

## Gcms Qp2010 Plus Shimadzu

This book constitutes Part I of the refereed four-volume post-conference proceedings of the 4th IFIP TC 12 International Conference on Computer and Computing Technologies in Agriculture, CCTA 2010, held in Nanchang, China, in October 2010. The 352 revised papers presented were carefully selected from numerous submissions. They cover a wide range of interesting theories and applications of information technology in agriculture, including simulation models and decision-support systems for agricultural production, agricultural product quality testing, traceability and e-commerce technology, the application of information and communication technology in agriculture, and universal information service technology and service systems development in rural areas.

Increasing attention is being paid to the development of effective technologies for the sequestration of CO<sub>2</sub> and its storage. Hopefully, this will result in processes that can lead to its valorisation as a chemical, e.g., for the regeneration of fuels, but also for the production of intermediates. These are usually energy demands and rather slow processes, requiring energy input and catalysts. Some examples are the innovative strategies for the hydrogenation, photoconversion, or electroreduction of carbon dioxide. This book collects original research papers, reviews, and commentaries focused on the challenges related to the valorisation and conversion of CO<sub>2</sub>.

This book is a printed edition of the Special Issue "Application of Essential Oils in Food Systems" that was published in Foods

A comprehensive overview of adhesive bonding, providing both basic knowledge of polymer adhesives as well as insights into their mechanical and ageing properties. The book is unique in its up-to-date, self-contained summary of recent developments and in its integration of the theory, synthesis and mechanical properties of adhesive joints as well as their applications. Well-structured throughout, the first chapter introduces the initial state of adhesive joints and their formation, while subsequent chapters discuss the ageing and failure as well as the weathering of adhesive joints. In addition the issue of long-term behavior and lifetime predictions are considered. The text is rounded off by a look at future technological advances. The result is an essential reference for a wide range of disciplines

This volume highlights recent research efforts in the conservation and investigation of works of art on wood. Through eleven case studies it showcases different experimental methods ranging from X-ray analysis of objects to the study of cross-sections made from micro-samples. New research focusing on the technical study, treatment and assessment of works of art on wood in its many forms is featured in this edited volume. Technical studies include the attribution and investigations of a triptych by Hans Memling and a sculpture from workshop of Michel and Gregor Erhart, decorated Syrian rooms, and investigations of finely carved Gothic wooden objects. Synchrotron-based methods are presented for studying the alteration of 19th c. verdigris in Norway, and multi-analytical methods are employed for the investigations of 16th to 19th c. East Asian lacquer from the Kunsthistorisches Museum in Vienna. Novel methods for the cleaning of gilded surfaces using gels and emulsions are shown, as are innovative strategies for the consolidation for waterlogged wood, providing key data for the assessment of risks and benefits of new methods, and the short and long-term effects on gilding layers and archaeological wood. The book clearly shows how collaboration between engineers, physicists, biologists and chemists and conservators of different types of materials can lead to new research in conservation science. This book is crucial reading for conservators and conservation scientists, as well as for technical art historians, providing key methodological case studies of polychromy from different temporal and geographical contexts.

The book contains the Proceedings of the 37th International Symposium on Archaeometry, 12th May 2008, Siena, Italy. The aim of the

Symposium is to promote the development and use of scientific techniques in order to extract archaeological and historical information from cultural heritage and the paleoenvironment. It involves all Natural Sciences and all types of objects and materials related with human activity. Papers deal with the development and/or application of scientific techniques for extracting information related to human activities of the past, including the biological nature of man himself and the environment in which he lived. Topics include: Field Archaeology and Intergrated Site Studies; Archaeo-chronometry including recent developments in Radiocarbon Dating; Human - Environment Interactions including Geoarchaeology, Palaeoclimate studies, Landscape Archaeology, Environmental reconstructions, etc.; Bioarchaeology; Food preparation and consumption in Antiquity; the Technology and Provenance of Stone, Plaster, Pigments; Ceramics, Glazes, Glass and Vitreous Materials, Metals and Metallurgical Ceramics; and Micro/nano diagnostic techniques.

In this thesis, describes a proficient method for synthesis of Titania, titania based nanocomposites, Ni:TiO<sub>2</sub>, Co:Ni:TiO<sub>2</sub>, Co:La:TiO<sub>2</sub>, Co:TiO<sub>2</sub>, Cu-TiO<sub>2</sub>, TiO<sub>2</sub>/PAni, TiO<sub>2</sub>/PAni/GO, TiO<sub>2</sub>/PPy and TiO<sub>2</sub>/PPy/GO nanocomposites. The doping of metal ions were made by solution impregnation method in the Titania nanopowder followed by the calcination in the muffle furnace. The polymer based nanocomposites were prepared by one-step in situ deposition oxidative polymerization of Aniline and pyrrole hydrochloride using Ammonium persulphate (APS) as an oxidant in the presence of ultra-fine grade powder of TiO<sub>2</sub> nanoparticles cooled in an ice bath. The obtained nanocomposites were characterized by XRD, TEM, SEM and UV-Vis for band gap determination. The Photocatalytic degradation of Eriochrome black-T, Acetic acid, methyl blue, methyl green, Thymol Blue, Rose Bengal and Victoria blue dye was done at different condition viz concentration of dye, time of illumination, pH and dose of the photocatalyst. The maximum photodegradation was found at 7 pH, lowest concentration of compound solution, highest amount of photocatalyst and 120 min irradiation of visible light. Kinetics of photodegradation was investigated for organic dyes were found first order kinetics. The doping of metal ions and coating of Polyaniline and PolyPyrrole and GO has enhanced the photocatalytic activity of Titania.

Plants and plant-derived compounds and drugs are becoming more and more popular with increasing numbers of scientists researching plant analysis. The quality control of herbal drugs is also becoming essential to avoid severe health problems, and in the future many more new drugs will be developed from plant sources. This three-volume Handbook, featuring 47 detailed review articles, is unique as it deals with chemical and biological methodologies for plant analysis. It presents the most important and most accurate methods which are available for plant analysis. This comprehensive work is divided into six sections as follows: Sample preparation and identification – discussing plant selection and collection, followed by extraction and sample preparation methodologies. Extraction and sample preparation methodologies Instrumentation for chemical analysis - several instrumentations for chemical plant analysis are presented with an emphasis on hyphenated techniques, e.g. the coupling between HPLC and mass spectrometry, and HPLC with NMR. Strategies for selective classes of compounds – coverage of the most interesting classes of compounds such as polysaccharides, saponins, cardiotonic glycosides, alkaloids, terpenoids, lipids, volatile compounds and polyphenols (flavonoids, xanthenes, coumarins, naphthoquinones, anthraquinones, proanthocyanidins, etc.). Biological Analysis - includes phenotyping, DNA barcoding techniques, transcriptome analysis, microarray, metabolomics and proteomics. Drugs from Plants – covers the screening of plant extracts and strategies for the quick discovery of novel bioactive natural products. Safety assessment of herbal drugs is highly dependent on outstanding chromatographic and spectroscopic methods which are also featured here. This Handbook introduces to scientists involved in plant studies the current knowledge of methodologies in various fields of chemically- and biochemically-related topics in plant research. The content from this Handbook will publish online within the Encyclopedia of Analytical

Chemistry via Wiley Online Library: <http://www.wileyonlinelibrary.com/ref/eac> <http://www.wileyonlinelibrary.com/ref/eac/a> Benefit from the introductory offer, valid until 30 November 2014! Introductory price: £425.00 / \$695.00 / €550.00 List price thereafter: £495.00 / \$795.00 / €640.00

Plastic is one of the widely used polymers around the globe since its discovery. It is highly impossible to think the ease of life without the aid of plastic. Every year billion tons of plastic waste gets accumulated in the environment and leads to death of both marine and terrestrial animals. Plastic is very durable and needs around 1000 years to degrade under the natural environment. The present book illustrates the importance and significance of the bioremediation to tackle the problem of plastic waste. Previously, we have reported elite rhizobacterial isolates (*Lysinibacillus fusiformis* strain VASB14/WL and *Bacillus cereus* strain VASB1/TS) of *Avicennia marina* Vierh (Forsk.) from the West Coast of India with the potential to degrade plastic (polythene). The present book attempted to address the bioremediation scenario of plastic waste (including micro plastic) using microbes with bacteria in particular. Various strategies used to tackle with the plastic waste were highlighted with case studies of plastic waste management, including in vitro, in situ and ex situ with a special reference to biodegradation technology. After the biodegradation of the plastic using microbes, the generated plastic (polythene) degradation products (PE-DPs) were also documented using GC-MS technique followed by their deleterious effect on both animal and plant systems. The book also enhances the awareness of the plastic-free society and also suggests some alternative materials to be used instead of plastic. Lastly, the book suggests/recommends the strategies to be followed by the lawmakers in the government organizations/non-government organizations/social organizations to frame the regulations and guidelines to implement at mass level to reduce the generation of plastic waste.

These proceedings of the IAMG 2014 conference in New Delhi explore the current state of the art and inform readers about the latest geostatistical and space-based technologies for assessment and management in the contexts of natural resource exploration, environmental pollution, hazards and natural disaster research. The proceedings cover 3D visualization, time-series analysis, environmental geochemistry, numerical solutions in hydrology and hydrogeology, geotechnical engineering, multivariate geostatistics, disaster management, fractal modeling, petroleum exploration, geoinformatics, sedimentary basin analysis, spatiotemporal modeling, digital rock geophysics, advanced mining assessment and glacial studies, and range from the laboratory to integrated field studies. Mathematics plays a key part in the crust, mantle, oceans and atmosphere, creating climates that cause natural disasters, and influencing fundamental aspects of life-supporting systems and many other geological processes affecting Planet Earth. As such, it is essential to understand the synergy between the classical geosciences and mathematics, which can provide the methodological tools needed to tackle complex problems in modern geosciences. The development of science and technology, transforming from a descriptive stage to a more quantitative stage, involves qualitative interpretations such as conceptual models that are complemented by quantification, e.g. numerical models, fast dynamic geologic models, deterministic and stochastic models. Due to the increasing complexity of the problems faced by today's geoscientists, joint efforts to establish new conceptual and numerical models and develop new paradigms are called for.

Gas chromatography continues to be one of the most widely used analytical techniques, since its applications today expand into fields such as biomarker research or metabolomics. This new practical textbook enables the reader to make full use of gas chromatography. Essential fundamentals and their implications for the practical work at the instrument are provided, as well as details on the instrumentation such as inlet systems, columns and detectors. Specialized techniques from all aspects of GC are introduced ranging from sample preparation, solvent-free injection techniques, and pyrolysis GC, to separation including fast GC and comprehensive GCxGC and finally detection, such as GC-

MS and element-specific detection. Various fields of application such as enantiomer, food, flavor and fragrance analysis, physicochemical measurements, forensic toxicology, and clinical analysis are discussed as well as cutting-edge application in metabolomics is covered. This volume includes selected contributions presented during the 2nd edition of the international conference on WaterEnergyNEXUS which was held in Salerno, Italy in November 2018. This conference was organized by the Sanitary Environmental Engineering Division (SEED) of the University of Salerno (Italy) in cooperation with Advanced Institute of Water Industry at Kyungpook National University (Korea) and with The Energy and Resources Institute, TERI (India). The initiative received the patronage of UNESCO – World Water Association Programme (WWAP) and of the International Water Association (IWA) and was organized with the support of Springer (MENA Publishing Program), Arab Water Council (AWC), Korean Society of Environmental Engineering (KSEE) and Italian Society of Sanitary Environmental Engineering Professors (GITISA). With the support of international experts invited as plenary and keynote speakers, the conference aimed to give a platform for Euro-Mediterranean countries to share and discuss key topics on such water-energy issues through the presentation of nature-based solutions, advanced technologies and best practices for a more sustainable environment. This volume gives a general and brief overview on current research focusing on emerging Water-Energy-Nexus issues and challenges and its potential applications to a variety of environmental problems that are impacting the Euro-Mediterranean zone and surrounding regions. A selection of novel and alternative solutions applied worldwide are included. The volume contains over about one hundred carefully refereed contributions from 44 countries worldwide selected for the conference. Topics covered include (1) Nexus framework and governance, (2) Environmental solutions for the sustainable development of the water sector, (3) future clean energy technologies and systems under water constraints, (4) environmental engineering and management, (5) Implementation and best practices Intended for researchers in environmental engineering, environmental science, chemistry, and civil engineering. This volume is also an invaluable guide for industry professionals working in both water and energy sectors.

The international workshop on conservation of East Asian cabinets in imperial residences (1700–1900) marked the starting point for the FWF-funded research project on the East Asian cabinets in Schönbrunn palace. The workshop facilitated the exchange of knowledge and experience between international conservators, art historians and related experts in the fields of Asian and European lacquerware and porcelain.

This book is a collection of 13 innovative papers describing the state of the art and the future perspectives in solid-phase extraction covering several analytical fields prior to the use of gas or liquid chromatographic analysis. New sorptive materials are presented including carbon nanohorn suprastructures on paper support, melamine sponge functionalized with urea–formaldehyde co-oligomers, chiral metal–organic frameworks, UiO-66-based metal–organic frameworks, and fabric phase sorptive media for various applications. Solid-phase extraction can be applied in several formats aside from the conventional cartridges or mini-column approach, e.g., online solid-phase extraction, dispersive solid-phase microextraction, and in-syringe micro-solid-phase extraction can be very helpful for analyte pre-concentration and sample clean-up. Polycyclic musks in aqueous samples, 8-Nitroguanine in DNA by chemical derivatization antibacterial diterpenes from the roots of *salvia prattii*, perfluoroalkyl substances (PFASs) in aater samples by bamboo charcoal-based SPE, parabens in environmental water samples, benzotriazoles as environmental pollutants, organochlorine pesticide residues in various fruit juices and water samples and synthetic peptide purification are among the applications cited in this collection. All these outstanding contributions highlight the necessity of this analytical step, present the advantages and disadvantages of each method and focus on the green analytical chemistry guidelines that have to be fulfilled in

current analytical practices.

This book is a printed edition of the Special Issue "Bioconversion Processes" that was published in *Fermentation*. *Service Life Prediction of Polymers and Plastics Exposed to Outdoor Weathering* discusses plastics and polymers and their unique applications, from sealants used in construction, to polymer composites used in planes. While these materials are important enablers for advanced technologies, exposure to weather changes the very properties of plastics that make them so useful. This book reviews current research needs and provides a consensus roadmap of the scientific barriers to validated predictive models for the response of polymers and plastics to outdoor exposure. Despite extensive efforts over the past 20-30 years, testing of polymeric materials in accelerated or natural weathering conditions and the interpretation of the weathering results still require substantial improvements. This book represents the state-of-the-art in the prediction techniques available and in development. Engineers and materials scientists working in this field will be able to use the content of this book to assess the strengths and challenges of a range of different methods and approaches. Enables engineers and scientists in a range of industries to more successfully predict the durability of polymers, paints and coatings when exposed to weather Provides the latest information to help determine the sustainability of polymeric materials Reviews the current state-of-the-art in this area and identifies research needs that are followed by more detailed discussions of specific polymers and applications

Five years of *Separations* are celebrated by a collection of ten feature articles: one review and nine research articles on topics of current interest. Applications of Gas Chromatography for the Analysis of Tricyclic Antidepressants in Biological Matrices are presented focusing on novel extraction techniques and novel materials used for sample preparation due to the great demand for method development for the determination of TCAs in biofluids, especially for therapeutic drug monitoring. Original research articles include the following: 1. Insights into the Mechanism of Separation of Bisphosphonates by Zwitterionic Hydrophilic Interaction Liquid Chromatography: Application to the Quantitation of Risedronate in Pharmaceuticals. 2. A method based on micro-matrix solid-phase dispersion (μ-MSPD) followed by gas-chromatography tandem mass spectrometry (GC-MS/MS), developed to analyze UV filters in personal care products. 3. The performance of a vibratory shear-enhanced process (VSEP) combined with an appropriate membrane unit for the treatment of simulated or industrial tannery wastewaters. 4. A method for the analysis of thyroid hormones by liquid chromatography-mass spectrometry that was used for the dissolution testing of single- and dual-component thyroid hormone supplements via a two-stage biorelevant dissolution procedure. 5. A method involving the collection and determination of organic and inorganic gunshot residues on hands using online in-tube solid-phase microextraction (IT-SPME) coupled to miniaturized capillary liquid chromatography with diode array detection (CapLC-DAD) and scanning electron microscopy coupled to energy dispersion X-ray (SEM-EDX), respectively, for quantifying both residues. 6. The gas chromatographic retention behavior of 16 polycyclic aromatic hydrocarbons (PAHs) and alkylated PAHs on a new ionic liquid stationary phase, 1,12-di(tripropylphosphonium) dodecane bis(trifluoromethanesulfonyl)imide (SLB®-ILPAH) intended for the separation of PAH mixtures, which was compared with the elution pattern on more traditional stationary phases: a non-polar

phenyl arylene (DB-5ms) and a semipolar 50% phenyl dimethyl siloxane (SLB PAHms) column. 7. The Multiple-Stage Precursor Ion Separation and High Resolution Mass Spectrometry toward Structural Characterization of 2,3-Diacyltrehalose Family from *Mycobacterium tuberculosis* 8. The use of micellar electrokinetic chromatography (MEKC) for studying the hydrophobic character of modified Monomethyl Auristatin E derivatives, as Novel Candidates for the Design of Antibody–Drug Conjugates, which are promising state-of-the-art biopharmaceutical drugs for selective drug-delivery applications and the treatment of diseases such as cancer. 9. The use of recycled diatomaceous earth as the extraction phase in solid phase microextraction (SPME) technique for the determination of polycyclic aromatic hydrocarbons (PAHs) in river water samples, with separation/detection performed by gas chromatography-mass spectrometry (GC-MS).

A variety of chemical compounds has been released into water from industrial and agricultural activities and urban wastes. Some of those chemicals are harmful to living organisms and are resistant to degradation, thus named persistent organic pollutants (POPs). In efforts to manage chemical pollutants such as POPs in Asia, the United Nations University (UNU) and Shimadzu Corporation established a pilot project in 1996, “Environmental Monitoring and Analysis in the East Asian Region”, to aid developing Asian countries with the knowledge and technology to analyse and monitor such pollutants in the environment. This book summarizes some highlights of monitoring results obtained by the project’s activities for 15 years, and reports the present status of the project, touching on the future development of the project by analysing challenges ahead of the project.

Artists’ oil paints have become increasingly complex and diverse in the 20th Century, applied by artists in a variety of ways. This has led to a number of issues that pose increasing difficulties to conservators and collection keepers. A deeper knowledge of the artists’ intent as well as processes associated with material changes in paintings is important to conservation, which is almost always a compromise between material preservation and aesthetics. This volume represents 46 peer-reviewed papers presented at the Conference of Modern Oil Paints held in Amsterdam in 2018. The book contains a compilation of articles on oil paints and paintings in the 20th Century, partly presenting the outcome of the European JPI project ‘Cleaning of Modern Oil Paints’. It is also a follow-up on ‘Issues in Contemporary Oil Paint’ (Springer, 2014). The chapters cover a range of themes and topics such as: patents and paint manufacturing in the 20th Century; characterization of modern-contemporary oil paints and paint surfaces; artists’ materials and techniques; the artists’ voice and influence on perception of curators, conservators and scientists; model studies on paint degradation and long term stability; approaches to conservation of oil paintings; practical surface treatment and display. The book will help conservators and curators recognise problems and interpret visual changes on paintings, which in turn give a more solid basis for decisions on the treatment of these paintings.

The utilization of bio-resourced macromolecules for polymer applications has been the subject of increasing interest, mainly for sustainability and functionality reasons. This Special Issue of Processes brings together nine papers from leading scientists and researchers active in the area of “Sustainable and Renewable Polymers, Processing, and Chemical Modifications”. The collected papers include seven original research and two review articles related to renewable feedstock for polymer applications, processes

for the fabrication of renewable polymer-based nanomaterials, the design and modification of renewable polymers, and applications of renewable polymers. The journal Processes will continue to nurture progress in this field through its position as an open access platform.

The majority of carbon stored in the soils of the world is stored in forests. The refractory nature of some portions of forest soil organic matter also provides the slow, gradual release of organic nitrogen and phosphorus to sustain long term forest productivity. Contemporary and future disturbances, such as climatic warming, deforestation, short rotation silviculture, the invasion of exotic species, and fire, all place strains on the integrity of this homeostatic system of C, N, and P cycling. On the other hand, the CO<sub>2</sub> fertilization effect may partially offset losses of soil organic matter, but many have questioned the ability of N and P stocks to sustain the CO<sub>2</sub> fertilization effect. Despite many advances in the understanding of C, N, and P cycling in forest soils, many questions remain. For example, no complete inventory of the myriad structural formulae of soil organic N and P has ever been made. The factors that cause the resistance of soil organic matter to mineralization are still hotly debated. Is it possible to “engineer” forest soil organic matter so that it sequesters even more C? The role of microbial species diversity in forest C, N, and P cycling is poorly understood. The difficulty in measuring the contribution of roots to soil organic C, N, and P makes its contribution uncertain. Finally, global differences in climate, soils, and species make the extrapolation of any one important study difficult to extrapolate to forest soils worldwide.

This book addresses a key innovative technology for decarbonization of the energy system: hydrothermal processing. It basically consists of treating biomass and wastes in a wet form, under pressure and temperature condition. This approach is becoming more and more attractive, as new feedstock and applications are appearing on the scene of bioeconomy and bioenergy. The hydrothermal processing of various type of biomass, waste, and residues, thus, raised the interest of many researchers and companies around the world, together with downstream upgrading processes and technologies: solid products as biochar, for instance, or liquid ones as crude bioliquids, are finding new market opportunities in circular economy schemes. The Special Issue collects recent innovative research works in the field, from basic to applied research, as well as pilot industrial applications/demo. It is a valuable set of references for those investing time and effort in research in the field.

Nanoparticles have received much attention recently due to their use in cancer therapy. Studies have shown that different metal oxide nanoparticles induce cytotoxicity in cancer cells. Drug delivery systems are designed to achieve drug therapeutic index and enhance the efficacy of controlled drug release targeting with specificity and selectivity by successful delivery of therapeutic agents at the desired sites without affecting the non-diseased neighbouring cells or tissues. In this work, nano-titanium dioxide, as anatase phase, was obtained by the sol-gel method with a cleaner technology a bio-extract obtained from the plant *Artemisia pallens* containing poly alcohols- used as a solvent, the structural, optical, particle size and the morphological properties of TiO<sub>2</sub> nanoparticles were analyzed using x-ray diffraction data, scanning electron microscope. The green TiO<sub>2</sub> nanoparticles had a bandgap of 3.2 eV. The fourier transformer infra red spectroscopy (FT-IR) shows a single band attributed to TiO<sub>2</sub> using the simple aqueous based organic solvent free approach is further used as nano carriers for drug delivery system. Also we have developed and demonstrated a bio-based titanium dioxide that can be loaded with anticancer drug and

selectively deliver it to cancer cells with high specificity by achieving the effective cervical cancer cell death without inducing specific toxicity. The study showed that the DOX loaded TiO<sub>2</sub> nanocrystals has promising applications in delivery of anticancer drugs.

Understanding chemical and solid materials and their properties and behavior is fundamental to chemical and engineering design. With some of the world's leading experts describing their most recent research, this book describes the procedures for material selection and design to ensure that the most suitable materials for a given application are identified from the full range of materials, chemicals, and section shapes available. Several case studies have been developed to further illustrate procedures and to add to the practical implementation of the text. Essential Oils in Food Preservation, Flavor and Safety discusses the major advances in the understanding of the Essential Oils and their application, providing a resource that takes into account the fact that there is little attention paid to the scientific basis or toxicity of these oils. This book provides an authoritative synopsis of many of the complex features of the essential oils as applied to food science, ranging from production and harvesting, to the anti-spoilage properties of individual components. It embraces a holistic approach to the topic, and is divided into two distinct parts, the general aspects and named essential oils. With more than 100 chapters in parts two and three, users will find valuable sections on botanical aspects, usage and applications, and a section on applications in food science that emphasizes the fact that essential oils are frequently used to impart flavor and aroma. However, more recently, their use as anti-spoilage agents has been extensively researched. Explains how essential oils can be used to improve safety, flavor, and function Embraces a holistic approach to the topic, and is divided into two distinct parts, the general aspects and named essential oils Provides exceptional range of information, from general use insights to specific use and application information, along with geographically specific information Examines traditional and evidence-based uses Includes methods and examples of investigation and application

This Special Issue provides 15 research articles and 4 comprehensive review articles on various aspects of plant–metal/metalloid interactions. - Up-to-date information on plant responses to metals/metalloids are published. - Various mechanisms of plant tolerance to metals'/metalloids' toxicity are presented. - Exogenous applications of mitigating metals'/metalloids' toxicity are discussed. - Sustainable technologies in growing plants in metal/metalloid-contaminated environments are discussed. - Phytoremediation techniques for the remediation of metals/metalloids are discussed.

The 3-volume set highlights the behavior of radionuclides in the environment and focusing on the development of related fields of study, including microbiology and nanoscience. In this context, it discusses the behavior of radionuclides released in areas of Lake Karachai in Ural, and those released as a result of Chernobyl accident (1986), and in Fukushima (2011). Volume I presents the experiences gained in South Urals ("Mayak" plant, Lake Karachai), providing a scientific basis for more precise understanding of the behavior of radionuclides in complex subsurface environments. On the basis of monitoring data, it examines the pathways of radionuclide migration and the influence of the geological environment and groundwater on the migration, with a particular focus on particles from the nanoscale to microscale. It also discusses the function of microbes and microscale particles, from their direct interaction with radionuclides to their ecological role in changing the physic-chemical condition of a given environment. Lastly, the protective properties of geological media are also characterized, and mathematical modeling of contaminant migration in the area of Lake Karachai is used to provide information regarding the migration of radionuclides.

Sausages are privileged foods due to their diversity, nutritional value, deep roots in the culture of the peoples and economic importance. In order to increase the knowledge and to improve the quality and safety of these foods, an intense research activity was developed from the

early decades of the past century. This book includes ten research works and a review showing important and interesting advances and new approaches in most of the research topics related to sausages. After an editorial of the Editor reflecting the aims and contents of the book, the initial five chapters deal with microbiological issues of the sausage manufacture (characterization and study of the bacterial communities of sausages, study of the metabolism and the technological and safety characteristics of concrete microbial strains, and use of starter cultures to improve the sausage quality). Chemical hazards also receive some attention in this book with a chapter on the optimization of the smoking process of traditional dry-cured meat products to minimize the presence of PAHs. The partial or total replacement of the traditional ingredients in sausages with unconventional raw materials for the obtaining of novel and varied products are the subject of three chapters. Next, a chapter is dedicated to another interesting topic, the search and the essay of natural substitutes for synthetic additives due to the increasing interest of consumers in healthier meat products. The book ends with an interesting review on the safety, quality and analytical authentication of hal?l meat products, with particular emphasis on salami.

Oil Spill Environmental Forensics Case Studies includes 34 chapters that serve to present various aspects of environmental forensics in relation to “real-world oil spill case studies from around the globe. Authors representing academic, government, and private researcher groups from 14 countries bring a diverse and global perspective to this volume. Oil Spill Environmental Forensics Case Studies addresses releases of natural gas/methane, automotive gasoline and other petroleum fuels, lubricants, vegetable oils, paraffin waxes, bitumen, manufactured gas plant residues, urban runoff, and, of course, crude oil, the latter ranging from light Bakken shale oil to heavy Canadian oil sands oil. New challenges surrounding forensic investigations of stray gas in the shallow subsurface, volatiles in air, dissolved chemicals in water (including passive samplers), and biological tissues associated with oil spills are included, as are the effects and long-term oil weathering, long-term monitoring in urbanized and non-urbanized environments, fate and transport, forensic historical research, new analytical and chemical data processing and interpretation methods. Presents cases in each chapter on the application of specific oil spill environmental forensic techniques Features chapters written by international experts from both academia and industry Includes relevant concepts and theories elucidated for each theme

This is the fifth volume in the series of books on the Southeast Asian water environment. The most important articles presented at the Eighth, Ninth and Tenth International Symposiums on Southeast Asian Water Environment have been selected for this book. It covers monitoring, treatment, and management issues related with environmental water, water supply, and wastewater. As the emerging issues, pollution with micropollutants and effects of climate change on water environment are also included. This publication is the result of building an academic network among researchers of related fields from different regions to exchange information. This book is an invaluable source of information for researchers, policy makers, NGOs, NPOs, and those who are concerned with achieving global sustainability within the water environment in developing regions. Contents: Groundwater Quality and Its Management, Water Environment and

Management, Water Supply Management and Technology, Wastewater Treatment Technologies, Micropollutants, Climate Change and Water

Ionic liquids continue to attract a great deal of research attention in an even increasing number of areas, including more traditional areas such as synthesis (organic and materials) and physical properties studies and predictions, as well as less obvious areas such as lubrication and enzymatic transformations. In this volume, recent advances in a number of these different areas are reported and reviewed, thus granting some appreciation for the future that ionic liquids research holds, and affording inspiration for those who have not previously considered the application of ionic liquids in their area of interest.

Environmental sustainability and development is of critical importance. Technological advances in the production of new energy sources are making their way into our lives in more and more depth every day. However, there is an urgent need to address the technological challenges and advancement of the various chemical and bio-processes to maintain the dynamic sustainability of our energy needs. Toward that end, an attempt is being made to look at recent advances, key issues still faced and where possible, offer suggestions on alternative technologies to optimize sustainable processes. Still considered a new area of science, energy sources themselves are still being 'discovered'...meaning, what is financially viable in the current marketplace is changing. For example, energy from plants has not been financially viable in the past because of the high cost of growing, harvesting, breaking down cell walls, disposal of waste products, etc. Materials used to derive energy from sustainable resources is changing, making previously high-cost processes more efficient. It is crucial that the industry as a whole works in tandem to develop crops that new technological advances make financially feasible. This book will cover recent advances in the chemicals, bioprocesses and other materials used in growing and extracting energy from sustainable products. Membrane/cell wall digestion issues will also be covered as well as recovering maximal amounts of energy from sources to limit waste. Finally a section on safety and control will be presented with has been poorly covered in other publications. ?

Mass Spectrometry-Based Metabolomics: A Practical Guide is a simple, step-by-step reference for profiling metabolites in a target organism. It discusses optimization of sample preparation for urine, serum, blood, tissue, food, and plant and animal cell samples. Encompassing three different technical fields—biology, analytical chemistry, and informatics— mass spectrometry-based metabolomics can be challenging for biologists without special training in quantitative mass spectrometry. This book is designed to overcome this limitation by providing researchers with the knowledge they need to use metabolomics technology in their respective disciplines. The book summarizes all steps in metabolomics research, from experimental design to sample preparation, analytical procedures, and data analysis. Case studies are presented

