

## Dirichlet Student Problems 2014 Enrichment Stage Solutions

Life Cycle Assessment for Sustainable Mining Innovative Wastewater Treatment & Resource Recovery Technologies: Impacts on Energy, Economy and Environment Feed and Feeding Practices in Aquaculture Energy Domestication of Agronomic Traits in Legume Crops **Biological Hazards in Food Digital Heritage Bio-valorization of Waste Power Engineering and Information Technologies in Technical Objects Control Crystal Archives of Magmatic Processes** Platform Trial Designs in Drug Development Post Treatments of Anaerobically Treated Effluents Clean Energy and Resources Recovery Brazilian Deep-Sea Biodiversity Code Halos Molecular Microbial Diagnostic Methods Rotifers **Clean Energy and Resource Recovery Nuclear Forensic Analysis, Second Edition** ICT for assessment and rehabilitation in Alzheimer's disease and related disorders Molecular and Metabolic Mechanisms Associated with Fleshy Fruit Quality The Principles of the Law of Restitution Molecular Basis of Stage Conversion in Apicomplexan Parasites New Insights into Mechanisms of Epigenetic Modifiers in Plant Growth and Development Food Borne Pathogens and Antibiotic Resistance **Main Tectonic Events and Metallogeny of the North China Craton** Current Advances in Genetic Dementia and Aging Molecular Pathology of Breast Cancer **Holland-Frei Cancer Medicine** Veterinary Clinical Pathology Molecular Advances in Wheat and Barley Explaining Lithium Enriched Red Giant Branch Stars Biofuels and Bioenergy (BICE2016) Does the Primordial Evolution of Globular Clusters Include a Self-enrichment Phase? Cytokines as Players of Neuronal Plasticity and Sensitivity to Environment in Healthy and Pathological Brain The Creative Writer's Mind Impulsive Compulsive Spectrum Disorders Flourishing in Life, Work and Careers DNA Modifications in the Brain The Impact of Equity and Restitution in Commerce

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The Impact of Equity and Restitution in Commerce Jun 25 2019 Commercial relationships give rise to diverse forms of legal obligation in private law, including contract, tort, agency, company law and partnership. More controversially, equity and the law of restitution have a less defined and somewhat ambulatory role in regulating the affairs of commercial parties. Nevertheless, their impact is manifest in the commercial arena through the distinct types of liability they engender and the remedies that are imposed. This collection draws together the views of leading international scholars and judges to explore the nature and extent of this impact from two perspectives. Five chapters primarily address this impact at a macro-level, focusing on the roles of equity and the law of restitution in terms of legal taxonomy, doctrine and policy. In contrast, five further chapters primarily address this impact at a micro-level, focusing on selected liabilities and remedies within equity and the law of restitution. This bifocal approach enables a holistic appreciation of some important ways in which equity and the law of restitution affect or may affect commerce, with a view to fostering further debate over the fundamental issues at stake.

The Principles of the Law of Restitution Jan 13 2021 Includes bibliographical references (pages 745-759) and index.  
Code Halos Aug 20 2021 Harness 'Code Halos' to gain competitive advantage in the digital era Amazon beating Borders, Netflix beating Blockbuster, Apple beating Kodak, and the rise of companies like Google, LinkedIn, and Pandora are not isolated or random events. Today's outliers in revenue growth and value creation are winning with a new set of rules. They are dominating by managing the information that surrounds people, organizations, processes, and products—what authors Malcolm Frank, Paul Roshrig, and Ben Pring call Code Halos. This is far beyond "Big Data" and analytics. Code Halos spark new commercial models that can dramatically flip market dominance from industry stalwarts to challengers. In this new book, the authors show leaders how digital innovators and traditional companies can build Code Halo solutions to drive success. The book: Examines the explosion of digital information that now surrounds us and describes the profound impact this is having on individuals, corporations, and societies; Shows how the Crossroads Model can help anticipate and navigate this market shift; Provides examples of traditional firms already harnessing the power of Code Halos including GE's "Brilliant Machines," Disney's theme park "Magic Band," and Allstate's mobile devices and analytics that transform auto insurance. With reasoned insight, new data, real-world cases, and practical guidance, Code Halos shows seasoned executives, entrepreneurs, students, line-of-business owners, and technology leaders how to master the new rules of the Code Halo economy.

Clean Energy and Resources Recovery Oct 22 2021 Clean Energy and Resources Recovery: Biomass Waste Based Biorefineries, Volume One presents the technological options for energy and resources recovery from all types of organic wastes. The book addresses municipal and industrial sludges, municipal solid waste, agro-residue, animal wastes, industrial waste, forestry residue, and algal biomass, and provides a global overview of biomass waste production, waste handling issues and related GHG emissions and climate change, legislative waste management guidelines, biomass composition, and conventional methods for biomass waste treatment. For each biomass waste, chapters cover energy and bio-based products recovery, pre-treatment methods, process microbiology, community dynamics, co-digestion, reactor design and configuration, and techno-economic evaluation. Case studies on upscaling technology and pilot and industry scale implementation are included, alongside step-by-step calculations that integrate practical field data and regulatory requirements into the environmental design process. Finally, future trends and developments in advanced biotechnological concepts for biomass waste processing and management are also discussed. Provides innovative strategies to increase the efficiency of anaerobic digestion, including during pre- and post-treatment Includes industry case studies that demonstrate successful implementation processes and strategies Addresses municipal and industrial sludges, municipal solid waste, agro-residue, animal wastes, industrial waste, forestry residue, and algal biomass, and provides a global overview of biomass waste production

Molecular Advances in Wheat and Barley Apr 03 2020 Allohexaploid bread wheat and diploid barley are two of the most cultivated crops in the world. This book reports novel research and reviews concerning the use of modern technologies to understand the molecular bases for wheat and barley improvement. The contributions published in this book illustrate research advances in wheat and barley knowledge using modern molecular techniques. These molecular approaches cover genomic, transcriptomic, proteomic, and phenomic levels, together with new tools for gene identification and the development of novel molecular markers. Overall, the contributions for this book lead to a further understanding of regulatory systems in order to improve wheat and barley performance.

Nuclear Forensic Analysis, Second Edition Apr 15 2021 Now in its second edition, Nuclear Forensic Analysis provides a multidisciplinary reference for forensic scientists, analytical and nuclear chemists, and nuclear physicists in one convenient source. The authors focus particularly on the chemical, physical, and nuclear aspects associated with the production or intergradation of a radioactive sample. They consolidate fundamental principles of nuclear forensic analysis, all pertinent protocols and procedures, computer modeling development, interpretational insights, and attribution considerations. The principles and techniques detailed are then demonstrated and discussed in their applications to real-world investigations and casework conducted over the past several years. Highlights of the Second Edition include: A new section on sample analysis considerations and interpretation following a post-detonation nuclear forensic collection New case studies, including the most wide-ranging and multidisciplinary nuclear forensic investigation conducted by Lawrence Livermore National Laboratory to date Expanded treatments of radiologic dispersal devices (RDDs) and statistical analysis methodologies The material is presented with minimal mathematical formality, using consistent terminology with limited jargon, making it a reliable, accessible reference. The broad-based coverage provides important insight into the multifaceted changes facing this recently developed science.  
New Insights into Mechanisms of Epigenetic Modifiers in Plant Growth and Development Nov 10 2020

Post Treatments of Anaerobically Treated Effluents Nov 22 2021 The anaerobic process is considered to be a sustainable technology for organic waste treatment mainly due to its lower energy consumption and production of residual solids coupled with the prospect of energy recovery from the biogas generated. However, the anaerobic process cannot be seen as providing the 'complete' solution as its treated effluents would typically not meet the desired discharge limits in terms of residual carbon, nutrients and pathogens. This has given impetus to subsequent post treatment in order to meet the environmental legislations and protect the receiving water bodies and environment. This book discusses anaerobic treatment from the perspective of organic wastes and wastewaters (municipal and industrial) followed by various post-treatment options for anaerobic effluent polishing and resource recovery. Coverage will also be from the perspective of future trends and thoughts on anaerobic technologies being able to support meeting the increasingly stringent disposal standards. The resource recovery angle is particularly interesting as this can arguably help achieve the circular economy. It is intended the information can be used to identify appropriate solutions for anaerobic effluent treatment and possible alternative approaches to the commonly applied post-treatment techniques. The succeeding discussion is intended to lead on to identification of opportunities for further research and development. This book can be used as a standard reference book and textbook in universities for Master and Doctoral students. The academic community relevant to the subject, namely faculty, researchers, scientists, and practicing engineers, will find the book both informative and as a useful source of successful case studies.

Feed and Feeding Practices in Aquaculture Sep 01 2022 Feed and Feeding Practices in Aquaculture, Second Edition continues to play an important role in the successful production of fish and other seafood for human consumption. This is an excellent resource for understanding the key properties of feeds for aquaculture, advances in feed formulation and manufacturing techniques, and the practicalities of feeding systems and strategies. Many new updates have been integrated to reflect recent advances within the market, including special emphasis on up-and-coming trends and new technologies on monitoring fish feeding patterns, making this book useful for anyone working in R&D in the production of feed, as well as nutritionists, farm owners and technicians, and academics/postgraduate students with a research interest in the area. Includes new research information on using feed to enhance the sensory qualities of fish Presents the latest research in aquafeed and processing Provides the latest information on regulatory issues regarding feed and fish health

Current Advances in Genetic Dementia and Aging Aug 08 2020

Impulsive Compulsive Spectrum Disorders Sep 28 2019 This eBook is a collection of articles from a Frontiers Research Topic. Frontiers Research Topics are very popular trademarks of the Frontiers Journals Series: they are collections of at least ten articles, all centered on a particular subject. With their unique mix of varied contributions from Original Research to Review Articles, Frontiers Research Topics unify the most influential researchers, the latest key findings and historical advances in a hot research area! Find out more on how to host your own Frontiers Research Topic or contribute to one as an author by contacting the Frontiers Editorial Office: frontiersin.org/about/contact.

Biofuels and Bioenergy (BICE2016) Jan 31 2020 These conference proceedings provide a comprehensive overview of and in-depth technical information on all possible bioenergy resources (solid, liquid, and gaseous), including cutting-edge themes such as advanced fuels and biogas. The book includes current state-of-the-art topics ranging from feedstocks and cost-effective conversion processes to biofuels economic analysis and environmental policy, and features case studies and quizzes for each section derived from the implementation of actual hands-on biofuel projects to aid learning. It offers readers a starting point on this challenging and exciting path. The central concepts are defined and explained in the context of process applications under various topics. By focusing on the pertinent fundamental principles in the environment and energy sciences and by repeatedly emphasizing the importance of their correlation, it offers a strong foundation for future study and practice. Learning about fundamental properties and mechanisms on an ongoing basis is absolutely essential for long-term professional viability in a technically vibrant area such as nanotechnology. The book has been written for undergraduate and graduate students in chemical, energy and environment engineering. However, selected sections can provide the basis for courses in civil, mechanical or electrical engineering. It includes a self-contained presentation of the key concepts of energy resources, solar thermal and photovoltaic systems, nuclear energy, biomass conversion technology and agricultural-waste processing. Throughout it interweaves descriptive material on sustainable development, clean coal technology, green technology, solid-waste management and lifecycle assessments. It offers an introduction to these topics rather than comprehensive coverage of the themes and their in-depth fundamentals.

Bio-valorization of Waste Mar 27 2022 This book explores the concept and methods of waste management with a new approach of biological valorization. Waste valorization is a process that aims to reduce, reuse, and recycle the waste into usable, value-added, and environmental benign raw materials which can be a source of energy. The book brings together comprehensive information to assert that waste can be converted into a resource or a raw material for value addition. Waste valorization imbibes the natural recycling principles of zero waste, loop closing, and underlines the importance of sustainable and environmentally friendly alternatives. Drawing upon research and examples from around the world, the book is offering an up-to-date account, and insight into the contours of waste valorization principles, biovalorization technologies for diverse group of wastes including agricultural, municipal, and industrial waste. It further discusses the emerging paradigms of waste valorization, waste biorefineries, valorization technologies for energy, biofuel, and biochemical production. The book meets the growing global needs for a comprehensive and holistic outlook on waste management. It is of interest to teachers, researchers, scientists, capacity builders and policymakers. Also, the book serves as additional reading material for undergraduate and graduate students of biotechnology and environmental sciences.

Molecular Pathology of Breast Cancer Jul 07 2020 The complex landscape of breast cancer requires distinct strategies for the management of various molecular subtypes of this disease. Rapid advances in the field of molecular biology have been bewildering for those involved in its study and management. "Molecular Pathology of Breast Cancer" aims to close this knowledge gap by discussing comprehensively the evolution, biological basis and clinical applications with a focus on the "what, when, and how" of the most significant molecular markers known to date. These markers are evaluated in the context of genomic, transcriptomic and proteomic profiles, which is integral to the practice of precision medicine. The application of next generation sequencing (NGS) has provided new insights in the regulation of genomic and transcriptomic structure and function. Alterations in DNA such as mutations and single nucleotide polymorphisms (SNPs) have been correlated with outcomes and provide for novel therapeutic approaches. These NGS analyses have also revealed the extensive contributions of epigenetic mechanisms such as histone modifications, non-coding RNA and alternative splicing. All of these changes together contribute to alterations in proteome. New assays that allow greater stability and analytical consistency are emerging. These alterations in tumor profiles can be also now detected by imaging techniques. The heterogeneity of both tumor and tumor microenvironment, an inevitable reality, is discussed in detail with particular focus on cancer stem cells and immune signaling. A chapter is dedicated to the emerging technology of "liquid biopsy", which opens a novel approach for "continuous" monitoring of cancer that might be superior to conventional diagnostics. "Molecular Pathology of Breast Cancer" provides a quick and easy, not to mention essential, tour for clinicians, pathologists and scientists who are seeking to understand the integration of molecular biology into the diagnosis, prognosis and management of breast cancer.

Life Cycle Assessment for Sustainable Mining Nov 03 2022 Life Cycle Assessment for Sustainable Mining addresses sustainable mining issues based on life cycle assessment, providing a thorough guide to implementing LCAs using sustainability metrics. The book details current research on LCA methodologies related to mining, their outcomes, and how to relate sustainable mining concepts in a circular economy. It is an in-depth, foundational reference for developing ideas for technological advancement through designing reduced-emission mining equipment or processes. It includes literature reviews and theoretical concepts of life cycle assessments applied in mining industries, sustainability metrics and problems related to mining and mineral processing industries identified by the life cycle assessment results. This book will aid researchers, students and academics in the field of environmental science, mining engineering and sustainability to see LCA technology outcomes which would be useful for the future development of environmentally-friendly mining processes. Details state-of-the-art life cycle assessment theory and practices applied in the mining and mineral processing industries Includes in-depth, practical case studies outlined with life cycle assessment results to show future pathways for sustainability enhancement Provides fundamental knowledge on how to measure sustainability metrics using life cycle assessment in mining industries

Energy Jul 31 2022 \*This 800-page premier book on energy focuses on energy sources, utilizations, legislations and sustainability as it relates to a state, a province, or a country, or a community within a state. This book presents various kinds of energy sources, ways to convert energy for end use, better use of energy towards conservation and energy- and environmental-sustainability. As a very proper model-state the authors chose the State of Illinois which has the largest overall fossil energy reserves, including the largest strippable bituminous coal reserves; the largest user of nuclear energy in USA and has also been investing in all kinds of renewable energies including wind energy, solar energy, biofuels, geothermal energy, and various energy storage options. In the authors' opinion, State of Illinois is a pioneer in legislations for proper development and use of all kinds of energy. Their motivation to do this project was to educate the public (including students, energy engineers and planners, as well as state- and country-wide policy makers) about all aspects of energy. In this book, the authors present various energy sources, conversions technologies, and conservation possibilities. In every case, the authors have presented various options available for a country, for a state, or for a community to achieve its goal of energy sufficiency, clean environment and as a result, sustainability. Variety of schemes related to each energy source and its related conversion technologies are presented and sustainability of renewable energy sources is discussed. All the possible energy sources including coal, natural gas, petroleum, nuclear, solar, wind, biofuels and geothermal energy are presented in this book, as well as energy storage options. The authors have also presented various ways of dealing with carbon dioxide, which is produced from fossil fuels combustion, including its collection, transportation, storage and sequestration. The energy storage systems presented in this book will facilitate reliable and full integration of renewable power to the grid. --

Power Engineering and Information Technologies in Technical Objects Control Feb 23 2022 Improved knowledge in the field of technical objects operation and control helps manufacturers to decrease energy consumption and keep construction costs low. Moreover, it helps dealing effectively with environmental problems and switching to renewable forms of energy on the path of sustainable development of the society. The methods and technologies presented in this book will allow to improve

the effectiveness of technical objects control and helps achieving safe, economical, high-quality usage of power engineering and information technologies. The book presents recent advances in power engineering, electric drives, transport systems, power electronics, cybersecurity and others. Vital issues of innovative small vehicles with using hydrogen fuel as well as boring rigs and underwater hydraulic transport pipelines are considered. The book offers a fresh look at energy-saving and energy efficiency in industry, new ideas in information technologies, paying much attention to interdisciplinary specification of the results obtained.

**Main Tectonic Events and Metallogeny of the North China Craton** Sep 08 2020 This book focuses on the metallogeny and main tectonic events of the North China Craton from early Precambrian to Phanerozoic. It covers the Archean crustal growth, Paleoproterozoic rifting-subduction-collision processes, Great Oxidation Event, Meso-Neoproterozoic multiple rifting, Phanerozoic reworking of the North China Craton, as well as metallogeny related to above different processes. The North China Craton is one of the oldest cratons in the world. It has experienced a complex geological evolution since the early Precambrian, and carries important records of secular changes in tectonics and metallogeny. It provides a systematic review and new results on the growth and evolution of the North China Craton and metallogeny. It will be of broad interest to the earth scientists working in the fields of economic geology, geochemistry, and tectonics of the North China Craton and eastern Asian.

**The Creative Writer's Mind** Oct 29 2019 What goes on in creative writers' heads when they write? What can cognitive psychology, neuroscience, literary studies and previous research in creative writing studies tell creative writers about the processes of their writing mind? Creative writers have for centuries undertaken cognitive research. Some described cognition in vivid exegetical essays, but most investigated the mind in creative writing itself, in descriptions of the thinking of characters in fiction, poetry and plays. The inner voicings and inner visualising revealed in Greek choruses, in soliloquies, in stream-of-consciousness narratives are creative writers' research results from studying their own cognition, and the thinking of others. The Creative Writer's Mind is a book for creative writers: it sets out to cross the gap between creative writing and science, between the creative arts and cognitive research.

**ICT for assessment and rehabilitation in Alzheimer's disease and related disorders** Mar 15 2021 Information and Communication Technologies (ICT) are no longer objects gathering dust on a shelf; instead, they have become intrinsic in our everyday lives. They are now even taking on an indispensable role in many clinical and rehabilitation settings. In the past decade there has been a surge of interest in using ICT with elderly people, both with and without dementia, in various clinical and research settings. On the one hand, ICT can supplement the assessment of functional ability by more precisely evaluating the nature and extent of functional impairment; on the other hand, ICT can be used to support elderly people in their everyday activities, as well as to ameliorate symptoms and improve quality of life through stimulation and rehabilitation. This is the intention driving the development of Serious Games (SG), which are digital applications (often based on Virtual Reality) specifically adapted for purposes other than entertaining, including rehabilitation, training and education. Finally, ICT can also play a key role in the development of interactive educational programs to support caregivers of people living with dementia. A handful of interesting studies have started to investigate the effectiveness of employing ICT in people with different types of dementia, such as Alzheimer's disease (AD). It is therefore timely to attempt to scope this newly emerging field, as well as to foster a dialogue among the different professionals, including academics, clinicians and computer engineers, working in the area. With this in mind, the Research Topic "ICT for assessment and rehabilitation in Alzheimer's disease and related disorders" aims to provide new and interesting insights into the current use of ICT in healthy and pathological aging. The intent is also to identify challenges and new perspectives in the field, gather recommendations for the application of ICT in AD and related disorders in clinical practice, and to showcase cutting edge clinical research. The articles included in this Frontier Research Topic have more than achieved this aim and are a perfect illustration of how ICT can be used to enhance the lives of people living dementia and their caregivers.

**Clean Energy and Resource Recovery** May 17 2021 Clean Energy and Resource Recovery: Wastewater Treatment Plants as Bio-refineries, Volume 2, summarizes the fundamentals of various treatment modes applied to the recovery of energy and value-added products from wastewater treatment plants. The book addresses the production of biofuel, heat, and electricity, chemicals, feed, and other products from municipal wastewater, industrial wastewater, and sludge. It intends to provide the readers an account of up-to-date information on the recovery of biofuels and other value-added products using conventional and advanced technological developments. The book starts with identifying the key problems of the sectors and then provides solutions to them with step-by-step guidance on the implementation of processes and procedures. Titles compiled in this book further explore related issues like the safe disposal of leftovers, from a local to global scale. Finally, the book sheds light on how wastewater treatment facilities reduce stress on energy systems, decrease air and water pollution, build resiliency, and drive local economic activity. As a compliment to Volume 1: Biomass Waste Based Bio-refineries, Clean Energy and Resource Recovery, Volume 2: Wastewater Treatment Plants as Bio-refineries is a comprehensive reference on all aspects of energy and resource recovery from wastewater. The book is going to be a handy reference tool for energy researchers, environmental scientists, and civil, chemical, and municipal engineers interested in waste-to-energy. Offers a comprehensive overview of the fundamental treatments and methods used in the recovery of energy and value-added products from wastewater. Identifies solutions to key problems related to wastewater to energy/resource recovery through conventional and advanced technologies and explore the alternatives. Provides step-by-step guidance on procedures and calculations from practical field data. Includes successful case studies from both developing and developed countries.

**Rottifers** Jun 17 2021 This book highlights the latest advances in rotifer studies in various fields including aquaculture, ecology, gerontology and ecotoxicology. The genus *Brachionus* are an indispensable type of zooplankton, having served as an initial live food for marine larval rearing since the 1960s. Their mass culture techniques have been intensively studied, and some essential achievements have been made – regarding high density culture, employment of valuable dietary algae, automated culture systems, and effective production of resting eggs. These have in turn supported stable and efficient aquatic seedling production for numerous important marine fish species including flounder, sea bream, and bluefin tuna. Further, this group is considered to be a suitable model for studying various aspects in ecology. A series of aquaculture and basic science studies have significantly advanced our understanding of the life history evolution. The studies in these two fields are closely linked, and provide readers with comprehensive information on how rotifers are now being employed in biological investigations.

**Does the Primordial Evolution of Globular Clusters Include a Self-enrichment Phase?** Jan 01 2020  
**Domestication of Agronomic Traits in Legume Crops** Jun 29 2022

**Platform Trial Designs in Drug Development** Dec 24 2021 Platform trials test multiple therapies in one indication, one therapy for multiple indications, or both. These novel clinical trial designs can dramatically increase the cost-effectiveness of drug development, leading to life-altering medicines for people suffering from serious illnesses, possibly at lower cost. Currently, the cost of drug development is unsustainable. Furthermore, there are particular problems in rare diseases and small biomarker defined subsets in oncology, where the required sample sizes for traditional clinical trial designs may not be feasible. The editors recruited the key innovators in this domain. The 20 articles discuss trial designs from perspectives as diverse as quantum computing, patient's rights to information, and international health. The book begins with an overview of platform trials from multiple perspectives. It then describes impacts of platform trials on the pharmaceutical industry's key stakeholders: patients, regulators, and payers. Next, it provides advanced statistical methods that address multiple aspects of platform trials, before concluding with a pharmaceutical executive's perspective on platform trials. Except for the statistical methods section, only a basic qualitative knowledge of clinical trials is needed to appreciate the important concepts and novel ideas presented.

**Biological Hazards in Food** May 29 2022 The ingestion of food containing pathogenic microorganisms (i.e. bacteria and their toxins, fungi, viruses) and parasites can cause food-borne diseases in humans. A growing number of emerging pathogens, changes of virulence of known pathogens and appearance of antibiotic resistance has recently exposed consumers to a major risk of illness. Also infected people and the environment can spread microorganisms on raw or processed food. Outbreaks of food-borne diseases are often unrecognized, unreported, or not investigated and particularly in developing countries their agents and sources are mostly unknown. Surveillance and analytical methods aiming at their detection are to be hoped, as well as good strategies to struggle against these threats. This E-book is subdivided in chapters regarding to pathogenic and spoiling microorganisms, chemical hazards produced by biological agents and food safety management systems.

**Food Borne Pathogens and Antibiotic Resistance** Oct 10 2020 Food is an essential means for humans and other animals to acquire the necessary elements needed for survival. However, it is also a transport vehicle for foodborne pathogens, which can pose great threats to human health. Use of antibiotics has been enhanced in the human health system; however, selective pressure among bacteria allows the development for antibiotic resistance. Foodborne Pathogens and Antibiotic Resistance bridges technological gaps, focusing on critical aspects of foodborne pathogen detection and mechanisms regulating antibiotic resistance that are relevant to human health and foodborne illnesses. This groundbreaking book: • Introduces the microbial presence on variety of food items for human and animal consumption. • Provides the detection strategies to screen and identify the variety of food pathogens in addition to reviews the literature. • Provides microbial molecular mechanism of food spoilage along with molecular mechanism of microorganisms acquiring antibiotic resistance in food. • Discusses systems biology of food borne pathogens in terms of detection and food spoilage. • Discusses FDA's regulations and Hazard Analysis and Critical Control Point (HACCP) towards challenges and possibilities of developing global food safety. Foodborne Pathogens and Antibiotic Resistance is an immensely useful resource for graduate students and researchers in the food science, food microbiology, microbiology, and industrial biotechnology.

**Molecular and Metabolic Mechanisms Associated with Fleshy Fruit Quality** Feb 11 2021 Fleshy Fruits are a late acquisition of plant evolution. In addition of protecting the seeds, these specialized organs unique to plants were developed to promote seed dispersal via the contribution of frugivorous animals. Fruit development and ripening is a complex process and understanding the underlying genetic and molecular program is a very active field of research. Part of the ripening process is directed to build up quality traits such as color, texture and aroma that make the fruit attractive and palatable. As fruit consumers, humans have developed a time long interaction with fruits which contributed to make the fruit ripening attributes conform our needs and preferences. This issue of Frontiers in Plant Science is intended to cover the most recent advances in our understanding of different aspects of fleshy fruit biology, including the genetic, molecular and metabolic mechanisms associated to each of the fruit quality traits. It is also of prime importance to consider the effects of environmental cues, cultural practices and postharvest methods, and to decipher the mechanism by which they impact fruit quality traits. Most of our knowledge of fleshy fruit development, ripening and quality traits comes from work done in a reduced number of species that are not only of economic importance but can also benefit from a number of genetic and genomic tools available to their specific research communities. For instance, working with tomato and grape offers several advantages since the genome sequences of these two fleshy fruit species have been deciphered and a wide range of biological and genetic resources have been developed. Ripening mutants are available for tomato which constitutes the main model system for fruit functional genomics. In addition, tomato is used as a reference species for climacteric fruit which ripening is controlled by the phytohormone ethylene. Likewise, grape is a reference species for non-climacteric fruit even though no single master switches controlling ripening initiation have been uncovered yet. In the last period, the genome sequence of an increased number of fruit crop species became available which creates a suitable situation for research communities around crops to get organized and information to be shared through public repositories. On the other hand, the availability of genome-wide expression profiling technologies has enabled an easier study of global transcriptional changes in fruit species where the sequenced genome is not yet available. In this issue authors will present recent progress including original data as well as authoritative reviews on our understanding of fleshy fruit biology focusing on tomato and grape as model species.

**Molecular Basis of Stage Conversion in Apicomplexan Parasites** Dec 12 2020  
**Crysal Archives of Magmatic Processes** Jan 25 2022

**Innovative Wastewater Treatment & Resource Recovery Technologies: Impacts on Energy, Economy and Environment** Oct 02 2022 This book introduces the 3R concept applied to wastewater treatment and resource recovery under a double perspective. Firstly, it deals with innovative technologies leading to: Reducing energy requirements, space and impacts; Reusing water and sludge of sufficient quality; and Recovering resources such as energy, nutrients, metals and chemicals, including biopolymers. Besides targeting effective C,N&P removal, other issues such as organic micropollutants, gases and odours emissions are considered. Most of the technologies analysed have been tested at pilot- or at full-scale. Tools and methods for their Economic, Environmental, Legal and Social impact assessment are described. The 3R concept is also applied to Innovative Processes design, considering different levels of innovation: Retrofitting, where novel units are included in more conventional processes; Re-Thinking, which implies a substantial flowsheet modification; and Re-Imagining, with completely new conceptions. Tools are presented for Modelling, Optimising and Selecting the most suitable plant layout for each particular scenario from a holistic technical, economic and environmental point of view.

**Molecular Microbial Diagnostic Methods** Jul 19 2021 Molecular Microbial Diagnostic Methods: Pathways to Implementation for the Food and Water Industry was developed by recognized and experienced highlevel scientists. It's a comprehensive and detailed reference that uncovers industry needs for the use of molecular methods by providing a brief history of water and food analysis for the pathogens of concern. It also describes the potential impact of current and cutting-edge molecular methods. This book discusses the advantages of the implementation of molecular methods, describes information on when and how to use specific methods, and presents why one should utilize them for pathogen detection in the routine laboratory. The content is also pertinent for anyone carrying out microbiological analysis at the research level, and for scientists developing methods, as it focuses on the requirements of end-users. Includes information on how to introduce and implement molecular methods for routine monitoring in food and water laboratories Discusses the importance of robust validation of molecular methods as alternatives to existing standard methods to help ensure the production of defensible results Highlights potential issues with respect to successful implementation of these methods

**Brazilian Deep-Sea Biodiversity** Sep 20 2021 This book presents the biodiversity of the Brazilian deep-sea and its many unique geological and biological features, as well as a review of its ecology, conservation, and future research needs. The deep-sea Brazilian margin has an incredible geological heterogeneity with numerous characteristic seafloor features, and latitudinal changes in marine productivity, oceanographic conditions and biological communities have resulted in very distinct biological assemblages at regional and bathymetric scales. It is a tremendously rich ecosystem in terms of living species, from which many well-known historical tales have originated, and with unique importance for the global climate and humanity. Nevertheless, vast areas of the Brazilian margin have been explored for fishing, oil and gas, and other commodities, likely impacting a variety of deep-sea habitats at scales and intensities yet undetermined. This book is intended for students, scholars, professionals and a wide audience interested in the deep-sea in general and, more specifically, in the South Atlantic deep-sea.

**DNA Modifications in the Brain** Jul 27 2019 DNA Modifications in the Brain: Neuroepigenetic Regulation of Gene Expression begins with an historical overview of the early discoveries surrounding DNA methylation in the mammalian brain and then explores the evidence supporting a role for this epigenetic mechanism in controlling gene expression programs across the lifespan in both normal and diseased states. Chapters describe new directions and technological advances, and provide an overview of what the future holds for this exciting new field. This book is ideal for medical, graduate and advanced undergraduate students, but is also a great resource for researchers who need a broad introduction to the dynamic nature of DNA that sheds light on evolving concepts of gene-environment interaction and their effects on adaptation and neuropsychiatric disease. Provides a comprehensive overview of the many facets of DNA modifications Discusses the impact of this dynamic epigenetic mechanism across brain development and lifespan at behavioral, cognitive, molecular and genetic levels Contains contributions by influential leaders in the field Edited by a Neuroscientist to further promote synthesis between epigenetics, neuroscience, and clinical relevance

**Holland-Frei Cancer Medicine** Jun 05 2020 Holland-Frei Cancer Medicine, Ninth Edition, offers a balanced view of the most current knowledge of cancer science and clinical oncology practice. This all-new edition is the consummate reference source for medical oncologists, radiation oncologists, internists, surgical oncologists, and others who treat cancer patients. A translational perspective throughout, integrating cancer biology with cancer management providing an in depth understanding of the disease An emphasis on multidisciplinary, research-driven patient care to improve outcomes and optimal use of all appropriate therapies Cutting-edge coverage of personalized cancer care, including molecular diagnostics and therapeutics Concise, readable, clinically relevant text with algorithms, guidelines and insight into the use of both conventional and novel drugs Includes free access to the Wiley Digital Edition providing search across the book, the full reference list with web links, illustrations and photographs, and post-publication updates

**Digital Heritage** Apr 27 2022 This book constitutes the refereed proceedings of the 5th International Conference on Digital Heritage, EuroMed 2014, held in Limassol, Cyprus, in November 2014. The 84 full and 51 short papers presented were carefully reviewed and selected from 438 submissions. They focus on the interdisciplinary and multi-disciplinary research concerning cutting edge cultural heritage informatics, -physics, chemistry and engineering and the use of technology for the representation, documentation, archiving, protection, preservation and communication of Cultural Heritage knowledge.

**Explaining Lithium Enriched Red Giant Branch Stars** Mar 03 2020 This thesis provides new insights into the seemingly anomalous ubiquity of lithium-rich red giant stars. The theory of stellar evolution, one of the most successful models of modern astrophysics, predicts that red giant stars should display negligible levels of lithium (Li) on their surfaces. However, Li-rich giants, defined as those showing more than three times the Li content of the Sun, are found everywhere astronomers look in apparent defiance of established theory. The author addresses this problem, analyzing the different possible explanations for such an anomaly, which include interaction with a binary companion, the production of Li in the interior of the star with its subsequent transport to stellar exteriors, and the stellar interaction with planets. The author focuses on this last possibility, where the Li enrichment may be due to the ingestion of planets or brown dwarfs as the stars in question grew in size while becoming giants. She shows that this process is indeed able to explain an important fraction of giants with Li levels above the three times solar threshold, but that some other mechanism is needed to explain the remaining fraction. While this is an important discovery in its own right, the result that makes this thesis groundbreaking is its demonstration that the threshold between Li-normal and Li-rich is mass dependent rather than a fixed proportion of the Sun's content. This corrects a fundamental misapprehension of the phenomenon and opens up a new framework in which to understand and solve the problem. Finally, the author presents interesting observational applications and samples with which to test this new approach to the problem of Li enrichment in giants.

**Veterinary Clinical Pathology** May 05 2020 Veterinary Clinical Pathology: A Case-Based Approach presents 200 cases with questions for those interested in improving their skills in veterinary clinical pathology. It emphasizes an understanding of basic pathophysiologic mechanisms of disease, differential diagnoses and recognition of patterns associated with various diseases or conditions. Topics discussed include haematology, clinical chemistry, endocrinology, acid-base and blood gas analysis, haemostasis, urinalysis, biological variation and quality control. Species covered include the cat, dog and horse, with additional material on ruminants. Cases vary in difficulty, allowing beginners to improve their clinicopathologic skills while more complicated cases, or cases treating unfamiliar topics, are included for experienced readers. This book is a helpful revision aid for those in training as well as for those in practice who are pursuing continuing education. It is also a valuable resource for

veterinary nurses and technicians.

Cytokines as Players of Neuronal Plasticity and Sensitivity to Environment in Healthy and Pathological Brain Nov 30 2019 It is now accepted that immune molecules are not only present within the brain during pathology but they exert physiological functions in the " healthy " brain as well. Increasing evidence points to a neuro-modulatory role of cytokines and chemokines (CHEMOtactic cytoKINES) in basal transmission and plasticity processes where signaling between peri-synaptic astrocytes, microglia and neurons plays an important role. Nevertheless, the exact mechanisms as to how cytokines, and in particular chemokines, participate in the molecular and cellular processes thought to subserve memory formation, plasticity processes and responsiveness to environmental stimuli remain to be clarified. Interestingly, in in vitro preparations, molecules like TNF- $\alpha$ , interleukin (IL)-1 $\beta$ , IL-6, CX3CL1, CXCL12, CCL2 and CCL3 are implicated in synaptic formation and scaling, in modulation of glutamatergic transmission, in plasticity and neurogenesis, in particular in the hippocampus. The hippocampus is an extremely plastic structure, one of the main neurogenic niches in the adult brain, that exhibits a marked sensibility to environmental stimuli. Indeed exposure of mice to environmental enrichment (EE) modifies learning and memory abilities increasing neurogenesis and neuronal plasticity whether exposure to severe stressful experiences diminishes neurotrophic support, impairs neurogenesis, plasticity and cognition. In the hippocampus cytokines play a key role in mediating both positive as well as negative effects of the environment affecting neuronal plasticity also in stress related pathologies, such as depression. It has been reported that mice lacking type 1 receptor for IL-1 display impaired hippocampal memory and LTP that are restored by EE; moreover negative effects on neuronal plasticity (and thus behavior) induced by stress exposure can be prevented by blocking IL-1 activity. In addition, mice lacking IL-6 have improved cognitive functions whereas the absence of microglia-driven CX3CR1 signaling increases hippocampal plasticity and spatial memory occluding the potentiating effects of EE. However, the factors mediating the effect of environmental stimuli on behavior and plasticity has been only partially identified. Interestingly, it has been suggested that chemokines can play a key role in the flexibility of hippocampal structure and may modulate neuronal signaling during behavior. The question is how cytokines may translate environmental stimuli in plasticity and behavioral changes. This research topic is proposed to explore the role of cytokines, and more in particular chemokines, in the modulation of neuronal activity as a fundamental step for the correct brain wiring, function and susceptibility to environment. We encourage the submission of original research reports, review articles, commentaries, perspectives or short communications, in the following (but not limited to) topics: - Role of cytokines and chemokines in neuronal plasticity - Immune molecules and responsiveness to environment - Role of chemokines in the flexibility of hippocampal structure

Flourishing in Life, Work and Careers Aug 27 2019 Happiness in one aspect of our life can positively impact our satisfaction within other domains of our life. The opposite also rings true. Today's generation of working people have often been called the generation who want it all. But can we really

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