More Random Walks In Science

This book offers an informal, easy-to-understand account of topics in modern physics and mathematics. The focus is, in particular, on statistical mechanics, soft matter, probability, chaos, complexity, and models, as well as their interplay. The book features 28 key entries and it is carefully structured so as to allow readers to pursue different paths that reflect their interests and priorities, thereby avoiding an excessively systematic presentation that might stifle interest. While the majority of the entries concern specific topics and arguments, some relate to important protagonists of science, highlighting and explaining their contributions. Advanced mathematics is avoided, and formulas are introduced in only a few cases. The book is a user-friendly tool that nevertheless avoids scientific compromise. It is of interest to all who seek a better grasp of the world that surrounds us and of the ideas that have changed our perceptions.
Simple random walks - or equivalently, sums of independent random vari ables - have long been a standard topic of probability theory and mathemat ical physics. In the 1950s, non-Markovian random-walk models, such as the self-avoiding walk,were introduced into theoretical polymer physics, and gradu ally came to serve as a paradigm for the general theory of critical phenomena. In the past decade, random-walk expansions have evolved into an important tool for the rigorous analysis of critical phenomena in classical spin systems and of the continuum limit in quantum field theory. Among the results obtained by random-walk methods are the proof of triviality of the cp4 quantum field theo ryin space-time dimension d (::::) 4, and the proof of mean-field critical behavior for cp4 and Ising models in space dimension d (::::) 4. The principal goal of the present monograph is to present a detailed review of these developments. It is supplemented by a brief excursion to the theory of random surfaces and various applications thereof. This book has grown out of research carried out by the authors mainly from 1982 until the middle of 1985. Our original intention was to write a research paper. However, the writing of such a paper turned out to be a very slow process, partly because of our geographical separation, partly because each of us was involved in other projects that may have appeared more urgent.
The aim of this book is to report on the progress realized in probability theory in the field of dynamic random walks and to present applications in computer science, mathematical physics and finance. Each chapter contains didactical material as well as more advanced technical sections. Few appendices will help refreshing memories (if necessary!). · New probabilistic model, new results in probability theory · Original applications in computer science · Applications in mathematical physics · Applications in finance
Book One in the Fractured Galaxy trilogy, Random Walk is the story of three U.S. Air Force Space Command astronauts: Colonel Derek Williams, a mild-mannered, experienced space traveler; Captain Jacob Mendez, the ship's playful navigator; and civilian Vicky Abrams, an introverted accelerator physicist and the newest member of the crew. Together, the diverse crew sets out on the Air Force's first manned space mission, heading for Mars to test a new propulsion system developed in cooperation with NASA that will significantly shorten the trip to the red planet. When the spacecraft is unexpectedly flung out of our solar system, the crew has to set aside their differences and work together to survive without help from Ground Control. While their colleagues on Earth scramble to figure out what happened to them, Derek, Jacob and Vicky must find solutions that don't exist to a situation that shouldn't be possible.
Quantum Walks and Search Algorithms
Algebraic Methods, Boundary Value Problems and Applications
Aspects and Applications of the Random Walk
Random Walk
Random Walks on Infinite Graphs and Groups
This book provides an introduction to the mathematical and algorithmic foundations of data science, including machine learning, high-dimensional geometry, and analysis of large networks. Topics include the counterintuitive nature of data in high dimensions, important linear algebraic techniques such as singular value decomposition, the theory of random walks and Markov chains, the fundamentals of and important algorithms for machine learning, algorithms and analysis for clustering, probabilistic models for large networks, representation learning including topic modelling and non-negative matrix factorization, wavelets and compressed sensing. Important probabilistic techniques are developed including the law of large numbers, tail inequalities, analysis of random projections, generalization guarantees in machine learning, and moment methods for analysis of phase transitions in large random graphs. Additionally, important structural and complexity measures are discussed such as matrix norms and VC-dimension. This book is suitable for both undergraduate and graduate courses in the design and analysis of algorithms for data.
The main theme of this book is the interplay between random walks and discrete structure theory.
A comprehensive monograph presenting a unified systematic exposition of the large deviations theory for heavy-tailed random walks.
"Quantum computation, one of the latest joint ventures between physics and the theory of computation, is a scientific field whose main goals include the development of hardware and algorithms based on the quantum mechanical properties of those physical systems used to implement such algorithms." "Solving difficult tasks (for example, the Satisfiability Problem and other NP-complete problems) requires the development of sophisticated algorithms, many of which employ stochastic processes as their mathematical basis. Discrete random walks are a popular choice among those stochastic processes." "Inspired on the success of discrete random walks in algorithm development, quantum walks, an emerging field of quantum computation, is a generalization of random walks into the quantum mechanical world." "The purpose of this lecture is to provide a concise yet comprehensive introduction to quantum walks."--BOOK JACKET.
Random Walks and Random Environments
Variants of Random Walks
Complex Networks & Their Applications VI
An Introduction for Advanced Students and Researchers
21st Conference, Bangalore, India, December 13-15, 2001, Proceedings
Random walks are stochastic processes formed by successive summation of independent, identically distributed random variables and are one of the most studied topics in probability theory. This contemporary introduction evolved from courses taught at Cornell University and the University of Chicago by the first author, who is one of the most highly regarded researchers in the field of stochastic processes. This text meets the need for a modern reference to the detailed properties of an important class of random walks on the integer lattice. It is suitable for probabilists, mathematicians working in related fields, and for researchers in other disciplines who use random walks in modeling.
Paperback. Both the formalism and many of the attendant ideas related to the random walk lie at the core of a significant fraction of contemporary research in statistical physics. In the language of physics the random walk can be described as a microscopic model for transport processes which have some element of randomness. The starting point of nearly all analyses of transport in disordered media is to be found in one or another type of random walk model. Mathematical formalism based on the theory of random walks is not only pervasive in a number of areas of physics, but also finds application in many areas of chemistry. The random walk has also been applied to the study of a number of biological phenomena.Despite the obvious importance of random walks in these and other applications there are few books devoted to the subject. This is therefore a timely introduction to the subject which will be welcomed by students and more senior researchers who have
A central study in Probability Theory is the behavior of fluctuation phenomena of partial sums of different types of random variable. One of the most useful concepts for this purpose is that of the random walk which has applications in many areas, particularly in statistical physics and statistical chemistry. Originally published in 1991, Intersections of Random Walks focuses on and explores a number of problems dealing primarily with the nonintersection of random walks and the self-avoiding walk. Many of these problems arise in studying statistical physics and other critical phenomena. Topics include: discrete harmonic measure, including an introduction to diffusion limited aggregation (DLA); the probability that independent random walks do not intersect; and properties of walks without self-intersections. The present softcover reprint includes corrections and addenda from the 1996 printing, and makes this classic monograph available to a wider audience. With a self-contained introduction to the properties of simple random walks, and an emphasis on rigorous results, the book will be useful to researchers in probability and statistical physics and to graduate students interested in basic properties of random walks.
Random walks proved to be a useful model of many complex transport processes at the micro and macroscopical level in physics and chemistry, economics, biology and other disciplines. The book discusses the main variants of random walks and gives the most important mathematical tools for their theoretical description.
Heavy-Tailed Distributions
The Random Walks of George Polya
Random Walks in the Quarter-Plane
A Random Walk in Science
More Random Walks in Science
More Random Walks in ScienceRoutledge
This book constitutes the refereed proceedings of the 20th International Symposium on Computer and Information Sciences, ISCIS 2005, held in Istanbul, Turkey in October 2005. The 92 revised full papers presented together with 4 invited talks were carefully reviewed and selected from 491 submissions. The papers are organized in topical sections on computer networks, sensor and satellite networks, security and cryptography, performance evaluation, e-commerce and Web services, multiagent systems, machine learning, information retrieval and natural language processing, image and speech processing, algorithms and database systems, as well as theory of computing.
This book is a lucid, straightforward introduction to the concepts and techniques of statistical physics that students of biology, biochemistry, and biophysics must know. It provides a sound basis for understanding random motions of molecules, subcellular particles, or cells, or of processes that depend on such motion or are markedly affected by it. Readers do not need to understand thermodynamics in order to acquire a knowledge of the physics involved in diffusion, sedimentation, electrophoresis, chromatography, and cell motility--subjects that become lively and immediate when the author discusses them in terms of random walks of individual particles.
In the 50 years since Mandelbrot identified the fractality of coastlines, mathematicians and physicists have developed a rich and beautiful theory describing the interplay between analytic, geometric and probabilistic aspects of the mathematics of fractals. Using classical and abstract analytic tools developed by Cantor, Hausdorff, and Sierpinski, they have sought to address fundamental questions: How can we measure the size of a fractal set? How do waves and heat travel on irregular structures? How are analysis, geometry and stochastic processes related in the absence of Euclidean smooth structure? What new physical phenomena arise in the fractal-like settings that are ubiquitous in nature?This book introduces background and recent progress on these problems, from both established leaders in the field and early career researchers. The book gives a broad introduction to several foundational techniques in fractal mathematics, while also introducing some specific new and significant results of interest to experts, such as that waves have infinite propagation speed on fractals. It contains sufficient introductory material that it can be read by new researchers or researchers from other areas who want to learn about fractal methods and results.
Quantum Walks for Computer Scientists
Intersections of Random Walks
First Steps in Random Walks
A Random Walk in Physics
Machine Learning and Knowledge Discovery in Databases
The revised edition of the book offers an extended overview of quantum walks and explains their role in building quantum algorithms, in particular search algorithms. Updated throughout, the book focuses on core topics including Grover's algorithm and the most important quantum walk models, such as the coined, continuous-time, and Szedgedy's quantum walk models. There is a new chapter describing the staggered quantum walk model. The chapter on spatial search algorithms has been rewritten to offer a more comprehensive approach and a new chapter describing the element distinctness algorithm has been added. There is a new appendix on graph theory highlighting the importance of graph theory to quantum walks. As before, the reader will benefit from the pedagogical elements of the book, which include exercises and references to deepen the reader's understanding, and guidelines for the use of computer programs to simulate the evolution of quantum walks. Review of the first edition: "The book is nicely written, the concepts are introduced naturally, and many meaningful connections between them are highlighted. The author proposes a series of exercises that help the reader get some working experience with the presented concepts, facilitating a better understanding. Each chapter ends with a discussion of further references, pointing the reader to major results on the topics presented in the respective chapter." - Florin Manea, zbMATH.
Dr. Winfried Wilcke is a nuclear physicist and computer architect, who shares real-life stories of his (mis)adventures at work and while exploring the globe.
The book contains review articles on recent advances in first-passage phenomena and applications contributed by leading international experts. It is intended for graduate students and researchers who are interested in learning about this intriguing and important topic. Contents:Arrival Statistics and Exploration Properties of Mortal Walkers (S B Yuste, E Abad and K Lindenberg)First Passage of a Randomly Accelerated Particle (T W Burkhardt)First Passage Problems in Anomalous Diffusion (A Rosso and A Zoia)First-Passage Times of Intermittent Random Walks (O Bénichou and R Voituriez)First-Passage Phenomena on Finite Inhomogeneous Networks (E Agliari and D Cassi)Effective Spectral Dimension in Scale-Free Networks (S Hwang, D-S Lee and B Kahng)First-Passage Statistics for Random Walks in Bounded Domains (R Voituriez and O Bénichou)First Passage Behavior of Multi-Dimensional Fractional Brownian Motion and Application to Reaction Phenomena (J-H Jeon, A V Chechkin and R Metzler)Trajectory-to-Trajectory Fluctuations in First-Passage Phenomena in Bounded Domains (T G Mattos, C Mejía-Monasterio, R Metzler, G Oshanin and G Schehr)Exact Record and Order Statistics of Random Walk via First-Passage Ideas (G Schehr and S N Majumdar)First Passage in a Conical Geometry and Ordering of Brownian Particles (E Ben-Naim and P L Krapivsky)First Passage Time Problems in Biophysical Jump Processes with Fast Kinetics (P C Bressloff and J M Newby)First Passage Problems in Biology (T Chou and M R D'Orsogna)The Effect of Detection Mechanisms on Spatial Search and Foraging (D Campos and V Méndez)Search in Random Media with Lévy Flights (E Gelenbe and O H Abdelrahman)Exit Strategies: Visual Search and the Quitting Time Problem (T S Horowitz)Statistical Physics of Evolutionary Trajectories on Fitness Landscapes (M Manhart and A V Morozov)Some Applications of First-Passage Ideas to Finance (R Chicheportiche and J-P Bouchaud)First-Passage and Extremes in Socio-Economic Systems (J Masoliver and J Perelló)Transport and the First-Passage Time Problem with Application to Cold Atoms in Optical Traps (E Barkai and D A Kessler)The Excursion Set Theory in Cosmology (M Maggiore and A Riotto)Self-Organized Escape Processes of Linear Chains in Nonlinear Potentials (T Gross, D Hennig and L Schimansky-Geier)Efficient Monte Carlo Methods for Simulating Diffusion-Reaction Processes in Complex Systems (D S Grebenkov) Readership: Researchers in stochastic processes, statistical physics, and mathematical physics. Key Features:Comprehensive update of the classical book by Sidney RednerApplications to wide-ranging and active fields of researchWell-known authors in the fieldKeywords:First Passage;Stochastic Processes;Diffusion;Biophysics;Non-Equilibrium Statistical Mechanics;Complex Systems;Econophysics
New Scientist magazine was launched in 1956 "for all those men and women who are interested in scientific discovery, and in its industrial, commercial and social consequences". The brand's mission is no different today - for its consumers, New Scientist reports, explores and interprets the results of human endeavour set in the context of society and culture.
Principles of Random Walk
Beyond Black Holes and Time-Travels
The Art of Random Walks
New and Expanded Edition
Random Walk: A Modern Introduction
Fractal geometry is revolutionizing the descriptive mathematics of applied materials systems. Rather than presenting a mathematical treatise, Brian Kaye demonstrates the power of fractal geometry in describing materials ranging from Swiss cheese to pyrolytic graphite. Written from a practical point of view, the author assiduously avoids the use of equations while introducing the reader to numerous interesting and challenging problems in subject areas ranging from geography to fine particle science. The second edition of this successful book provides up-to-date literature coverage of the use of fractal geometry in all areas of science. From reviews of the first edition: "...no stone is left unturned in the quest for applications of fractal geometry to fine particle problems....This book should provide hours of enjoyable reading to those wishing to become acquainted with the ideas of fractal geometry as applied to practical materials problems." MRS Bulletin
Please note that the content of this book primarily consists of articles available from Wikipedia or other free sources online. Pages: 24. Chapters: Branching random walk, Brownian motion, Gambler's ruin, Heterogeneous random walk in one dimension, Loop-erased random walk, Ornstein-Uhlenbeck process, Reflected Brownian motion, Wiener process. Excerpt: A random walk is a mathematical formalization of a path that consists of a succession of random steps. For example, the path traced by a molecule as it travels in a liquid or a gas, the search path of a foraging animal, the price of a fluctuating stock and the financial status of a gambler can all be modeled as random walks, although they may not be truly random in reality. The term random walk was first introduced by Karl Pearson in 1905. Random walks have been used in many fields: ecology, economics, psychology, computer science, physics, chemistry, and biology. Random walks explain the observed behaviors of processes in these fields, and thus serve as a fundamental model for the recorded stochastic activity. Various different types of random walks are of interest. Often, random walks are assumed to be Markov chains or Markov processes, but other, more complicated walks are also of interest. Some random walks are on graphs, others on the line, in the plane, or in higher dimensions, while some random walks are on groups. Random walks also vary with regard to the time parameter. Often, the walk is in discrete time, and indexed by the natural numbers, as in . However, some walks take their steps at random times, and in that case the position is defined for the continuum of times . Specific cases or limits of random walks include the Levy flight. Random walks are related to the diffusion models and are a fundamental topic in discussions of Markov processes. Several properties of random walks, including dispersal distributions, first-passage times and encounter rates, have been extensively studied. A popular random...
This volume comprises the author's account of the development of novel results in random walk theory and its applications during the fractal and chaos revolutions. The early history of probability is presented in an engaging manner, and peppered with pitfalls and paradoxes. Readers will find the introduction of Paul Lévy's work via Mandelbrot's Lévy flights which are featured uniquely as Weierstrass and Riemann random walks.Generalizations to coupled memories, internal states and fractal time are introduced at the level for graduate students. Mathematical developments are explained including Green's functions, inverse Mellin transforms, Jacobians, and matrix methods. Applications are made to anomalous diffusion and conductivity in amorphous semiconductors and supercooled liquids. The glass transition is discussed especially for pressure effects.All along the way, personal stories are recounted and special appreciations are made to Elliott Montroll and Harvey Scher for their ever-expanding influence on the field of non-equilibrium anomalous processes that now are found in topics including disordered materials, water table processes, animal foraging, blinking quantum dots, rotating flows, optical lattices, dynamical strange attractors and strange kinetics.
This book is devoted exclusively to a very special class of random processes, namely, to random walk on the lattice points of ordinary Euclidian space. The author considers this high degree of specialization worthwhile because the theory of such random walks is far more complete than that of any larger class of Markov chains. Almost 100 pages of examples and problems are included.
Elements of Random Walk and Diffusion Processes
Random Walks, Critical Phenomena, and Triviality in Quantum Field Theory
A Random Walk Through Fractal Dimensions
Foundations of Data Science
European Conference, Antwerp, Belgium, September 15-19, 2008, Proceedings, Part I
This volume contains the proceedings of the 21st international conference on the Foundations of Software Technology and Theoretical Computer Science (FSTTCS 2001), organized under the auspices of the Indian Association for Research in Computing Science (IARCS). This year's conference attracted 73 submissions from 20 countries. Each s- mission was reviewed by at least three independent referees. In a departure from previous conferences, the ?nal selection of the papers making up the program was done through an electronic discussion spanning two weeks, without a physical meeting of the Program Committee (PC). Since the PC of FSTTCS is distributed across the globe, it is very di?cult to ?x a meeting whose time and venue is convenient for a substantial fraction of the PC. Given this, it was felt that an electronic discussion would enable all members to participate on a more equal footing in the ?nal selection. All reviews, scores, and comments were posted on a secure website, with a mechanism for making updates and automatically sending noti?cations by email to relevant members of the PC. All PC members participated actively in the discussion. The general feedback on the arrangement was very positive, so we hope to continue this in future years. We had ?ve invited speakers this year: Eric Allender, Sanjeev Arora, David Harel, Colin Stirling, and Uri Zwick. We thank them for having readily accepted our invitation to talk at the conference and for providing abstracts (and even full papers) for the proceedings.
My first encounter with renewal theory and its extensions was in 1967/68 when I took a course in probability theory and stochastic processes, where the then recent book Stochastic Processes by Professor N.D. Prabhu was one of the requirements. Later, my teacher, Professor Carl-Gustav Esseen, gave me some problems in this area for a possible thesis, the result of which was Gut (1974a). Over the years I have, on and off, continued research in this field. During this time it has become clear that many limit theorems can be obtained with the aid of limit theorems for random walks indexed by families of positive, integer valued random variables, typically by families of stopping times. During the spring semester of 1984 Professor Prabhu visited Uppsala and very soon got me started on a book focusing on this aspect. I wish to thank him for getting me into this project, for his advice and suggestions, as well as his kindness and hospitality during my stay at Cornell in the spring of 1985. Throughout the writing of this book I have had immense help and support from Svante Janson. He has not only read, but scrutinized, every word and every formula of this and earlier versions of the manuscript. My gratitude to him for all the errors he found, for his perspicacious suggestions and remarks and, above all, for what his unusual personal as well as scientific generosity has meant to me cannot be expressed in words.
This book constitutes the refereed proceedings of the joint conference on Machine Learning and Knowledge Discovery in Databases: ECML PKDD 2008, held in Antwerp, Belgium, in September 2008. The 100 papers presented in two volumes, together with 5 invited talks, were carefully reviewed and selected from 521 submissions. In addition to the regular papers the volume contains 14 abstracts of papers appearing in full version in the Machine Learning Journal and the Knowledge Discovery and Databases Journal of Springer. The conference intends to provide an international forum for the discussion of the latest high quality research results in all areas related to machine learning and knowledge discovery in databases. The topics addressed are application of machine learning and data mining methods to real-world problems, particularly exploratory research that describes novel learning and mining tasks and applications requiring non-standard techniques.
Promoting original mathematical methods to determine the invariant measure of two-dimensional random walks in domains with boundaries, the authors use Using Riemann surfaces and boundary value problems to propose completely new approaches to solve functional equations of two complex variables. These methods can also be employed to characterize the transient behavior of random walks in the quarter plane.
An Unbounded Experience In Random Walks With Applications
Theory and Applications
New Scientist
Asymptotic Analysis of Random Walks
First-Passage Phenomena and Their Applications
A Random Walk in Science provides insight into the wit and intellect of the scientific mind through a blend of amusing and serious contributions written by and about scientists. The book records changing attitudes within science and mirrors the interactions of science with society. Some of the contributors include Lewis Carroll, Isaac Newton, Jonathan Swift, and James Clark Maxwell. This entertaining anthology covers Murphy's Law, the trial of Galileo, life on Earth, Gulliver's computer, and much more.
Random walks have proven to be a useful model in understanding processes across a wide spectrum of scientific disciplines. Elements of the Random Walk is an introduction to some of the most powerful and general techniques used in the application of these ideas. The mathematical construct that runs through the analysis of the topics covered in this book, unifying the mathematical treatment, is the generating function. Although the reader is introduced to analytical tools, such as path-integrals and field-theoretical formalism, the book is self-contained in that basic concepts are developed and relevant fundamental findings fully discussed. Mathematical background is provided in supplements at the end of each chapter, when appropriate. This text will appeal to graduate students across science, engineering and mathematics who need to understand the applications of random walk techniques, as well as to established researchers.
Both a biography of Plya's life, and a review of his many mathematical achievements by today's experts.
More Random Walks in Science is an anthology of fascinating and frequently amusing anecdotes, quotations, illustrations, articles, and reviews that reflect the more lighthearted aspects of the scientific world and the less serious excursions of the scientific mind. The book is guaranteed to delight anyone who has a professional or amateur interest in science.
FST TCS 2001: Foundations of Software Technology and Theoretical Computer Science
Limit Theorems and Applications
Dynamic Random Walks
From Tools to Applications

This book highlights cutting-edge research in the field of network science, offering scientists, researchers, students and practitioners a unique update on the latest advances in theory and a multitude of applications. It presents the peer-reviewed proceedings of the VI International Conference on Complex Networks and their Applications (COMPLEX NETWORKS 2017), which took place in Lyon on November 29 – December 1, 2017. The carefully selected papers cover a wide range of theoretical topics such as network models and measures; community structure, network dynamics; diffusion, epidemics and spreading processes; resilience and control as well as all the main network applications, including social and political networks; networks in finance and economics; biological and ecological networks and technological networks.
Presents an important and unique introduction to random walk theory Random walk is a stochastic process that has proven to be a useful model in understanding discrete-state discrete-time processes across a wide spectrum of scientific disciplines. Elements of Random Walk and Diffusion Processes provides an interdisciplinary approach by including numerous practical examples and exercises with real-world applications in operations research, economics, engineering, and physics. Featuring an introduction to powerful and general techniques that are used in the application of physical and dynamic processes, the book presents the connections between diffusion equations and random motion. Standard methods and applications of Brownian motion are addressed in addition to Levy motion, which has become popular in random searches in a variety of fields. The book also covers fractional calculus and introduces percolation theory and its relationship to diffusion processes. With a strong emphasis on the relationship between random walk theory and diffusion processes, Elements of Random Walk and Diffusion Processes features: Basic concepts in probability, an overview of stochastic and fractional processes, and elements of graph theory Numerous practical applications of random walk across various disciplines, including how to model stock prices and gambling, describe the statistical properties of genetic drift, and simplify the random movement of molecules in liquids and gases Examples of the real-world applicability of random walk such as node movement and node failure in wireless networking, the size of the Web in computer science, and polymers in physics Plentiful examples and exercises throughout that illustrate the solution of many practical problems Elements of Random Walk and Diffusion Processes is an ideal reference for researchers and professionals involved in operations research, economics, engineering, mathematics, and physics. The book is also an excellent textbook for upper-undergraduate and graduate level courses in probability and stochastic processes, stochastic models, random motion and Brownian theory, random walk theory, and diffusion process techniques.
The main aim of this book is to reveal connections between the physical and geometric properties of space and diffusion. This is done in the context of random walks in the absence of algebraic structure, local or global spatial symmetry or self-similarity. The author studies heat diffusion at this general level and discusses the multiplicative Einstein relation; Isoperimetric inequalities; and Heat kernel estimates; Elliptic and parabolic Harnack inequality.
Random walks have proven to be a useful model in understanding processes across a wide spectrum of scientific disciplines. This book is an introduction to some of the most powerful and general techniques used in the application of these ideas. Its self-contained text will appeal to graduate students across science, engineering and mathematics who need to understand the applications of random walk techniques, as well as to established researchers.
Branching Random Walk, Brownian Motion, Gambler's Ruin, Heterogeneous Random Walk in One Dimension, Loop-Erased Random Walk,
Computer and Information Sciences - ISCIS 2005
20th International Symposium, Istanbul, Turkey, October 26 -- 28, 2005, Proceedings
Elements of the Random Walk
An Anthology