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Studies on Porous Monolithic Materials Prepared via Sol–Gel Processes Studies on Porous Monolithic Materials Prepared via Sol–Gel Processes Monolithic Materials Monolithic Silicas in Separation Science Advanced Porous Biomaterials for Drug Delivery Applications Handbook of Capillary and Microchip Electrophoresis and Associated Microtechniques Chromatography Separation Methods In Proteomics Porous Silicon: From Formation to Applications: Optoelectronics, Microelectronics, and Energy Technology Applications, Volume Three Handbook of Sol-Gel Science and Technology Advances in Chromatography Biopharmaceutical Production Technology, 2 Volume Set Handbook of Smart Materials in Analytical Chemistry Multiphysics in Porous Materials Advances in Carbohydrate Chemistry and Biochemistry Hierarchically Structured Porous Materials Porous Polymers Proteomics and Peptidomics Porous Polymer Science and Applications Hormones—Advances in Research and Application: 2012 Edition Architectural Graphic Standards for Residential Construction Characterization of Porous Solids VI Regulated Bioanalytical Laboratories Innovations in Biomedical Engineering Cyclic Hydrocarbons—Advances in Research and Application: 2013 Edition Porous Plastics Advances in Flow Injection Analysis and Related Techniques Advances in Ceramic Coatings and Ceramic-Metal Systems Advanced Separations by Specialized Sorbents Molecularly Imprinted Materials Carbon Nanomaterials in Biomedicine and the Environment Porous Materials for Carbon Dioxide Capture Ion-Pair Chromatography and Related Techniques Principles and Practice of Modern Chromatographic Methods Photocatalysis for Energy and Environmental Applications Advanced Ceramic Membranes and Applications Chiral Separations by Capillary Electrophoresis Molecular Imprinting Hypercrosslinked Polymeric Networks and Adsorbing Materials Essentials in Modern HPLC Separations

Studies on Porous Monolithic Materials Prepared via Sol–Gel Processes

2012-10-04

this thesis focuses on porous monolithic materials that are not in the forms of particles fibers or films in particular the synthetic strategy of porous monolithic materials via the sol gel method accompanied by phase separation which is characterized as the non templating method for tailoring well defined macropores is described from the basics to actual synthesis porous materials are attracting more and more attention in various fields such as electronics energy storage catalysis sensing adsorbents biomedical science and separation science to date many efforts have been made to synthesize porous materials in various chemical compositions organics inorganics including metals glasses and ceramics and organic inorganic hybrids also demonstrated in this thesis are the potential applications of synthesized porous monolithic materials to separation media as well as to electrodes for electric double layer capacitors edlcs and li ion batteries libs this work is ideal for graduate students in materials science and is also useful to engineers or scientists seeking basic knowledge of porous monolithic materials

Studies on Porous Monolithic Materials Prepared via Sol–Gel Processes

2012-10-03

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Monolithic Materials

2003-04-29

during the past decade monolithic materials in the shape of discs stacked layers rolled sheets sponges irregular chunks tubes and cylinders have all been successfully demonstrated these formats were prepared from a wide variety of materials including natural polymers such as cellulose synthetic polymers that involved porous styrene methacrylate and acrylamide based polymers and inorganic materials mainly silica each approach is interesting from the point of view of both preparation and application although the current papers and patents concerned with monolithic separation media are quite numerous the information is scattered throughout a vast number of journals this book therefore fills the gap in the market for a comprehensive reference book on this subject monolithic materials concerns all of the current formats of monolithic materials and provides an integrated view of this novel format of separation media since the flow pattern in monolithic devices is different from that in packed beds the hydrodynamics of the system and mass transport differ considerably from those derived for packed columns therefore this book presents contributions concerned with both flow and mass transfer in the monolithic materials a significant proportion of the book is devoted to the applications of monolithic materials it also provides the reader with valuable information about the sources of the specific materials their properties and potential applications monolithic materials are currently very popular within several scientific areas such as chromatography optics catalysis diagnostics genomics proteomics and microfluidics provides valuable information about the sources of the specific materials their properties and potential applications chapters written by leading experts in the area

Monolithic Silicas in Separation Science

2010-11-29

edited by the experts and pioneers in the field this is the first monograph to cover the topic containing the must have information hitherto only scattered among journals clearly divided into sections on preparation characterization and modeling and applications this is essential reading for chemists chromatographers analytical chemists biochemists and biologists

Advanced Porous Biomaterials for Drug Delivery Applications

2022-11-30

advanced porous biomaterials for drug delivery applications probes cutting edge progress in the application of advanced porous biomaterials in drug delivery fields these biomaterials offer promise in improving upon the design cost and creation of potent novel drug delivery systems the book focuses on two categories nature engineered and synthetic advanced porous biomaterials with a wide range of low cost porous biomaterial based systems that have been used for the delivery of diverse drugs through in vitro in vivo approaches details how advanced porous biomaterial assisted systems improve essential properties in drug delivery applications explains how advanced porous biomaterials systems are being used and explored to improve overall performances of drug delivery systems in mitigating a variety of diseases emphasizes major applications in drug delivery such as controlled release cancer therapy and targeted delivery and with focus on oral topical and transdermal applications focuses on both naturally available and synthetic low cost advanced porous biomaterials and their role in

enhancing important parameters in drug delivery applications accessible to readers with bio and non bio backgrounds this book is an ideal reference for academics researchers and industry professionals in the interdisciplinary fields of biomedicine and biomedical engineering pharmaceuticals materials science and chemistry

Handbook of Capillary and Microchip Electrophoresis and Associated Microtechniques

2007-12-18

now in its third edition this bestselling work continues to offer state of the art information on the development and employment of capillary electrophoresis with special emphasis on microseparations and microfluidics it features new chapters describing the use of microchip electrophoresis and associated microtechniques with a focus on the extraordinary breadth of work undertaken to expand ce methodologies in recent years enhanced by contributions from leading international experts the handbook of capillary and microchip electrophoresis and associated microtechniques third edition remains a seminal reference for the chemistry biology and engineering fields

Chromatography

2011-01-31

leading researchers discuss the past and present of chromatography more than one hundred years after mikhail tswett pioneered adsorption chromatography his separation technique has developed into an important branch of scientific study providing a full portrait of the discipline chromatography a science of discovery bridges the gap between early twentieth century chromatography and the cutting edge of today s research featuring contributions from more than fifty award winning chromatographers chromatography offers a multifaceted look at the development and maturation of this field into its current state as well as its importance across various scientific endeavors the coverage includes consideration of chromatography as a unified science rather than just a separation method key breakthroughs revolutions and paradigm shifts in chromatography profiles of nobel laureates who used chromatography in their research and the role it played recent advances in column technology chromatography s contributions to the agricultural space biological medical sciences pharmaceutical science and environmental natural products and chemical analysis future trends in chromatography with numerous references and an engaging series of voices chromatography a science of discovery offers a diverse look at an essential area of science it is a unique and invaluable resource for researchers students and other interested readers who seek a broader understanding of this field

Separation Methods In Proteomics

2005-12-12

driven by the widespread growth of proteomic practices protein separation techniques have been refined to minimize variability optimize particular applications and adapt to user preferences in the analysis of proteins separation methods in proteomics provides a comprehensive examination of all major separation techniques for proteomics research written as a compilation of hands on methods exemplified by the work of several recognized leaders in the field this book may serve as a guide for selection of the optimal separation strategies to solve particular biological problems recent progress in the development of robust analytical techniques and instrumentation has created the need for good quality biological samples that are subject to analysis emphasizing the importance of sample preparation the book explains how proteomes can be divided into smaller less complicated subproteomes for individual analysis it also highlights several hybrid approaches that take into account protein interactions including applications of the separation methods currently employed in proteomic analyses for both clinical and basic research separation methods in proteomics contains practical information that can enhance the current and future endeavors of scientists in proteomics genomics transcriptomics biomarker discovery and drug discovery

Porous Silicon: From Formation to Applications: Optoelectronics, Microelectronics, and Energy Technology Applications,

Volume Three

2016-01-06

porous silicon is rapidly attracting increasing interest from various fields including optoelectronics microelectronics photonics medicine sensor and energy technologies chemistry and biosensing this nanostructured and biodegradable material has a range of unique properties that make it ideal for many applications this book the third of a

Handbook of Sol-Gel Science and Technology

2018-05-31

this completely updated and expanded second edition stands as a comprehensive knowledgebase on both the fundamentals and applications of this important materials processing method the diverse international team of contributing authors of this reference clarify in extensive detail properties and applications of sol gel science and technology as it pertains to the production of substances active and non active including optical electronic chemical sensor bio and structural materials essential to a wide range of manufacturing industries the

compilation divides into the three complementary sections sol gel processing devoted to general aspects of processing and recently developed materials such as organic inorganic hybrids photonic crystals ferroelectric coatings and photocatalysts characterization of sol gel materials and products presenting contributions that highlight the notion that useful materials are only produced when characterization is tied to processing such as determination of structure by nmr in situ characterization of the sol gel reaction process determination of microstructure of oxide gels characterization of porous structure of gels by the surface measurements and characterization of organic inorganic hybrid and applications of sol gel technology covering applications such as the sol gel method used in processing of bulk silica glasses bulk porous gels prepared by sol gel method application of sol gel method to fabrication of glass and ceramic fibers reflective and antireflective coating films application of sol gel method to formation of photocatalytic coating films and application of sol gel method to bioactive coating films the comprehensive scope and integrated treatment of topics make this reference volume ideal for r d scientists and engineers across a wide range of disciplines and professional interests

Advances in Chromatography

2009-02-23

for more than four decades scientists and researchers have relied upon the advances in chromatography series for the most up to date information on a wide range of developments in chromatographic methods and applications covering the state of the art in separation science this volume continues to present timely cutting edge reviews on chromatography in the fields of bio analytical organic polymer and pharmaceutical chemistry compiled by leading researchers from around the world new chapters cover topics related to countercurrent chromatography and large scale genotyping as well as cyclic voltammetry detection a powerful tool for determining the electrochemical characteristics of organic compounds

Biopharmaceutical Production Technology, 2 Volume Set

2012-08-20

systematically addressing the key steps and challenges along the biopharmaceutical production process this two volume handbook provides key knowledge for medium to large scale producers of biopharmaceuticals the volumes are divided into six major parts on upstream technologies protein recovery process development analytical technologies quality control and an outlook section that addresses new and emerging technologies such as single use processes and integrated process design with contributions by some 40 experts from academia as well as small and large biopharmaceutical companies this unique handbook is full of valuable first hand knowledge on how to produce biopharmaceuticals in a cost effective and quality controlled manner

Handbook of Smart Materials in Analytical Chemistry

2019-01-24

a comprehensive guide to smart materials and how they are used in sample preparation analytical processes and applications this comprehensive two volume handbook provides detailed information on the present state of new materials tailored for selective sample preparation and the legal frame and environmental side effects of the use of smart materials for sample preparation in analytical chemistry as well as their use in the analytical processes and applications it covers both methodological and applied analytical aspects relating to the development and application of new materials for solid phase extraction spe and solid phase microextraction sme their use in the different steps and techniques of the analytical process and their application in specific fields such as water food air pharmaceuticals clinical sciences and forensics every chapter in handbook of smart materials in analytical chemistry is written by experts in the field to provide a comprehensive picture of the present state of this key area of analytical sciences and to summarize current applications and research literature in a critical way volume 1 covers new materials for sample preparation and analysis volume 2 handles analytical processes and applications focuses on the development and applications of smart materials in analytical chemistry covers both methodological and applied analytical aspects for the development of new materials and their use in the different steps and techniques of the analytical process and their application in specific fields features applications in key areas including water air environment pharma food forensic and clinical presents the available tools for the use of new materials suitable to aid recognition process to the sample preparation and analysis a key resource for analytical chemists applied laboratories and instrument companies handbook of smart materials in analytical chemistry 2v set is an excellent reference book for specialists and advanced students in the areas of analytical chemistry including both research and application environments

Multiphysics in Porous Materials

2018-07-12

this book summarizes defines and contextualizes multiphysics with an emphasis on porous materials it covers various essential aspects of multiphysics from history definition and scope to mathematical theories physical mechanisms and numerical implementations the emphasis on porous materials maximizes readers understanding as these substances are abundant in nature and a common breeding ground of multiphysical phenomena especially complicated multiphysics dr liu s lucid and easy to follow presentation serve as a blueprint on the use of multiphysics as a leading edge technique for computer modeling the contents are organized to facilitate the transition from familiar monolithic physics such as heat transfer and pore water movement to state of the art applications involving multiphysics including poroelasticity thermohydro mechanical processes electrokinetics electromagnetics fluid dynamics fluid structure interaction and electromagnetomechanics this volume serves as both a general reference and specific treatise for various scientific and engineering disciplines involving multiphysics

simulation and porous materials

Advances in Carbohydrate Chemistry and Biochemistry

2017-11-23

advances in carbohydrate chemistry and biochemistry volume 74 presents a definitive interpretation of the current status and future trends in carbohydrate chemistry and biochemistry since its inception in 1945 the series has provided critical and informative articles written by research specialists that integrate the industrial analytical and technological aspects of biochemistry organic chemistry and instrumentation methodology to the study of carbohydrates features contributions from leading authorities and industry experts who specialize in carbohydrate chemistry biochemistry and research integrates the industrial analytical and technological aspects of biochemistry organic chemistry and instrumentation methodology in the study of carbohydrates informs and updates on all the latest developments in the field

Hierarchically Structured Porous Materials

2012-04-06

this first book devoted to this hot field of science covers materials with bimodal trimodal and multimodal pore size with an emphasis on the successful design synthesis and characterization of all kinds of hierarchically porous materials using different synthesis strategies it details formation mechanisms related to different synthesis strategies while also introducing natural phenomena of hierarchy and perspectives of hierarchical science in polymers physics engineering biology and life science examples are given to illustrate how to design an optimal hierarchically porous material for specific applications ranging from catalysis and separation to biomedicine photonics and energy conversion and storage with individual chapters written by leading experts this is the authoritative treatment serving as an essential reference for researchers and beginners alike

Porous Polymers

2011-02-14

this book gathers the various aspects of the porous polymer field into one volume it not only presents a fundamental description of the field but also describes the state of the art for such materials and provides a glimpse into the future emphasizing a different aspect of the ongoing research and development in porous polymers the book is divided into three sections synthesis characterization and applications the first part of each chapter presents the basic scientific and engineering principles underlying the topic while the second part presents the

state of the art results based on those principles in this fashion the book connects and integrates topics from seemingly disparate fields each of which embodies different aspects inherent in the diverse field of porous polymeric materials

Proteomics and Peptidomics

2005-12-23

proteomics and peptidomics is the detailed understanding of the role that proteins and peptides play in health and disease and is a necessary compliment to genetic analysis the functional expression analysis of both proteins and peptides plays a central role in modern drug discovery as well as drug development and is also a key research area in systems biology proteomics and peptidomics captures the width as well as the depth within the area and exemplifies the variety as well as the traditional basis of analytical chemistry that is needed in order to move forward in expression analysis studies as a fast emerging field it gives and overview of parts within the field combined with highly specialized and dedicated topics that are intended to compliment each other

Porous Polymer Science and Applications

2022-05-02

porous polymer science and applications aims to provide recent developments and advances in synthesis tuning parameters and applications of porous polymers this book brings together reviews written by highly accomplished panels of experts working in the area of porous polymers it encompasses basic studies and addresses topics of novel issues concerning the applications of porous polymers chapter topics span basic studies novel issues and applications addressing all aspects in a one stop reference on porous polymers applications discussed include catalysis gas storage energy and environmental sectors making this an invaluable guide for students professors scientists and r d industrial experts working in the field of material science and engineering and particularly energy conversion and storage additional features include provides a comprehensive introduction to porous polymers addressing design synthesis structure properties and characterization covers task specific applications of porous polymers explores the advantages and opportunities of these materials for most major fields of science and engineering outlines novel research areas and potential development and expansion areas

Hormones—Advances in Research and Application: 2012 Edition

2012-12-26

hormones advances in research and application 2012 edition is a scholarlyeditions ebook that delivers timely authoritative and comprehensive information about hormones the editors have built hormones advances in research and application 2012 edition on the vast information databases of scholarlynews you can expect the information about hormones in this ebook to be deeper than what you can access anywhere else as well as consistently reliable authoritative informed and relevant the content of hormones advances in research and application 2012 edition has been produced by the world s leading scientists engineers analysts research institutions and companies all of the content is from peer reviewed sources and all of it is written assembled and edited by the editors at scholarlyeditions and available exclusively from us you now have a source you can cite with authority confidence and credibility more information is available at scholarlyeditions com

Architectural Graphic Standards for Residential Construction

2003

[publisher description](#)

Characterization of Porous Solids VI

2002-11-14

this book contains 99 of the papers that were presented at the 6th in the series of symposia on characterization of porous solids held in alicante spain may 2002 written by leading international specialists in the subject the contributions represent an up to date and authoritative account of recent developments around the world in the major methods used to characterize porous solids the book is a useful work of reference for anyone interested in characterizing porous solids such as mcm 41 mesoporous materials pillared clays etc papers on pore structure determination using gas adsorption feature strongly together with papers on small angle scattering methods mercury porosimetry microcalorimetry scanning probe microscopies and image analysis

Regulated Bioanalytical Laboratories

2011-03-31

this book provides useful information for bioanalytical analytical scientists analysts quality assurance managers and all personnel in bioanalytical laboratories through all aspects of bioanalytical technical and regulatory perspectives within bioanalytical operations and processes readers learn how to develop and implement strategies for routine non routine and

standard bioanalytical methods and on the entire equipment hardware and software qualification process the book also gives guidelines on qualification of certified standards and in house reference material as well as on people qualification finally it guides readers through stressless internal and third party laboratory audits and inspections it takes account to most national and international regulations and quality and accreditation standards along with corresponding interpretation and inspection guides the author elaborates on highly comprehensive content making it easy not only to learn the subject but also to quickly implement the recommendations

Innovations in Biomedical Engineering

2022-05-31

this book presents the latest developments in the field of biomedical engineering and includes practical solutions and strictly scientific considerations the development of new methods of treatment advanced diagnostics or personalized rehabilitation requires close cooperation of experts from many fields including among others medicine biotechnology and finally biomedical engineering the latter combining many fields of science such as computer science materials science biomechanics electronics not only enables the development and production of modern medical equipment but also participates in the development of new directions and methods of treatment the presented monograph is a collection of scientific papers on the use of engineering methods in medicine the topics of the work include both practical solutions and strictly scientific considerations expanding knowledge about the functioning of the human body we believe that the presented works will have an impact on the development of the field of science which is biomedical engineering constituting a contribution to the discussion on the directions of development of cooperation between doctors physiotherapists and engineers we would also like to thank all the people who contributed to the creation of this monograph both the authors of all the works and those involved in technical works

Cyclic Hydrocarbons—Advances in Research and Application: 2013 Edition

2013-06-21

cyclic hydrocarbons advances in research and application 2013 edition is a scholarlyeditions book that delivers timely authoritative and comprehensive information about alicyclic hydrocarbons the editors have built cyclic hydrocarbons advances in research and application 2013 edition on the vast information databases of scholarlynews you can expect the information about alicyclic hydrocarbons in this book to be deeper than what you can access anywhere else as well as consistently reliable authoritative informed and relevant the content of cyclic hydrocarbons advances in research and application 2013 edition has been produced by the world s leading scientists engineers analysts research institutions and companies all of the content is from peer reviewed sources and all of it is written assembled and edited by the editors at scholarlyeditions and available exclusively from us you now have a source you can cite with authority confidence and credibility more information is available at scholarlyeditions.com

Porous Plastics

2022-06-20

porous plastics a unique book by a well known polymer scientist on a subject that is trending in plastics polymer engineering porous polymers are materials that are having pores in their design porous polymers are important for various fields of application and are used with pores of different sizes i e from macropores to micropores this book focuses on the issues of porous polymers as well as low molecular compounds that can be introduced in porous polymers the book begins with a chapter about polymers that are used for porous materials here among others microporous polymer networks hyper crosslinked polymers and rigid ladder type porous polymers are detailed related issues are also detailed in the subsequent chapters in the next chapter the major synthesis methods for porous polymers are described then the properties and material testing methods such as standards are described in a chapter in the following chapters special fields of applications of porous polymers are described in detail such as medical uses thermal insulation membranes separation methods and other fields of use audience the book will be used by plastics engineers materials scientists and polymer scientists researchers in both industry and academia p

Advances in Flow Injection Analysis and Related Techniques

2008-12-03

the concept of flow injection analysis fia was first proposed in 1975 by ruzicka and hansen and this initiated a field of research that would over more than three decades involve thousands of researchers and which has to date resulted in close to 20 000 publications in the international scientific literature since its introduction a number of books including some specialized monographs have been published on this subject with the latest in 2000 however in this decade there has been a number of significant advances in the flow analysis area and in particular in sequential injection analysis sia techniques and more recently with the introduction of lab on a valve lov and bead injection flow systems this book aims to cover the most important advances in these new areas as well as in classical fia which still remains the most popular flow analysis technique used in analytical practice topics covered in the 23 chapters include the fundamental and underlying principles of flow analysis and associated equipment the fluid dynamic theory of fia an extensive coverage of detection methods e g atomic and molecular spectrometry electroanalytical methods in addition there are several chapters on on line separation e g filtration gas diffusion dialysis pervaporation solvent and membrane extraction and chromatography as well as on other sample pretreatment techniques such as digestion the book also incorporates several chapters on major areas of application of flow analysis in industrial process monitoring e g food and beverages drugs and pharmaceuticals environmental and agricultural analysis and life sciences the contributing authors who include the founders of flow injection analysis are all leading experts in flow analytical techniques and their chapters not only provide a critical review of the current state of this area but also suggest future trends provides a critical review of the current state of and future trends in flow analytical techniques offers a comprehensive elucidation of the principles and theoretical

basis of flow analysis presents important applications in all major areas of chemical analysis from food products to environmental concerns

Advances in Ceramic Coatings and Ceramic-Metal Systems

2009-09-28

this volume includes 46 contributed articles from the advanced ceramic coatings for structural environmental and functional applications and the international symposium on advances in ceramic metal systems symposia topics include processing and microstructure design mechanical and thermal properties advanced testing and non destructive evaluation wear erosion and corrosion behavior functional properties and modeling a significant portion of the contributed articles focus on current state of the art industrial applications of ceramic coatings and ceramic metal composites

Advanced Separations by Specialized Sorbents

2014-09-17

advanced separations by specialized sorbents opens a new window into sorbent materials presenting fundamental principles for their syntheses and adsorption properties the book presents advanced techniques used to create specialized sorbents with a wide range of functions that can be used to enhance the separation and or purification of useful bio

Molecularly Imprinted Materials

2004-11-30

providing an up to date overview of the field this reference presents extensive discussions on a wide range of approaches for molecular imprinting written by pioneering experts on the subject molecularly imprinted materials science and technology offers experimental protocols that exemplify specific techniques as well as detailed surveys on molecular imprinting research and applications provides a comprehensive tutorial for those who wish to learn basic techniques and make new contributions to the field as well as in depth discussions guidelines and experimental protocols to help beginners gain a jump start in the field of molecular imprinting the book examines the recent evolution of the technology offering step by step instruction on methods to design and optimize molecularly imprinted polymers and suggestions recommendations and troubleshooting strategies for alternative approaches and improvements discussed in the text about the editors mingdi yan is associate professor department of chemistry portland state university oregon after serving as a senior research scientist at ikonos corporation portland oregon she joined the portland state university faculty and now leads a research group in organic and polymeric materials science she received the

b s degree in polymer physics from the university of science and technology china and the ph d degree in organic chemistry from the university of oregon olof ramstrÖm is associate professor royal institute of technology stockholm sweden after serving with professor jean marie lehn at université louis pasteur strasbourg france he joined the royal institute of technology and is now leading a group specializing in supramolecular chemistry and molecular recognition he received the m sc degree in chemical engineering and the ph d degree in bioorganic chemistry applied biochemistry from lund institute of technology lund university sweden

Carbon Nanomaterials in Biomedicine and the Environment

2020-02-13

carbon nanomaterials possess special physical and chemical properties as adsorbents they are widely used for the purification of water and other liquids recovery of valuable substances from liquid and gaseous media and oil refining and also in petrochemical wine oil and fat and other industries they can be used in medicine both for the creation of hemosorption systems that are capable of performing specific purification of blood and other physiological fluids including removal of various exo and endotoxins and for the construction of highly effective adsorbed probiotics the creation of nanostructured carbon containing materials is one of many rapidly developing research fields and also the theme of this book the book focuses on the recent developments in the synthesis of nanostructured carbon multifunctional sorbents and covers topics such as fusicoccin compounds as anticancer agents entero and vulnerosorption and blood purification it will be useful for scientists chemical industry specialists professors and master s and phd students of chemical physical and biological sciences

Porous Materials for Carbon Dioxide Capture

2014-04-17

this multi authored book provides a comprehensive overview of the latest developments in porous co₂ capture materials including ionic liquid derived carbonaceous adsorbents porous carbons metal organic frameworks porous aromatic frameworks micro porous organic polymers it also reviews the sorption techniques such as cyclic uptake and desorption reactions and membrane separations in each category the design and fabrication the comprehensive characterization the evaluation of co₂ sorption separation and the sorption degradation mechanism are highlighted in addition the advantages and remaining challenges as well as future perspectives for each porous material are covered this book is aimed at scientists and graduate students in such fields as separation carbon polymer chemistry material science and technology who will use and appreciate this information source in their research other specialists may consult specific chapters to find the latest authoritative reviews dr an hui lu is a professor at the state key laboratory of fine chemicals school of chemical engineering faculty of chemical environmental and biological science and technology dalian university of technology china dr sheng dai is a corporate fellow and group leader in the chemical sciences division at oak ridge national laboratory ornl and a professor of chemistry at the university of tennessee usa

Ion-Pair Chromatography and Related Techniques

2009-10-15

ion pair chromatography ipc is a rapidly evolving method for difficult analyses of organic and inorganic ions and ionogenic neutral and zwitterionic compounds the possibilities for this technology continue to grow as novel ion pair reagents and strategies are introduced at an accelerated level compensating for a dearth in the literature ion pair chromatography and related techniques details the basics and the evolution of this established and easily tunable technique and explains its influence on similar methods theoretical modeling to application providing a thorough exploration of the multiplicity of interactions involved in an ipc system this book emphasizes the progress from theoretical modeling to application it explores the practical potential of ipc in the life science medicine pharmacology forensic food and environmental sectors it examines the upgrade of column technology and instrumentation to improve data quality and to increase sample throughput the book also compares ipc to other instrumental methods of analysis and discusses the rising importance of the ion pair concept in different analytical techniques future endeavors ipc has the potential to have lasting impact in the field of chromatography distilling the knowledge gained from preeminent research this volume is a critical resource that is destined to stimulate future endeavors by separation scientists working in the area of high performance liquid chromatography

Principles and Practice of Modern Chromatographic Methods

2021-12-03

principles and practice of modern chromatographic methods second edition takes a comprehensive unified approach in its presentation of chromatographic techniques like the first edition the book provides a scientifically rigid but easy to follow presentation of chromatography concepts that begins with the purpose and intent of chromatographic theory the what and why that are left out of other books attempting to cover these principles this fully revised second edition brings the content up to date covering recent developments in several new sections and an additional chapter on composite methods new topics include sample profiling sample preparation sustainable green chemistry 2d chromatography miniaturization nano lc hilic and more contains thorough chapters that begin with an updated schematic overview and a visual representation of the content avoids the obfuscation of different terminologies and classification systems that are prevalent in the area such as the relationship between liquid chromatography and column chromatography provides integrated and comprehensive topic coverage based on chromatographic bibliometrics and survey reports on the relative usage of chromatographic techniques

Photocatalysis for Energy and Environmental Applications

2017-08-03

this book provides a balanced blend of fundamental concepts of fabrication characterization of conventional ceramics extending to present the recent advances in ceramic membranes it covers the basic concepts of ceramic membranes as well as practical and theoretical knowledge in conventional and advanced ceramic membranes combined with unorthodox ideas for novel approaches in ceramic membranes book includes lot of real time examples derived largely from research work by authors aimed at researchers students and academics in the field of membrane engineering around the globe it has following key features guides readers through manufacturing characterizing and using low cost ceramic technology provides an overview of the different types of ceramic membranes catalytic reactors and their uses covers industrial application separation and purification includes recent developments and advances in membrane fabrication discusses new raw materials for ceramic membranes

Advanced Ceramic Membranes and Applications

2009-11-11

covers the fundamentals of chiral separation available chiral selectors and numerous applications of chiral separation by capillary electrophoresis since the 1980s modern analytical tools have enabled capillary electrophoresis to become a standard part of the chemist s toolkit with contributions from international experts chiral separations by capillary electrophoresis provides a general overview of the principles of chiral separation by capillary electrophoresis and the different chiral selectors available the book discusses the most important as well as several new chiral selectors used in capillary electrophoresis it reviews recent pharmaceutical and biomedical applications and explores novel techniques such as capillary electrophoresis coupled to mass spectrometry and microchip technology the book also examines the quantitative aspects of capillary electrophoresis the possibilities of capillary electrochromatography and the various chiral columns available capillary electrophoresis has proven to be an effective tool for chiral separation this book explains how this technique can be used in the separation of molecules offering insight into both existing and emerging applications

Chiral Separations by Capillary Electrophoresis

2012-03-13

molecularly imprinted polymers by karsten haupt ana v linares marc bompart und bernadette tse sum bui physical forms of mips by andrea biffis gita dvorakova und aude falcimaigne

cordin micro and nanofabrication of molecularly imprinted polymers by marc bompart karsten haupt und cédric ayela immuno like assays and biomimetic microchips by m c moreno bondi m e benito peña j l urraca und g orellana chemosensors based on molecularly imprinted polymers by subramanian suriyarayanan piotr j cywinski artur j moro gerhard j mohr und włodzimierz kutner chromatography solid phase extraction and capillary electrochromatography with mips by blanka tóth und george horvai microgels and nanogels with catalytic activity by m resmini k flavin und d carboni

Molecular Imprinting

2010-10-06

hypercrosslinked network polymers present a new class of polymeric materials with very wide application possibilities including adsorption technology ion exchange hplc analytical chemistry nanotechnology nanocomposites medical polymers first book describing the theory practice of preparation and use of polymeric adsorbing materials with the emphasis on new hypercrosslinked polystyrene type polymers written by the originators of the concept of hypercrosslinked polymers complex phenomena are explained by appealing to common sense analogies and well known effects rather than complex mathematical treatment and computer modelling reviews many russian german and even czech language publications contains numerous experimental data in the form of figures and tables

Hypercrosslinked Polymeric Networks and Adsorbing Materials

2013

this book discusses in a systematic manner the role of separation in hplc the types and characteristics of stationary phases and of mobile phases used in this technique as well as other factors influencing the separation the selection process of stationary and mobile phase for a specific separation is described as related to the physico chemical characteristics of the molecules to be separated and of their matrix all these subjects are discussed from the point of view of the new developments in hplc the book also includes a part presenting the practice of modern hplc as necessary for applications particularly related to the analysis of pharmaceutical and biological samples food and beverages environmental samples etc gives a clear presentation of notions and conceptsdiscusses key parameters in hplc separationincludes modern developments in hplcdescribes interrelation between various hplc features solvent pressure separation detection includes a large number of references

Essentials in Modern HPLC Separations

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