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Real Analysis Modern Techniques and Their Applications John Wiley & Sons An in-depth look at real analysis and its applications-now expanded and revised. This new edition of the widely used analysis book continues to cover real analysis in greater detail and at a more advanced level than most books on the subject. Encompassing several subjects that underlie much of modern analysis, the book focuses on measure and integration theory, point set topology, and the basics of functional analysis. It illustrates the use of the general theories and introduces readers to other branches of analysis such as Fourier analysis, distribution theory, and probability theory. This edition is bolstered in content as well as in scope-extending its usefulness to students outside of pure analysis as well as those interested in dynamical systems. The numerous exercises, extensive bibliography, and review chapter on sets and metric spaces make *Real Analysis: Modern Techniques and Their Applications, Second Edition* invaluable for students in graduate-level analysis courses. New features include: * Revised material on the n-dimensional Lebesgue integral. * An improved proof of Tychonoff's theorem. * Expanded material on Fourier analysis. * A newly written chapter devoted to distributions and differential equations. * Updated material on Hausdorff dimension and fractal dimension. **Real Analysis Modern Techniques and Their Applications** Wiley-Interscience This book covers the subject matter that is central to mathematical analysis: measure and integration theory, some point set topology, and rudiments of functional analysis. Also, a number of other topics are developed to illustrate the uses of this core material in important areas of mathematics and to introduce readers to more advanced techniques. Some of the material presented has never appeared outside of advanced monographs and research papers, or been readily available in comparative texts. About 460 exercises, at varying levels of difficulty, give readers practice in working with the ideas presented here. **Modern Machine Learning Techniques and Their Applications in Cartoon Animation Research** John Wiley & Sons The integration of machine learning techniques and cartoon animation research is fast becoming a hot topic. This book helps readers learn the latest machine learning techniques, including patch alignment framework; spectral clustering, graph cuts, and convex relaxation; ensemble manifold learning; multiple kernel learning; multiview subspace learning; and multiview distance metric learning. It then presents the applications of these modern machine learning techniques in cartoon animation research. With these techniques, users can efficiently utilize the cartoon materials to generate animations in areas such as virtual reality, video games, animation films, and sport simulations **Quantitative Equity Portfolio Management Modern Techniques and Applications** CRC Press Quantitative equity portfolio management combines theories and advanced techniques from several disciplines, including financial economics, accounting, mathematics, and operational research. While many texts are devoted to these disciplines, few deal with quantitative equity investing in a systematic and mathematical framework that is suitable for quantitative investment students. Providing a solid foundation in the subject, *Quantitative Equity Portfolio Management: Modern Techniques and Applications* presents a self-contained overview and a detailed mathematical treatment of various topics. From the theoretical basis of behavior finance to recently developed techniques, the authors review quantitative investment strategies and factors that are commonly used in practice, including value, momentum, and quality, accompanied by their academic origins. They present advanced techniques and applications in return forecasting models, risk management, portfolio construction, and portfolio implementation that include examples such as optimal multi-factor models, contextual and nonlinear models, factor timing techniques, portfolio turnover control, Monte Carlo valuation of firm values, and optimal trading. In many cases, the text frames related problems in mathematical terms and illustrates the mathematical concepts and solutions with numerical and empirical examples. Ideal for students in computational and quantitative finance programs, *Quantitative Equity Portfolio Management* serves as a guide to combat many common modeling issues and provides a rich understanding of portfolio management using mathematical analysis. **Modern Techniques of Surface Science** Cambridge University Press Revised and expanded second edition of the standard work on new techniques for studying solid surfaces. **Modern Heuristic Optimization Techniques Theory and Applications to Power Systems** John Wiley & Sons This book explores how developing solutions with heuristic tools offers two major advantages: shortened development time and more robust systems. It begins with an overview of modern heuristic techniques and goes on to cover specific applications of heuristic approaches to power system problems, such as security assessment, optimal power flow, power system scheduling and operational planning, power generation expansion planning, reactive power planning, transmission and distribution planning, network reconfiguration, power system control, and hybrid systems of heuristic methods. **Modern Techniques for Successful IT Project Management** IGI Global Computer technology provides the opportunity for innovation and progress in the daily operations and initiatives of corporations. Despite the positive elements of integrating technology into the workplace, corporations continue to struggle with the challenges created by rapid technological advancements. *Modern Techniques for Successful IT Project Management* brings together academic research and professional practice to examine the complexity of implementing technology into the structure and organization of a corporation's ventures. This publication is an essential reference source for researchers, professionals, and upper-level university students working in the fields of project management, information systems, and IT project management interested in the methodologies and research necessary to improve the impact of Information Technology. **Real Analysis Modern Techniques and Their Applications** Academic Internet Pub Incorporated Never HIGHLIGHT a Book Again! Virtually all of the testable terms, concepts, persons, places, and events from the textbook are included. Cram101 Just the FACTS101 studyguides give all of the outlines, highlights, notes, and quizzes for your textbook with optional online comprehensive practice tests. Only Cram101 is Textbook Specific.

Accompanys: 9780471317166 . **Contemporary Coding Techniques and Applications for Mobile Communications** CRC Press Modern error control coding methods based on turbo coding have essentially solved the problem of reliable data communications over noisy channels. Contemporary Coding Techniques and Applications for Mobile Communications provides a clear, comprehensive, and practical grounding on the subject matter, examining the fundamentals, theory, and application of contemporary coding techniques and the applications for mobile communications. Written from the perspective that error control coding techniques will facilitate future digital data links, the book provides in-depth coverage on topics such as modulation techniques, multiplexing, channel models, MIMO systems, fundamental coding techniques, trellis coding modulation, turbo codes, and multilevel turbo codes. The first part of the text presents fundamental information on modulation, multiplexing, channel models, and traditional coding methods. The second part explains advanced coding techniques, provides simulation results, and compares them with related methods. It also provides new coding algorithms and new research areas such as image transmission with step-by-step guidelines. **Measure, Integration & Real Analysis** Springer Nature This open access textbook welcomes students into the fundamental theory of measure, integration, and real analysis. Focusing on an accessible approach, Axler lays the foundations for further study by promoting a deep understanding of key results. Content is carefully curated to suit a single course, or two-semester sequence of courses, creating a versatile entry point for graduate studies in all areas of pure and applied mathematics. Motivated by a brief review of Riemann integration and its deficiencies, the text begins by immersing students in the concepts of measure and integration. Lebesgue measure and abstract measures are developed together, with each providing key insight into the main ideas of the other approach. Lebesgue integration links into results such as the Lebesgue Differentiation Theorem. The development of products of abstract measures leads to Lebesgue measure on \mathbb{R}^n . Chapters on Banach spaces, L_p spaces, and Hilbert spaces showcase major results such as the Hahn-Banach Theorem, Hölder's Inequality, and the Riesz Representation Theorem. An in-depth study of linear maps on Hilbert spaces culminates in the Spectral Theorem and Singular Value Decomposition for compact operators, with an optional interlude in real and complex measures. Building on the Hilbert space material, a chapter on Fourier analysis provides an invaluable introduction to Fourier series and the Fourier transform. The final chapter offers a taste of probability. Extensively class tested at multiple universities and written by an award-winning mathematical expositor, Measure, Integration & Real Analysis is an ideal resource for students at the start of their journey into graduate mathematics. A prerequisite of elementary undergraduate real analysis is assumed; students and instructors looking to reinforce these ideas will appreciate the electronic Supplement for Measure, Integration & Real Analysis that is freely available online.

Phytochemistry Volume 1: Fundamentals, Modern Techniques, and Applications CRC Press This first book in this three-volume set provides comprehensive coverage of a wide range of topics in phytochemistry. With chapters from professional specialists from key institutions around the world, the volume starts with an introduction to phytochemistry and details the fundamentals. Part II discusses the state-of-the-art modern methods and techniques in phytochemical research, while Part III provides an informative overview of computational phytochemistry and its applications. Part IV presents novel research findings in the discovery of drugs that will be effective in the treatment of diseases. The chapters are drawn carefully and integrated sequentially to aid flow, consistency, and continuity. **Bladesmithing with Murray Carter Modern Application of Traditional Techniques** Krause Publications Bladesmithing with Murray Carter provides the reader with an in-depth look into traditional Japanese Cutlery forging techniques and their modern applications. A non-stop flow of inquiries to Murray has prompted him to reveal the secret techniques learned during 18 years in Japan, where he lived and worked as a village bladesmith. He now shares this wealth of information for the benefit of the curious reader and Japanese knife enthusiast alike. Owners of nearly 15,000 of Murray's knives will be delighted to see a comprehensive book written by the knives' creator. Features: 250+ dazzling, full-color images, including many by renowned photographer Hiro Soga. Unique and extremely rare insight into the Japanese culture through the (blue) eyes of a Japanese village bladesmith. Detailed explanations of Traditional Japanese Bladesmithing techniques that until now have been cloaked in mystery and myth. Enough detailed information to guide an aspiring bladesmith to become a successful smith in the Japanese style of blade making. **Modern Techniques for Food Authentication** Academic Press Modern Techniques for Food Authentication, Second Edition presents a comprehensive review of the novel techniques available to authenticate food products, including various spectroscopic technologies, methods based on isotopic analysis and chromatography, and other techniques based on DNA, enzymatic analysis and electrophoresis. This new edition pinpoints research and development trends for those working in research, development and operations in the food industry, giving them readily accessible information on modern food authentication techniques to ensure a safe and authentic food supply. It will also serve as an essential reference source to undergraduate and postgraduate students, and for researchers in universities and research institutions. Presents emerging imaging techniques that have proven to be powerful, non-destructive tools for food authentication Includes applications of hyperspectral imaging to reflect the current trend of developments in food imaging technology for each topic area Provides pixel level visualization techniques needed for fast and effective food sample testing Contains two new chapters on Imaging Spectroscopic Techniques **Modern Techniques in Cytopathology** Karger Medical and Scientific Publishers "The purpose of this book is to describe, illustrate, and review many of the most recent developments regarding modern techniques employed in cytopathology. It is intended for all cytologists, including cytopathologists, cytotechnologists, cytology lab assistants, trainees, research scientists, and anyone who is interested in the field of cytopathology"--

Handbook of Statistical Analysis and Data Mining Applications Elsevier Handbook of Statistical Analysis and Data Mining Applications, Second Edition, is a comprehensive professional reference book that guides business analysts, scientists, engineers and researchers, both academic and industrial, through all stages of data analysis, model building and implementation. The handbook helps users discern technical and business problems, understand the strengths and weaknesses of modern data mining algorithms and employ the right statistical methods for practical application. This book is an ideal reference for users who want to address massive and complex datasets with novel statistical approaches and be able to objectively evaluate analyses and solutions. It has clear, intuitive explanations of the principles and tools for solving problems using modern analytic techniques and discusses their application to real problems in ways accessible and beneficial to practitioners across several areas—from science and engineering, to medicine, academia and commerce. Includes input by practitioners for practitioners Includes tutorials in numerous fields of study that provide step-by-step instruction on how to use supplied tools to build models Contains practical advice from successful real-world implementations Brings together, in a single resource, all the information a beginner needs to understand the tools and issues in data mining to build successful data mining solutions Features clear, intuitive explanations of novel analytical tools and techniques, and

their practical applications **Selected Applications of Modern FT-IR Techniques** Routledge This volume is intended to show beginners in modern Fourier Transform-Infrared analysis which technique of infrared analysis should be selected and how to use it to obtain certain information from the most common samples brought into research and analytical laboratories in production industries.

Intelligent Techniques and Applications in Science and Technology Proceedings of the First International Conference on Innovations in Modern Science and Technology Springer Nature This book provides innovative ideas on achieving sustainable development and using green technologies to conserve our ecosystem. Innovation is the successful exploitation of a new idea. Through innovation, we can achieve MORE while using LESS. Innovations in science & technology will not only help mankind as a whole, but also contribute to the economic growth of individual countries. It is essential that the global problem of environmental degradation be addressed immediately, and thus, we need to rethink the concept of sustainable development. Indeed, new environmentally friendly technologies are fundamental to attaining sustainable development. The book shares a wealth of innovative green technological ideas on how to preserve and improve the quality of the environment, and how to establish a more resource-efficient and sustainable society. The book provides an interdisciplinary approach to addressing various technical issues and capitalizing on advances in computing & optimization for scientific & technological development, smart information, communication, bio-monitoring, smart cities, food quality assessment, waste management, environmental aspects, alternative energies, sustainable infrastructure development, etc. In short, it offers valuable information and insights for budding engineers, researchers, upcoming young minds and industry professionals, promoting awareness for recent advances in the various fields mentioned above. **Modern Optimization Techniques with Applications in Electric Power Systems** Springer Science & Business Media This book presents the application of some AI related optimization techniques in the operation and control of electric power systems. With practical applications and examples the use of functional analysis, simulated annealing, Tabu-search, Genetic algorithms and fuzzy systems for the optimization of power systems is discussed in detail. Preliminary mathematical concepts are presented before moving to more advanced material. Researchers and graduate students will benefit from this book. Engineers working in utility companies, operations and control, and resource management will also find this book useful. **Phytochemistry Application of Modern Stratigraphic Techniques Theory and Case Histories** SEPM Soc for Sed Geology **Unconventional Nanopatterning Techniques and Applications** John Wiley & Sons Patterning or lithography is at the core of modern science and technology and cuts across all disciplines. With the emergence of nanotechnology, conventional methods based on electron beam lithography and extreme ultraviolet photolithography have become prohibitively expensive. As a result, a number of simple and unconventional methods have been introduced, beginning first with research demonstrations in the mid 1990s. This book focuses on these unconventional patterning techniques and their applications to optics, organic devices, electronic devices, biological devices, and fluidics. **Modern Techniques for Circular Dichroism and Synchrotron Radiation Circular Dichroism Spectroscopy** IOS Press Modern Techniques for Circular Dichroism and Synchrotron Radiation Circular Dichroism Spectroscopy provides a comprehensive and up-to-date account of circular dichroism (CD) spectroscopy and its application to structural biology. In particular, the newer methods of synchrotron radiation circular dichroism (SRCD) and linear dichroism (LD) are fully covered. Use of SRCD allows data between 190 and 160nm to be measured, where additional information content is obtained, plus the ability to characterize biomolecules in diverse environments. The method has value in protein fold recognition and potential for use in structural genomics. In addition to their wide research experience, the editors have extensive experience of running and teaching internationally at workshops on CD. **Modern Techniques in Raman Spectroscopy** John Wiley & Sons Incorporated Raman spectroscopy is now well established as one of the most versatile techniques for the chemical analysis of molecular species. Major advances have been made in a number of areas in the field in recent years which enable the researcher and practising analytical scientist to solve the complex chemical problems of today. The ten chapters in Modern Techniques in Raman Spectroscopy cover some of the most exciting fields of research in modern Raman techniques, and illustrate the power of modern Raman spectroscopy for molecular analysis in both theoretical and practical problems. The volume opens with chapters on signal expressions and instrumentation in Raman spectroscopy, and then goes on to discuss in detail Fourier and Hadamard Transform Raman spectroscopies, micro-Raman spectroscopy, surface-enhanced Raman spectroscopy, Raman optical activity, coherent and time-resolved techniques and the use of optical fibres in Raman spectroscopy. The chapters are written by leading researchers from a broad range of disciplines. Throughout, applications of the various techniques are discussed. Modern Techniques in Raman Spectroscopy will be of great interest to all those involved in molecular spectroscopy, in both industry and academia. The inclusion of a wide range of modern techniques in a single volume will make this a particularly valuable work to researchers across the whole field of Raman spectroscopy. **Portrait Painting Atelier Old Master Techniques and Contemporary Applications** Watson-Guptill The art of portraiture approached its apex during the sixteenth century in Europe with the discovery of oil painting when the old masters developed and refined techniques that remain unsurpassed to this day. The ascendance of nonrepresentational art in the middle of the twentieth century displaced these venerable skills, especially in academic art circles. Fortunately for aspiring artists today who wish to learn the methods that allowed the Old Masters to achieve the luminous color and subtle tonalities so characteristic of their work, this knowledge has been preserved in hundreds of small traditional painting ateliers that persevered in the old ways in this country and throughout the world. Coming out of this dedicated movement, Portrait Painting Atelier is an essential resource for an art community still recovering from a time when solid instruction in art technique was unavailable in our schools. Of particular value here is a demonstration of the Old Masters' technique of layering paint over a toned-ground surface, a process that builds from the transparent dark areas to the more densely painted lights. This method unifies the entire painting, creating a beautiful glow that illuminates skin tones and softly blends all the color tones. Readers will also find valuable instruction in paint mediums from classic oil-based to alkyd-based, the interactive principles of composition and photograph-based composition, and the anatomy of the human face and the key relationships among its features. Richly illustrated with the work of preeminent masters such as Millet, Géricault, and van Gogh, as well as some of today's leading portrait artists—and featuring seven detailed step-by-step portrait demonstrations—Portrait Painting Atelier is the first book in many years to so comprehensively cover the concepts and techniques of traditional portraiture. **Advanced Surface Coating Techniques for Modern Industrial Applications** IGI Global In engineering, there are often situations in which the material of the main component is unable to sustain long life or protect itself from adverse operating environments. Moreover, in some cases, different material properties such as anti-friction and wear, anti-corrosive, thermal resistive, super hydrophobic, etc. are required as per the operating conditions. If those bulk components

are made of such materials and possess those properties, the cost will be very high. In such cases, a practical solution is surface coating, which serves as a protective barrier to the bulk material from the adverse environment. In the last decade, with enormous effort, researchers and scientists have developed suitable materials to overcome those unfavorable operating conditions, and they have used advanced deposition techniques to enhance the adhesion and surface texturing of the coatings. *Advanced Surface Coating Techniques for Modern Industrial Applications* is a highly sought reference source that compiles the recent research trends in these new and emerging surface coating materials, deposition techniques, properties of coated materials, and their applications in various engineering and industrial fields. The book particularly focuses on 1) coating materials including anti-corrosive materials and nanomaterials, 2) coating methods including thermal spray and electroless disposition, and 3) applications such as surface engineering and thin film application. The book is ideal for engineers, scientists, researchers, academicians, and students working in fields like material science, mechanical engineering, tribology, chemical and corrosion science, bio-medical engineering, biomaterials, and aerospace engineering.

Carbohydrate Analysis by Modern Liquid Phase Separation Techniques Elsevier Carbohydrate Analysis by Modern Liquid Phase Separation Techniques, Second Edition, presents readers with the various principles of modern liquid phase separation techniques and their contributions to the analysis of complex carbohydrates and glycoconjugates. In a selection of all-new chapters, this fully updated volume covers each technique in detail. The book aims to help analysts solve any of the many practical problems they may face in tackling the analysis of carbohydrates. In addition, it addresses current difficulties that must be resolved in carbohydrate research, thus inspiring further important technological developments to meet these challenges. This is an essential resource for anyone seeking a broad view of the science of carbohydrates and separation techniques. Covers the basic principles of modern liquid phase separation techniques, along with their applications Compiles up-to-date information on the field of carbohydrate analysis, along with updates on separation science Focuses on problems currently faced in carbohydrate analysis and the solutions necessary for further progress

Bancroft's Theory and Practice of Histological Techniques E-Book Elsevier Health Sciences This is a brand new edition of the leading reference work on histological techniques. It is an essential and invaluable resource suited to all those involved with histological preparations and applications, from the student to the highly experienced laboratory professional. This is a one stop reference book that the trainee histotechnologist can purchase at the beginning of his career and which will remain valuable to him as he increasingly gains experience in daily practice. Thoroughly revised and up-dated edition of the standard reference work in histotechnology that successfully integrates both theory and practice. Provides a single comprehensive resource on the tried and tested investigative techniques as well as coverage of the latest technical developments. Over 30 international expert contributors all of whom are involved in teaching, research and practice. Provides authoritative guidance on principles and practice of fixation and staining. Extensive use of summary tables, charts and boxes. Information is well set out and easy to retrieve. Six useful appendices included (SI units, solution preparation, specimen mounting, solubility). Provides practical information on measurements, preparation solutions that are used in daily laboratory practice. Color photomicrographs used extensively throughout. Better replicates the actual appearance of the specimen under the microscope. Brand new co-editors. New material on immunohistochemical and molecular diagnostic techniques. Enables user to keep abreast of latest advances in the field.

Modern Multivariate Statistical Techniques Regression, Classification, and Manifold Learning Springer Science & Business Media This is the first book on multivariate analysis to look at large data sets which describes the state of the art in analyzing such data. Material such as database management systems is included that has never appeared in statistics books before.

Modern Metallographic Techniques and Their Applications Chemical Analysis Modern Instrumentation Methods and Techniques John Wiley & Sons Completely revised and updated, *Chemical Analysis: Second Edition* is an essential introduction to a wide range of analytical techniques and instruments. Assuming little in the way of prior knowledge, this text carefully guides the reader through the more widely used and important techniques, whilst avoiding excessive technical detail. Provides a thorough introduction to a wide range of the most important and widely used instrumental techniques Maintains a careful balance between depth and breadth of coverage Includes examples, problems and their solutions Includes coverage of latest developments including supercritical fluid chromatography and capillary electrophoresis

Modern Cryptography with Proof Techniques and Implementations CRC Press Proof techniques in cryptography are very difficult to understand, even for students or researchers who major in cryptography. In addition, in contrast to the excessive emphases on the security proofs of the cryptographic schemes, practical aspects of them have received comparatively less attention. This book addresses these two issues by providing detailed, structured proofs and demonstrating examples, applications and implementations of the schemes, so that students and practitioners may obtain a practical view of the schemes. Seong Oun Hwang is a professor in the Department of Computer Engineering and director of Artificial Intelligence Security Research Center, Gachon University, Korea. He received the Ph.D. degree in computer science from the Korea Advanced Institute of Science and Technology (KAIST), Korea. His research interests include cryptography, cybersecurity, networks, and machine learning. Intae Kim is an associate research fellow at the Institute of Cybersecurity and Cryptology, University of Wollongong, Australia. He received the Ph.D. degree in electronics and computer engineering from Hongik University, Korea. His research interests include cryptography, cybersecurity, and networks. Wai Kong Lee is an assistant professor in UTAR (University Tunku Abdul Rahman), Malaysia. He received the Ph.D. degree in engineering from UTAR, Malaysia. In between 2009 – 2012, he served as an R&D engineer in several multinational companies including Agilent Technologies (now known as Keysight) in Malaysia. His research interests include cryptography engineering, GPU computing, numerical algorithms, Internet of Things (IoT) and energy harvesting.

Modern Chemical Techniques This book is based on a series of symposia that enabled individuals to update their chemical skills and learn about the newest methods, techniques, and instrumentation available.

Modern Applications of DNA Amplification Techniques Problems and New Tools Springer In the ten years since the first publication on PCR (Saiki et al. , 1985), this *in vitro* method of nucleic acid replication and modification has grown to rival in popularity traditional microbiological, genetical and technical procedures for cloning, sequencing, gene detecting and related procedures. To date the PCR literature has emphasized six main areas of application: genetic mapping, detection of mutations, genetic polymorphism, transcriptional splicing and regulation, molecular virology and quantitative procedures. The overwhelming focus of quantification of DNA or RNA by PCR has been on human microbiology and oncological problems. The exquisite sensitivity of PCR gives this method the ability to detect extremely rare DNAs, mRNAs, mRNAs in small numbers of cells or in small amounts of tissue, and mRNAs expressed in mixed-cell populations. However, the exact and accurate quantification of specific nucleic acids in biological samples is in spite of numerous

publications in that field still a general problem: during the peR process, an unknown initial number of target sequences are used as a template from which a large quantity of specific product can be obtained. Although the amount of product formed is easy to determine, it is difficult to deduce the initial copy number of the target molecule because the efficiency of the peR is largely unknown.

Modern Techniques of Spectroscopy Basics, Instrumentation, and Applications Springer Nature The book highlights recent developments in the field of spectroscopy by providing the readers with an updated and high-level of overview. The focus of this book is on the introduction to concepts of modern spectroscopic techniques, recent technological innovations in this field, and current examples of applications to molecules and materials relevant for academia and industry. The book will be beneficial to researchers from various branches of science and technology, and is intended to point them to modern techniques, which might be useful for their specific problems. Spectroscopic techniques, that are discussed include, UV-Visible absorption spectroscopy, XPS, Raman spectroscopy, SERS, TERS, CARS, IR absorption spectroscopy, SFG, LIBS, Quantum cascade laser (QCL) spectroscopy, fluorescence spectroscopy, ellipsometry, cavity-enhanced absorption spectroscopy, such as cavity ring-down spectroscopy (CRDS) and evanescent wave-CRDS both in gas and condensed phases, time-resolved spectroscopy etc. Applications introduced in the different chapters demonstrates the usefulness of the spectroscopic techniques for the characterization of fundamental properties of molecules, e.g. in connection with environmental impact, bio-activity, or usefulness for pharmaceutical drugs, and materials important e.g. for nano-science, nuclear chemistry, or bio-applications. The book presents how spectroscopic techniques can help to better understand substances, which have also great impact on questions of social and economic relevance (environment, alternative energy, etc.).

Modern Mathematical Tools and Techniques in Capturing Complexity Springer Science & Business Media Real-life problems are often quite complicated in form and nature and, for centuries, many different mathematical concepts, ideas and tools have been developed to formulate these problems theoretically and then to solve them either exactly or approximately. This book aims to gather a collection of papers dealing with several different problems arising from many disciplines and some modern mathematical approaches to handle them. In this respect, the book offers a wide overview on many of the current trends in Mathematics as valuable formal techniques in capturing and exploiting the complexity involved in real-world situations. Several researchers, colleagues, friends and students of Professor María Luisa Menéndez have contributed to this volume to pay tribute to her and to recognize the diverse contributions she had made to the fields of Mathematics and Statistics and to the profession in general. She had a sweet and strong personality, and instilled great values and work ethics in her students through her dedication to teaching and research. Even though the academic community lost her prematurely, she would continue to provide inspiration to many students and researchers worldwide through her published work.

Modern Techniques for Agricultural Disease Management and Crop Yield Prediction IGI Global Since agriculture is one of the key parameters in assessing the gross domestic product (GDP) of any country, it has become crucial to transition from traditional agricultural practices to smart agriculture. New agricultural technologies provide numerous opportunities to maximize crop yield by recognizing and analyzing diseases and other natural variables that may affect it. Therefore, it is necessary to understand how computer-assisted technologies can best be utilized and adopted in the conversion to smart agriculture. *Modern Techniques for Agricultural Disease Management and Crop Yield Prediction* is an essential publication that widens the spectrum of computational methods that can aid in agriculture disease management, weed detection, and crop yield prediction. Featuring coverage on a wide range of topics such as soil and crop sensors, swarm robotics, and weed detection, this book is ideally designed for environmentalists, farmers, botanists, agricultural engineers, computer engineers, scientists, researchers, practitioners, and students seeking current research on technology and techniques for agricultural diseases and predictive trends.

Modern Spectroscopic Techniques and Applications BoD - Books on Demand Modern spectroscopic techniques have a number of applications in many fields including material science, physics, chemistry, biology, and medicine. This book, "Modern Spectroscopic Techniques and Applications", presents knowledge about these techniques and their applications. The chapters cover many aspects such as an introduction to atomic microscopy, Raman spectroscopy, infrared spectroscopy and their applications covering both the experimental and theoretical aspects. This book is aimed to provide understanding about modern spectroscopic techniques and their applications to students, scientists, and engineers working in the relevant areas. **Essentials in Modern HPLC Separations** Elsevier *Essentials in Modern HPLC Separations, Second Edition* discusses the role of separation in high performance liquid chromatography (HPLC). This new and updated edition systematically presents basic concepts as well as new developments in HPLC. Starting with a description of basic concepts, it provides important guidance for the practical utilization of various HPLC procedures, such as the selection of the HPLC type, proper choice of the chromatographic column, selection of mobile phase and selection of the method of detection, all of which are in correlation with the physico-chemical characteristics of the compounds separated. Every chapter has been carefully reviewed, with several new sections added to bring the book completely up-to-date. Hence, it is a valuable reference for students and professors in chemistry. Provides a thoroughly updated resource, with an entirely new section on Computer-aided Method Development in HPLC and new subsections on miniaturization and automation in HPLC, chemometric aspects of HPLC, green solvent use in HPLC, and more Includes insights into the chromatographic process to find the optimum solution for analyzing complex samples Presents a basis for understanding the utilization of modern HPLC for applications, particularly for the analysis of pharmaceutical, biological, food, beverage and environmental samples

Preparative Chromatography Techniques Applications in Natural Product Isolation Springer Science & Business Media Over the past few years, increasing attention has been paid to the search for bioactive compounds from natural sources. The success of plant-derived products such as paclitaxel (Taxol) in tumor therapy or artemisinin in the treatment of malaria has provided the impetus for the introduction of numerous research programmes, especially in Industry. A great deal of effort is being expended in the generation of novel lead molecules of vegetable, marine and microbial origin by the use of high throughput screening protocols. When interesting hits are found, it is essential to have methods available for the rapid isolation of target compounds. For this reason, both industry and academia need efficient preparative chromatographic separation techniques and experience in their application. Purified natural products are required for complete spectroscopic identification and full characterization of new compounds, for biological testing and for the supply of pharmaceuticals, standards, and starting materials for synthetic work. Obtaining pure products from an extract can be a very long, tedious and expensive undertaking, involving many steps. Sometimes only minute amounts of the desired compounds are at hand and these entities may be labile. Thus it is an advantage to have access to as many different methods as possible in order to aid the isolation process. Although a certain amount of trial and error may be involved, nowadays there is the possibility of devising suitable rapid

separation schemes by a judicious choice of the different techniques available. **Handbook of Portfolio Construction Contemporary Applications of Markowitz Techniques** Springer Science & Business Media Portfolio construction is fundamental to the investment management process. In the 1950s, Harry Markowitz demonstrated the benefits of efficient diversification by formulating a mathematical program for generating the "efficient frontier" to summarize optimal trade-offs between expected return and risk. The Markowitz framework continues to be used as a basis for both practical portfolio construction and emerging research in financial economics. Such concepts as the Capital Asset Pricing Model (CAPM) and the Arbitrage Pricing Theory (APT), for example, provide the foundation for setting benchmarks, for predicting returns and risk, and for performance measurement. This volume showcases original essays by some of today's most prominent academics and practitioners in the field on the contemporary application of Markowitz techniques. Covering a wide spectrum of topics, including portfolio selection, data mining tests, and multi-factor risk models, the book presents a comprehensive approach to portfolio construction tools, models, frameworks, and analyses, with both practical and theoretical implications.