novel algorithms for analyzing theoretical models have made it possible to investigate complex biological phenomena. This research topic is organized on two aspects of technological advances which are the backbone of Quantitative Biology: (i) visualization of biomolecules, their dynamics and function, and (ii) generic technologies of model optimization and numeric integration. We have also included articles highlighting the need for new quantitative approaches to solve some of the long-standing cell biology questions. In the first section on visualizing biomolecules, four cutting-edge techniques are presented. Ichimura et al. provide a review of quantum dots including their basic characteristics and their applications (for example, single particle tracking). Horisawa discusses a quick and stable labeling technique using click chemistry with distinct advantages compared to fluorescent protein tags. The relatively small physical size, stability of covalent bond and simple metabolic labeling procedures in living cells provides this type of technology a potential to allow long-term imaging with least interference to protein function. Obien et al. review strategies to control microelectrodes for detecting neuronal activity and discuss techniques for higher resolution and quality of recordings using monolithic integration with on-chip circuitry. Finally, the original research article by Amariei et al. describes the oscillatory behavior of metabolites in bacteria. They describe a new method to visualize the periodic dynamics of metabolites in large scale cultures populations. These four articles contribute to the development of quantitative methods visualizing diverse targets: proteins, electrical signals and metabolites. In the second section of the topic, we have included articles on the development of computational tools to fully harness the potential of quantitative measurements through either calculation based on specific model or validation of the model itself. Kimura et al. introduce optimization procedures to search for parameters in a quantitative model that can reproduce experimental data. They present four examples: transcriptional regulation, bacterial chemotaxis, morphogenesis of tissues and organs, and cell cycle regulation. The original research article by Sumiyoshi et al. presents a general methodology to accelerate stochastic simulation efforts. They introduce a method to achieve 130 times faster computation of stochastic models by applying GPGPU. The strength of such accelerated numerical calculation are sometimes underestimated in biology; faster simulation enables multiple runs and in turn improved accuracy of numerical calculation which may change the final conclusion of modeling study. This also highlights the need to carefully assess simulation results and estimations using computational tools.

Government-wide Index to Federal Research & Development Reports Oct 18 2019

Current Affairs Banking Notes : A Complete Current Affairs Preparation Book for All Banking Related Exams | SBI, IBPS , RRB | Topic-wise Jan 25 2023 • Best Selling Book For Current Affairs For All Bank Related Exams as per the latest syllabus. • Increase your chances of selection by 16X. • The Banking Notes Book For Current Affairs contains a well-structured & up-to-date syllabus that is essential for exam success. • Score high on exams using content that is thoroughly researched by experts.

Computerworld Mar 03 2021 For more than 40 years, Computerworld has been the leading source of technology news and information for IT influencers worldwide. Computerworld's award-winning Web site (Computerworld.com), twice-monthly publication, focused conference series and custom research form the hub of the world's largest global IT media network.

Problems in Quantum Mechanics Mar 23 2020 International Series in Natural Philosophy, Volume 30: Problems in Quantum Mechanics focuses on the processes, principles, reactions, and methodologies involved in quantum mechanics. The publication first elaborates on the mathematical formalism of quantum mechanics, simple quantum systems, and mean values and uncertainty relations. Discussions focus on mean values of dynamical variables, uncertainty relations, eigenfunctions and the energy spectrum, motion in a central field, matrix representation of vectors and operators, Hubert spaces, and operators in Hilbert space. The text then takes a look at mean values and uncertainty relations, semi-classical approximation, and pictures and representations. The book takes a look at orbital angular momentum and spin, systems of identical particles, and perturbation theory. Topics include variational method, stationary state perturbation theory, isotopic spin, second quantization, properties of angular momentum operators, and angular momentum and rotations of coordinate axes. The manuscript also ponders on functions used in quantum mechanics, relativistic quantum mechanics, and radiation theory. The publication is a dependable reference for researchers interested in quantum mechanics.

Tracking and Sensor Data Fusion Jun 18 2022 Sensor Data Fusion is the process of combining incomplete and imperfect pieces of mutually complementary sensor information in such a way that a better understanding of an underlying real-world phenomenon is achieved. Typically, this insight is either unobtainable otherwise or a fusion result exceeds what can be produced from a single sensor output in accuracy, reliability, or cost. This book provides an introduction Sensor Data Fusion, as an information technology as well as a branch of engineering science and informatics. Part I presents a coherent methodological framework, thus providing the prerequisites for discussing selected applications in Part II of the book. The presentation mirrors the author's views on the subject and emphasizes his own contributions to the development of particular aspects. With some delay, Sensor Data Fusion is likely to develop along lines similar to the evolution of another modern key technology whose origin is in the military domain, the Internet. It is the author's firm conviction that until now, scientists and engineers have only scratched the surface of the vast range of opportunities for research, engineering, and product development that still waits to be explored: the Internet of the Sensors.

Research Anthology on Privatizing and Securing Data Jul 07 2021 With the immense amount of data that is now available online, security concerns have been an issue from the start, and have grown as new technologies are increasingly integrated in data collection, storage, and transmission. Online cyber threats, cyber terrorism, hacking, and other cybercrimes have begun to take advantage of this information that can be easily accessed if not properly handled. New privacy and security measures have been developed to address this cause for concern and have become an essential area of research within the past few years and into the foreseeable future. The ways in which data is secured and privatized should be discussed in terms of the technologies being used, the methods and models for security that have been developed, and the ways in which risks can be detected, analyzed, and mitigated. The Research Anthology on Privatizing and Securing Data reveals the latest tools and technologies for privatizing and securing data across different technologies and industries. It takes a deeper dive into both risk detection and mitigation, including an analysis of cybercrimes and cyber threats, along with a sharper focus on the technologies and methods being actively implemented and utilized to secure data online. Highlighted topics include information governance and privacy, cybersecurity, data protection, challenges in big data, security threats, and more. This book is essential for data analysts, cybersecurity professionals, data scientists, security analysts, IT specialists, practitioners, researchers, academicians, and students interested in the latest trends and technologies for privatizing and securing data.

Knowledge Management Tools and Techniques Jul 19 2022 Knowledge management (KM) - or the practice of using information and collaboration technologies and processes to capture organizational learning and thereby improve business performance - is becoming one of the key disciplines in management, especially in large companies. Many books, magazines, conferences, vendors, consultancies, Web sites, online communities and email lists have been formed around this concept. This practical book focuses on the vast offerings of KM solutions—technology, content, and services. The focus is not on technology details, but on how KM and IT practitioners actually use KM tools and techniques. Over twenty case studies describe the real story of choosing and implementing various KM tools and techniques, and experts analyse the trends in the evolution of these technologies and tools, along with opportunities and challenges facing companies harnessing them. Lessons from successes and failures are drawn, along with roadmaps for companies beginning or expanding their KM practice. The introductory chapter presents a taxonomy of KM tools, identifies IT implications of KM practices, highlights lessons learned, and provides tips and recommendations for companies using these tools. Relevant literature on KM practices and key findings of market research groups and industry consortia such as IDC, Gartner and APQC, are presented. The majority of the book is devoted to case studies, featuring clients and vendors along the entire spectrum of solutions: hardware (e.g. handheld/wearable devices), software (e.g. analytics, collaboration, document management) and content (e.g. newsfeeds, market research). Each chapter is structured along the "8Cs" framework developed by the author: connectivity, content, community, commerce, community, capacity, culture, cooperation and capital. In other words, each chapter addresses how appropriate KM tools and technologies help a company on specific fronts such as fostering adequate employee access to knowledge bodies, user-friendly work-oriented content, communities of practice, a culture of knowledge, learning capacity, a spirit of cooperation, commercial and other incentives, and carefully measured capital investments and returns. Vendor history, product/service offerings, implementation details, client testimonials, ROI reports, and future trends are highlighted. Experts in the field then provide third-party analysis on trends in KM tools and technique areas, and recommendations for KM practitioners.

The Journal of Chemical Physics Feb 14 2022

Quantum and Blockchain for Modern Computing Systems: Vision and Advancements Dec 24 2022 This book states that blockchain technology provides a secure distributed, peer-to-peer, and decentralized network with advanced cryptography primitives and protocols. The important question that arises in the quantum computing world is to test the existing blockchain networks against quantum attacks and design quantum computing enabled secure blockchain solutions. This book encourages professionals from different fields to provide blockchain and quantum technology-integrated solutions that incorporate low-cost, effective QoS, fast, secure, and futuristic demands. This book has surveyed and proposed approaches that improve quantum computing and cryptography protocols. Quantum computing and quantum science are not just helpful in software but the hardware world as well. To design networks with quantum science, quantum-enabled devices like quantum memories and quantum repeaters can be useful to demonstrate for organizations. For example, designing a single quantum repeater for long-distance quantum communication is useful in reducing the network cost, and ensuring better security levels. This book has introduced the quantum computing and blockchain technology aspects, their integration approaches and future directions.

Quantum Computation and Quantum Information Feb 02 2021 One of the most cited books in physics of all time, Quantum Computation and Quantum Information remains the best textbook in this exciting field of science. This 10th anniversary edition includes an introduction from the authors setting the work in context. This comprehensive textbook describes such remarkable effects as fast quantum algorithms, quantum teleportation, quantum cryptography and quantum error-correction. Quantum mechanics and computer science are introduced before moving on to describe what a quantum computer is, how it can be used to solve problems faster than 'classical' computers and its real-world implementation. It concludes with an in-depth treatment of quantum information. Containing a wealth of figures and exercises, this well-known textbook is ideal for courses on the subject, and will interest beginning graduate students and researchers in physics, computer science, mathematics, and electrical engineering.

Communication Risks and Best Practices in Global Software Development Aug 08 2021 This book focusses on the identification of communication risks, their causes and effects and the practices to mitigate the risks from both state of the art and state of the practice perspectives. It's like puzzle solving game. According to Casey "Communication is one the biggest issue that cause due to geographical, temporal and socio-cultural distances". At the end of the book authors provide set of recommendations based on the best practices that need to be followed by the globally distributed organizations to achieve communicated environment just like co-located settings.

Microrheology Nov 18 2019 This book presents a comprehensive overview of microrheology, emphasizing the underlying theory, practical aspects of its implementation, and current applications to rheological studies in academic and industrial laboratories. The field of microrheology continues to

evolve rapidly, and applications are expanding at an accelerating pace. Readers will learn about the key methods and techniques, including important considerations to be made with respect to the materials most amenable to microrheological characterization and pitfalls to avoid in measurements and analysis. Microrheological measurements can be as straightforward as video microscopy recordings of colloidal particle Brownian motion; these simple experiments can yield rich rheological information. Microrheology covers topics ranging from active microrheology using laser or magnetic tweezers to passive microrheology, such as multiple particle tracking and tracer particle microrheology with diffusing wave spectroscopy. Overall, this introduction to microrheology informs those seeking to incorporate these methods into their own research, or simply survey and understand the growing body of microrheology literature. Many sources of archival literature are consolidated into an accessible volume for rheologist and non-specialist alike. The small sample sizes of many microrheology experiments have made it an important method for studying emerging and scarce biological materials, making this characterization method suitable for application in a variety of fields.

Non-Hermitian Quantum Mechanics Oct 30 2020 Non-Hermitian quantum mechanics (NHQM) is an important alternative to the standard (Hermitian) formalism of quantum mechanics, enabling the solution of otherwise difficult problems. The first book to present this theory, it is useful to advanced graduate students and researchers in physics, chemistry and engineering. NHQM provides powerful numerical and analytical tools for the study of resonance phenomena - perhaps one of the most striking events in nature. It is especially useful for problems whose solutions cause extreme difficulties within the structure of a conventional Hermitian framework. NHQM has applications in a variety of fields, including optics, where the refractive index is complex; quantum field theory, where the parity-time (PT) symmetry properties of the Hamiltonian are investigated; and atomic and molecular physics and electrical engineering, where complex potentials are introduced to simplify numerical calculations.

Particle Tracking Velocimetry Nov 11 2021 Particle velocimetry is a non-intrusive optical measurement method whereby global velocity fields can be obtained in either two- or three-dimensions through time by inferring fluid motion through the displacement of particle tracers which seed the flow. While particle image velocimetry (PIV), which obtains each velocity vector by tracking groups of particles within an interrogation window through a cross-correlation algorithm, has thrived generously since its development, particle tracking velocimetry (PTV), which obtains each of the velocity vector by tracking individual particle, has received less attention. The goal of this book is to therefore provide a review of PTV, with a focus on methods and techniques that have been implemented towards its development and improvement, rather than on its applications.

Uncommon Paths in Quantum Physics Jun 06 2021 Quantum mechanics is one of the most fascinating, and at the same time most controversial, branches of contemporary science. Disputes have accompanied this science since its birth and have not ceased to this day. Uncommon Paths in Quantum Physics allows the reader to contemplate deeply some ideas and methods that are seldom met in the contemporary literature. Instead of widespread recipes of mathematical physics, based on the solutions of integro-differential equations, the book follows logical and partly intuitional derivations of non-commutative algebra. Readers can directly penetrate the abstract world of quantum mechanics. First book in the market that treats this newly developed area of theoretical physics; the book will thus provide a fascinating overview of the prospective applications of this area, strongly founded on the theories and methods that it describes. Provides a solid foundation for the application of quantum theory to current physical problems arising in the interpretation of molecular spectra and important effects in quantum field theory. New insight into the physics of anharmonic vibrations, more feasible calculations with improved precision.

Genetic Algorithms and Remote Sensing Technology for Tracking Flight Debris Sep 21 2022 The tragic disappearance of the Malaysia Airlines Flight MH370 has created a need for research in the areas of aircraft transportation, and specifically flight debris tracking. As researchers and scientists continue to search for novel technologies that will assist with aeronautical detection, two modes have emerged as possible solutions. The use of remote sensing technology and genetic algorithms are techniques that scientists are beginning to use to improve aircraft trajectory models and to locate downed aircraft. Genetic Algorithms and Remote Sensing Technology for Tracking Flight Debris is an essential reference source that discusses developing tracking methods using advanced algorithms as well as satellite technologies. Featuring research on topics such as wave pattern modeling, microwave satellite data, and trajectory movement, this book is ideally designed for practitioners, researchers, oceanographers, aerospace engineers, scientists, educators, developers, analysts, and students seeking coverage on advancements in sensor and tracking technology in regard to flight dynamics.

Microscope Image Processing Apr 23 2020 Microscope Image Processing, Second Edition, introduces the basic fundamentals of image formation in microscopy including the importance of image digitization and display, which are key to quality visualization. Image processing and analysis are discussed in detail to provide readers with the tools necessary to improve the visual quality of images, and to extract quantitative information. Basic techniques such as image enhancement, filtering, segmentation, object measurement, and pattern recognition cover concepts integral to image processing. In addition, chapters on specific modern microscopy techniques such as fluorescence imaging, multispectral imaging, three-dimensional imaging and time-lapse imaging, introduce these key areas with emphasis on the differences among the various techniques. The new edition discusses recent developments in microscopy such as light sheet microscopy, digital microscopy, whole slide imaging, and the use of deep learning techniques for image segmentation and analysis with big data image informatics and management. Microscope Image Processing, Second Edition, is suitable for engineers, scientists, clinicians, post-graduate fellows and graduate students working in bioengineering, biomedical engineering, biology, medicine, chemistry, pharmacology and related fields, who use microscopes in their work and would like to understand the methodologies and capabilities of the latest digital image processing techniques or desire to develop their own image processing algorithms and software for specific applications. Presents a unique practical perspective of state-of-the-art microscope image processing and the development of specialized algorithms Each chapter includes in-depth analysis of methods coupled with the results of specific real-world experiments Co-edited by Kenneth R. Castleman, world-renowned pioneer in digital image processing and author of two seminal textbooks on the subject

Computational Methods in Systems Biology Feb 20 2020 This book constitutes the refereed proceedings of the International Conference on Computational Methods in Systems Biology, CMSB 2007, held in Edinburgh, Scotland, September 2007. The 16 revised full papers presented present a variety of techniques from computer science, such as language design, concurrency theory, software engineering, and formal methods, for biologists, physicists, and mathematicians interested in the systems-level understanding of cellular processes.

Energy Research Abstracts Dec 12 2021

Web 101 Sep 28 2020 As the Internet continues to develop as the central resource for entertainment, news, communication, and research, Web 101 continues to include all the tools readers need to acquire a foundational understanding of the online resources available today and how to take full advantage of the Web's power. Lehnert and Kopec cover the fundamentals of the Internet's most popular features--communication tools, e-mail, searching, personal safety, and software--with new material on social networking and Web construction and design. Web 101 gives readers all the background information and tools they need to become proficient users and savvy content-providers of the Internet. Getting Started; Personal Safety Online; E-mail Management; Web 2.0; Find What You Want--Fast ; Software on the Internet; E-Commerce; Encryption and the Internet; Basic Web Page Construction; Advanced Web Page Construction; HTML Character Codes; Style Sheets; File Types; Copyright Law. For all readers interested in the fundamentals of the Internet's most popular features.

Essential Quantum Optics Jan 13 2022 Covering some of the most exciting trends in quantum optics - quantum entanglement, teleportation, and levitation - this textbook is ideal for advanced undergraduate and graduate students. The book journeys through the vast field of quantum optics following a single theme: light in media. A wide range of subjects are covered, from the force of the quantum vacuum to astrophysics, from quantum measurements to black holes. Ideas are explained in detail and formulated so that students with little prior knowledge of the subject can follow them. Each chapter ends with several short questions followed by a more detailed homework problem, designed to test the reader and show how the ideas discussed can be applied. Solutions to homework problems are available at www.cambridge.org/9780521869782.

Chemical Tools for Imaging, Manipulating, and Tracking Biological Systems: Diverse Methods Based on Optical Imaging and Fluorescence Aug 20 2022 This new volume of Methods in Enzymology continues the legacy of this premier serial with quality chapters authored by leaders in the field.

Provides the authority and expertise of leading contributors from an international board of authors Presents the latest release in the Methods in Enzymology series Includes the latest information on retinoid signaling pathways

Inorganic Nanoparticles Aug 28 2020 Among the various nanomaterials, inorganic nanoparticles are extremely important in modern technologies. They can be easily and cheaply synthesized and mass produced, and for this reason, they can also be more readily integrated into applications. Inorganic Nanoparticles: Synthesis, Applications, and Perspectives presents an overview of these special materials and explores the myriad ways in which they are used. It addresses a wide range of topics, including: Application of nanoparticles in magnetic storage media Use of metal and oxide nanoparticles to improve performance of oxide thin films as conducting media in commercial gas and vapor sensors Advances in semiconductors for light-emitting devices and other areas related to the energy sector, such as solar energy and energy storage devices (fuel cells, rechargeable batteries, etc.) The expanding role of nanosized particles in the field of catalysis, art conservation, and biomedicine The book's contributors address the growing global interest in the application of inorganic nanoparticles in various technological sectors. Discussing advances in materials, device fabrication, and large-scale production—all of which are urgently required to reduce global energy demands—they cover innovations in areas such as solid-state lighting, detailing how it still offers higher efficiency but higher costs, compared to conventional lighting. They also address the impact of nanotechnology in the biomedical field, focusing on topics such as quantum dots for bioimaging, nanoparticle-based cancer therapy, drug delivery, antibacterial agents, and more. Fills the informational gap on the wide range of applications for inorganic nanoparticles in areas including biomedicine, electronics, storage media, conservation of cultural heritage, optics, textiles, and cosmetics Assembling work from an array of experts at the top of their respective fields, this book delivers a useful analysis of the vast scope of existing and potential applications for inorganic nanoparticles. Versatile as either a professional research resource or textbook, this effective tool elucidates fundamentals and current advances associated with design, characterization, and application development of this promising and ever-evolving device.

Measuring Biological Responses with Automated Microscopy Jan 01 2021 The critically acclaimed laboratory standard for more than forty years, Methods in Enzymology is one of the most highly respected publications in the field of biochemistry. Since 1955, each volume has been eagerly awaited, frequently consulted, and praised by researchers and reviewers alike. Now with more than 300 volumes (all of them still in print), the series contains much material still relevant today-truly an essential publication for researchers in all fields of life sciences.

Japanese Science and Technology Jan 21 2020

Literature 1987, Part 2 Dec 20 2019 Astronomy and Astrophysics Abstracts aims to present a comprehensive documen tation of the literature concerning all aspects of astronomy, astrophysies, and their border fields. It is devoted to the recording, summarizing, and indexing of the relevant publications throughout the world. Astronomy and Astrophysics Abstracts is prepared by a special department of the Astronomisches Rechen-Institut under the auspices of the International Astronomical Union. Volume 44 records literature published in 1987 and received before February 15, 1988. Some older documents which we received late and which are not surveyed in earlier volumes are inc1uded too. We acknowledge with thanks contributions of our colleagues all over the world. We also express our gratitude to all organiza tions, observatories, and publishers which provide us with complimentary copies of their publications. Dr. Siegfried Böhme retired from his duties as co-editor of Astronomy and Astro physics Abstracts on December 31, 1987. Since 1950 he partieipated in the biblio graphie work of the institute. He served as a reviewer for the Astronomischer Jahresbericht and became one of the editors of Astronomy and Astrophysics Ab stracts in 1969. After his retirement in 1975 he took care of, particularly, the Russian literature on a voluntary basis for 12 years. It is a pleasure to thank Siegfried Böhme for his valuable contributions. Starting with Volume 33, all the recording, correction, and data processing work was done by means of computers. The recording was done by our technical staff members Ms. Helga Ballmann, Ms. Christiane Jehn, Ms. Monika Kohl, Ms.

SSC General Awareness Chapter Wise Note Book | Complete Preparation Guide For CGL/CPO/CHSL/ GD/MTS Feb 26 2023 • Best Selling Topic Wise Book for SSC General Awareness Exam with objective-type questions as per the latest syllabus. • Increase your chances of selection by 16X. • SSC General Awareness Notes Book comes with well-structured Content & Chapter wise Practice Tests for your self-evaluation • Clear exam with good grades using thoroughly Researched Content by experts.

Robust Control for Quantum Technologies and Quantum Information Processing Nov 30 2020 We consider the robust inverse geometric optimization of arbitrary population transfers and single-qubit gates in a two-level system.Robustness with respect to pulse inhomogeneities is demonstrated.We show that for time or energy optimization, the pulse amplitude is constant, and we provide the analytic form of the detuning as Jacobi elliptic cosine.We deal with the task of robust complete population transfer on a 3-level quantum system in lambda configuration.First, we use the Lewis-Riesenfeld method to derive a family of solutions leading to an exact transfer.Among this family, we identify a tracking solution with a single parameter to control simultaneously the fidelity of the transfer, the population of the excited state, and robustness.The ultrahigh-fidelity robustness of the shaped pulses is found superior to that of Gaussian and adiabatically-optimized pulses for moderate pulse areas.Second, we apply robust inverse optimization now to generate a stimulated Raman exact passage (STIREP)considering the loss of the upper state as a characterization parameter.Control fields temporal shapes, robust against pulse inhomogeneities, that are optimal with respect to pulse area, energy, and duration, are found to form a simple sequence with a combination of intuitively (near the beginning and the end) and counter-intuitively ordered pulse pairs.Alternative robust optimal solutions featuring lower losses, larger pulse areas, and fully counter-intuitive pulse sequences are derived.

Advanced Technologies for Security Applications Nov 23 2022 Technology has been the spark that ignited NATO's interest and commitment to scientific advancement during its history. Since its creation, the Science for Peace and Security (SPS) Programme has been instrumental to NATO's commitment to innovation, science and technological advancement. During the years, SPS has demonstrated a flexible and versatile approach to practical scientific cooperation, and has promoted knowledge-sharing, building capacity, and projected stability outside NATO territory. The priorities addressed by the SPS Programme are aligned with NATO's strategic objectives, and aim to tackle emerging security challenges that require dynamic adaptation for the prevention and mitigation of risks. By addressing priorities such as advanced technologies, hybrid threats, and counter-terrorism, the Programme deals with new, contemporary challenges. On 17-18 September 2019, the SPS Programme gathered at the KU Leuven University a wide number of researchers from a selection of on-going and recently closed SPS projects in the field of security-related advanced technologies for a "Cluster Workshop on Advanced Technologies". The workshop covered, in particular, the following scientific domains: communication systems, advanced materials, sensors and detectors, and unmanned and autonomous systems. This book provides an overview on how these projects have contributed to the development of new technologies and innovative solutions and recommendations for future actions in the NATO SPS programme.

Scientific and Technical Aerospace Reports Mar 15 2022 Lists citations with abstracts for aerospace related reports obtained from world wide sources and announces documents that have recently been entered into the NASA Scientific and Technical Information Database.

Handbook of Single-Molecule Biophysics Apr 04 2021 This handbook describes experimental techniques to monitor and manipulate individual biomolecules, including fluorescence detection, atomic force microscopy, and optical and magnetic trapping. It includes single-molecule studies of physical properties of biomolecules such as folding, polymer physics of protein and DNA, enzymology and biochemistry, single molecules in the membrane, and single-molecule techniques in living cells.

E-Waste Management May 25 2020 This book offers an extensive review of e-waste management in India, the world's third-largest producer of waste from electrical and electronic equipment. With a focus on the evolution of legalframeworks in India and the world, it presents impacts and outcomes; challenges and opportunities; and management strategies and practices to deal with e-waste. First of its kind, the book examines relevant concepts and issues from across 15 disciplines and six areas of policy making and will serve as a comprehensive knowledge base on electronic waste in India. It links key themes to the global context of Sustainable Development Goals and explores the convergence with technological, infrastructural, and social initiatives in e-waste management. A range of topics are discussed, such as resource efficiency policies; circular economy; toxicity; technicalities and complexities of e-waste management including role of the informal sector and need for recognising social and human costs in

policy making. The book deals with the role of statistics; legal trends and reforms; linkages with green Agenda 2030 and UN initiatives; implementation of Extended Producer Responsibility (EPR); environmental factors; business prospects; consequences on human health; Life Cycle Impact Assessment; the 'six Rs' (Responsible use, Repair, Refurbish, Recycle, Recover and Reuse); recycling practices and problems, material flow and informal sector in trade value chain; fostering partnership between formal-informal sectors; safe disposal; alternatives to landfilling; role of jurisprudence and regulatory bodies; and education and awareness. It also includes a survey of pan-India initiatives and trajectories of law-driven initiatives for effective e-waste management along with responses from industries and producers. Timely and essential, this volume will be useful to scholars and researchers of environment studies, digital waste management, waste management, development studies, public policy, political ecology, sustainable development, technology and manufacturing, design and instrumentation, environmental and international law, taxation, commerce, electronic industry, economics, business management, metallurgy, and engineering, labour studies, as well as to policymakers, nongovernmental organisations, and interested general readers.

Microfluidics and Nanofluidics Handbook, Two Volume Set Jul 27 2020 The Microfluidics and Nanofluidics Handbook: Two-Volume Set comprehensively captures the cross-disciplinary breadth of micro- and nanofluidics, which encompass the biological sciences, chemistry, physics and engineering applications. To fill the knowledge gap between engineering and the basic sciences, the editors pulled together key individuals, w

Introduction to Quantum Optics Oct 22 2022 Covering a number of important subjects in quantum optics, this textbook is an excellent introduction for advanced undergraduate and beginning graduate students, familiarizing readers with the basic concepts and formalism as well as the most recent advances. The first part of the textbook covers the semi-classical approach where matter is quantized, but light is not. It describes significant phenomena in quantum optics, including the principles of lasers. The second part is devoted to the full quantum description of light and its interaction with matter, covering topics such as spontaneous emission, and classical and non-classical states of light. An overview of photon entanglement and applications to quantum information is also given. In the third part, non-linear optics and laser cooling of atoms are presented, where using both approaches allows for a comprehensive description. Each chapter describes basic concepts in detail, and more specific concepts and phenomena are presented in 'complements'.

- Robert Kegan The Evolving Self
- Life Recovery Bible Workbook
- Impossible To Ignore Creating Memorable Content To Influence Decisions
- Production And Operations Analysis Nahmias Solution Manual Pdf
- Consumer Health A Guide To Intelligent Decisions 9th Edition
- Gynophagia Dolcett Forum
- Mcconnell Brue Economics Answers
- Answers For Townsend Press Vocabulary Sentence Check
- Civil Liberties First Amendment Freedoms Answer Key
- Matlab For Engineers Solution Manual
- The Family A Christian Perspective On The Contemporary Home
- Narcotics Anonymous Step Working Guide
- Macroeconomics Charles I Jones Solutions
- Apartment 3a Script
- Calc Sample Examination Vi And Solutions
- Grammar And Language Workbook Answers
- Cambridge English Objective First Third Edition
- Finish Line Mathematics Grade 7 Answer Key
- The Gardens Of Democracy A New American Story Of Citizenship The Economy And The Role Of Government
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