More On Grover S Algorithm Arxiv

This comprehensive textbook on the rapidly advancing field introduces readers to the fundamental concepts of information theory and quantum entanglement, taking into account the current state of research and development. It thus covers all current concepts in quantum computing, both theoretical and experimental, before moving on to the latest implementations of quantum computing and communication protocols. It contains problems and exercises and is therefore ideally suited for students and lecturers in physics and informatics, as well as experimental and theoretical physicists in academia and industry who work in the field of quantum information processing. The second edition incorporates important recent developments such as quantum metrology, quantum correlations beyond entanglement, and advances in quantum computing with solid state devices.

This book constitutes the refereed proceedings of the Third Latin American Symposium on Theoretical Informatics, LATIN'98, held in Campinas, Brazil, in April 1998. The 28 revised full papers presented together with five invited surveys were carefully selected from a total of 53 submissions based on 160 referees' reports. The papers are organized in sections on algorithms and complexity; automata, transition systems and combinatorics on words; computational geometry and graph drawing; cryptography; graph theory and algorithms on graphs; packet routing; parallel algorithms; and pattern matching and browsing.

This comprehensive guide presents the ideas and concepts of quantum computing for first-time learner in a manner that is simple and easy to learn-from a gentle introduction to the core topics and finally the algorithms, applications, physical realizations and simulators.

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.

LATIN'98: Theoretical InformaticsThird Latin American Symposium, Campinas, Brazil, April 20-24, 1998, ProceedingsSpringer Science & Business Media

This book is a collection of papers given by invited speakers at the first AMS Special Session on Quantum Computation and Information held at the January 2000 Annual Meeting of the AMS in Washington, DC. The papers in this volume give readers a broad introduction to the many mathematical research challenges posed by the new and emerging field of quantum computation and quantum information. Of particular interest is a long paper by Lomonaco and Kauffman discussing mathematical and computational aspects of the so-called hidden subgroup algorithm. This book is the companion volume to Quantum Computation: A Grand Mathematical Challenge for the Twenty-First Century and the Millennium, Volume 58 in the Proceedings of Symposia in Applied Mathematics series.

A panorama of new ideas in mathematics that are driving innovation in computing and communications.

Research and development in the pioneering field of quantum computing involve just about every facet of science and engineering, including the significant areas of mathematics and physics. Based on the firm understanding that mathematics and physics are equal partners in the continuing study of quantum science, Mathematics of Quantum Computation and Quantum Technology explores the rapid mathematical advancements made in this field in recent years. Novel Viewpoints on Numerous Aspects of Quantum Computing and Technology Edited by a well-respected team of experts, this volume compiles contributions from specialists across various disciplines. It contains four main parts, beginning with topics in quantum computing that include quantum algorithms and hidden subgroups, quantum search, algorithmic complexity, and quantum simulation. The next section covers quantum technology, such as mathematical tools, quantum wave functions, superconducting quantum computing interference devices (SQUIDs), and optical quantum computing. The section on quantum information deals with error correction, cryptography, entanglement, and communication. The final part explores topological quantum computation, knot theory, category algebra, and logic. The Tools You Need to Tackle the Next Generation of Quantum Technology This book facilitates both the construction of a common quantum language and the development of interdisciplinary quantum techniques, which will aid efforts in the pursuit of the ultimate goal-a "real" scalable quantum computer.

This book comprises the refereed proceedings of the Workshop on Computation: Theory and Practice (WCTP)–2012, held in Manila, The Philippines, in September 2012. The workshop was organized by the Tokyo Institute of Technology, the Institute of Scientific and Industrial Research–Osaka University, the University of the Philippines Diliman, and De La Salle University–Manila and was devoted to theoretical and practical approaches to computation. The 22 revised full papers presented in this volume were carefully reviewed. They deal with biologically inspired computational modeling, programming language theory, advanced studies in networking, and empathic computing.

This book constitutes the refereed proceedings of the 19th International Symposium on Computer and Information Sciences, ISCIS 2004, held in Kemer-Antalya, Turkey in October 2004. The 99 revised full papers presented together with an invited paper were carefully reviewed and selected from 335 submissions. The papers are organized in topical sections on artificial intelligence and machine learning, computer graphics and user interfaces, computer networks and security, computer vision and image processing, database systems, modeling and performance evaluation, natural language processing, parallel and distributed computing, real-time control applications, software engineering and programming, and theory of computing.

Students and researchers from all fields of mathematics are invited to read and treasure this special Proceedings. A conference was held 25 –29 September 2017 at Noah’s On the Beach, Newcastle, Australia, to commemorate the life and work of Jonathan M. Borwein, a mathematician extraordinaire whose untimely passing in August 2016 was a sorry loss to mathematics and to so many members of its community, a loss that continues to be keenly felt. A polymath, Jonathan Borwein ranks among the most wide ranging and influential mathematicians of the last 50 years, making significant contributions to an exceptional diversity of areas and substantially expanding the use of the computer as a tool of the research mathematician. The contributions in this commemorative volume probe Dr. Borwein's ongoing legacy in areas where he did some of his most outstanding work: Applied Analysis, Optimization and Convex Functions; Mathematics Education; Financial Mathematics; plus Number Theory, Special Functions and Pi, all tinged by the double prisms of Experimental Mathematics and Visualization, methodologies he championed.

Search algorithms aim to find solutions or objects with specified properties and constraints in a large solution search space or among a collection of objects. A solution can be a set of value assignments to variables that will satisfy the constraints or a sub-structure of a given discrete structure. In addition, there are search algorithms, mostly probabilistic, that are designed for the prospective quantum computer. This book demonstrates the wide applicability of search algorithms for the purpose of developing useful and practical solutions to problems that arise in a variety of problem domains. Although it is targeted to

a wide group of readers: researchers, graduate students, and practitioners, it does not offer an exhaustive coverage of search algorithms and applications. The chapters are organized into three parts: Population-based and quantum search algorithms, Search algorithms for image and video processing, and Search algorithms for engineering applications.

Quantum computing explained in terms of elementary linear algebra, emphasizing computation and algorithms and requiring no background in physics. This introduction to quantum algorithms is concise but comprehensive, covering many key algorithms. It is mathematically rigorous but requires minimal background and assumes no knowledge of quantum theory or quantum mechanics. The book explains quantum computation in terms of elementary linear algebra; it assumes the reader will have some familiarity with vectors, matrices, and their basic properties, but offers a review of all the relevant material from linear algebra. By emphasizing computation and algorithms rather than physics, this primer makes quantum algorithms accessible to students and researchers in computer science without the complications of quantum mechanical notation, physical concepts, and philosophical issues. After explaining the development of quantum operations and computations based on linear algebra, the book presents the major quantum algorithms, from seminal algorithms by Deutsch, Jozsa, and Simon through Shor's and Grover's algorithms to recent quantum walks. It covers quantum gates, computational complexity, and some graph theory. Mathematical proofs are generally short and straightforward; quantum circuits and gates are used to illuminate linear algebra; and the discussion of complexity is anchored in computational problems rather than machine models. Quantum Algorithms via Linear Algebra is suitable for classroom use or as a reference for computer scientists and mathematicians.

A quantum computer is a computer based on a computational model which uses quantum mechanics, which is a subfield of physics to study phenomena at the micro level. There has been a growing interest on quantum computing in the 1990's and some quantum computers at the experimental level were recently implemented. Quantum computers enable super-speed computation and can solve some important problems whose solutions were regarded impossible or intractable with traditional computers. This book provides a quick introduction to quantum computing for readers who have no backgrounds of both theory of computation and quantum mechanics. “Elements of Quantum Computing” presents the history, theories and engineering applications of quantum computing. The book is suitable to computer scientists, physicists and software engineers.

At the crossing of centuries, it is very important to review the main problems and research in theoretical physics. This was the purpose of the International Workshop on Frontiers of Theoretical Physics, allowing the interchange of ideas among people with different expertise.The proceedings can be divided into two parts: (1) general view talks about string, particle physics, nuclear physics, etc. given by Profs. T Yoneya, M Kobayazhi, A Sanda, Z Li and F Sakata; (2) research related to many important fields, such as quantum field theory, string theory, particle physics, condensed matter physics, nuclear physics and mathematical physics.

Among the most exciting developments in science today is the design and construction of the quantum computer. Its realization will be the result of multidisciplinary efforts, but ultimately, it is mathematics that lies at the heart of theoretical quantum computer science. Mathematics of Quantum Computation brings together leading computer scientists, mathematicians, and physicists to provide the first interdisciplinary but mathematically focused exploration of the field's foundations and state of the art. Each section of the book addresses an area of major research, and does so with introductory material that brings newcomers quickly up to speed. Chapters that are more advanced include recent developments not yet published in the open literature. Information technology will inevitably enter into the realm of quantum mechanics, and, more than all the atomic, molecular, optical, and nanotechnology advances, it is the device-independent mathematics that is the foundation of quantum computer and information science. Mathematics of Quantum Computation offers the first up-to-date coverage that has the technical depth and breadth needed by those interested in the challenges being confronted at the frontiers of research.

Demographics reveal that the proportion of elderly individuals in the population is growing at a significant rate. Advances in medicine have allowed populations to live longer than ever; however, ensuring that these individuals have the tools necessary to sustain a productive and happy lifestyle as they age remains a concern. Optimizing Assistive Technologies for Aging Populations focuses on the development and improvement of devices intended to assist elderly individuals in coping with various physical limitations and disabilities. Highlighting the available tools and technologies for supporting the mobility, agility, and self-sufficiency of the aging population as well as the challenges associated with the integration of these technologies into the everyday lives of elderly individuals, this publication is ideally designed for reference use by healthcare workers, medical students, gerontologists, and IT developers in the field of medicine.

This book constitutes the joint refereed proceedings of the 8th International Workshop on Approximation Algorithms for Combinatorial Optimization Problems, APPROX 2005 and the 9th International Workshop on Randomization and Computation, RANDOM 2005, held in Berkeley, CA, USA in August 2005. The volume contains 41 carefully reviewed papers, selected by the two program committees from a total of 101 submissions. Among the issues addressed are design and analysis of approximation algorithms, hardness of approximation, small space and data streaming algorithms, sub-linear time algorithms, embeddings and metric space methods, mathematical programming methods, coloring and partitioning, cuts and connectivity, geometric problems, game theory and applications, network design and routing, packing and covering, scheduling, design and analysis of randomized algorithms, randomized complexity theory, pseudorandomness and derandomization, random combinatorial structures, random walks/Markov chains, expander graphs and randomness extractors, probabilistic proof systems, random projections and embeddings, error-correcting codes, average-case analysis, property testing, computational learning theory, and other applications of approximation and randomness.

Microcavities are semiconductor, metal, or dielectric structures providing optical confinement in one, two or three dimensions. At the end of the 20th century, microcavities have attracted attention due to the discovery of a strong exciton-light coupling regime allowing for the formation of superposition light-matter quasiparticles: exciton-polaritons. In the following century several remarkable effects have been discovered in microcavities, including the Bose-Einstein condensation of exciton-polaritons, polariton lasing, superfluidity, optical spin Hall and spin Meissner effects, amongst other discoveries. Currently, polariton devices exploiting the bosonic stimulation effects at room temperature are being developed by laboratories across the world. This book addresses the physics of microcavities: from classical to quantum optics, from a Boltzmann gas to a superfluid. It provides the theoretical background needed for understanding the complex phenomena in coupled light-matter systems, and it presents a broad overview of experimental progress in the physics of microcavities.

In this text we present a technical overview of the emerging field of quantum computation along with new research results by the authors. What distinguishes our presentation from that of others is our focus on the relationship between quantum computation and computer science. Specifically, our emphasis is on the computational model of quantum computing rather than on the engineering issues associated with its physical implementation. We adopt this approach for the same reason that a book on computer programming doesn't cover the theory and physical realization of semiconductors. Another distinguishing feature of this text is our detailed discussion of the circuit complexity of quantum algorithms. To the extent possible we have presented the material in a form that is accessible to the computer scientist, but in many cases we retain the conventional physics notation so that the reader will also be able to consult the relevant quantum computing literature. Although we expect the reader to have a solid understanding of linear algebra, we do not assume a background in physics. This text is based on lectures given as short courses and invited presentations around the world, and it has been used as the

primary text for a graduate course at George Mason University. In all these cases our challenge has been the same: how to present to a general audience a concise introduction to the algorithmic structure and applications of quantum computing on an extremely short period of time. The feedback from these courses and presentations has greatly aided in making our exposition of challenging concepts more accessible to a general audience. Table of Contents: Introduction / The Algorithmic Structure of Quantum Computing / Advantages and Limitations of Quantum Computing / Amplitude Amplification / Case Study: Computational Geometry / The Quantum Fourier Transform / Case Study: The Hidden Subgroup / Circuit Complexity Analysis of Quantum Algorithms / Conclusions / Bibliography

The two-volume set LNCS 10769 and 10770 constitutes the refereed proceedings of the 21st IACR International Conference on the Practice and Theory of Public-Key Cryptography, PKC 2018, held in Rio de Janeiro, Brazil, in March 2018. The 49 revised papers presented were carefully reviewed and selected from 186 submissions. They are organized in topical sections such as Key-Dependent-Message and Selective-Opening Security; Searchable and Fully Homomorphic Encryption; Public-Key Encryption; Encryption with Bad Randomness; Subversion Resistance; Cryptanalysis; Composable Security; Oblivious Transfer; Multiparty Computation; Signatures; Structure-Preserving Signatures; Functional Encryption; Foundations; Obfuscation-Based Cryptographic Constructions; Protocols; Blockchain; Zero-Knowledge; Lattices.

This book contains selected papers presented at the First NASA International Conference on Quantum Computing and Quantum Communications, QCQC'98, held in Palm Springs, California, USA in February 1998. As the record of the first large-scale meeting entirely devoted to quantum computing and communications, this book is a unique survey of the state-of-the-art in the area. The 43 carefully reviewed papers are organized in topical sections on entanglement and quantum algorithms, quantum cryptography, quantum copying and quantum information theory, quantum error correction and fault-tolerant quantum computing, and embodiments of quantum computers.

This volume represents the talks given at the Conference on Interactions between Representation Theory, Quantum Field Theory, Category Theory, Mathematical Physics, and Quantum Information Theory, held in September 2007 at the University of Texas at Tyler. The papers in this volume, written by top experts in the field, address physical aspects, mathematical aspects, and foundational issues of quantum computation. This volume will benefit researchers interested in advances in quantum computation and communication, as well as graduate students who wish to enter the field of quantum computation.

The three-volume set of LNCS 11272, 11273, and 11274 constitutes the refereed proceedings of the 24th International Conference on the Theory and Application of Cryptology and Information Security, ASIACRYPT 2018, held in Brisbane, Australia, in December 2018. The 65 revised full papers were carefully selected from 234 submissions. They are organized in topical sections on Post-Quantum Cryptanalysis; Encrypted Storage; Symmetric-Key Constructions; Lattice Cryptography; Quantum Symmetric Cryptanalysis; Zero-Knowledge; Public Key and Identity-Based Encryption; Side-Channels; Signatures; Leakage-Resilient Cryptography; Functional/Inner Product/Predicate Encryption; Multi-party Computation; ORQM; Real World Protocols; Secret Sharing; Isogeny Cryptography; and Foundations.

The book is a collection of papers of experts in the fields of information and complexity. Information is a basic structure of the world, while complexity is a fundamental property of systems and processes. There are intrinsic relations between information and complexity. The research in information theory, the theory of complexity and their interrelations is very active. The book will expand knowledge on information, complexity and their relations representing the most recent and advanced studies and achievements in this area. The goal of the book is to present the topic from different perspectives — mathematical, informational, philosophical, methodological, etc.

At the crossing of centuries, it is very important to review the main problems and research in theoretical physics. This was the purpose of the International Workshop on Frontiers of Theoretical Physics, allowing the interchange of ideas among people with different expertise. The proceedings can be divided into two parts: (1) general view talks about string, particle physics, nuclear physics, etc. given by Profs. T Yoneya, M Kobayazhi, A Sanda, Z Li and F Sakata; (2) research related to many important fields, such as quantum field theory, string theory, particle physics, condensed matter physics, nuclear physics and mathematical physics. Contents:Aspects of Current Particle Physics (M Kobayashi)CP Violation Past, Present and Future (A I Sanda)Nonlinear Science in Nuclear Physics (F Sakata)String Theory — Where are We Now? (T Yoneya)The Descent Equation of Noncommutative Differential Geometry on Lattice (K Wu)Supersymmetry for Flavors (C Liu)Quantization on Manifolds and Induced Gauge Potentials (Y Ohnuki)Chiral Lagrangian in QCD (Q Wang & Z-M Wang)and other papers Readership: Graduate students and researchers in theoretical physics. Keywords:

This book reviews selected topics charterized by great progress and covers the field from theoretical areas to experimental ones. It contains fundamental areas, quantum query complexity, quantum statistical inference, quantum cloning, quantum entanglement, additivity. It treats three types of quantum security system, quantum public key cryptography, quantum key distribution, and quantum steganography. A photonic system is highlighted for the realization of quantum information processing.

In 1994 Peter Shor [65] published a factoring algorithm for a quantum computer that finds the prime factors of a composite integer N more efficiently than is possible with the known algorithms for a classical com puter. Since the difficulty of the factoring problem is crucial for the se curity of a public key encryption system, interest (and funding) in quan tum computing and quantum computation suddenly blossomed. Quan tum computing had arrived. The study of the role of quantum mechanics in the theory of computa tion seems to have begun in the early 1980s with the publications of Paul Benioff [6]' [7] who considered a quantum mechanical model of computers and the computation process. A related question was discussed shortly thereafter by Richard Feynman [35] who began from a different perspec tive by asking what kind of computer should be used to simulate physics. His analysis led him to the belief that with a suitable class of "quantum machines" one could imitate any quantum system.

Quantum computers are the proposed centerpieces of a revolutionary, 21st-century quantum information technology. This book takes the reader into the world of quantum mechanics and continues on an in-depth study of quantum information and quantum computing, including the future of quantum technology. This text focuses on what is "quantum" about quantum mechanics; topics discussed include the EPR paradox, entanglement, teleportation, Bell's Theorem, quantum computing, and code-breaking with quantum computers.--Back cover.

A collection of essays celebrating the influence of Alan Turing's work in logic, computer science and related areas.

How quantum computing is really done: a primer for future quantum device engineers. This text offers an introduction to quantum computing, with a special emphasis on basic quantum physics, experiment, and quantum devices. Unlike many other texts, which tend to emphasize algorithms, Quantum Computing Without Magic explains the requisite quantum physics in some depth, and then explains the devices themselves. It is a book for readers who, having already encountered quantum algorithms, may ask, “Yes, I can see how the algebra does the trick, but how can we actually do it?” By explaining the details in the context of the topics covered, this book strips the subject of the “magic” with which it is so often cloaked. Quantum Computing Without Magic covers the essential probability calculus; the qubit, its physics, manipulation and measurement, and how it can be implemented using superconducting electronics; quaternions and density operator formalism; unitary formalism and its application to Berry phase manipulation; the biqubit, the mysteries of entanglement, nonlocality, separability, biqubit classification, and the Schroedinger's Cat paradox; the controlled-NOT gate, its applications and implementations; and classical analogs of quantum devices and quantum processes. Quantum Computing Without Magic can be used as a complementary text for physics and electronic engineering undergraduates studying quantum computing and basic quantum mechanics, or as an introduction and guide for electronic engineers, mathematicians, computer scientists, or scholars in these fields who are interested in quantum

computing and how it might fit into their research programs.
This book constitutes the refereed proceedings of the 5th International Workshop on Post-Quantum Cryptography, PQCrypto 2013, held in Limoges, France, in June 2013. The 17 revised full papers presented were carefully reviewed and selected from 24 submissions. The papers cover all technical aspects of cryptographic research related to the future world with large quantum computers such as code-based cryptography, lattice-based cryptography, multivariate cryptography, cryptanalysis or implementations.
This book constitutes the refereed proceedings of the Third International Workshop on Post-Quantum Cryptography, PQCrypto 2010, held in Darmstadt, Germany, in May 2010. The 16 revised full papers presented were carefully reviewed and selected from 32 submissions. The papers are organized in topical sections on cryptanalysis of multivariate systems, cryptanalysis of code-based systems, design of encryption schemes, and design of signature schemes.
A thorough exposition of quantum computing and the underlying concepts of quantum physics, with explanations of the relevant mathematics and numerous examples. The combination of two of the twentieth century's most influential and revolutionary scientific theories, information theory and quantum mechanics, gave rise to a radically new view of computing and information. Quantum information processing explores the implications of using quantum mechanics instead of classical mechanics to model information and its processing. Quantum computing is not about changing the physical substrate on which computation is done from classical to quantum but about changing the notion of computation itself, at the most basic level. The fundamental unit of computation is no longer the bit but the quantum bit or qubit. This comprehensive introduction to the field offers a thorough exposition of quantum computing and the underlying concepts of quantum physics, explaining all the relevant mathematics and offering numerous examples. With its careful development of concepts and thorough explanations, the book makes quantum computing accessible to students and professionals in mathematics, computer science, and engineering. A reader with no prior knowledge of quantum physics (but with sufficient knowledge of linear algebra) will be able to gain a fluent understanding by working through the book.
The Symposium on Theoretical Aspects of Computer Science (STACS) is alt- nately held in France and in Germany. The conference of March 25-27, 2004 at the Corum, Montpellier was the twenty-?rst in this series. Previous meetings took place in Paris (1984), Saarbruc ? ken (1985), Orsay (1986), Passau (1987), Bordeaux (1988), Paderborn (1989), Rouen (1990), Hamburg (1991), Cachan (1992),Wurzburg ? (1993),Caen(1994),Munc ? hen(1995),Grenoble(1996),Lub ? eck (1997), Paris (1998), Trier (1999), Lille (2000), Dresden (2001), Antibes (2002), and Berlin (2003). The symposium looks back at a remarkable tradition of over 20 years. The interest in STACS has been increasing continuously during recent years and has turned it into one of the most signi?cant conferences in theoretical computer science. The STACS 2004 call for papers led to more than 200 submissions from all over the world. Thereviewingprocesswasextremelyhard:morethan800reviewsweredone. We would like to thank the program committee and all external referees for the valuable work they put into the reviewing process of this conference. We had a two-day meeting for the program committee in Montpellier during November 21-22, 2003. Just 54 papers (i.e., 27% of the submissions) could be accepted, as we wanted to keep the conference in its standard format with only two parallel sessions. This strict selection guaranteed the very high scienti?c quality of the conference.
The philosophy of information is one of the most exciting and fruitful areas of current philosophical research. Not only is it affecting the way in which new and old philosophical problems are addressed, but it is also creating a substantial innovation of the philosophical system. This book contains selected papers presented at the 2011 spring conference entitled aePhilosophy and Synergy of Information: Sustainability and SecurityAE, held in Tbilisi, and supported by the NATO Science for Peace and Security Programme. The conference welcomed scientists from different disciplines and different countries, both eastern and western. They met to share their ideas, the results of their research and their experiences related to information science and technology, philosophy, the nature and culture of information and the problems of sustainable development for countries, regions and continents. Subjects covered include the latest innovations in informatics, forecasting, quantum information theory, nano information-communication systems and many more. Since ancient times, philosophers have been preoccupied with investigating life and security in the cosmos (world order).This book will be of interest to all those involved in that endeavor.
This book constitutes the refereed proceedings of the 14th International Symposium on Algorithms and Computation, ISAAC 2003, held in Kyoto, Japan, in December 2003. The 73 revised full papers presented were carefully reviewed and selected from 207 submissions. The papers are organized in topical sections on computational geometry, graph and combinatorial algorithms, computational complexity, quantum computing, combinatorial optimization, scheduling, computational biology, distributed and parallel algorithms, data structures, combinatorial and network optimization, computational complexity and cryptography, game theory and randomized algorithms, and algebraic and arithmetic computation.
This book and its companion volume, LNCS vol. 8794 and 8795 constitute the proceedings of the 5th International Conference on Swarm Intelligence, ICSI 2014, held in Hefei, China in October 2014. The 107 revised full papers presented were carefully reviewed and selected from 198 submissions. The papers are organized in 18 cohesive sections, 3 special sessions and one competitive session covering all major topics of swarm intelligence research and development such as novel swarm-based search methods; novel optimization algorithm; particle swarm optimization; ant colony optimization for travelling salesman problem; artificial bee colony algorithms; artificial immune system; evolutionary algorithms; neural networks and fuzzy methods; hybrid methods; multi-objective optimization; multi-agent systems; evolutionary clustering algorithms; classification methods; GPU-based methods; scheduling and path planning; wireless sensor networks; power system optimization; swarm intelligence in image and video processing; applications of swarm intelligence to management problems; swarm intelligence for real-world application.
One of Springer’s renowned Major Reference Works, this awesome achievement provides a comprehensive set of solutions to important algorithmic problems for students and researchers interested in quickly locating useful information. This first edition of the reference focuses on high-impact solutions from the most recent decade, while later editions will widen the scope of the work. All entries have been written by experts, while links to Internet sites that outline their research work are provided. The entries have all been peer-reviewed. This defining reference is published both in print and on line.
This collection of papers written by leading researchers reflects the forefront of research in the dynamic field of quantum optics. Topics covered include BEC, atomic optics, quantum information, cavity QED and quantum noise processes. This volume forms an indispensable reference source for all those who want to keep up with the latest developments in this area.