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Chemical Methods for Assessing Bioavailable Metals in Sludges and Soils - R. Leschber - 1985-03-31

Soil Chemical Methods - Australasia describes over 200 laboratory and field chemical tests relevant to Australasia and beyond. The information and methodology provided across 20 chapters is comprehensive, systematic, uniquely coded, up-to-date and designed to promote chemical measurement quality. There is guidance on the choice and application of analytical methods from soil sampling through to the reporting of results. In many cases, optional analytical ‘finishes’ are provided, such as flow-injection analysis, electro-chemistry, multiple flame technologies, and alternatives to chemical testing offered by near-range and mid-range infrared diffuse reflectance spectroscopy. The book supersedes and updates the soil chemical testing section of the 1992 Australian Laboratory Handbook of Soil and Water Chemical Methods of Rayment and Higginson, while retaining method codes and other strengths of that Handbook. Chapters cover soil sampling, sample preparation and moisture content; electrical conductivity and redox potential; soil pH; chloride; carbon; nitrogen; phosphorus; sulphur; gypsum; micronutrients; extractable iron, aluminium and silicon; saturation extracts; ion-exchange properties; lime requirements; total miscellaneous elements; miscellaneous extractable elements; alkaline earth carbonates and acid sulfate soils. In addition, there are informative Appendices, including information on the accuracy and precision of selected methods. This book targets practising analysts, laboratory managers, students, academics, researchers, consultants and advisors involved in the analysis, use and management of soils for fertility assessments, land use
Soil Chemical Methods - Australasia - George E Rayment - 2010-10-25
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Methods for Assessment of Soil Degradation - Rattan Lal - 1997-09-26
Soil degradation has serious global impacts on agronomic, economic, and sociopolitical conditions, however, statistics regarding the degree of these impacts has been largely unreliable. This book aims to standardize the methodology for obtaining reliable and objective data on soil degradation. It will also identify and develop criteria for assessing the severity of soil degradation, providing a realistic scenario of the problem.

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Sediments - Renato Baudo - 2020-01-31
This important volume-the product of a meeting of a select group of scientists-provides the most recent research results from the world's leaders in the study of toxic pollutants in sediments. It gives practical information on measuring and mapping distributions of concentrations of pollutants and their toxic effects in sediments. Also covered are the use and relative advantages and disadvantages of benthic chambers, sedimentation traps, box corers, "peepers" and other sampling techniques in sediment research and assessment. Important topics covered include: bioassay, elemental speciation, diffuse source problems, nutrient flux, biomethylation, bioavailability, and toxicity assessment. Will help in assessment and monitoring of chemistry, dynamics, bioavailability, and toxicity of pollutants, as well helping to chart courses for remedial action. This book will be of interest to anyone interested in the processes controlling the chemistry and movement of pollutants in sediments, especially: limnologists aquatic toxicologists engineers lake managers ecologists biologists environmental chemists

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Selected Water Resources Abstracts - - 1991

Trace Element Speciation Analytical Methods and Problems - Graeme E. Batley - 1989-06-30
This book discusses in detail the application of physical separation procedures together with modern instrumental analysis techniques such as HPLC, gas chromatography, and anodic strip-ping voltammetry. Particular emphasis is given to environmental samples where the greatest concern for the effects of speciation on trace element transport, toxicity, and bioavailability have been ex-pressed. Special chapters are also devoted to methods of sam-pling and storage, and to the mathematical modeling of chemical speciation. Although designed for the practical analytical chemist, this publication is essential reading for researchers in or entering the field of chemical speciation.

Disposal of organic sludge and liquid agricultural wastes is a universal problem. Their production cannot be halted and as steps are taken to maintain or improve the quality of rivers and lakes it grows in quantity. The Commission's early awareness of the need for action to prepare for substantial growth in the Community's sludge disposal problem led to the setting up of the COST 68 project to coordinate and guide European research and development work with particular emphasis on recycling sludge to agricultural land. Two years ago the field of research activities was extended to liquid agricultural wastes. This Symposium is the latest opportunity to provide a comprehensive review of the results of the project, to define current trends in practice and to establish by discussion the priorities for research over the next few years. The development of instrumentation and of analytical techniques during the period has extended our knowledge of the organic and inorganic constituents of sewage sludge and agricultural wastes and enabled us more readily to identify and measure the risks to which our general environment may be exposed when disposing of it. This evolution of understanding is a continuing process and an essential guide to the modification of disposal practices to achieve safer and more efficient operations. However, it is important to take a broad view of the application of research findings in the light of the considerable contrast in conditions in different parts of the world.
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**Contaminated Soil ’88 - K. Wolf - 2012-12-06**
W.A. de Jong President of TNO Until some decades ago man supposed that the resilience of the environment was unlimited. He thought he could draw heavily on nature with impunity and that he could infinitely dump his waste into the environment. We have come to know better now: virtually everyone is well aware that one cannot just go on burdening the environment of man, animal and plant to such an extent. TNO, the Netherlands Organization for Applied Scientific Research, is among those research institutions that are working on economically feasible solutions for pollution problems resulting from human activities. Soil contamination and remediation feature as important topics in TNO's environmental research programme. In view of the international scope of the problem, TNO organized an international conference on this subject in Utrecht, the Netherlands, in November 1985, which met with a worldwide response from the scientific community as well as from governments and industry. The international interest taken in soil contamination is underlined by the fact that the Second International Conference on Contaminated Soil takes place in a country where remedial action is being given high political priority.

**Environmental Geochemistry - Benedetto DeVivo - 2017-09-18**
Environmental Geochemistry: Site Characterization, Data Analysis and Case Histories, Second Edition, reviews the role of geochemistry in the environment and details state-of-the-art applications of these principles in the field, specifically in pollution and remediation situations. Chapters cover both philosophy and procedures, as well as applications, in an array of issues in environmental geochemistry including health problems related to environment pollution, waste disposal and data base management. This updated edition also includes illustrations of specific case histories of site characterization and remediation of brownfield sites. Covers numerous global case studies allowing readers to see principles in action. Explores the environmental impacts on soils, water and air in terms of both inorganic and organic geochemistry. Written by a well-respected author team, with over 100 years of experience combined. Includes updated content on: urban geochemical mapping, chemical speciation, characterizing a brownfield site and the relationship between heavy metal distributions and cancer mortality.

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The Landfill - P. Baccini - 1989

Interactions at the Soil Colloid - G.H. Bolt - 2013-11-11
About 20 years ago the emphasis in soil chemistry research switched from studies of problems related to scarcities of plant nutrients to those arising from soil pollutants. The new problems have come about because of the excessive uses of fertilizers, the inputs from farm and industrial wastes, the widespread applications of anthropogenic xenobiotic chemicals, and the deterioration of soil structure resulting from certain modern agriculture practises. The International Society of Soil Science (ISSS) recognized these problems and challenges. A provisional Working Group was set up in 1978 to focus attention on soil colloids with a view to understanding better the interactions which take place at their surfaces. It was recognized that these interactions are fundamental to problems of soil fertility, as well as to those of soil pollution. After the group had received the official support of ISSS at its 12th International Congress in New Delhi in 1982 it set as its priority the assembling and evaluation of information, relevant to the soil and environmental sciences, concerning the composition and structure of soil colloids. Prior to that a series of Position Papers were published in the Bulletin of the International Society of Soil Science (Vol. 61, 1981) outlining the state of knowledge about the composition and properties of soil colloids.

Phytoremediation of Metal-Contaminated Soils - Jean-Louis Morel - 2006-06-23
This is the first book aimed at development of a common language among scientists working in the field of Phytoremediation. Authors of the main chapters are leading scientists in this field. Some of them were among the first ones to have suggested the use of hyperaccumulator plants for extraction of metals from soils. Manuscripts based on lectures presented at the ASI have been revised here to take into account ASI participants’ comments and suggestions.
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**Metal Speciation in the Environment** - J.A.C. Broekaert - 2013-06-29
Proceedings of the NATO Advanced Study Institute on Metal Speciation in the Environmental held in Cesme, Turkey, October 9-20, 1989

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**Natural Attenuation of Trace Element Availability in Soils** - Rebecca Hamon - 2006-11-16
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**Arsenic in Soil and Groundwater Environment** - Prosun Bhattacharya - 2007-06-29
This volume presents the recent developments in the field of arsenic in soil and groundwater. Arranged into nine sections, the text emphasizes the global occurrences of arsenic in the environment, particularly on its source, pathways, behavior, and effects it has on soils, plants, water, animals, and humans. It also covers the diverse issues of arsenic in the mining environment, arsenic emanating from hydrothermal springs, and the geochemical modeling of arsenic adsorption to oxide surfaces. Finally, the text includes different cost effective removal mechanisms of arsenic from drinking water using natural red earth, solar oxidation, and arsenic oxidation by ferrate. Written in simple English, and few technical terms, the book is designed to create interest within the countries with occurrences of arsenic in drinking water with an update the current status of knowledge on the dynamics of natural arsenic from the aquifers through groundwater to food chain and efficient techniques for arsenic removal. · serve as a standard text book for graduate, postgraduate students and researchers in the field of Environmental Sciences and Hydrogeochemistry as well as researchers, environmental scientists and chemists, toxicologists, medical scientists and even for general public seeking an in-depth view of arsenic which had been classed as a carcinogen. · bring awareness, among administrators, policy makers and company executives, on the problem and to improve the international cooperation

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PHEs, Environment and Human Health - Claudio Bini - 2014-05-14
This book is dedicated to the occurrence and behaviour of PHEs in the different compartments of the environment, with special reference to soil. Current studies of PHEs in ecosystems have indicated that many industrial areas near urban agglomerates, abandoned or active mines, major road systems and ultimately also agricultural land act as sources and at the same time sinks, of PHEs and large amounts of metals are recycled or dispersed in the environment, posing severe concerns to human health. Thanks to the collaboration of numerous colleagues, the book outlines the state of art in PHEs research in several countries and is enforced with case studies and enriched with new data, not published elsewhere. The book will provide to Stakeholders (both Scientists Professionals and Public Administrators) and also to non-specialists a lot of data on the concentrations of metals in soils and the environment and the critical levels so far established, in the perspective to improve the environmental quality and the human safety.

Selected Water Resources Abstracts - - 1991
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Metals Speciation in Soils - Debra A. Morrow - 1996
Metals Speciation in Soils - Debra A. Morrow - 1996
Watershed 89 - D. Wheeler - 2016-06-06
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Plant Nutrition - Walter Horst - 2006-05-18
This volume is a compilation of extended abstracts of all papers presented at the 14th International Plant Nutrition Colloquium. Over 500 oral and poster presentations illustrate current knowledge and research emphasis in this subject, providing a comprehensive view of the state of plant nutrition research.

Environmental Contamination - J.-P. Vernet - 1993-11-04
This book deals with various aspects of environmental contamination. One of the fields considered in this work is atmospheric pollution. This has become a major problem of our time, and could soon develop into a scandal through the overestimation of the impact of greenhouse gases such as
A growing field of importance covers the fundamental questions posed by the problem of soils and their interaction with waste from human activities, eg. sterile mining waste, sewage sludge, and contaminated dredged material. How do these different elements react and how tolerant can our system be towards them? This publication, containing a selection of the most important work presented at the 5th International Conference on Environmental Contamination, reflects some aspects of the present state of research and our society's dominant preoccupations.

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Sewage Sludge in Agriculture - Jayne T. MacLean - 1991

Industrial Waste Disposal and Sewage Irrigation - K. V. Paliwal - 1993

History of Mesozoic and Cenozoic Sediment Fluxes to the North Atlantic Ocean - Werner U. Ehrmann - 1985

Fate and Transport of Heavy Metals in the Vadose Zone - I.K. Iskandar - 1999-04-23
The chapters of this book were originally presented at the Fourth International Conference on the Biogeochemistry of Trace Elements, in June 1997 at Berkeley, California. The results of that symposium are now available to assist both specialists and those concerned with broader environmental issues. The first four chapters of Fate and Transport of Heavy Metals in the Vadose Zone are devoted to sorption-desorption processes. Subjects include the kinetics of trace metal sorption-desorption, adsorption of nickel and their isotherms, cadmium reactions, and retention mechanisms of both linear and nonlinear types. The next three sections describe complexation and speciation processes. The authors consider the effect of humic and fulvic acids, the binding of copper with organic matter, and the rate of dissolved selenium. Chapters eight through eleven scrutinize the bioavailability and retention of heavy metals and their mobility in the vadose zone. Twelve details plant-available concentration levels for heavy metals in the vadose zone. The last section relates case studies that are relevant to environmental affairs. Features

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practices. Soil quality is also important because it has direct and indirect metals in the vadose zone. The last section relates case studies that are relevant to environmental affairs. Features

**Advances in Soil Science** - 2012-12-06
The key to sustaining the soil resource base is to maintain, or enhance, soil quality. Soil quality cannot be seen or measured directly from the soil alone but is inferred from soil characteristics and soil behavior under defined conditions. In essence, the quality of soils is analogous to the health of humans, and just as there is no single characteristic that can be measured to quantify a person’s health, there is no single measurement that can quantify soil quality. However, there are certain characteristics, particularly when considered together, that are good indicators. Soil quality, just as human health, can be maintained or enhanced by good management practices; and seriously degraded-sometimes irreversibly-with poor practices. Soil quality is also important because it has direct and indirect effects on air quality and water quality. While the enhancement of soil quality does not always assure parallel improvements in the quality of air and, particularly, water resources, this is often the case. However, soil degradation is invariably accompanied by degraded qualities of both air and water resources. The consensus among many scientists is that the greatest challenge is not increasing production, but preventing serious deterioration of the soil and water resource base so that the production level can be sustained.

**The Bioeconomy** - Davide Viaggi - 2018-11-30
The ‘bioeconomy’ is the idea of an economy based on the sustainable exploitation of biological resources. Within this concept, there is increasing emphasis on issues such as climate change, depletion of natural resources and growing world food needs. The bioeconomy builds on the recognition of advances in technology, particularly in the life sciences, but at the same time covers issues such as innovation management, ecosystem services, development and governance. This book explores the development of the bioeconomy across the world from an economic and policy perspective, as well as identifying potential future pathways and issues. It uses a broad definition, covering all sectors using biological resources except health, and rather than focusing on individual sectors, it explores the breadth of interconnections that make the bioeconomy a new and challenging subject. Divided into two parts, the book initially outlines the current definitions, strategies, policy and economic information related to the world’s bioeconomy. The second part describes current economic analysis and research efforts in qualifying and understanding the economics of the bioeconomy. This includes the contributions of technology, research and innovation; driving forces and demand-side economics; supply-side economics, and the role of markets and public policy in matching demand and supply. The political economy, regulation and transitions are considered, as well as the contribution of the bioeconomy to society, including growth, development and sustainability. Key features include: - An analysis of varied international approaches to the bioeconomy. - A joint consideration of biotechnology, agriculture, food energy and bio-materials. - An assessment of sustainability in the bioeconomy. - A comprehensive view
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**Trace Substances** - Barbara D. Beck - 1992-01-01
Advances in Agronomy - - 2011-07-29
Volume 91 of Advances in Agronomy contains four indespensable reviews and over 30 descriptive figures. Maintains the highest impact factor among serial publications in Agriculture Presents timely reviews on important agronomy issues Enjoys a long-standing reputation for excellence in the field

**Factors Influencing Sludge Utilization Practices in Europe** - R.D. Davis - 2003-09-02
Proceedings of a Round-Table Seminar organized by the Commission of the European Communities, Directorate-General for Science for Research and Development Programme, Liebefeld, Switzerland, 8-10 May 1985.

**Bioremediation of Contaminated Soils** - Donald L. Wise - 2000-06-09
This volume focuses on innovative bioremediation techniques and applications for the cleanup of contaminated media and sites. It includes quantitative and design methods that elucidate the relationships among various operational parameters, and waste chemistry that defines the cost effectiveness of bioremediation projects. It also presents numerica
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**Sustainability Assessment of Renewables-Based Products** - Jo Dewulf -
2015-12-30
An extensive update and sequel to the successful title Renewables-Based
Technology: Sustainability Assessment. Over the past decade, the field of
renewable resources has grown tremendously and sustainability assessment
methods have undergone significant changes and improvements. This book
brings together the wide range of sustainability assessment methods in
current use, together with case studies to demonstrate their applications.
The book is divided into four sections as follows: Part 1 - Introduction:
Discusses the growing role of renewables as resources and their
applications, together with an introduction to the principles of sustainability
assessment Part 2 - Assessment Methods: Presents a wide variety of
sustainability assessment methods and tools that are currently used. This
includes land, water-and material use analysis, energy and exergy use,
carbon footprints, life cycle analysis, ecological footprints, life cycle costing,
social sustainability analysis, Prosuite methodology and Seebalance (the
SocioEcoEfficiency Analysis developed by BASF. Part 3 - Case Studies:
Provides context by demonstrating the application of these methods within
the major industries benefiting from renewables. The case studies apply
sustainability assessment methods to the production of renewable energy
(wind energy, solar energy and biofuels), bio-based chemicals and bio-based
materials. Part 4 - Conclusions

**Freshwater and Estuarine Radioecology** - G. Desmet - 1997-01-01
The Chernobyl accident drew attention to the difficulties of understanding
the dynamics of radionuclide transport through the environment using older
methods developed after the pseudo steady state pollution resulting after
the weapons testing fallout. More recent approaches, which are reported in
this book, have incorporated both the dynamic aspects highlighted by the
pulse Chernobyl input and the importance of improvement in models that
can be brought about by constraining parameters on the basis of a
knowledge of the fundamental physics, chemistry, biology and ecology of
the ecosystems involved. The papers within this volume include
hydrodynamic models of suspended solids transport, ion exchange
interpretation of radionuclide sorption: approaches applying a knowledge of
membrane transport kinetics to the uptake of radionuclides by biota; the
effects of different ecological niches on the relative uptake of radionuclides
by different species; kinetic models of radionuclide uptake through trophic
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Heavy Metals in Soils - B. J. Alloway - 1995
Heavy metals in soils continue to receive increasing attention due to the
growing scientific and public awareness of environmental issues and the
development of analytical techniques to measure their concentrations
accurately. Building on the success and acclaim of the first edition, this
book continues to provide an up-to-date, balanced and comprehensive
review of the subject in two sections: the first providing an introduction to
the metals chemistry, sources and methods used for their analysis; and the
second containing chapters dealing with individual elements in detail.

As a result of developments in biotechnology, bioengineering, and related
sciences, processing of bio-materials and bioproducts has become an area of
strategic importance. Written in a textbook style, this book attempts to
bring together both the theory and practice of thermal processing of bio-
materials. After giving the basic information on material properties, the
authors describe the principal techniques such as freezing, chilling,
membrane concentration, evaporation, drying, and sterilization. New
methods of drying based on the authors' research experiences are
presented to a great extent. Much attention is paid to quality interactions,
including degradation of thermo and xerolabile bio-products. Given the
strong effect of temperature on micro-organisms, a separate chapter is
dedicated to thermo bacteriology.

Methods for Assessing and Reducing Injury from Chemical Accidents
- Philippe Bourdeau - 1989-08-15

Heavy Metals in Soils - B. J. Alloway - 1995
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growing scientific and public awareness of environmental issues and the
development of analytical techniques to measure their concentrations
accurately. Building on the success and acclaim of the first edition, this
book continues to provide an up-to-date, balanced and comprehensive
review of the subject in two sections: the first providing an introduction to
the metals chemistry, sources and methods used for their analysis; and the
second containing chapters dealing with individual elements in detail.
The recent explosion of interdisciplinary research has fragmented the knowledge base surrounding renewable polymers. The Chemistry of Bio-based Polymers 2nd edition brings together, in one volume, the research and work of Professor Johannes Fink, focusing on biopolymers that can be synthesized from renewable polymers. After introducing general aspects of the field, the book’s subsequent chapters examine the chemistry of biodegradable polymeric types sorted by their chemical compounds, including the synthesis of low molecular compounds. Various categories of biopolymers are detailed including vinyl-based polymers, acid and lactone polymers, ester and amide polymers, carbohydrate-related polymers and others. Procedures for the preparation of biopolymers and biodegradable nanocomposites are arranged by chemical methods and in vitro biological methods, with discussion of the issue of “plastics from bacteria.” The factors influencing the degradation and biodegradation of polymers used in food packaging, exposed to various environments, are detailed at length. The book covers the medical applications of bio-based polymers, concentrating on controlled drug delivery, temporary prostheses, and scaffolds for tissue engineering. Professor Fink also addresses renewable resources for fabricating biofuels and argues for localized biorefineries, as biomass feedstocks are more efficiently handled locally.

**Hyaluronic Acid** - V. N. Khabarov - 2014-12-22
Hyaluronic acid is an essential part of connective, epithelial and neural tissues, and contributes to cell proliferation and migration. It is used as a stimulating agent for collagen synthesis and is a common ingredient in skin-care products, a multi-billion dollar industry, as it is believed to be a key factor in fighting the aging process. Hyaluronic Acid: Production, Properties, Application in Biology and Medicine consists of six chapters discussing the various issues of hyaluronic acid research. Chapter 1, an historical analysis recounts the discovery and milestones of the research leading to the practical applications of hyaluronan. Chapter 2 is dedicated to biological role of the hyaluronic acid in nature, in particular in the human body. The chapter starts from the phylogenesis of hyaluronic acid, then describes hyaluronan functions in human ontogenesis and especially the role which hyaluronan plays in extracellular matrix of the different tissues. Chapter 3 describes the methods to manufacture and purify hyaluronic acid, including the analytical means for assessing quality of the finished product. Chapter 4 discusses the structure and rheological properties of hyaluronic acid considering effects on conformation and biological properties related to molecular weight. In Chapter 5, the physical and chemical methods for modifying the structure of hyaluronan are discussed including cross-linking using bi-functional reagents, solid-phase modification and effects of the combined action of high pressures and shifts deformation. The final chapter focuses on the products derived from hyaluronic acid, including therapeutics composed of modified hyaluronan conjugated to vitamins, amino acids and oligo-peptides. The biological roles and medical applications of this polysaccharide have been extensively studied and this book provides a wealth of scientific data demonstrating the critical role of hyaluronic acid and its promise as a multifaceted bio-
and physical–chemical properties. It will be an invaluableresource to booklinks relationships between its biological functions, structure and physical–chemical properties. It will be an invaluableresource to researchers, both industrial and academic, involved in all aspects of hyaluronan-based technologies.

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Metal Specification Theory Analysis Application - James R. Kramer - 1988-09
Here is an up-to-date presentation of metal speciation in soils, sediments, and water by specialists in analytical chemistry, environmental engineering, oceanography, nutrition, and soil chemistry. Fate and effects–measurements–and modeling–are the major themes in this book, with overviews and examples of the significance of metal speciation to solving environmental problems, and recommendations for additional research areas. This new reference discusses separation methods, extraction techniques; bioavailability as related to humans, plants, and aquatic organisms; applications showing importance of speciation in groundwater; industrial waste treatment systems, marines and lakes, solid-solution interface; fate of organic pollutants; nature of surfaces; binding of metals to oxides and sediments (dissolved and particulate matter); interpretations of reactions in multi-ligand systems.

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