2 Quantum Logarithm For Non Local Coordination

This book presents fundamental theoretical results for designing object-oriented programming languages for controlling swarms. It studies the logics of swarm behaviours. According to behaviourism, all behaviours can be controlled or even managed by stimuli in the environment: attractants (motivational reinforcement) and repellents (motivational punishment). At the same time, there are two main stages in reactions to stimuli: sensing (perceiving signals) and motoring (appropriate direct reactions to signals). This book examines the strict limits of behaviourism from the point of view of symbolic logic and algebraic mathematics: how far can animal behaviours be controlled by the topology of stimuli? On the one hand, we can try to design reversible logic gates in which the number of inputs is the same as the number of outputs. In this case, the behaviouristic stimuli are inputs in swarm computing and appropriate reactions at the motoring stage are its outputs. On the other hand, the problem is that even at the sensing stage each unicellular organism can be regarded as a logic gate in which the number of outputs (means of perceiving signals) greatly exceeds the number of inputs (signals).

The three-volume set, LNCS 11692, LNCS 11693, and LNCS 11694, constitutes the refereed proceedings of the 39th Annual International Cryptology Conference, CRYPTO 2019, held in Santa Barbara, CA, USA, in August 2019. The 81 revised full papers presented were carefully reviewed and selected from 378 submissions. The papers are organized in the following topical sections: Part I: Award papers; lattice-based ZK; symmetric cryptography; mathematical cryptanalysis; proofs of storage; non-malleable codes; SNARKs and blockchains; homomorphic cryptography; leakage models and key reuse. Part II: MPC communication complexity; symmetric cryptanalysis; (post) quantum cryptography; leakage resilience; memory hard functions and privacy amplification; attribute based encryption; foundations. Part III: Trapdoor functions; zero knowledge I; signatures and messaging; obfuscation; watermarking; secure computation; various topics; zero knowledge II; key exchange and broadcast encryption.

Draws together all the basic principles of vortex dynamics in neutral superfluids in one comprehensive volume.

This book shows that with minimal modifications of postulates of non-relativistic quantum mechanics to allow for non-unitary representations of symmetry groups (Lorentz group in particular), one achieves a fully relativistic quantum theory without any of the issues (like negative energies, etc.) that led to the second quantization and QFT. It is shown that quite a few phenomena in elementary particle physics (like for example neutral kaon mixing, CP symmetry and it's supposed breaking) can be explained purely as a consequence of relativistic invariance and relativistic invariance alone. It is shown that by categorizing mesons via the representation of Lorentz group they belong to, one can explain a lot of their properties, as well as a lot of discrepancies in the particle data tables. It is also shown that based on properties of Lorentz representations of products of meson decays, a lot of excited states listed in PDG tables are really several different excitations with similar masses. Relativistic treatment of bound states in momentum space is developed and used to calculate decay widths of various composite particles like Positronium or mesons, and then those decay widths are used to calculate various properties of quarks (like their masses or charges) that were previously misunderstood. In particular, it is shown that quarks are actually quite heavy (around 3.5GeV for up/down quarks) and that while Lorentz invariance allows both fractional values (2/3, -1/3) as well as integer values (2,1), based on (very sparse) available

experimental data, integer quark charges are more consistent with observed decay widths than fractional charges.

27th International Conference on the Theory and Application of Cryptology and Information Security, Singapore, December 6–10, 2021, Proceedings, Part I

Computational and Experimental Group Theory

7th International Conference, FDSE 2020, Quy Nhon, Vietnam, November 25–27, 2020, Proceedings

Progress in Physics, vol. 4/2015

Non-Relativistic Quantum Mechanics

The Dynamical Paradigm of Nature

STACS 2002

This book constitutes the refereed proceedings of the 32nd International Colloquium on Automata, Languages and Programming, ICALP 2005, held in Lisbon, Portugal in July 2005.The 113 revised full papers presented together with abstracts of 5 invited talks were carefully reviewed and selected from 407 submissions. The papers address all current issues in theoretical computer science and are organized in topical sections on data structures, cryptography and complexity, cryptography and distributed systems, graph algorithms, security mechanisms, automata and formal languages, signature and message authentication, algorithmic game theory, automata and logic, computational algebra, cache-oblivious algorithms and algorithmic engineering, on-line algorithms, security protocols logic, random graphs, concurrency, encryption and related primitives, approximation algorithms, games, lower bounds, probability, algebraic computation and communication complexity, string matching and computational biology, quantum complexity, analysis and verification, geometry and load balancing, concrete complexity and codes, and model theory and model checking.

Sebastian Pape discusses two different scenarios for authentication. On the one hand, users cannot trust their devices and nevertheless want to be able to do secure authentication. On the other hand, users may not want to be tracked while their service provider does not want them to share their credentials. Many users may not be able to determine whether their device is trustworthy, i.e. it might contain malware. One solution is to use visual cryptography for authentication. The author generalizes this concept to human decipherable encryption schemes and establishes a relationship to CAPTCHAS. He proposes a new security model and presents the first visual encryption scheme which makes use of noise to complicate the adversary's task. To prevent service providers from keeping their users under surveillance, anonymous credentials may be used. However, sometimes it is desirable to prevent the users from sharing their credentials. The author compares existing approaches based on non-transferable anonymous credentials and proposes an approach which combines biometrics and smartcards.

The four-volume proceedings LNCS 13090, 13091, 13092, and 13093 constitutes the proceedings of the 27th International Conference on the Theory and Application of Cryptology and Information Security, ASIACRYPT 2021, which was held during December 6-10, 2021. The conference was planned to take place in Singapore, but changed to an online format due to the COVID-19 pandemic. The total of 95 full papers presented in these proceedings was carefully reviewed and selected from 341 submissions. The papers were organized in topical sections as follows: Part I: Best paper awards; public-key cryptanalysis; symmetric key cryptoanalysis; quantum security; Part II: physical attacks, leakage and countermeasures; multiparty computation; enhanced public-key encryption and time-lock puzzles; real-world protocols;

Part III: NIZK and SNARKs; theory; symmetric-key constructions; homomorphic encryption and encrypted search; Part IV: Lattice cryptanalysis; post-quantum cryptography; advanced encryption and signatures; zero-knowledge proofs, threshold and multi-signatures; authenticated key exchange.

An extension of Dr. Schwinger's two previous classic works, this volume contains four sections in addition to the previous sections of Electrodynamics II, which were concerned with the two-particle problem, and applications to hydrogenic atoms, positronium, and muonium.

Log-Gases and Random Matrices (LMS-34)

Dynamics of Quantised Vortices in Superfluids

Using Visual Cryptography and Non-Transferable Credentials in Practise

34th International Symposium, MFCS 2009, Novy Smokovec, High Tatras, Slovakia, August 24-28, 2009, Proceedings

Mathematical Foundations of Computer Science 2009

Hopping and Related Phenomena

The essays in this book look at the question of whether physics can be based on information, or – as John Wheeler phrased it – whether we can get “It from Bit”. They are based on the prize-winning essays submitted to the FQXi essay competition of the same name, which drew over 180 entries. The eighteen contributions address topics as diverse as quantum foundations, entropy conservation, nonlinear logic and countable spacetime. Together they provide stimulating reading for all physics aficionados interested in the possible role(s) of information in the laws of nature. The Foundational Questions Institute, FQXi, catalyzes, supports, and disseminates research on questions at the foundations of physics and cosmology, particularly new frontiers and innovative ideas integral to a deep understanding of reality, but unlikely to be supported by conventional funding sources.

This book constitutes the proceedings of the 7th International Conference on Future Data and Security Engineering, FDSE 2020, which was supposed to be held in Quy Nhon, Vietnam, in November 2020, but the conference was held virtually due to the COVID-19 pandemic. The 24 full papers (of 53 accepted full papers) presented together with 2 invited keynotes were carefully reviewed and selected from 161 submissions. The other 29 accepted full and 8 short papers are included in CCIS 1306. The selected papers are organized into the following topical headings: security issues in big data; big data analytics and distributed systems; advances in big data query processing and optimization; blockchain and applications; industry 4.0 and smart city: data analytics and security; advanced studies in machine learning for security; and emerging data management systems and applications.

This book constitutes the refereed proceedings of the 34th International Symposium on Mathematical Foundations of Computer Science, MFCS 2009, held in Novy Smokovec, High Tatras, Slovakia, in August 2009. The 56 revised full papers presented together with 7 invited lectures were carefully reviewed and

selected from 148 submissions. All current aspects in theoretical computer science and its mathematical foundations are addressed, including algorithmic game theory, algorithmic tearning theory, algorithms and data structures, automata, grammars and formal languages, bioinformatics, complexity, computational geometry, computer-assisted reasoning, concurrency theory, cryptography and security, databases and knowledge-based systems, formal specifications and program development, foundations of computing, logic in computer science, mobile computing, models of computation, networks, parallel and distributed computing, quantum computing, semantics and verification of programs, theoretical issues in artificial intelligence.

This review volume contains articles on the recent developments, new ideas, as well as controversial issues dealing with the general phenomena of hopping transport in disordered systems. Examples of hopping systems of current interest are polymers and biological materials, mesoscopic systems, two- and one-dimensional systems such as MOSFETs, semiconductors near the metal-nonmetal transition, and the new high temperature superconducting materials (in their normal state). The fundamental problems addressed include effects of static and dynamic interactions with phonons, Coulomb interaction, new magnetic effects due to coherent scattering, effects of high electric fields, and relaxation phenomena.

Contents:Capacitance Measurements of the Dynamics of Screening in the Electron Glass (D Monroe)Hopping Conductivity and Magnetic Transitions of the Cu2+ Spins in Single-Crystal La2CuO4+y (T Thio et al.)Conduction in Granular Metals, Failure of the Coulomb Gap Model (C J Adkins)Simulation Studies of Electronic States in Compensated Si:P System (M Eto & H Kamimura)Interactions and Quantum Interference in Variable-Range-Hopping Regime in n-Type GaAs (F Tremblay et al.)High Field Hopping and Negative Differential Conductance in Weakly Compensated Silicon (D I Aladshvili et al.)Large Bipolarons: Formation, Motion, Superconductivity (D Emin)Low Temperature Transport in a-Si:H (M Silver & M Kemp)Ionic Diffusion in Polymer Electrolytes: Dynamics Disorder Hopping Models (M A Ratner & S D Druger)and other papers Readership: Condensed matter physicists and polymer scientists.

AMS-ASL Joint Special Session, Interactions Between Logic, Group Theory, and Computer Science, January 15-16, 2003, Baltimore, Maryland

Explanation, Prediction, and Confirmation

The Journal on Advanced Studies in Theoretical and Experimental Physics, including Related Themes from Mathematics

The Physics of the Quark-Gluon Plasma

Non-minimal Higgs Inflation and Frame Dependence in Cosmology

Energy Research Abstracts

35th International Symposium, MFCS 2010, Brno, Czech Republic, August 23-27, 2010, Proceedings

Papers on Unmatter, Harmonic Quantum Oscillators, Vacuum Polarization, Scale-Invariant Models, Superluminal Reference, Heuristic Model and so on. “Angel particle” bearing properties of both particles and anti-particles, which was recently discovered by the Stanford team of experimental physicists, is usually associated with Majorana fermions (predicted in 1937 by Ettore Majorana). In this message we point out that particles bearing properties of both matter and anti-matter were as well predicted without any connexion with particle physics, but on the basis of pure mathematics, namely — neutrosophic logic which is a generalization of fuzzy and intuitionistic fuzzy logics in mathematics.

This thesis explores the idea that the Higgs boson of the Standard Model and the cosmological inflation are just two manifestations of one and the same scalar field - the Higgs-inflation. By this unification two energy scales that are separated by many orders of magnitude are connected, thereby building a bridge between particle physics and cosmology. An essential ingredient for making this model consistent with observational data is a strong non-minimal coupling to gravity. Predictions for the value of the Higgs mass as well as for cosmological parameters are derived, and can be tested by future experiments. The results become especially exciting in the light of the recently announced discovery of the Higgs boson. The model of non-minimal Higgs inflation is also used in a quantum cosmological context to predict initial conditions for inflation. These results can in turn be tested by the detection of primordial gravitational waves. The presentation includes all introductory material about cosmology and the Standard Model that is essential for the further understanding. It also provides an introduction to the mathematical methods used to calculate the effective action by heat kernel methods.

This book encompasses our current understanding of the ensemble approach to many-body physics, phase transitions and other thermal phenomena, as well as the quantum foundations of linear response theory, kinetic equations and stochastic processes. It is destined to be a standard text for graduate students, but it will also serve the specialist-researcher in this fascinating field; some more elementary topics have been included in order to make the book self-contained. The historical methods of J Willard Gibbs and Ludwig Boltzmann, applied to the quantum description rather than phase space, are featured. The tools for computations in the microcanonical, canonical and grand-canonical ensembles are carefully developed and then applied to a variety of classical and standard quantum situations. After the language of second quantization has been introduced, strongly interacting systems, such as quantum liquids, superfluids and superconductivity, are treated in detail. For the connoisseur, there is a section on diagrammatic methods and applications. In the second part dealing with non-equilibrium processes, the emphasis is on the quantum foundations of Markovian behaviour and irreversibility via the Pauli–Van Hove master equation. Justifiable linear response expressions and the quantum-Boltzmann approach are discussed and applied to various condensed matter problems. From this basis the Onsager–Casimir relations

are derived, together with the mesoscopic master equation, the Langevin equation and the Fokker–Planck truncation procedure. Brownian motion and modern stochastic problems such as fluctuations in optical signals and radiation fields briefly make the round.

The present volume studies the application of concepts from non-equilibrium thermodynamics to a variety of research topics. Emphasis is on the Maximum Entropy Production (MEP) principle and applications to Geosphere-Biosphere couplings. Written by leading researchers from a wide range of backgrounds, the book presents a first coherent account of an emerging field at the interface of thermodynamics, geophysics and life sciences.

Life, Earth, and Beyond

(New and Revised Printing)

Behavioral Predictive Modeling in Economics

Proceedings of the International Workshop

Quantum Mechanics with Non-Unitary Symmetries

Proceedings : Fifteenth Annual IEEE Conference on Computational Complexity : July 4-7, 2000, Florence, Italy

Non-equilibrium Thermodynamics and the Production of Entropy

The aim of this book is to offer to the next generation of young researchers a broad and largely self-contained introduction to the physics of heavy ion collisions and the quark-gluon plasma, providing material beyond that normally found in the available textbooks. For each of the main aspects - QCD thermodynamics and global features of the QGP, collision hydrodynamics, electromagnetic probes, jet and quarkonium production, color glass condensate, and the gravity connection - the present volume provides extensive and pedagogical lectures, surveying the present status of both theory and experiment. A particular feature of this volume is that all lectures have been written with the active assistance of selected students present at the course in order to ensure the adequate level and coverage for the intended readership.

In recent years, remarkable progress in the fabrication of novel mesoscopic devices has produced a revival of interest in quantum Hall physics. New types of measurements, more precise and efficient than ever, have made it possible to focus closely on the electronic properties of quantum Hall edge states. This is achieved by applying charge and heat currents at mesoscopic length scales, attaching metallic gates and Ohmic contacts, and splitting edge channels with the help of quantum point contacts. The experiments reveal fascinating new phenomena, such as the interference, statistics, and topological phase shifts of fractionally charged quasi-particles, strong interaction and correlation effects, and phase transitions induced by non-Gaussian fluctuations. The thesis discusses some puzzling results of these experiments and presents a coherent picture of mesoscopic effects in quantum Hall systems, which accounts for integer and fractional filling factors and ranges from microscopic theory to effective models, and covers both equilibrium and non-equilibrium

phenomena.

Our time is characterized by an explosive growth in the use of ever more complicated and sophisticated (computer) models. These models rely on dynamical systems theory for the interpretation of their results and on probability theory for the quantification of their uncertainties. A conscientious and intelligent use of these models requires that both these theories are properly understood. This book is to provide such understanding. It gives a unifying treatment of dynamical systems theory and probability theory. It covers the basic concepts and statements of these theories, their interrelations, and their applications to scientific reasoning and physics. The book stresses the underlying concepts and mathematical structures but is written in a simple and illuminating manner without sacrificing too much mathematical rigor. The book is aimed at students, post-docs, and researchers in the applied sciences who aspire to better understand the conceptual and mathematical underpinnings of the models that they use. Despite the peculiarities of any applied science, dynamics and probability are the common and indispensable tools in any modeling effort. The book is self-contained, with many technical aspects covered in appendices, but does require some basic knowledge in analysis, linear algebra, and physics. Peter M ü ller, now a professor emeritus at the University of Hawaii, has worked extensively on ocean and climate models and the foundations of complex system theories.

This book develops and simplifies the concept of quantum mechanics based on the postulates of quantum mechanics. The text discusses the technique of disentangling the exponential of a sum of operators, closed under the operation of commutation, as the product of exponentials to simplify calculations of harmonic oscillator and angular momentum. Based on its singularity structure, the Schr ö dinger equation for various continuous potentials is solved in terms of the hypergeometric or the confluent hypergeometric functions. The forms of the potentials for which the one-dimensional Schr ö dinger equation is exactly solvable are derived in detail. The problem of identifying the states of two-level systems which have no classical analogy is addressed by going beyond Bell-like inequalities and separability. The measures of quantumness of mutual information in two two-level systems is also covered in detail.

Advances in Cryptology - CRYPTO 2019

Information Security and Cryptology

The Mathematical Theory of Non-uniform Cases

Future Data and Security Engineering

25 JEE MAIN Mock Papers Practice eBook

Computational Complexity

12th International Conference, Inscrypt 2016, Beijing, China, November 4-6, 2016, Revised Selected Papers

This book presents both methodological papers on and examples of applying behavioral predictive models to specific economic problems, with a focus on how to take into account people's behavior when making economic predictions. This is an important issue, since traditional economic models assumed that people make wise economic decisions based on a detailed rational analysis of all the relevant aspects. However, in reality – as Nobel Prize-winning research has shown – people have a limited ability to process information and, as a result, their decisions are not always optimal. Discussing the need for prediction-oriented statistical techniques, since many statistical methods currently used in economics focus more on model fitting and do not always lead to good predictions, the book is a valuable resource for researchers and students interested in the latest results and challenges and for practitioners wanting to learn how to use state-of-the-art techniques.

The three volume-set LNCS 11476, 11477, and 11478 constitute the thoroughly refereed proceedings of the 38th Annual International Conference on the Theory and Applications of Cryptographic Techniques, EUROCRYPT 2019,held in Darmstadt, Germany, in May 2019. The 76 full papers presented were carefully reviewed and selected from 327 submissions. The papers are organized into the following topical sections: ABE and CCA security; succinct arguments and secure messaging; obfuscation; block ciphers; differential privacy; bounds for symmetric cryptography; non-malleability; blockchain and consensus; homomorphic primitives; standards; searchable encryption and ORAM; proofs of work and space; secure computation; quantum, secure computation and NIZK, lattice-based cryptography; foundations; efficient secure computation; signatures; information-theoretic cryptography; and cryptanalysis.

ADDA247 is launching a "25 JEE MAIN Practice Mock Papers eBook" for JEE MAIN. This eBook is updated as per the latest examination pattern and is suitable for other competitive exams. The aim of this eBook is to help students learn and understand the new pattern of recruitment exams which will help them to maximize their scores in the competitive examination. The ebook has been prepared by experienced faculties, subject-matter experts and with the expertise of Adda247 keeping the new pattern and challenges of competitive exams in mind. Salient Features of the JEE MAIN Mock Papers eBook - 25 Full-Length Practice Papers - Based on the latest pattern - Detailed Solution of Mathematics, Physics & Chemistry - English Medium

Random matrix theory, both as an application and as a theory, has evolved rapidly over the past fifteen years. Log-Gases and Random Matrices gives a comprehensive account of these developments, emphasizing log-gases as a physical picture and heuristic, as well as covering topics such as beta ensembles and Jack polynomials. Peter Forrester presents an encyclopedic development of log-gases and random matrices viewed as examples of integrable or exactly solvable systems. Forrester develops not only the application and theory of Gaussian and circular ensembles of classical random

matrix theory, but also of the Laguerre and Jacobi ensembles, and their beta extensions. Prominence is given to the computation of a multitude of Jacobians; determinantal point processes and orthogonal polynomials of one variable; the Selberg integral, Jack polynomials, and generalized hypergeometric functions; Painlev é transcendents; macroscopic electrostatistics and asymptotic formulas; nonintersecting paths and models in statistical mechanics; and applications of random matrix theory. This is the first textbook development of both nonsymmetric and symmetric Jack polynomial theory, as well as the connection between Selberg integral theory and beta ensembles. The author provides hundreds of guided exercises and linked topics, making Log-Gases and Random Matrices an indispensable reference work, as well as a learning resource for all students and researchers in the field.

Equilibrium and Non-Equilibrium Statistical Mechanics

Quantum Computation and Quantum Information

32nd International Colloquium, ICALP 2005, Lisbon, Portugal, July 11-15, 2005 ; Proceedings

Progress in Physics, Vol. 13, No. 4, 2017

39th Annual International Cryptology Conference, Santa Barbara, CA, USA, August 18–22, 2019, Proceedings, Part III

Non-perturbative Methods and Lattice QCD

Physics Briefs

Quantum Mechanics with Non-Unitary SymmetriesMarsonia Press LLC

This volume constitutes the refereed proceedings of the 35th International Symposium on Mathematical Foundations of Computer Science, MFCS 2010, held in Brno, Czech Republic, in August 2010. The 56 revised full papers presented together with 5 invited talks were carefully reviewed and selected from 149 submissions. Topics covered include algorithmic game theory, algorithmic learning theory, algorithms and data structures, automata, grammars and formal languages, bioinformatics, complexity, computational geometry, computer-assisted reasoning, concurrency theory, cryptography and security, databases and knowledge-based systems, formal specifications and program development, foundations of computing, logic in computer science, mobile computing, models of computation, networks, parallel and distributed computing, quantum computing, semantics and verification of programs, and theoretical issues in artificial intelligence.

Lattice field theory is the most reliable tool for investigating non-perturbative phenomena in particle physics. It has also become a cross-discipline, overlapping with other physical sciences and computer science. This book covers new developments in the area of algorithms, statistical physics, parallel computers and quantum computation, as well as recent advances concerning the standard model and beyond, the QCD vacuum, the glueball, hadron and quark masses, finite temperature and density, chiral fermions, SUSY, and heavy quark effective theory.

First-ever comprehensive introduction to the major new subject of quantum computing and quantum information.

38th Annual International Conference on the Theory and Applications of Cryptographic Techniques, Darmstadt, Germany, May 19–23, 2019, Proceedings, Part II

Proceedings
Physikalische Berichte
Mathematical Foundations of Computer Science 2010
19th Annual Symposium on Theoretical Aspects of Computer Science, Antibes - Juan Les Pins, France, March 14-16, 2002, Proceedings
A Handbook of Markovian and Non-Markovian Quantum Stochastic Methods with Applications to Quantum Optics
Particles, Sources, And Fields

This book constitutes the refereed proceedings of the 19th Annual Symposium on Theoretical Aspects of Computer Science, STACS 2002, held in Antibes - Juan les Pins, France, in March 2002. The 50 revised full papers presented together with three invited papers were carefully reviewed and selected from a total of 209 submissions. The book offers topical sections on algorithms, current challenges, computational and structural complexity, automata and formal languages, and logic in computer science.

This volume, the second in the Springer series Philosophy of Science in a European Perspective, contains selected papers from the workshops organised by the ESF Research Networking Programme PSE (The Philosophy of Science in a European Perspective) in 2009. Five general topics are addressed: 1. Formal Methods in the Philosophy of Science; 2. Philosophy of the Natural and Life Sciences; 3. Philosophy of the Cultural and Social Sciences; 4. Philosophy of the Physical Sciences; 5. History of the Philosophy of Science. This volume is accordingly divided in five sections, each section containing papers coming from the meetings focussing on one of these five themes. However, these sections are not completely independent and detached from each other. For example, an important connecting thread running through a substantial number of papers in this volume is the concept of probability: probability plays a central role in present-day discussions in formal epistemology, in the philosophy of the physical sciences, and in general methodological debates---it is central in discussions concerning explanation, prediction and confirmation. The volume thus also attempts to represent the intellectual exchange between the various fields in the philosophy of science that was central in the ESF workshops.

Quantum information describes the new field which bridges quantum physics and information

science. The quantum world allows for completely new architectures and protocols. While originally formulated in continuous quantum variables, the field worked almost exclusively with discrete variables, such as single photons and photon pairs. The renaissance of continuous variables came with European research consortia such as ACQUIRE (Advanced Coherent Quantum Information Research) in the late 1990s, and QUICOV (Quantum Information with Continuous Variables) from 2000-2003. The encouraging research results of QUICOV and the new conference series CVQIP (Continuous Variable Quantum Information Processing) triggered the idea for this book.This book presents the state of the art of quantum information with continuous quantum variables. The individual chapters discuss results achieved in QUICOV and presented at the first five CVQIP conferences from 2002-2006. Many world-leading scientists working on continuous variables outside Europe also contribute to the book./a

Since its origin in the early 20th century, combinatorial group theory has been primarily concerned with algorithms for solving particular problems on groups given by generators and relations: word problems, conjugacy problems, isomorphism problems, etc. Recent years have seen the focus of algorithmic group theory shift from the decidability/undecidability type of result to the complexity of algorithms. Papers in this volume reflect that paradigm shift. Articles are based on the AMS/ASL Joint Special Session, Interactions Between Logic, Group Theory and Computer Science. The volume is suitable for graduate students and research mathematicians interested in computational problems of group theory.

Chaos, Nonlinearity, Complexity

On Physics and Information

Future Perspectives In String Theory, Strings '95 - Proceedings Of The Conference

Introductory Lectures

Advances in Cryptology – ASIACRYPT 2021

Advances in Cryptology – EUROCRYPT 2019

Quantum Noise

This book offers a systematic and comprehensive exposition of the quantum stochastic methods that have been developed in the

field of quantum optics. It includes new treatments of photodetection, quantum amplifier theory, non-Markovian quantum stochastic processes, quantum input--output theory, and positive P-representations. It is the first book in which quantum noise is described by a mathematically complete theory in a form that is also suited to practical applications. Special attention is paid to non-classical effects, such as squeezing and antibunching. Chapters added to the previous edition, on the stochastic Schrödinger equation, and on cascaded quantum systems, and now supplemented, in the third edition by a chapter on recent developments in various pertinent fields such as laser cooling, Bose-Einstein condensation, quantum feedback and quantum information.

This book constitutes the thoroughly refereed post-conference proceedings of the 12th International Conference on Information Security and Cryptology, Inscrypt 2016, held in Beijing, China, in November 2016. The 32 revised full papers presented were carefully reviewed and selected from 93 submissions. The papers are organized in topical sections on symmetric ciphers; public-key cryptosystems; signature and authentication; homomorphic encryption; leakage-resilient; post-quantum cryptography; commitment and protocol; elliptic curves; security and implementation.

This book explores non-extensive statistical mechanics in non-equilibrium thermodynamics, and presents an overview of the strong nonlinearity of chaos and complexity in natural systems, drawing on relevant mathematics from topology, measure-theory, inverse and ill-posed problems, set-valued analysis, and nonlinear functional analysis. It offers a self-contained theory of complexity and complex systems as the steady state of non-equilibrium systems, denoting a homeostatic dynamic equilibrium between stabilizing order and destabilizing disorder.

The Journal on Advanced Studies in Theoretical and Experimental Physics, including Related Themes from Mathematics

Mesoscopic Quantum Hall Effect

Automata, Languages and Programming

Handbook of Dynamics and Probability

It From Bit or Bit From It?

Authentication in Insecure Environments

Behaviourism in Studying Swarms: Logical Models of Sensing and Motoring