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On the Move to Meaningful Internet Systems: OTM 2011 Sep 01 2023 The two-volume set LNCS 7044 and 7045 constitutes the refereed proceedings of three confederated international conferences: Cooperative Information Systems (CoopIS 2011), Distributed Objects and Applications - Secure Virtual Infrastructures (DOA-SVI 2011), and Ontologies, DataBases and Applications of SEmantics (ODBASE 2011) held as part of OTM 2011 in October 2011 in Hersonissos on the island of Crete, Greece. The 55 revised full papers presented were carefully reviewed and selected from a total of 141 submissions. The 27 papers included in the first volume constitute the proceedings of CoopIS 2011 and are organized in topical sections on business process repositories, business process compliance and risk management, service orchestration and workflows, intelligent information systems and distributed agent systems, emerging trends in business process support, techniques for building cooperative information systems, security and privacy in collaborative applications, and data and information management.

Flow Field Analysis of Aircraft Configurations Using a Numerical Solution to the Three-dimensional Unified Supersonic/hypersonic Small Disturbance Equations Nov 10 2021

Design Handbook of Wastewater Systems: Municipal and industrial systems Apr 15 2022

Math for the Digital Factory Aug 08 2021 This volume provides a unique collection of mathematical tools and industrial case studies in digital manufacturing. It addresses various topics, ranging from models of single production technologies, production lines, logistics and workflows to models and optimization strategies for energy consumption in production. The digital factory represents a network of digital models and simulation and 3D visualization methods for the holistic planning, realization, control and ongoing improvement of all factory processes related to a specific product. In the past ten years, all industrialized countries have launched initiatives to realize this vision, sometimes also referred to as Industry 4.0 (in Europe) or Smart Manufacturing (in the United States). Its main goals are • reconfigurable, adaptive and evolving factories capable of small-scale production • high-performance production, combining flexibility, productivity, precision and zero defects • energy and resource efficiency in manufacturing None of these goals can be achieved without a thorough modeling of all aspects of manufacturing together with a multi-scale simulation and optimization of process chains; in other words, without mathematics. To foster collaboration between mathematics and industry in this area the European Consortium for Mathematics in Industry (ECMI) founded a special interest group on Math for the Digital Factory (M4DiFa). This book compiles a selection of review papers from the M4DiFa kick-off meeting held at the Weierstrass Institute for Applied Analysis and Stochastics in Berlin, Germany, in May 2014. The workshop aimed at bringing together mathematicians working on modeling, simulation and optimization with researchers and practitioners from the manufacturing industry to develop a holistic mathematical view on digital manufacturing. This book is of interest to practitioners from industry who want to learn about important mathematical concepts, as well as to scientists who want to find out about an exciting new area of application that is of vital importance for today's highly industrialized and high-wage countries.

Principles and Practices of Automatic Process Control Apr

27 2023 A practical guide for understanding and implementing industrial control strategies. Highly practical and applied, this Third Edition of Smith and Corripio's Principles and Practice of Automatic Process Control continues to present all the necessary theory for the successful practice of automatic process control. The authors discuss both introductory and advanced control strategies, and show how to apply those strategies in industrial examples drawn from their own professional practice. Now revised, this Third Edition features: * Expanded coverage of the development of dynamic balances (Chapter 3) * A new chapter on modeling and simulation (Chapter 13) * More extensive discussion of distributive control systems * New tuning exercises (Appendix D) * Guidelines for plant-wide control and two new design case studies (Appendix B) * New operating case studies (Appendix E) * Book Website containing simulations to practice the tuning of feedback controllers, cascade controllers, and feedforward controllers, and the MATLAB(r) files for simulation examples and problem With this text, you can: * Learn the mathematical tools used in the analysis and design of process control systems. * Gain a complete understanding of the steady state behavior of processes. * Develop dynamic mathematical process models that will help you in the analysis, design, and operation of control systems. * Understand how the basic components of control systems work. * Design and tune feedback controllers. * Apply a variety of techniques that enhance feedback control, including cascade control, ratio control, override control, selective control, feedforward control, multivariable control, and loop interaction. * Master the fundamentals of dynamic simulation of process control systems using MATLAB.

Computer Vision - ECCV '94 Feb 23 2023 Computer vision - ECCV'94. -- v. 1

A Method for Determining Core Dimensions of Heat Exchanger with One Dominating Film Resistance and Verification with Experimental Data Jun 25 2020

Advances in Robot Kinematics 2018 Oct 29 2020 This is the proceedings of ARK 2018, the 16th International Symposium on Advances in Robot Kinematics, that was organized by the Group of Robotics, Automation and Biomechanics (GRAB) from the University of Bologna, Italy. ARK are international symposia of the highest level organized every two years since 1988. ARK provides a forum for researchers working in robot kinematics and stimulates new directions of research by forging links between robot kinematics and other areas.The main topics of the symposium of 2018 were: kinematic analysis of robots, robot modeling and simulation, kinematic design of robots, kinematics in robot control, theories and methods in kinematics, singularity analysis, kinematic problems in parallel robots, redundant robots, cable robots, over-constrained linkages, kinematics in biological systems, humanoid robots and humanoid subsystems.

Decisions of the United States Environmental Protection Agency Dec 24 2022

Publications of the Research Institute for Mathematical Sciences Aug 27 2020

Fluorescence In Situ Hybridization (FISH) - Application Guide May 17 2022 This book is a unique source of information on the present state of the exciting field of molecular cytogenetics and how it can be applied in research and diagnostics. The basic techniques of fluorescence in situ hybridization and primed in situ hybridization (PRINS) are outlined, the multiple approaches and probe sets that are now available for these techniques are described, and applications of them are presented in 36 chapters by authors from ten different countries around the world. The book not only provides the reader with basic and background knowledge on the topic, but also gives detailed protocols that show how molecular cytogenetics is currently performed by specialists in this field. The FISH Application Guide initially provides an overview of the (historical) development of molecular cytogenetics, its basic procedures, the equipment required, and probe generation. The book then describes tips and tricks for making different tissues available for molecular cytogenetic studies. These are followed by chapters on various

multicolor FISH probe sets, their availability, and their pot- tial for use in combination with other approaches. The possible applications that are shown encompass the characterization of marker chromosomes, cryptic cytogenetic aberrations and epigenetic changes in humans by interphase and metaphase cyto- netics, studies of nuclear architecture, as well as the application of molecular cytogenetics to zoology, botany and microbiology.

High Energy Radiation from Black Holes Apr 23 2020 Bright gamma-ray flares observed from sources far beyond our Milky Way Galaxy are best explained if enormous amounts of energy are liberated by black holes. The highest- energy particles in nature--the ultra-high-energy cosmic rays--cannot be confined by the Milky Way's magnetic field, and must originate from sources outside our Galaxy. Understanding these energetic radiations requires an extensive theoretical framework involving the radiation physics and strong-field gravity of black holes. In High Energy Radiation from Black Holes, Charles Dermer and Govind Menon present a systematic exposition of black-hole astrophysics and general relativity in order to understand how gamma rays, cosmic rays, and neutrinos are produced by black holes. Beginning with Einstein's special and general theories of relativity, the authors give a detailed mathematical description of fundamental astrophysical radiation processes, including Compton scattering of electrons and photons, synchrotron radiation of particles in magnetic fields, photohadronic interactions of cosmic rays with photons, gamma-ray attenuation, Fermi acceleration, and the Blandford-Znajek mechanism for energy extraction from rotating black holes. The book provides a basis for graduate students and researchers in the field to interpret the latest results from high-energy observatories, and helps resolve whether energy released by rotating black holes powers the highest-energy radiations in nature. The wide range of detail will make High Energy Radiation from Black Holes a standard reference for black-hole research.

Similitude and Approximation Theory Jul 27 2020

Environmental Administrative Decisions Nov 22 2022

Economic Models for Managing Cloud Services May 24 2020 The authors introduce both the quantitative and qualitative economic models as optimization tools for the selection of long-term cloud service requests. The economic models fit almost intuitively in the way business is usually done and maximize the profit of a cloud provider for a long-term period. The authors propose a new multivariate Hidden Markov and Autoregressive Integrated Moving Average (HMM-ARIMA) model to predict various patterns of runtime resource utilization. A heuristic-based Integer Linear Programming (ILP) optimization approach is developed to maximize the runtime resource utilization. It deploys a Dynamic Bayesian Network (DBN) to model the dynamic pricing and long-term operating cost. A new Hybrid Adaptive Genetic Algorithm (HAGA) is proposed that optimizes a non-linear profit function periodically to address the stochastic arrival of requests. Next, the authors explore the Temporal Conditional Preference Network (TempCP-Net) as the qualitative economic model to represent the high-level IaaS business strategies. The temporal qualitative preferences are indexed in a multidimensional k-d tree to efficiently compute the preference ranking at runtime. A three-dimensional Q-learning approach is developed to find an optimal qualitative composition using statistical analysis on historical request patterns. Finally, the authors propose a new multivariate approach to predict future Quality of Service (QoS) performances of peer service providers to efficiently configure a TempCP-Net. It discusses the experimental results and evaluates the efficiency of the proposed composition framework using Google Cluster data, real-world QoS data, and synthetic data. It also explores the significance of the proposed approach in creating an economically viable and stable cloud market. This book can be utilized as a useful reference to anyone who is interested in theory, practice, and application of economic

models in cloud computing. This book will be an invaluable guide for small and medium entrepreneurs who have invested or plan to invest in cloud infrastructures and services. Overall, this book is suitable for a wide audience that includes students, researchers, and practitioners studying or working in service-oriented computing and cloud computing.

Discrete, Continuous, and Hybrid Petri Nets Jun 17 2022 Petri Nets were introduced and still successfully used to analyze and model discrete event systems especially in engineering and computer sciences such as in automatic control. Recently this discrete Petri Nets formalism was successfully extended to continuous and hybrid systems. This monograph presents a well written and clearly organized introduction in the standard methods of Petri Nets with the aim to reach an accurate understanding of continuous and hybrid Petri Nets, while preserving the consistency of basic concepts throughout the book. The book is a monograph as well as a didactic tool which is easy to understand due to many simple solved examples and detailed figures. In its second completely reworked edition various sections, concepts and recently developed algorithms are added as well as additional examples/exercises.

Geometric Properties for Parabolic and Elliptic PDE's Apr 03 2021 The study of qualitative aspects of PDE's has always attracted much attention from the early beginnings. More recently, once basic issues about PDE's, such as existence, uniqueness and stability of solutions, have been understood quite well, research on topological and/or geometric properties of their solutions has become more intense. The study of these issues is attracting the interest of an increasing number of researchers and is now a broad and well-established research area, with contributions that often come from experts from disparate areas of mathematics, such as differential and convex geometry, functional analysis, calculus of variations, mathematical physics, to name a few. This volume collects a selection of original results and informative surveys by a group of international specialists in the field, analyzes new trends and techniques and aims at promoting scientific collaboration and stimulating future developments and perspectives in this very active area of research.

Edgewood Arsenal, Transportable Disposal System Jun 05 2021

Scientific and Technical Aerospace Reports May 29 2023

Nonlinear Differential Equations Jan 13 2022 Working with mathematical models today requires in-depth knowledge of recent methods developed for solving nonlinear differential equations. Keeping abreast of these developments is the goal of the regular meetings of nonlinear analysts held in the Czech Republic, the most recent of which formed the basis of this volume. The subject addressed by these authors is the theory of nonlinear differential equations, with focus on the quasilinear elliptic differential equations of the degenerate type. Their topics include:

Advances in Databases and Information Systems Jul 19 2022 This book constitutes the refereed proceedings of the 15th International Conference on Advances in Databases and Information Systems, ADBIS 2011, held in Vienna, Austria, in September 2011. The 30 revised full papers presented together with 2 full length invited talks were carefully reviewed and selected from 105 submissions. They are organized in topical sections on query processing; data warehousing; DB systems; spatial data; information systems; physical DB design; evolution, integrity, security; and data semantics.

Computing and Combinatorics Oct 10 2021 Chapter(s) “Chapter Name or No.” is/are available open access under a Creative Commons Attribution 4.0 International License via link.springer.com.

Department of Transportation and Related Agencies Appropriations for 1988: 1988 budget justifications, Department of Transportation, Federal Aviation Administration Jan 30 2021

NASA Technical Note May 05 2021

Integration of Constraint Programming, Artificial Intelligence, and Operations Research Dec 12 2021 The volume LNCS 12296

constitutes the papers of the 17th International Conference on the Integration of Constraint Programming, Artificial Intelligence, and Operations Research which will be held online in September 2020. The 32 regular papers presented together with 4 abstracts of fast-track papers were carefully reviewed and selected from a total of 72 submissions. Additionally, this volume includes the 4 abstracts and 2 invited papers by plenary speakers. The conference program also included a Master Class on the topic "Recent Advances in Optimization Paradigms and Solving Technology"

Applied Mathematics and Computational Intelligence Sep 08 2021 This book gathers selected papers presented at the conference of the Forum for Interdisciplinary Mathematics (FIM), held at Palau Macaya, Barcelona, on 18 to 20 November, 2015. The event was co-organized by the University of Barcelona (Spain), the Spanish Royal Academy of Economic and Financial Sciences (Spain) and the Forum for Interdisciplinary Mathematics (India). This instalment of the conference was presented with the title "Applied Mathematics and Computational Intelligence" and particularly focused on the use of Mathematics and Computational Intelligence techniques in a diverse range of scientific disciplines, as well as their applications in real-world problems. The book presents thirty peer-reviewed research papers, organised into four topical sections: on Mathematical Foundations; Computational Intelligence and Optimization Techniques; Modelling and Simulation Techniques; and Applications in Business and Engineering. This book will be of great interest to anyone working in the area of applied mathematics and computational intelligence and will be especially useful for scientists and graduate students pursuing research in these fields.

Recycled Ceramics in Sustainable Concrete Jun 29 2023 Recycled Ceramics in Sustainable Concrete: Properties and Performance explores the use of novel waste materials in the construction industry as sustainable and environmentally friendly alternatives to traditional cement production technologies. It specifically focuses on using waste ceramics as a binder and aggregate replacement for concrete. Includes a lifecycle assessment Describes recycling of ceramic tile waste as fine and coarse aggregate replacement Discusses microstructure performance of sustainable concrete Evaluates performance of sustainable concrete exposed to elevated temperatures and corrosives Written for materials, chemical, and civil engineers as well as others who develop construction materials, this book provides readers with a thorough understanding of the merits of using waste ceramics to produce sustainable concrete. .

Geopolymers as Sustainable Surface Concrete Repair Materials Jan 25 2023 The progressive deterioration of concrete surface structures is a major concern in construction engineering that requires precise repairing. While a number of repair materials have been developed, geopolymer mortars have been identified as potentially superior and environmentally friendly high-performance construction materials, as they are synthesized by selectively combining waste materials containing alumina and silica compounds which are further activated by a strong alkaline solution. Geopolymers as Sustainable Surface Concrete Repair Materials offers readers insights into the synthesis, properties, benefits and applications of geopolymer-based materials for concrete repair. • Discusses manufacturing and design methods of geopolymer-based materials • Assesses mechanical strength and durability of geopolymer-based materials under different aggressive environmental conditions • Characterizes the microstructure of these materials using XRD, SEM, EDX, TGA, DTG and FTIR measurements • Describes application of geopolymer-based materials as surface repair materials • Compares environmental and cost benefits against those of traditional OPC and commercial repair materials This book is written for researchers and professional engineers working with concrete materials, including civil and materials engineers.

Introduction to

Servomechanism System Design Sep 20 2022

Western Canner and Packer Mar 03 2021

Standard Potentials in Aqueous Solution Jan 01 2021 The best available collection of thermodynamic data!The first-of-its-kind in over thirty years, this up-to-date book presents the current knowledgeon Standard Potentials in Aqueous Solution.Written by leading international experts and initiated by the IUPAC Commissions onElectrochemistry and Electroanalytical Chemistry, this remarkable work begins with athorough review of basic concepts and methods for determining standard electrodepotentials. Building upon this solid foundation, this convenient source proceeds to discussthe various redox couples for every known element.The chapters of this practical, time-saving guide are organized in order of the groups ofelements on the periodic table, for easy reference to vital material . AND each chapteralso contains the fundamental chemistry of elements ... numerous equations of chemicalreactions .. . easy-to-read tables of thermodynamic data . . . and useful oxidation-statediagrams.Standard Potentials in Aqueous Solution is an ideal, handy reference for analytical andphysical chemists, electrochemists, electroanalytical chemists, chemical engineers, biochemists,inorganic and organic chemists, and spectroscopists needing information onreactions and thermodynamic data in inorganic chemistry . And it is a valuable supplementarytext for undergraduate- and graduate-level chemistry students.

Model Calibration and Parameter Estimation Nov 30 2020 This three-part book provides a comprehensive and systematic introduction to these challenging topics such as model calibration, parameter estimation, reliability assessment, and data collection design. Part 1 covers the classical inverse problem for parameter estimation in both deterministic and statistical frameworks, Part 2 is dedicated to system identification, hyperparameter estimation, and model dimension reduction, and Part 3 considers how to collect data and construct reliable models for prediction and decision-making. For the first time, topics such as multiscale inversion, stochastic field parameterization, level set method, machine learning, global sensitivity analysis, data assimilation, model uncertainty quantification, robust design, and goal-oriented modeling, are systematically described and summarized in a single book from the perspective of model inversion, and elucidated with numerical examples from environmental and water resources modeling. Readers of this book will not only learn basic concepts and methods for simple parameter estimation, but also get familiar with advanced methods for modeling complex systems. Algorithms for mathematical tools used in this book, such as numerical optimization, automatic differentiation, adaptive parameterization, hierarchical Bayesian, metamodeling, Markov chain Monte Carlo, are covered in details. This book can be used as a reference for graduate and upper level undergraduate students majoring in environmental engineering, hydrology, and geosciences. It also serves as an essential reference book for professionals such as petroleum engineers, mining engineers, chemists, mechanical engineers, biologists, biology and medical engineering, applied mathematicians, and others who perform mathematical modeling.

Numerical Analysis and Optimization Jul 31 2023 This volume contains 13 selected keynote papers presented at the Fourth International Conference on Numerical Analysis and Optimization. Held every three years at Sultan Qaboos University in Muscat, Oman, this conference highlights novel and advanced applications of recent research in numerical analysis and optimization. Each peer-reviewed chapter featured in this book reports on developments in key fields, such as numerical analysis, numerical optimization, numerical linear algebra, numerical differential equations, optimal control, approximation theory, applied mathematics, derivative-free optimization methods, programming models, and challenging applications that frequently arise in statistics, econometrics, finance, physics,

medicine, biology, engineering and industry. Any graduate student or researched wishing to know the latest research in the field will be interested in this volume. This book is dedicated to the late Professors Mike JD Powell and Roger Fletcher, who were the pioneers and leading figures in the mathematics of nonlinear optimization.

Similitude and Approximation Theory Oct 22 2022 There are a number of reasons for producing this edition of Simili tude and Approximation Theory. The methodologies developed remain important in many areas of technical work. No other equivalent work has appeared in the two decades since the publication of the first edition. The materials still provide an important increase in understanding for first-year graduate students in engineering and for workers in research and development at an equivalent level. In addition, consulting experiences in a number of industries indi cate that many technical workers in research and development lack knowledge of the methodologies given in this work. This lack makes the work of planning and controlling computations and experiments less efficient in many cases. It also implies that the coordinated grasp of the phenomena (which is so critical to effective research and develop ment work) will be less than it might be. The materials covered in this work focus on the relationship between mathematical models and the physical reality such models are intended v vi Preface to the Springer Edition to portray. Understanding these relationships remains a key factor in simplifying and generalizing correlations, predictions, test programs, and computations. Moreover, as many teachers of engineering know, this kind of understanding is typically harder for students to develop than an understanding of either the mathematics or the physics alone.

Environmental Administrative Decisions Aug 20 2022

Department of Transportation and related agencies appropriations for 1988 Sep 28 2020

Frontiers of Nonequilibrium Statistical Physics Feb 11 2022 The four-week period fran May 20 to June 16, 1984 was an intensive period of advanced study on the foundations and frontiers of nonequili brium statistical physics (NSP). During the first two weeks of this period, an advanced-study course on the "Foundations of NSP" was con ducted in Albuquerque under the sponsorship of the University of New Mexico Center for High-Technology Materials. This was followed by a two-week NATO Advanced Study Insti tute on the "Frontiers of NSP" in Santa Fe under the same directorship. Many Students attended both meetings. This book comprises proceedings based on those lectures and covering a broad spectrum of topics in NSP ranging fran basic problems in quantum measurement theory to analogies between lasers and Darwinian evolution. The various types of quantum distribution functions and their uses are treated by several authors. other tools of NSP, such as Langevin equations, Fokker-Planck equations, and master equations, are developed and applied to areas such as laser physics, plasma physics, Brownian motion, and hydrodynamic instabilities. The properties and experimental detection of squeezed states and antibunching are described, as well as experimental tests of the violation of Bell's inequality. Information theory, mean-field theory, reservoir theory, entropy maximization, and even a novel nonlinear generalization of quantum mechanics are used to discuss nonequilibrium phenanena and the approach toward thermodynamic equilibrium.

Handbook of Research on Business Process Modeling Mar 27 2023 "This book aids managers in the transformation of organizations into world-class competitors through business process applications"--Provided by publisher.

Practical Heat Jul 07 2021

The Wright Company Mar 15 2022 Fresh from successful flights before royalty in Europe, and soon after thrilling hundreds of thousands of people by flying around the Statue of Liberty, in the fall of 1909 Wilbur and Orville Wright decided the time was right to begin manufacturing their airplanes for sale. Backed by Wall Street tycoons, including August Belmont, Cornelius Vanderbilt III, and Andrew Freedman, the brothers formed

the Wright Company. The Wright Company trained hundreds of early aviators at its flight schools, including Roy Brown, the Canadian pilot credited with shooting down Manfred von Richtofen—the "Red Baron"—during the First World War; and Hap Arnold, the commander of the U.S. Army Air Forces during the Second World War. Pilots with the company's exhibition department thrilled crowds at events from Winnipeg to Boston, Corpus Christi to Colorado Springs. Cal Rodgers flew a Wright Company airplane in pursuit of the $50,000 Hearst Aviation Prize in 1911. But all was not well in Dayton, a city that hummed with industry, producing cash registers, railroad cars, and many other products. The brothers found it hard to transition from running their own bicycle business to being corporate executives responsible for other people's money. Their dogged pursuit of enforcement of their 1906 patent—especially against Glenn Curtiss and his company—helped hold back the development of the U.S. aviation industry. When Orville Wright sold the company in 1915, more than three years after his brother's death, he was a comfortable man—but his company had built only 120 airplanes at its Dayton factory and Wright Company products were not in the U.S. arsenal as war continued in Europe. Edward Roach provides a fascinating window into the legendary Wright Company, its place in Dayton, its management struggles, and its effects on early U.S. aviation.