Introduction Cut Off Estimation Second Edition

This practical, two volume handbook provides a critical look at state-of -the-art ultrasound techniques and equipment. It is a comprehensive reference with numerous black/white and color ultrasonograms, tables and graphs. The volumes include extensive literature citations which assist the investigator in finding more in-depth references. This work focuses on the recent remarkable expansion in both diagnostic techniques and clinical applications. It reports findings based on an unusually large patient population over al long time period. It presents the accuracy and limitations of various aspects of ultrasound.

Murray Gell-Mann is one of the leading physicists in the world. He was awarded the Nobel Prize in Physics in 1969 for his work on the SU(3) symmetry. His list of publications, albeit relatively short, is highly impressive — he has written mainly papers, which have become landmarks in physics. In 1953, Gell-Mann introduced the strangeness quantum number. In 1954, he proposed, together with F Low, the idea of the renormalization group. In 1958, Gell-Mann wrote, together with R Feynman, an important paper on the V-A theory of weak interactions. In 1961, Gell-Mann published his ideas on the SU(3) symmetry. In 1964, he proposed the quark model for hadrons. In 1971, Gell-Mann, together with H Fritzsch, proposed the color quantum number; and in 1972, the theory of QCD. These major publications of Gell-Mann are collected in this volume, thus providing physicists with easy access to the important publications of Gell-Mann.

This volume consists of papers presented in the special sessions on "Wave Phenomena and Related Topics", and "Asymptotics and Homogenization" of the ISAAC'97 Congress held at the University of Delaware, during June 2-7, 1997. The ISAAC Congress coincided with a U.S.-Japan Seminar also held at the University of Delaware. The latter was supported by the National Science Foundation through Grant INT -9603029 and the Japan Society for the Promotion of Science through Grant MTCS-134. It was natural that the 'participants of both meetings should interact and consequently several persons attending the Congress also presented papers in the Seminar. The success of the ISAAC Congress and the U.S.-Japan Seminar has led to the ISAAC'99 Congress being held in Fukuoka, Japan during August 1999. Many of the same participants will return to this Seminar. Indeed, it appears that the spirit of the U.S.-Japan Seminar will be continued every second year as part of the ISAAC Congresses. We decided to include with the papers presented in the ISAAC Congress and the U.S.-Japan Seminar several very good papers by colleagues from the former Soviet Union. These participants in the ISAAC Congress attended at their own expense. This volume has the title Direct and Inverse Problems of Mathematical Physics which consists of the papers on scattering theory, coefficient identification, uniqueness and existence theorems, boundary controllability, wave propagation in stratified media, viscous flows, nonlinear acoustics, Sobolev spaces, singularity theory, pseudo differential operators, and semigroup theory.

This text covers the use of computer applications in the mineral industries, encompassing topics such as the use of computer visualization in mining systems and aspects such as ventilation and safety.

Complying with food regulations and, more importantly, quality standards, requires practical and reliable methods to estimate a product's shelf life. Emphasizing the importance of the consumer's perception of when food has reached the end of its shelf life, Sensory Shelf Life Estimation of Food Products provides a tool for adequately predicting sensory shelf life (SSL). The book delineates the basics of sensory analysis and how it applies to shelf-life studies and includes discussions of experimental design aspects, survival analysis methodology, and its extensions. It provides detailed instructions and software functions for performing SSL estimations, accompanied by data sets and the R Statistical Package functions that are available for download. The author presents the cut-off point methodology used to estimate SSL when the survival analysis methods get complicated. He includes a chapter on accelerated storage covering kinetics, calculations of prediction confidence intervals and potential pitfalls. He also examines extensions of survival analysis statistics to other areas of food quality such as optimum concentration of ingredients and optimum cooking temperatures. Microbiologically stable foods, such as biscuits or mayonnaise, will have their shelf-life defined by the changes in their sensory properties. Many fresh foods, such as yogurt or pasta, after relatively prolonged storage may be microbiologically safe to eat but rejected due to changes in their sensory properties. Shelf life in most food products is determined by sensory issues instead of microbiological or chemical concerns. This book offers key techniques for experimental design, storage, consumer testing procedures, and calculations. It includes methods for accelerated storage experiments, thoroughly explains statistical data treatment, and includes practical examples.

Casebook of Clinical Neuropsychology features actual clinical neuropsychological cases drawn from leading experts' files. Each chapter represents a different case completed by a different expert. Cases cover the lifespan from child, to adult, to geriatric, and the types of cases will represent a broad spectrum of prototypical cases of well-known and well-documented disorders as well as some rarer disorders. Chapter authors were specifically chosen for their expertise with particular disorders. When a practitioner is going to see a child or an adult with "X" problem, they can turn to the "case" and find up to date critical information to help them understand the issues related to the diagnosis, a brief synopsis of the literature, the patient's symptom presentation, the evaluation including neuropsychological test results and other results from consultants, along with treatments and recommendations. Clinical cases represent a long-established tradition as a teaching vehicle in the clinical sciences, most prominently in medicine and psychology. Case studies provide the student with actual clinical material - data in the form of observations of the patient, examination/test data, relevant history, and related test results - all of which must be integrated into a diagnostic conclusion and ultimately provide the patient with appropriate recommendations. Critical to this educational/heuristic process is the opportunity for the reader to view the thought processes of the clinician that resulted in the conclusions and recommendations offered. With the science of the disorder as the foundation of this process, readers learn how the integration of multiple sources of data furthers critical thinking skills.

'Green-Revolution' technologies have transformed the countryside of many less developed countries. This book examines the processes involved in the adoption of these new technologies and their socio-economic impact. It provides an integrated view of the effects of 'Green Revolution' technologies on economic growth and returns, distribution of income and resources, stability of agricultural production and returns and their sustainability in Bangladesh.

Offers information on the 18 key economic indicators of the labor market, provided by the International Labour Organization in Geneva, Switzerland. Provides access to ILO working papers, reports, and tables.

X-ray and neutron crystallography have played an increasingly impor tant role in the chemical and biochemical sciences over the past fifty years. The principal obstacles in this methodology, the phase problem and com puting, have been overcome. The former by the methods developed in the 1960's and just recognised by the 1985 Chemistry Nobel Prize award to Karle and Hauptman, the latter by the dramatic advances that have taken place in computer technology in the past twenty years. Within the last decade, two new radiation sources have been added to the crystallographer's tools. One is synchrotron X-rays and the other is spallation neutrons. Both have much more powerful fluxes than the pre vious sources and they are pulsed rather than continuos. New techniques are necessary to fully exploit the intense continuos radiation spectrum and its pulsed property. Both radiations are only available from particular National

Laboratories on a guest-user basis for scientists outside these Na tional Laboratories. Hitherto, the major emphasis on the use of these facilities has been in solid-state physics, and the material, engineering and biological sciences. We believe that there is equivalent potential to applications which are pri marily chemical or biochemical.

An Introduction to Cut-off Grade Estimation examines one of the most important calculations in the mining industry. Cut-off grades are essential to determining the economic feasibility and mine life of a project. Profitability and socioeconomic impact of mining operations are influenced by the choice of cut-off grades. Cut-off grades play a key role in estimating mineral reserves that can be publicly reported. This new edition is easier to read and of greater practical interest to practitioners. The relationship between optimization of net present value, capacity constraints, and opportunity cost is explained in greater detail. A new section discusses blending strategies, which play a critical role in an increasing number of mining operations. Author Jean-Michel Rendu, an internationally recognized expert in the management, estimation, and public reporting of mineral resources, provides practical insights. As a manager in major mining companies, a consultant, and an educator, Rendu has acquired considerable experience in all aspects of mining engineering, experience that was incorporated into this publication.

The proportion of the population over 65 years of age is increasing steadily in most industrialized countries. In the United States the proportion of elderly people has risen from four percent in 1900 to 11 % in 1978, and is projected to be 14% by the year 2000. The occurrence of debilitating chronic diseases in the elderly increases with each additional year. These diseases, along with the natural loss of tissue function that occurs throughout adult life, impose a heavy burden on the health care system. Nutri tion plays an important etiologic role in many of these degenerative changes. Conse quently, the aging segment of the population presents a challenge to the nutrition scientist, who should be able to recommend optimal intakes of nutrients to minimize the functional losses associated with aging and to optimize the health of those already elderly. This sixth volume in the series Human Nutrition: A Comprehensive Treatise provides a conspectus of the various interactions of nutrition with the aging process and a comprehensive survey of current knowledge of the amounts of individual nutrients needed by the elderly. The volume begins with a general survey of the multifaceted relationship of nutrition to aging, followed by four chapters on how nutrition can affect age-related changes in selected body functions. The next six chapters cover the avail able evidence regarding the needs of the elderly for dietary energy, protein, calcium, trace elements, vitamins, and fiber.

Provides more than eight hundred alphabetical entries that cover issues relating to poverty around the world.

Mixed modelling is one of the most promising and exciting areas of statistical analysis, enabling more powerful interpretation of data through the recognition of random effects. However, many perceive mixed modelling as an intimidating and specialized technique. This book introduces mixed modelling analysis in a simple and straightforward way, allowing the reader to apply the technique confidently in a wide range of situations. Introduction to Mixed Modelling shows that mixed modelling is a natural extension of the more familiar statistical methods of regression analysis and analysis of variance. In doing so, it provides the ideal introduction to this important statistical technique for those engaged in the statistical analysis of data. This essential book: Demonstrates the power of mixed modelling in a wide range of disciplines, including industrial research, social sciences, genetics, clinical research, ecology and agricultural research. Illustrates how the capabilities of regression analysis can be combined with those of ANOVA by the specification of a mixed model. Introduces the criterion of Restricted Maximum Likelihood (REML) for the fitting of a mixed model to data. Presents the application of mixed model analysis to a wide range of situations and explains how to obtain and interpret Best Linear Unbiased Predictors (BLUPs). Features a supplementary website containing solutions to exercises, further examples, and links to the computer software systems GenStat and R. This book provides a comprehensive introduction to mixed modelling, ideal for final year undergraduate students, postgraduate students and professional researchers alike. Readers will come from a wide range of scientific disciplines including statistics, biology, bioinformatics, medicine, agriculture, engineering, economics, and social sciences.

There has recently been a renewal of interest in Fokker-Planck operators, motivated by problems in statistical physics, in kinetic equations, and differential geometry. Compared to more standard problems in the spectral theory of partial differential operators, those operators are not self-adjoint and only hypoelliptic. The aim of the analysis is to give, as generally as possible, an accurate qualitative and quantitative description of the exponential return to the thermodynamical equilibrium. While exploring and improving recent results in this direction, this volume proposes a review of known techniques on: the hypoellipticity of polynomial of vector fields and its global counterpart, the global Weyl-Hörmander pseudo-differential calculus, the spectral theory of non-self-adjoint operators, the semi-classical analysis of Schrödinger-type operators, the Witten complexes, and the Morse inequalities.

The second Workshop on "Quality and Reliability of Large-Eddy Simulations", QLES2009, was held at the University of Pisa from September 9 to September 11, 2009. Its predecessor, QLES2007, was organized in 2007 in Leuven (Belgium). The focus of QLES2009 was on issues related to predicting, assessing and assuring the quality of LES. The main goal of QLES2009 was to enhance the knowledge on error sources and on their interaction in LES and to devise criteria for the prediction and optimization of simulation quality, by bringing together mathematicians, physicists and engineers and providing a platform specifically addressing these aspects for LES. Contributions were made by leading experts in the field. The present book contains the written contributions to QLES2009 and is divided into three parts, which reflect the main topics addressed at the workshop: (i) SGS modeling and discretization errors; (ii) Assessment and reduction of computational errors; (iii) Mathematical analysis and foundation for SGS modeling.

The purpose of the Handbook of Special Education is to help profile and bring greater clarity to the already sprawling and continuously expanding field of special education. To ensure consistency across the volume, chapter authors review and integrate existing research, identify strengths and weaknesses, note gaps in the literature, and discuss implications for practice and future research. The second edition has been fully updated throughout to take into account recent changes to federal laws as well as the most current academic research, and an entirely new section has been added on research methods in special education.

An Introduction to Cut-off Grade Estimation, Second EditionSociety for Mining, Metallurgy, and Exploration

The paper examines the association and corporate behavior for a sample of manufacturing firms in India for the post-reform period 1992-2003. The findings suggest that a contractionary monetary policy lowers overall debt including bank debt, although the lagged response is positive, and listed firms increase their short-term bank borrowings, after monetary tightening. The responses of corporates to a monetary contraction in the post-1997 period has been more pronounced. A disaggregated analysis of responses of firms according to size and leverage largely validates these findings. Two policy implications emerge from the analysis. First, the interest rate transmission channel has strengthened since 1998, and, second, corporates in India, especially listed ones, seem to exhibit relationship lending. In 1947 J. Robert Oppenheimer organized a historic conference of physicists at Shelter Island, located off the eastern tip of Long Island, to discuss recent advances in theoretical physics and the direction of future research. Over three decades later, the physics community held another meeting, the 1983 Shelter Island Conference on Quantum Field Theory and the Fundamental Problems of Physics. This volume is the record of the 1983 conference; it also includes much valuable information on the 1947 conference, for which no formal proceedings were ever published. The latter-day conference included many of the

participants from the prior event as well as younger physicists who have since become prominent figures in this field. Consequently, this volume is a vital document in the history of physics, of value to students and researchers in many branches of the subject. Topics include the new inflationary universe scenario; supersymmetry; Stephen Hawking's presentation, "The Cosmological Constant Is Probably Zero"; superunification and the seven-sphere; time as a dynamical variab? induced gravity; and an extensive and previously unpublished paper by Edward Witten on Kaluza-Klein theories. Contributors include Stephen L. Adler, Hans Bethe, M. J. Duff, Murray Gell-Mann, Alan H. Guth, Stephen W. Hawking, Roman Jackiw, Toichiro Kinoshita, W. E. Lamb, Jr., T. D. Lee, A. D. Linde, R. E. Marshak, Y. Nambu, K. Nishijima, John H. Schwarz, Silvan S. Schweber, Steven Weinberg, Victor Weisskopf, P. C. West, Edward Witten, and Bruno Zumino.

The first edition of Statistics and the Evaluation of Evidence for Forensic Scientists established itself as a highly regarded authority on this area. Fully revised and updated, the second edition provides significant new material on areas of current interest including: Glass Interpretation Fibres Interpretation Bayes' Nets The title presents comprehensive coverage of the statistical evaluation of forensic evidence. It is written with the assumption of a modest mathematical background and is illustrated throughout with up-to-date examples from a forensic science background. The clarity of exposition makes this book ideal for all forensic scientists, lawyers and other professionals in related fields interested in the quantitative assessment and evaluation of evidence. 'There can be no doubt that the appreciation of some evidence in a court of law has been greatly enhanced by the sound use of statistical ideas and one can be confident that the next decade will see further developments, during which time this book will admirably serve those who have cause to use statistics in forensic science.' D.V. Lindley

Vaccination programmes are of vital importance to public health and are present in virtually every country in the world. By promoting an understanding of the diverse effects of vaccination programmes, this textbook discusses how epidemiologic methods can be used to study, in real life, their impacts, benefits and risks. Written by expert practitioners in an accessible and concise style, this book is interspersed with practical examples which allow readers to acquire understanding through real-life data and problems. Part I provides an overview of basic concepts in vaccinology, immunology, vaccination programmes, infectious disease transmission dynamics, the various impacts of vaccination programmes and their societal context. Part II covers the main field tools used for the epidemiological evaluation of vaccination programmes: monitoring coverage and attitudes towards vaccination, surveillance of vaccine-preventable diseases and pathogens, seroepidemiological studies, methods to assess impact and outbreak investigation. Part III is dedicated to vaccine effectiveness and its assessment. Part IV includes an overview of the potential risks of vaccination and how to study these. Lastly, Part V deals with methods for an integrated assessment of benefits and risks of vaccination programmes. Suitable for professionals working in public health, epidemiology, biology and those working in health economics and vaccine development, Vaccination Programmes also serves as a textbook for postgraduate students in public health, epidemiology and infectious diseases. The book is aimed at all those involved in the many aspects of vaccination programmes, including public health professionals and epidemiologists. Its primary target audiences are master and doctoral students in infectious disease epidemiology and public health, post-doctoral participants of field epidemiology training programmes and public health professionals working in the post-implementation epidemiological evaluation of vaccines and vaccination programmes.

The full texts of Armed Services and othr Boards of Contract Appeals decisions on contracts appeals.

A shared understanding of development argumentation is crucial for a wide range of development processes (such as requirements engineering, change management, eGovernment and eParticipation, public policy) and central to prevent the failure of IT and development projects. Computer-Supported Argumentation Visualization (CSAV) has been used to model and represent discourse information for about 35 years. Although modelling tools have significantly matured and continue to evolve, the visual representation of existing tools does not scale ideally with increasing model complexity. For large-scale argumentation models, existing visualization approaches from argumentation visualization are reported as being too complex for target stakeholders. This prevents them from gaining insights into the development process and may ultimately contribute to the rejection of the development result, causing severe costs for both public and private organizations. In this paper, we employ the 'design science' methodology to incrementally develop two interactive visual representations for argumentation visualization, incorporating best practices from information visualization research. The prototypes are implemented and evaluated in the setting of the project "Research Core Dataset", a nation-wide project involving all major stakeholder groups of the German science system in order to develop harmonized definitions for research information. In our evaluation, both of the visual representations developed are perceived as being much better at providing insights into complex development processes with a high number of stakeholders. Ein geteiltes Verständnis der zugrundeliegenden Argumentation ist für eine Vielzahl von Entwicklungsprozessen zentral (so beispielsweise im Requirements Engineering, Change Management, eGovernment, eParticipation, und Public Policy), um den Fehlschlag der Prozessen zu verhindern. Computer-Supported Argumentation Visualization (CSAV) wird seit über 35 Jahren genutzt, um Diskurswissen zu modellieren. Obwohl die Modellierungswerkzeuge deutlich reifer geworden sind, skaliert die visuelle Repräsentation bestehender Werkzeuge nicht ideal mit der Modellkomplexität mit. Um komplexe Argumentationsmodelle abzubilden, wurden existierende Visualisierungsansätze als zu unübersichtlich von der Zielgruppe bewertet. Dadurch wird verhindert, dass sie die Entwicklungsprozesse nachvollziehen können. Dies kann im Extremfall zur Ablehnung des Entwicklungsergebnisses führen, was mit erheblichen Kosten für öffentliche und private Organisationen verbunden ist. In dem Artikel verwenden wir die "Design Science" Methodologie, um zwei interaktive visuelle Repräsentationen für Argumentationen unter Einbeziehung von Best Practices der Informationvisualisierungsforschung inkrementell zu entwickeln. Die Prototypen werden im Projekts "Kerndatensatz Forschung", einem deutschlandweiten Standardisierungsprojekts für Definitionen von Forschungsinformationen evaluiert. Unsere Evaluation zeigt, dass beide entwickelte visuellen Repräsentationen die Kommunikation komplexer Argumentationen an eine hohe Anzahl an Stakeholder deutlich verbessert.

The book covers the latest research in the areas of mathematics that deal the properties of partial differential equations and stochastic processes on spaces in connection with the geometry of the underlying space. Written by experts in the field, this book is a valuable tool for the advanced mathematician.

The method of the QCD sum rules was and still is one of the most productive tools in a wide range of problems associated with the hadronic phenomenology. Many heuristic ideas, computational devices, specific formulae which are useful to theorists working not only in hadronic physics, have been accumulated in this method. Some of the results and approaches which have originally been developed in connection with the QCD sum rules can be and are successfully applied in related fields, such as supersymmetric gauge theories, nontraditional schemes of quarks and leptons etc. The amount of literature on these and other more basic problems in hadronic physics has grown enormously in recent years. This volume presents a collection of papers which provide an overview of all basic elements of the sum rule approach and priority has been given to those works which seemed most useful from a pedagogical point of view.

High temperature superconductivity is still one of the most discussed topicsin physics. "The Physics and Chemistry of Oxide Superconductors " collects together more than one hundred original contributions presented during the 2nd International Symposium of the Institute for Solid State Physics of the University of Tokyo. The main topics cover new insights into the basic mechanism of high temperature superconductivity, recent developments of new superconducting materials, the state of the art of thin film production,theoretical understanding of the electronic structures in this kind of material, theories for

strongly correlated electron systems, and many physical and chemical effects.

Although the world has seen a strong increase in global incomes in the last two decades and consequently a decline in global poverty rates, the number of persons living in absolute poverty remains on unacceptably high levels. Besides rising incomes can not distract from the fact that resources to fight global problems remain scarce. These resources have to be devoted to the fight against different global problems like the fight against communicable and non-communicable diseases (especially HIV/AIDS and Malaria) or the fight against global warming. The main precondition to achieve the best results with these limited resources is a good knowledge about the determinants and the best policies to fight each problem. But before being able to analyze the determinants of the different global problems and especially of poverty, it is of fundamental importance to find the right indicators for each phenomenon. This book contributes to the discussion of appropriate poverty indicators for the different dimensions of poverty like income poverty, undernutrition and child mortality and proposes a multidimensional poverty indicator that takes the income distribution into consideration.

This book concentrates on first boundary-value problems for fully nonlinear second-order uniformly elliptic and parabolic equations with discontinuous coefficients. We look for solutions in Sobolev classes, local or global, or for viscosity solutions. Most of the auxiliary results, such as Aleksandrov's elliptic and parabolic estimates, the Krylov–Safonov and the Evans–Krylov theorems, are taken from old sources, and the main results were obtained in the last few years. Presentation of these results is based on a generalization of the Fefferman–Stein theorem, on Fang-Hua Lin's like estimates, and on the so-called "ersatz" existence theorems, saying that one can slightly modify "any" equation and get a "cut-off" equation that has solutions with bounded derivatives. These theorems allow us to prove the solvability in Sobolev classes for equations that are quite far from the ones which are convex or concave with respect to the Hessians of the unknown functions. In studying viscosity solutions, these theorems also allow us to deal with classical approximating solutions, thus avoiding sometimes heavy constructions from the usual theory of viscosity solutions.

It is a well known fact that geological investigations are characterized by particularly high incertainties. Furthermore,decisions related to geology, such as mineral exploration, mining investmentsetc. are connected with higher risks than similar decisions in the branches of industry and economy. Finally there are a number of highly dangerous natural hazards, e.g. earthquakes, volcanic activities, inundations etc. that are directly depending on geological processes. It is of paramount interest to study them, to describe them, to understand their origin and - if - possible to predict them. Uncertainties, geological risks and natural hazards are often mentioned in geological text-books, conference proceedings and articles, butno overall evaluation of them has been written so far.The complexity of these problems requires a thorough mathematical treatment.This book has been written with the purpose of presenting a detailed evaluation of the entire problem, discussing it from both the geological and the mathematical aspects.