Physics From Fisher Information A Unification

Sure to be influential, Watanabe's book lays the foundations for the use of algebraic geometry in statistical learning theory. Many models/machines are singular: mixture models, neural networks, HMMs, Bayesian networks, stochastic context-free grammars are majo examples. The theory achieved here underpins accurate estimation techniques in the presence of singularities.
Financial economist Szpiro tells the fascinating stories of the pioneers of mathematical finance who conducted the search for the elusive options pricing formula. "Pricing the Future" retraces the historical and intellectual developments that ultimately led to the widesp use of mathematical models to drive investment strategies on Wall Street.
This is a unique approach to noise theory and its application to physical measurements that will find its place among the graduate course books. In a very systematic way, the foundations are laid and applied in a way that the book will also be useful to those not focu optics. Exercises and solutions help students to deepen their knowledge.
The second edition of the hugely successful Physics from Fisher Information.
Lost Causes in and beyond Physics
Information Geometry
On the Occasion of Shun-ichi Amari's 80th Birthday, IGAIA IV Liblice, Czech Republic, June 2016
Variational and Extremum Principles in Macroscopic Systems
Statistical Analysis of Circular Data
Entropy Methods for the Boltzmann Equation

Scientists are in the business of trying to understand the world. Exploring commonplace phenomena, they have uncovered some of nature’s deepest laws. We can in turn apply these laws to our own lives, to better grasp and enhance our performance in daily activities as varied as cooking, home improvement, sports—even dunking a doughnut! This book makes the science of the familiar a key to opening the door for those who want to know what scientists do, why they do it, and how they go about it. Following the routine of a normal day, from coffee and breakfast to shopping, household chores, sports, a drink, supper, and a bath, we see how the seemingly mundane can provide insight into the most profound scientific questions. Some of the topics included are the art and science of dunking; how to boil an egg; how to tally a supermarket bill; the science behind hand tools; catching a ball or throwing a boomerang; the secrets of haute cuisine, bath (or beer) foam; and the physics of sex. Fisher writes with great authority and a light touch, giving us an entertaining and accessible look at the science behind our daily activities.

For most of the last century, condensed matter physics has been dominated by band theory and Landau's symmetry breaking theory. In the last twenty years, however, there has been the emergence of a new paradigm associated with fractionalisation, topological order, emergent gauge bosons and fermions, and string condensation. These new physical concepts are so fundamental that they may even influence our understanding of the origin of light and fermions in the universe. This book is a pedagogical and systematic introduction to the new concepts and quantum field theoretical methods (which have fuelled the rapid developments) in condensed matter physics. It discusses many basic notions in theoretical physics which underlie physical phenomena in nature. Topics covered are dissipative quantum systems, boson condensation, symmetry breaking and gapless excitations, phase transitions, Fermi liquids, spin density wave states, Fermi and fractional statistics, quantum Hall effects, topological and quantum order, spin liquids, and string condensation. Methods covered are the path integral, Green's functions, mean-field theory, effective theory, renormalization group, bosonization in one- and higher dimensions, non-linear sigma-model, quantum gauge theory, dualities, slave-boson theory, and exactly soluble models beyond one-dimension. This book is aimed at teaching graduate students and bringing them to the frontiers of research in condensed matter physics.

Recent years have seen a growing trend to derive models of macroscopic phenomena encountered in the fields of engineering, physics, chemistry, ecology, self-organisation theory and econophysics from various variational or extremum principles. Through the link between the integral extremum of a functional and the local extremum of a function (explicit, for example, in the Pontryagin’s maximum principle variational and extremum principles are mutually related. Thus it makes sense to consider them within a common context. The main goal of Variational and Extremum Principles in Macroscopic Systems is to collect various mathematical formulations and examples of physical reasoning that involve both basic theoretical aspects and applications of variational and extremum approaches to systems of the macroscopic world. The first part of the book is focused on the theory, whereas the second focuses on applications. The unifying variational approach is used to derive the balance or conservation equations, phenomenological equations linking fluxes and forces, equations of change for processes with coupled transfer of energy and substance, and optimal conditions for energy management. A unique multidisciplinary synthesis of variational and extremum principles in theory and application A comprehensive review of current and past achievements in variational formulations for macroscopic processes Uses Lagrangian and Hamiltonian formalisms as a basis for the exposition of novel approaches to transfer and conversion of thermal, solar and chemical energy

Two groups of animals, bats and odontocetes (toothed whales), have independently developed the ability to orient and detect prey by biosonar (echolocation). This active mechanism of orientation allows these animals to operate under low light conditions. Biosonar is a conceptual overview of what is known about biosonar in bats and odontocetes. Chapters are written by bat and odontocetes experts, resulting in collaborations that not only examine data on both animals, but also compare and contrast mechanisms. This book provides a unique insight that will help improve our understanding of biosonar in both animal groups.

Classical, Quantum, and Beyond
Statistical Mechanics
Einstein's Dice and Schršdinger's Cat
A Configuration Approach to Mindset Agency Theory
Epistemic Processes
Exploratory Data Analysis Using Fisher Information

The subject of this book is estimating parameters of expectation models of statistical observations. The book describes the most important aspects of the subject for applied scientists and engineers. This group of users is often not aware of estimators other than least squares. Therefore one purpose of this book is to show that statistical parameter estimation has much more to offer than least squares estimation alone. In the approach of this book, knowledge of the distribution of the observations is involved in the choice of estimators. A further advantage of the chosen approach is that it unifies the underlying theory and reduces it to a relatively small collection of coherent, generally applicable principles and notions.

The subject of information geometry blends several areas of statistics, computer science, physics, and mathematics. The subject evolved from the groundbreaking article published by legendary statistician C.R. Rao in 1945. His works led to the creation of Cramer-Rao bounds, Rao distance, and Rao-Blackawellization. Fisher-Rao metrics and Rao distances play a very important role in geodesics, econometric analysis to modern-day business analytics. The chapters of the book are written by experts in the field who have been promoting the field of information geometry and its applications. Written by experts for users of information geometry Basics to advanced readers are equally taken care Origins and Clarity on Foundations

Featuring updated versions of two research courses held at the Centre Émile Borel in Paris in 2001, this book describes the mathematical theory of convergence to equilibrium for the Boltzmann equation and its relation to various problems and fields. It also discusses four conjectures for the kinetic behavior of the hard sphere models and formulates four stochastic variations of this model, also reviewing known results for these.

This updated edition deals with the Monte Carlo simulation of complex physical systems encountered in condensed-matter physics, statistical mechanics, and related fields. It contains many applications, examples, and exercises to help the reader. It is an excellent guide for graduate students and researchers who use computer simulations in their research.

Formal Theories of Information
Pricing the Future
From Fluctuations to Information
An Informational Approach
Proceedings of the 30th Conference, Santiago, Chile, 23-28 November 2009
The Book of R

Information geometry provides the mathematical sciences with a new framework of analysis. It has emerged from the investigation of the natural differential geometric structure on manifolds of probability distributions, which consists of a Riemannian metric defined by the Fisher information and a one-parameter family of affine connections called the α-connections. The duality between the α-connection and the $(-\alpha)$-connection together with the metric play an essential role in this geometry. This kind of duality, having emerged from manifolds of probability distributions, is ubiquitous, appearing in a variety of problems which might have no explicit relation to probability theory. Through the duality, it is possible to analyze various fundamental problems in a unified perspective. The first half of this book is devoted to a comprehensive introduction to the mathematical foundation of information geometry, including preliminaries from differential geometry, the geometry of manifolds or probability distributions, and the general theory of dual affine connections. The second half of the text provides an overview of many areas of applications, such as statistics, linear systems, information theory, quantum mechanics, convex analysis, neural networks, and affine differential geometry. The book can serve as a suitable text for a topics course for advanced undergraduates and graduate students.
It is not intuitive to accept that there exists a link between quantum physical systems and cognitive systems. However, recent research has shown that cognitive systems and collective (social) systems, including biology, exhibit uncertainty which can be successfully modelled with quantum probability. The use of such probability allows for the modelling of situations which typically violate the laws of classical probability. The Palgrave Handbook of Quantum Models in Social Science is is a unique volume that brings together contributions from leading experts on key topics in this new and emerging field. Completely self-contained, it begins with an introductory section which gathers all the fundamental notions required to be able to understand later chapters. The handbook then moves on to address some of the latest research and applications for quantum methods in social science disciplines, including economics, politics and psychology. It begins with the issue of how the quantum mechanical framework can be applied to economics. Chapters devoted to this topic range from how Fisher information can be argued to play a role in economics, to the foundations and application of quantum game theory. The handbook then progresses in considering how belief states can be updated with the theory of quantum measurements (and also with more general methods). The practical use of the Hilbert space (and Fock space) in decision theory is then introduced, and open quantum systems are also considered. The handbook also treats a model of neural oscillators that reproduces some of the features of quantum cognition. Other contributions delve into causal reasoning using quantum Bayes nets and the role of quantum probability in modelling so called affective evaluation. The handbook is rounded off with two chapters which discuss the grand challenges which lie ahead of us. How can the quantum formalism be justified in social science and is the traditional quantum formalism too restrictive? Finally, a question is posed: whether there is a necessary role for quantum mathematical models to go beyond physics. This book will bring the latest and most cutting edge research on quantum theory to social science disciplines. Students and researchers across the discipline, as well as those in the fields of physics and mathematics will welcome this important addition to the literature.
A unified derivation of physics from Fisher information, giving new insights into physical phenomena.
Publisher Description
Quantum Computation and Quantum Information
Lectures from a Special Semester at the Centre Émile Borel, Institut H. Poincaré, Paris, 2001
The Palgrave Handbook of Quantum Models in Social Science
Theory of Point Estimation
A Formative Trait Psychology with Affect, Cognition and Behaviour
From the Origin of Sound to an Origin of Light and Electrons
It is commonly assumed that computers process information. But what is inf- mation? In a technical, important, but nevertheless rather narrow sense, Sh- non’sinformationtheorygivesa?rstanswertothisquestion.Thistheoryfocuses on measuring the information content of a message. Essentially this measure is the reduction of the uncertainty obtained by receiving a message. The unc- tainty of a situation of ignorance in turn is measured by entropy. This theory hashad an immense impact on the technologyof information storage,data c- pression, information transmission and coding and still is a very active domain of research. Shannon’s theory has also attractedmuch interest in a more philosophic look at information, although it was readily remarked that it is only a “syntactic” theory of information and neglects “semantic” issues. Several attempts have been made in philosophy to give information theory a semantic ?avor, but still mostly based on or at least linked to Shannon’s theory. Approaches to semantic informationtheoryalsoveryoftenmakeuseofformallogic.Thereby,information is linked to reasoning, deduction and inference, as well as to decision making. Further, entropy and related measure were soon found to have important connotations with regard to statistical inference. Surely, statistical data and observation represent information, information about unknown, hidden para- ters. Thus a whole branch of statistics developed around concepts of Shannon’s information theory or derived from them. Also some proper measurements - propriate for statistics, like Fisher’s information, were proposed.
This book presents a new agency paradigm that can resolve complex socio-political situations in cross-cultural environments.
A Harvard scholar argues that mathematical models can provide solutions to current economic challenges, explaining that the economic meltdown of 2008 was based on a misunderstanding of scientific models rather than on the models themselves.
Quantum theory is the soul of theoretical physics. It is not just a theory of specific physical systems, but rather a new framework with universal applicability. This book shows how we can reconstruct the theory from six information-theoretical principles, by rebuilding the quantum rules from the bottom up. Step by step, the reader will learn how to master the counterintuitive aspects of the quantum world, and how to efficiently reconstruct quantum information protocols from first principles. Using intuitive graphical notation to represent equations, and with shorter and more efficient derivations, the theory can be understood and assimilated with exceptional ease. Offering a radically new perspective on the field, the book contains an efficient course of quantum theory and quantum information for undergraduates. The book is aimed at researchers, professionals, and students in physics, computer science and philosophy, as well as the curious outsider seeking a deeper understanding of the theory.
A Brief History of Predicting the Unpredictable
Algebraic Geometry and Statistical Learning Theory
Quantum Probability and Related Topics
Introductory Quantum Optics
An Entertaining and Enlightening Examination of Everything We Do and Everything We See
On the Emergence Theme of Physics

This monograph introduces modern developments on the bound state problem in Schrödinger potential theory and its applications in particle physics. The Schrödinger equation provides a framework for dealing with energy levels of N-body systems. It was a cornerstone of the quantum revolution in physics of the twenties but re-emerged in the eighties as a powerful tool in the study of spectra and decay properties of mesons and baryons. This book begins with a detailed study of two-body problems, including discussion of general properties, level ordering problems, energy level spacing and decay properties. Following chapters treat relativistic generalisations, and the inverse problem. Finally, 3-body problems and N-body problems are dealt with. Applications in particle and atomic physics are considered, including quarkonium spectroscopy. The emphasis throughout is on showing how the theory can be tested by experiment. Many references are provided.

Scientists and engineers in optics are increasingly confronted with problems that are of a random nature and that require a working knowledge of probability and statistics for their solution. This book develops these subjects within the context of optics, using a problem-solving approach. All methods are explicitly derived and can be traced back to three simple axioms given at the outset. This third edition contains many new applications to optical and physical phenomena, including a method of exactly estimating probability laws.

The only thing we can be absolutely sure of is our own consciousness. But what is consciousness? Is it a property that is unique to humans or do we share it with other lifeforms? Or is the philosophical doctrine of panpsychism correct—are stars and the entire universe conscious in some sense? Early chapters in this book examine the prehistory, mythology, and history of this topic. Arguments are presented from the viewpoints of shamans, philosophers, poets, quantum physicists, and novelists. A simple “toy” model of panpsychism is then presented, in which a universal field of proto- consciousness interacts with molecular bonds via the vacuum fluctuation pressure of the Casimir Effect. It is shown how this model is in congruence with an anomaly in stellar motions called “Parenago’s Discontinuity.” Cool, redder, less massive stars such as the Sun apparently circle the center of the galaxy faster than their hotter, bluer, more massive sisters. This discontinuity occurs at the point in the stellar distribution where molecules begin to appear in stellar spectra. As described in the first edition of this book, observations of main sequence stars out to ~260 light years and giant stars out to >1,000 light years—using the ESA Hipparcos space observatory—support the reality and non-locality of Parenago’s Discontinuity. Local, more conventional explanations for this phenomenon are not supported by observations of other galaxies and the spiral arms of the Milky Way. Since 2014, the new ESA Gaia space observatory has been obtaining kinematics and position data for ~1 billion stars in our galaxy. The first Gaia data release in 2016 has been used in 2018 by a Russian team to demonstrate Parenago’s Discontinuity for a large stellar sample out to ~500 light years from the Sun. These observations support the hypothesis that anomalistic stellar motion is due to stellar volition, as described by philosopher/author Olaf Stapledon in his classic novel Star Maker, as previously discussed by the author in the peer-reviewed Journal of the British Interplanetary Society (JBIS). In light of the new Gaia observations and work by other researchers, it is not impossible that panpsychism is emerging from the realm of philosophy as a new subdivision of observational astronomy. Simple models of universal proto-consciousness may be subject to inductive tests using current and future space observatories. A special feature of this book is the chapter frontispiece art by C Bangs.

In each generation, scientists must redefine their fields: abstracting, simplifying and distilling the previous standard topics to make room for new advances and methods. Sethna's book takes this step for statistical mechanics - a field rooted in physics and chemistry whose ideas and methods are now central to information theory, complexity, and modern biology. Aimed at advanced undergraduates and early graduate students in all of these fields, Sethna limits his main presentation to the topics that future mathematicians and biologists, as well as physicists and chemists, will find fascinating and central to their work. The amazing breadth of the field is reflected in the author's large supply of carefully crafted exercises, each an introduction to a whole field of study: everything from chaos through information theory to life at the end of the universe.

Entropy, Order Parameters and Complexity
Applications and Grand Challenges
Noise Theory and Application to Physics

A Basis for Statistics and Quantum Theory
Ensembles on Configuration Space
A Problem Solving Approach
The Book of R is a comprehensive, beginner-friendly guide to R, the world's most popular programming language for statistical analysis. Even if you have no programming experience and little more than a grounding in the basics of mathematics, you'll find everything you need to begin using R effectively for statistical analysis. You'll start with the basics, like how to handle data and write simple programs, before moving on to more advanced topics, like producing statistical summaries of your data and performing statistical tests and modeling. You'll even learn how to create impressive data visualizations with R's basic graphics tools and contributed packages, like ggplot2 and ggvis, as well as interactive 3D visualizations using the rgl package. Dozens of hands-on exercises (with downloadable solutions) take you from theory to practice, as you learn: –The fundamentals of programming in R, including how to write data frames, create functions, and use variables, statements, and loops –Statistical concepts like exploratory data analysis, probabilities, hypothesis tests, and regression modeling, and how to execute them in R –How to access R's thousands of functions, libraries, and data sets –How to draw valid and useful conclusions from your data –How to create publication-quality graphics of your results Combining detailed explanations with real-world examples and exercises, this book will provide you with a solid understanding of both statistics and the depth of R's functionality. Make The Book of R your doorway into the growing world of data analysis.
Clear, accessible guide requires little prior knowledge and considers just two topics: paraxial imaging and polarization. Lucid discussions of paraxial imaging properties of a centered optical system, optical resonators and laser beam propagation, matrices in polarization optics and propagation of light through crystals, much more. 60 illustrations. Appendixes. Bibliography.
This book discusses a link between statistical theory and quantum theory based on the concept of epistemic processes – which can be e.g. statistical investigations or quantum mechanical measurements, and refer to processes that are used to gain knowledge about something. The book addresses a range of topics, including a derivation of the Born formula from reasonable assumptions, a derivation of the Schrödinger equation in the one-dimensional case, and a discussion of the Bell inequality from an epistemic perspective. The book describes a possible epistemic foundation of quantum theory. Lastly, it presents a general philosophical discussion of the approach, which, principally speaking, is not restricted to the micro-world. Hence the book can also be seen as a motivation for further research into quantum decision theory and quantum models for cognition. The book will benefit a broad readership, including physicists and statisticians interested in the foundation of their disciplines, philosophers of science and graduate students, and anyone with a reasonably good background in mathematics and an open mind.
This volume contains current work at the frontiers of research in quantum probability, infinite dimensional stochastic analysis, quantum information and statistics. It presents a carefully chosen collection of articles by experts to highlight the latest developments in those fields. Included in this volume are expository papers which will help increase communication between researchers working in these areas. The tools and techniques presented here will be of great value to research mathematicians, graduate students and applied mathematicians.
The Physics of Wall Street
Quantum Field Theory of Many-Body Systems
Probability, Statistical Optics, and Data Testing
Introduction to Matrix Methods in Optics
How Two Great Minds Battled Quantum Randomness to Create a Unified Theory of Physics
Particle Physics and the Schrödinger Equation

The book surveys mathematical relations between classical and quantum mechanics, gravity, time and thermodynamics from various points of view and many sources (with appropriate attribution). The emergence theme is developed with an emphasis on the meaning via mathematics. A background theme of Bohemian mechanics and connections to the quantum equivalence principle of Matone et al. is also developed in great detail. Some original work relating the quantum potential and Ricci flow is also included.
The book gathers contributions from the fourth conference on Information Geometry and its Applications, which was held on June 12–17, 2016, at Liblice Castle, Czech Republic on the occasion of Shun-ichi Amari's 80th birthday and was organized by the Czech Academy of Sciences' Institute of Information Theory and Automation. The conference received valuable financial support from the Max Planck Institute for Mathematics in the Sciences (Information Theory of Cognitive Systems Group), Czech Academy of Sciences' Institute of Information Theory and Automation, and Università degli Studi di Roma Tor Vergata. The aim of the conference was to highlight recent advances in the field of information geometry and to identify new research directions. To this end, the event brought together leading experts in the field who, in invited talks and poster sessions, discussed both theoretical work and achievements in the many fields of application in which information geometry plays an essential role.
This book deals with a selection of research topics in theoretical physics that have (almost) been proven to be a dead-end or continue at least to be highly controversial. Nevertheless, small but dedicated research communities continue to work on these issues. In a series of essays this book describes their work and struggle as well as the chances of any breakthrough in these areas. It is written as both an entertainment and serious study.
First-ever comprehensive introduction to the major new subject of quantum computing and quantum information.
Finance, Physics, and the 300-year Journey to the Black-Scholes Equation
Parameter Estimation for Scientists and Engineers
A First Course in Programming and Statistics
Rock, Paper, Scissors
Probabilistic and Statistical Aspects of Quantum Theory
Unified Theories

Praised by Entertainment Weekly as "the man who put the fizz into physics," Dr. Len Fisher turns his attention to the science of cooperation in his lively and thought-provoking book. Fisher shows how the modern science of game theory has helped biologists to understand the evolution of cooperation in nature, and investigates how we might apply those lessons to our own society. In a series of experiments that take him from the polite confines of an English dinner party to crowded supermarkets, congested Indian roads, and the wilds of outback Australia, not to mention baseball strategies and the intricacies of quantum mechanics, Fisher sheds light on the problem of global cooperation. The outcomes are sometimes hilarious, sometimes alarming, but always revealing. A witty romp through a serious science, Rock, Paper, Scissors will both teach and delight anyone interested in what it what it takes to get people to work together.
A unified, up-to-date account of circular data-handling techniques, useful throughout science.
When the fuzzy indeterminacy of quantum mechanics overthrew the orderly world of Isaac Newton, Albert Einstein and Erwin Schrödinger were at the forefront of the revolution. Neither man was ever satisfied with the standard interpretation of quantum mechanics, however, and both rebelled against what they considered the most preposterous aspect of quantum mechanics: its randomness. Einstein famously quipped that God does not play dice with the universe, and Schrödinger constructed his famous fable of a cat that was neither alive nor dead not to explain quantum mechanics but to highlight the apparent absurdity of a theory gone wrong. But these two giants did more than just criticize: they fought back, seeking a Theory of Everything that would make the universe seem sensible again. In Einstein's Dice and Schrödinger's Cat, physicist Paul Halpern tells the little-known story of how Einstein and Schrödinger searched, first as collaborators and then as competitors, for a theory that transcended quantum weirdness. This story of their quest—which ultimately failed—provides readers with new insights into the history of physics and the lives and work of two scientists whose obsessions drove its progress. Today, much of modern physics remains focused on the search for a Theory of Everything. As Halpern explains, the recent discovery of the Higgs Boson makes the Standard Model—the closest thing we have to a unified theory— nearly complete. And while Einstein and Schrödinger failed in their attempt to explain everything in the cosmos through pure geometry, the development of string theory has, in its own quantum way, brought this idea back into vogue. As in so many things, even when they were wrong, Einstein and Schrödinger couldn't help but get a great deal right.
This book is devoted to aspects of the foundations of quantum mechanics in which probabilistic and statistical concepts play an essential role. The main part of the book concerns the quantitative statistical theory of quantum measurement, based on the notion of positive operator-valued measures. During the past years there has been substantial progress in this direction, stimulated to a great extent by new applications such as Quantum Optics, Quantum Communication and high-precision experiments. The questions of statistical interpretation, quantum symmetries, theory of canonical commutation relations and Gaussian states, uncertainty relations as well as new fundamental bounds concerning the accuracy of quantum measurements, are discussed in this book in an accessible yet rigorous way. Compared to the first edition, there is a new Supplement devoted to the hidden variable issue. Comments and the bibliography have also been extended and updated.
From Shannon to Semantic Information Theory and General Concepts of Information
Methods of Information Geometry
Quantum Theory from First Principles
Science from Fisher Information
A Guide to Monte Carlo Simulations in Statistical Physics
The Science of Everyday Life

This book uses a mathematical approach to deriving the laws of science and technology, based upon the concept of Fisher information. The approach that follows from these ideas is called the principle of Extreme Physical Information (EPI). The authors show how to use EPI to determine the theoretical input/output laws of unknown systems. Will benefit readers whose math skill is at the level of an undergraduate science or engineering degree.
This book describes a promising approach to problems in the foundations of quantum mechanics, including the measurement problem. The dynamics of ensembles on configuration space is shown here to be a valuable tool for unifying the formalisms of classical and quantum mechanics, for deriving and extending the latter in various ways, and for addressing the quantum measurement problem. A description of physical systems by means of ensembles on configuration space can be introduced at a very fundamental level: the basic building blocks are a configuration space, probabilities, and Hamiltonian equations of motion for the probabilities. The formalism can describe both classical and quantum systems, and their thermodynamics, with the main difference being the choice of ensemble Hamiltonian. Furthermore, there is a natural way of introducing ensemble Hamiltonians that describe the evolution of hybrid systems; i.e., interacting systems that have distinct classical and quantum sectors, allowing for consistent descriptions of quantum systems interacting with classical measurement devices and quantum matter fields interacting gravitationally with a classical spacetime.
This second, much enlarged edition by Lehmann and Casella of Lehmann's classic text on point estimation maintains the outlook and general style of the first edition. All of the topics are updated, while an entirely new chapter on Bayesian and hierarchical Bayesian approaches is provided, and there is much new material on simultaneous estimation. Each chapter concludes with a Notes section which contains suggestions for further study. This is a companion volume to the second edition of Lehmann's "Testing Statistical Hypotheses".
A Unification
Biosonar
Game Theory in Everyday Life
Information Geometry and Its Applications
Physics from Fisher Information
Starlight Starbright: Are Stars Conscious? Second Edition