FREE READ METAL ORGANIC FRAMEWORKS DESIGN AND APPLICATION (2023)

METAL-ORGANIC FRAMEWORKS POROUS ORGANIC FRAMEWORKS METAL-ORGANIC FRAMEWORK DESIGN AND STARILITY OF FUNCTIONALIZED METAL-ORGANIC FRAMEWORKS METAL-ORGANIC FRAMEWORK NANOCOMPOSITES METAL-ORGANIC FRAMEWORKS INTRODUCTION TO RETICULAR CHEMISTRY COVALENT ORGANIC FRAMEWORKS METAL-ORGANIC FRAMEWORKS FOR BIOMEDICAL APPLICATIONS METAL-ORGANIC FRAMEWORKS CHEMICAL BONDING IN METAL-ORGANIC FRAMEWORKS FUNCTIONAL METAL-ORGANIC FRAMEWORKS: GAS STORAGE, SEPARATION AND CATALYSIS THE CHEMISTRY OF METAL-ORGANIC FRAMEWORKS FLEXIBLE METAL-ORGANIC FRAMEWORKS FUNCTIONAL METAL-ORGANIC FRAMEWORKS STRUCTURAL DESIGN AND MODIFICATION OF SURFACE ANCHORED METAL-ORGANIC FRAMEWORKS: FROM FUNDAMENTAL STUDY TOWARDS APPLICATIONS METAL-ORGANIC FRAMEWORKS WITH HETEROGENEOUS STRUCTURES HETEROGENEOUS CATALYSTS RETROFITTING METAL-ORGANIC FRAMEWORKS SYNTHETIC APPLICATIONS METAL-ORGANIC FRAMEWORK MEMBRANES FOR MOLECULAR GAS SEPARATIONS DESIGN PRINCIPLES TO ENHANCE OPTOELECTRONIC PROPERTIES IN OLIGOTHIOPHENE-BASED COVALENT ORGANIC FRAMEWORKS METAL-ORGANIC FRAMEWORKS METAL ORGANIC FRAMEWORKS AND THEIR DERIVATIVES FOR ENERGY CONVERSION AND STORAGE DESIGN AND FUNCTIONALIZATION OF METAL-ORGANIC FRAMEWORKS FOR CHEMICAL GAS SENSOR APPLICATIONS FLABORATION AND APPLICATIONS OF METAL -ORGANIC FRAMEWORKS APPLICATIONS OF METAL-ORGANIC FRAMEWORKS AND THEIR DERIVED MATERIALS INTRODUCTION TO RETICULAR CHEMISTRY EMERGING APPLICATIONS AND IMPLEMENTATIONS OF METAL-ORGANIC FRAMEWORKS CATALYST IMMOBILIZATION METAL-ORGANIC FRAMEWORK MATERIALS METAL -ORGANIC FRAMEWORKS FOR PHOTONICS APPLICATIONS METAL-ORGANIC FRAMEWORKS FOR CHEMICAL REACTIONS METAL-ORGANIC FRAMEWORKS (MOFs) FOR ENVIRONMENTAL APPLICATIONS METAL-ORGANIC FRAMEWORKS SYNTHESIS METHODS AND CRYSTALLIZATION METAL-ORGANIC FRAMEWORKS METAL-ORGANIC FRAMEWORK COMPOSITES PHOTOCATALYTIC FUNCTIONAL MATERIALS FOR ENVIRONMENTAL REMEDIATION METAL -ORGANIC FRAMEWORK-BASED NANOMATERIALS FOR ENERGY CONVERSION AND STORAGE

METAL-ORGANIC FRAMEWORKS

2010-12-17

METAL ORGANIC FRAMEWORKS REPRESENT A NEW CLASS OF MATERIALS THAT MAY SOLVE THE HYDROGEN STORAGE PROBLEM ASSOCIATED WITH HYDROGEN FUELED VEHICLES IN THIS FIRST DEFINITIVE GUIDE TO METAL ORGANIC FRAMEWORK CHEMISTRY AUTHOR L MACGILLIVRAY ADDRESSES STATE OF ART DEVELOPMENTS IN THIS PROMISING TECHNOLOGY FOR ALTERNATIVE FUELS PROVIDING PROFESSORS GRADUATE AND UNDERGRADUATE STUDENTS STRUCTURAL CHEMISTS PHYSICAL CHEMISTS AND CHEMICAL ENGINEERS WITH A HISTORICAL PERSPECTIVE AS WELL AS THE MOST UP TO DATE DEVELOPMENTS BY LEADING EXPERTS METAL ORGANIC FRAMEWORKS EXAMINES STRUCTURE SYMMETRY SUPRAMOLECULAR CHEMISTRY SURFACE ENGINEERING METAL ORGANOMETALLIC FRAMEWORKS PROPERTIES AND REACTIONS

POROUS ORGANIC FRAMEWORKS

2014-11-28

THIS BOOK DESCRIBES THE DESIGN SYNTHESIS CHARACTERIZATION AND APPLICATIONS OF POROUS ORGANIC FRAMEWORKS POFS SPECIAL EMPHASIS IS PLACED ON THE UTILIZATION OF POROUS MATERIALS FOR CO2 CAPTURE AND CH4 AND H2 STORAGE WHICH HAVE PROMISING POTENTIAL FOR ADDRESSING THE ISSUES OF ENVIRONMENTAL DEGRADATION AND CLIMATE CHANGE IT ALSO INCLUDES TWO CHAPTERS INTRODUCING THE PROPERTIES OF POFS AND DEFINING THE PRINCIPLES OF SYNTHESIS AS WELL AS A CHAPTER DEALING WITH POST MODIFIED POFS THIS BOOK IS INTENDED FOR THOSE READERS WHO ARE INTERESTED IN POROUS MATERIALS AND THEIR APPLICATIONS GUANGSHAN ZHU IS A PROFESSOR AT THE COLLEGE OF CHEMISTRY JILIN UNIVERSITY CHINA

METAL-ORGANIC FRAMEWORK

2020-05-28

THE SERIES TOPICS IN CURRENT CHEMISTRY COLLECTIONS PRESENTS CRITICAL REVIEWS FROM THE JOURNAL TOPICS IN CURRENT CHEMISTRY ORGANIZED IN TOPICAL VOLUMES THE SCOPE OF COVERAGE IS ALL AREAS OF CHEMICAL SCIENCE INCLUDING THE INTERFACES WITH RELATED DISCIPLINES SUCH AS BIOLOGY MEDICINE AND MATERIALS SCIENCE THE GOAL OF EACH THEMATIC VOLUME IS TO GIVE THE NON SPECIALIST READER WHETHER IN ACADEMIA OR INDUSTRY A COMPREHENSIVE INSIGHT INTO AN AREA WHERE NEW RESEARCH IS EMERGING WHICH IS OF INTEREST TO A LARGER SCIENTIFIC AUDIENCE EACH REVIEW WITHIN THE VOLUME CRITICALLY SURVEYS ONE ASPECT OF THAT TOPIC AND PLACES IT WITHIN THE CONTEXT OF THE VOLUME AS A WHOLE THE MOST SIGNIFICANT DEVELOPMENTS OF THE LAST 5 TO 10

YEARS ARE PRESENTED USING SELECTED EXAMPLES TO ILLUSTRATE THE PRINCIPLES DISCUSSED THE COVERAGE IS NOT INTENDED TO BE AN EXHAUSTIVE SUMMARY OF THE FIELD OR INCLUDE LARGE QUANTITIES OF DATA BUT SHOULD RATHER BE CONCEPTUAL CONCENTRATING ON THE METHODOLOGICAL THINKING THAT WILL ALLOW THE NON SPECIALIST READER TO UNDERSTAND THE INFORMATION PRESENTED CONTRIBUTIONS ALSO OFFER AN OUTLOOK ON POTENTIAL FUTURE DEVELOPMENTS IN THE FIELD

DESIGN AND STABILITY OF FUNCTIONALIZED METAL-ORGANIC FRAMEWORKS

2018

METAL ORGANIC FRAMEWORK NANOCOMPOSITES FROM DESIGN TO APPLICATION ASSEMBLES THE LATEST ADVANCES IN MOF NANOCOMPOSITES EMPHASIZING THEIR DESIGN
CHARACTERIZATION MANUFACTURING AND APPLICATION AND OFFERING A WIDE RANGING VIEW OF THESE MATERIALS WITH EXCEPTIONAL PHYSICAL AND CHEMICAL PROPERTIES FEATURES DISCUSSES VARIOUS TYPES OF MOF MATERIALS SUCH AS POLYANILINE MOF NANOCOMPOSITES MAGNETIC MOF NANOCOMPOSITES AND CARBON NANOTUBE BASED MOF NANOCOMPOSITES INCLUDES CHAPTERS ON THE USAGE OF THESE MATERIALS IN POLLUTANT REMOVAL ELECTROCHEMICAL DEVICES PHOTOCATALYSTS BIOMEDICAL APPLICATIONS AND OTHER APPLICATIONS COVERS DIFFERENT ASPECTS OF COMPOSITE FABRICATION FROM ENERGY STORAGE AND CATALYSTS INCLUDING PREPARATION DESIGN AND CHARACTERIZATION TECHNIQUES EMPHASIZES THE LATEST TECHNOLOGY IN THE FIELD OF MANUFACTURING AND DESIGN AIMED AT RESEARCHERS ACADEMICS AND ADVANCED STUDENTS IN MATERIALS SCIENCE AND ENGINEERING THIS BOOK OFFERS A COMPREHENSIVE OVERVIEW AND ANALYSIS OF THESE EXTRAORDINARY MATERIALS

MFTAL-ORGANIC FRAMEWORK NANOCOMPOSITES

2020-11-24

AN INTERNATIONAL AND INTERDISCIPLINARY TEAM OF LEADING EXPERTS FROM BOTH ACADEMIA AND INDUSTRY REPORT ON THE WIDE RANGE OF HOT APPLICATIONS FOR MOFS DISCUSSING BOTH THE ADVANTAGES AND LIMITS OF THE MATERIAL THE RESULTING OVERVIEW COVERS EVERYTHING FROM CATALYSIS H2 AND CH4 STORAGE AND GAS PURIFICATION TO DRUG DELIVERY AND SENSORS FROM THE CONTENTS DESIGN OF POROUS COORDINATION POLYMERS METAL ORGANIC FRAMEWORKS PAST PRESENT AND FUTURE DESIGN OF FUNCTIONAL METAL ORGANIC FRAMEWORKS BY POST SYNTHETIC MODIFICATION THERMODYNAMIC METHODS FOR PREDICTION OF GAS SEPARATION IN FLEXIBLE FRAMEWORKS SEPARATION AND PURIFICATION OF GASES BY MOFS OPPORTUNITIES FOR MOFS IN CO2 CAPTURE FROM FLUE GASES NATURAL GAS AND SYNGAS BY ADSORPTION MANUFACTURE OF MOF THIN FILMS ON STRUCTURED SUPPORTS FOR SEPARATION AND CATALYSIS RESEARCH

STATUS OF METAL ORGANIC FRAMEWORKS FOR ON BOARD CRYO ADSORPTIVE HYDROGEN STORAGE APPLICATIONS SEPARATION OF XYLENE ISOMERS METAL ORGANIC FRAMEWORKS AS CATALYSTS FOR ORGANIC REACTIONS BIOMEDICAL APPLICATIONS OF METAL ORGANIC FRAMEWORKS METAL ORGANIC FRAMEWORKS FOR BIOMEDICAL IMAGING LUMINESCENT METAL ORGANIC FRAMEWORKS DEPOSITION OF THIN FILMS FOR SENSOR APPLICATIONS INDUSTRIAL MOF SYNTHESIS MOF SHAPING AND IMMOBILISATION A MUST HAVE FOR EVERY SCIENTIST IN THE FIFI D

METAL-ORGANIC FRAMEWORKS

2011-09-19

A CONCISE INTRODUCTION TO THE CHEMISTRY AND DESIGN PRINCIPLES BEHIND IMPORTANT METAL ORGANIC FRAMEWORKS AND RELATED POROUS MATERIALS RETICULAR CHEMISTRY HAS BEEN APPLIED TO SYNTHESIZE NEW CLASSES OF POROUS MATERIALS THAT ARE SUCCESSFULLY USED FOR MYRAID APPLICATIONS IN AREAS SUCH AS GAS SEPARATION CATALYSIS ENERGY AND ELECTRONICS INTRODUCTION TO RETICULAR CHEMISTRY GIVES AN UNIQUE OVERVIEW OF THE PRINCIPLES OF THE CHEMISTRY BEHIND METAL ORGANIC FRAMEWORKS MOFS COVALENT ORGANIC FRAMEWORKS COFS AND ZEOLITIC IMIDAZOLATE FRAMEWORKS ZIFS WRITTEN BY ONE OF THE PIONEERS IN THE FIELD THIS BOOK COVERS ALL IMPORTANT ASPECTS OF RETICULAR CHEMISTRY INCLUDING DESIGN AND SYNTHESIS PROPERTIES AND CHARACTERIZATION AS WELL AS CURRENT AND FUTURE APPLICATIONS DESIGNED TO BE AN ACCESSIBLE RESOURCE THE BOOK IS WRITTEN IN AN EASY TO UNDERSTAND STYLE IT INCLUDES AN EXTENSIVE BIBLIOGRAPHY AND OFFERS FIGURES AND VIDEOS OF CRYSTAL STRUCTURES THAT ARE AVAILABLE AS AN ELECTRONIC SUPPLEMENT INTRODUCTION TO RETICULAR CHEMISTRY DESCRIBES THE UNDERLYING PRINCIPLES AND DESIGN ELEMENTS FOR THE SYNTHESIS OF IMPORTANT METAL ORGANIC FRAMEWORKS MOFS AND RELATED MATERIALS DISCUSSES BOTH REAL LIFE AND FUTURE APPLICATIONS IN VARIOUS FIELDS SUCH AS CLEAN ENERGY AND WATER ADSORPTION OFFERS ALL GRAPHIC MATERIAL ON A COMPANION WEBSITE PROVIDES FIRST HAND KNOWLEDGE BY OMAR YAGHI ONE OF THE PIONEERS IN THE FIELD AND HIS TEAM AIMED AT GRADUATE STUDENTS IN CHEMISTRY STRUCTURAL CHEMISTS INORGANIC CHEMISTS ORGANIC CHEMISTS CATALYTIC CHEMISTS AND OTHERS INTRODUCTION TO RETICULAR CHEMISTRY IS A GROUNDBREAKING BOOK THAT EXPLORES THE CHEMISTRY PRINCIPLES AND APPLICATIONS OF MOFS COFS AND ZIFS

INTRODUCTION TO RETICULAR CHEMISTRY

2019-03-22

RATIONAL SYNTHESIS OF EXTENDED ARRAYS OF ORGANIC MATTER IN BULK SOLUTION CRYSTALS AND THIN FILMS HAS ALWAYS BEEN A PARAMOUNT GOAL OF CHEMISTRY THE CLASSICAL SYNTHETIC TOOLS TO OBTAIN LONG RANGE REGULARITY ARE HOWEVER LIMITED TO NONCOVALENT INTERACTIONS WHICH USUALLY YIELD STRUCTURALLY MORE RANDOM

PRODUCTS HENCE A COMBINATION OF POROSITY AND REGULARITY IN ORGANIC COVALENTLY BONDED MATERIALS REQUIRES NOT ONLY THE DESIGN OF MOLECULAR BUILDING BLOCKS THAT ALLOW FOR GROWTH INTO A NONPERTURBED REGULAR GEOMETRY BUT ALSO A CONDENSATION MECHANISM THAT PROGRESSES UNDER REVERSIBLE THERMODYNAMIC SELF OPTIMIZING CONDITIONS COVALENT ORGANIC FRAMEWORKS COFS A VARIETY OF 2D CRYSTALLINE POROUS MATERIALS COMPOSED OF LIGHT ELEMENTS RESEMBLE AN SP2 CARBON BASED GRAPHENE SHEET BUT HAVE A DIFFERENT MOLECULAR SKELETON FORMED BY ORDERLY LINKAGE OF BUILDING BLOCKS TO CONSTITUTE A FLAT ORGANIC SHEET COFS HAVE ATTRACTED CONSIDERABLE ATTENTION IN THE PAST DECADE BECAUSE OF THEIR VERSATILE APPLICATIONS IN GAS STORAGE AND SEPARATION CATALYSIS SENSING DRUG DELIVERY AND OPTOELECTRONIC MATERIALS DEVELOPMENT COMPARED TO OTHER POROUS MATERIALS COFS ALLOW FOR ATOMICALLY PRECISE CONTROL OF THEIR ARCHITECTURES BY CHANGING THE STRUCTURE OF THEIR BUILDING BLOCKS WHEREBY THE SHAPES AND SIZES OF THEIR PORES CAN BE WELL TUNED COVALENT ORGANIC FRAMEWORKS IS A COMPILATION OF DIFFERENT TOPICS IN COF RESEARCH FROM COF DESIGN AND SYNTHESIS CRYSTALLIZATION AND STRUCTURAL LINKAGES TO THE THEORY OF GAS SORPTION AND VARIOUS APPLICATIONS OF COFS SUCH AS HETEROGENEOUS CATALYSTS ENERGY STORAGE E G SEMICONDUCTORS AND BATTERIES AND BIOMEDICINE THIS HANDBOOK WILL APPEAL TO ANYONE INTERESTED IN NANOTECHNOLOGY AND NEW MATERIALS OF GAS ADSORPTION AND STORAGE HETEROGENEOUS CATALYSTS ELECTRONIC DEVICES AND BIOMEDICAL DEVICES

COVALENT ORGANIC FRAMEWORKS

2019-12-19

METAL ORGANIC FRAMEWORKS FOR BIOMEDICAL APPLICATIONS IS A COMPREHENSIVE AUTHORITATIVE REFERENCE THAT OFFERS A SUBSTANTIAL AND COMPLETE TREATMENT OF PUBLISHED RESULTS THAT HAVE YET TO BE CRITICALLY REVIEWED IT OFFERS A SUMMARY OF CURRENT RESEARCH AND PROVIDES IN DEPTH UNDERSTANDING OF THE ROLE OF METAL ORGANIC FRAMEWORKS IN BIOMEDICAL ENGINEERING THE TITLE CONSISTS OF TWENTY TWO CHAPTERS PRESENTED BY LEADING INTERNATIONAL RESEARCHERS IN THE FIELD CHAPTERS ARE ARRANGED BY TARGET APPLICATION IN BIOMEDICAL ENGINEERING ALLOWING MEDICAL AND PHARMACEUTIC SPECIALISTS TO TRANSLATE CURRENT MATERIALS AND ENGINEERING SCIENCE ON METAL ORGANIC FRAMEWORKS INTO THEIR WORK PRESENTS THE STATE OF THE ART IN METAL ORGANIC FRAMEWORKS FOR BIOMEDICAL APPLICATIONS OFFERS COMPREHENSIVE TREATMENT OF METAL ORGANIC FRAMEWORKS THAT IS USEFUL TO PHARMACEUTIC AND MEDICAL EXPERTS WHO ARE NON SPECIALISTS IN MATERIALS SCIENCE HELPS MATERIALS SCIENTISTS AND ENGINEERS UNDERSTAND THE NEEDS OF BIOMEDICAL ENGINEERING CRITICALLY REVIEWS PUBLISHED RESULTS AND CURRENT RESEARCH IN THE FIELD

METAL-ORGANIC FRAMEWORKS FOR BIOMEDICAL APPLICATIONS

2020-03-17

AN INTERNATIONAL AND INTERDISCIPLINARY TEAM OF LEADING EXPERTS FROM BOTH ACADEMIA AND INDUSTRY REPORT ON THE WIDE RANGE OF HOT APPLICATIONS FOR MOES DISCUSSING BOTH THE ADVANTAGES AND LIMITS OF THE MATERIAL THE RESULTING OVERVIEW COVERS EVERYTHING FROM CATALYSIS H2 AND CH4 STORAGE AND GAS PURIFICATION TO DRUG DELIVERY AND SENSORS FROM THE CONTENTS DESIGN OF POROUS COORDINATION POLYMERS METAL ORGANIC FRAMEWORKS PAST PRESENT AND FUTURE DESIGN OF FUNCTIONAL METAL ORGANIC FRAMEWORKS BY POST SYNTHETIC MODIFICATION THERMODYNAMIC METHODS FOR PREDICTION OF GAS SEPARATION IN FLEXIBLE FRAMEWORKS SEPARATION AND PURIFICATION OF GASES BY MOFS OPPORTUNITIES FOR MOFS IN CO2 CAPTURE FROM FLUE GASES NATURAL GAS AND SYNGAS BY ADSORPTION MANUFACTURE OF MOF THIN FILMS ON STRUCTURED SUPPORTS FOR SEPARATION AND CATALYSIS RESEARCH STATUS OF METAL ORGANIC FRAMEWORKS FOR ON BOARD CRYO ADSORPTIVE HYDROGEN STORAGE APPLICATIONS SEPARATION OF XYLENE ISOMERS METAL ORGANIC FRAMEWORKS AS CATALYSTS FOR ORGANIC REACTIONS BIOMEDICAL APPLICATIONS OF METAL ORGANIC FRAMEWORKS METAL ORGANIC FRAMEWORKS FOR BIOMEDICAL IMAGING LUMINESCENT METAL ORGANIC FRAMEWORKS DEPOSITION OF THIN FILMS FOR SENSOR APPLICATIONS INDUSTRIAL MOF SYNTHESIS MOF SHAPING AND IMMOBILISATION A MUST HAVE FOR EVERY SCIENTIST IN THE FIELD

METAL-ORGANIC FRAMEWORKS

2011-08-29

MICROPOROUS ORGANIC POLYMERS DESIGN SYNTHESIS AND FUNCTION BY J X JIANG AND A I COOPER HYDROGEN METHANE AND CARBON DIOXIDE ADSORPTION IN METAL ORGANIC FRAMEWORK MATERIALS BY X LIN N R CHAMPNESS AND M SCHR? DER DOPING OF METAL ORGANIC FRAMEWORKS WITH FUNCTIONAL GUEST MOLECULES AND NANOPARTICLES BY F SCHR? DER AND R A FISCHER CHIRAL METAL ORGANIC POROUS MATERIALS SYNTHETIC STRATEGIES AND APPLICATIONS IN CHIRAL SEPARATION AND CATALYSIS BY K KIM M BANERJEE M YOON AND S DAS CONTROLLED POLYMERIZATION BY INCARCERATION OF MONOMERS IN NANOCHANNELS BY T UEMURA AND S KITAGAWA DESIGNING METAL ORGANIC FRAMEWORKS FOR CATALYTIC APPLICATIONS L MA AND W LIN MAGNETIC AND POROUS MOLECULE BASED MATERIALS BY N ROQUES V MUGNAINI AND J VECIANA

CHEMICAL BONDING IN METAL-ORGANIC FRAMEWORKS

2016

PROVIDING VITAL KNOWLEDGE ON THE DESIGN AND SYNTHESIS OF SPECIFIC METAL ORGANIC FRAMEWORK MOF CLASSES AS WELL AS THEIR PROPERTIES THIS READY REFERENCE SUMMARIZES THE STATE OF THE ART IN CHEMISTRY DIVIDED INTO FOUR PARTS THE FIRST BEGINS WITH A BASIC INTRODUCTION TO TYPICAL CLUSTER UNITS OR COORDINATION GEOMETRIES AND PROVIDES EXAMPLES OF RECENT AND ADVANCED MOF STRUCTURES AND APPLICATIONS TYPICAL FOR THE RESPECTIVE CLASS PART II COVERS RECENT PROGRESS IN LINKER CHEMISTRIES WHILE SPECIAL MOF CLASSES AND MORPHOLOGY DESIGN ARE DESCRIBED IN PART III THE FOURTH PART DEALS WITH ADVANCED CHARACTERIZATION TECHNIQUES SUCH AS NMR IN SITU STUDIES AND MODELLING A FINAL UNIQUE FEATURE IS THE INCLUSION OF DATA SHEETS OF COMMERCIALLY AVAILABLE MOFS IN THE APPENDIX ENABLING EXPERTS AND NEWCOMERS TO THE FIELD TO SELECT THE APPROPRIATE MOF FOR A DESIRED APPLICATION A MUST HAVE REFERENCE FOR CHEMISTS MATERIALS SCIENTISTS AND ENGINEERS IN ACADEMIA AND INDUSTRY WORKING IN THE FIELD OF CATALYSIS GAS AND WATER PURIFICATION ENERGY STORAGE SEPARATION AND SENSORS

FUNCTIONAL METAL-ORGANIC FRAMEWORKS: GAS STORAGE, SEPARATION AND CATALYSIS

2010-09-15

OWING TO THE EXTENSIVE INTEREST IN CONSTRUCTION OF FUNCTIONAL METAL ORGANIC FRAMEWORKS FMOFS THIS BOOK DISCUSSES THE ROLES OF FUNCTIONAL GROUPS ON THE STRUCTURE AND APPLICATION OF METAL ORGANIC FRAMEWORKS MOFS THE CONTENTS OF THE BOOK ARE CLASSIFIED BASED ON THE STRUCTURAL AND CHEMICAL PROPERTIES OF ORGANIC FUNCTIONS IN ORDER TO MAKE READERS ABLE TO COMPARE THE DIFFERENT EFFECTS OF EACH FUNCTION ON THE STRUCTURE AND APPLICATION OF THE MOFS IN EACH CHAPTER THE CHEMICAL PROPERTIES OF APPLIED FUNCTIONAL GROUPS ARE GATHERED TO GIVE DEEPER INSIGHT INTO THE ROLES OF ORGANIC FUNCTIONS IN THE STRUCTURE AND APPLICATION OF MOFS IN THE FUNCTION APPLICATION PROPERTIES THE AUTHORS DISCUSS HOW A FUNCTIONAL GROUP CAN DOMINATE THE HOST GUEST CHEMISTRY OF THE MOFS AND HOW THIS HOST GUEST CHEMISTRY CAN EXPAND THE EFFECTIVENESS AND EFFICIENCY OF THE MATERIAL IN DIFFERENT FIFLDS OF APPLICATIONS FINALLY FUNCTION STRUCTURE PROPERTIES ARE DISCUSSED IN FUNCTION APPLICATION PROPERTIES IT IS DISCUSSED HOW A FUNCTIONAL GROUP CAN AFFECT THE TOPOLOGY POROSITY FLEXIBILITY AND STABILITY OF THE FRAMEWORK THE FEATURES OF THIS SUBJECT ARE NOVEL AND ARE PRESENTED FOR THE FIRST TIME

THE CHEMISTRY OF METAL-ORGANIC FRAMEWORKS

2016-06-14

METAL ORGANIC FRAMEWORKS WITH HETEROGENEOUS STRUCTURES A UNIQUE BOOK THAT SHEDS LIGHT ON METAL ORGANIC FRAMEWORKS COMPLEX SYSTEMS THAT OFTEN DISPLAY BEHAVIORS THAT SURPRISE AND CANNOT BE EASILY DESCRIBED IN THIS BOOK MOF BASED HETEROSTRUCTURES TECHNOLOGY WITH KEY CHARACTERISTICS IS COMPLETELY ANALYZED AND THE CURRENT STATE OF THE ART IS DISCUSSED THE AUTHORS FOCUS ON THE COMPLEX HETEROSTRUCTURES PROMOTED BY MOES WITH ADVANTAGE OF THEIR RECENT NEW ADVANCES FOR VARIOUS APPLICATIONS WITH PARTICULAR EMPHASIS ON THEIR DESIGN AS AN EXTENSION OF THE DESIGN AND SYNTHESIS THE SHAPING TECHNOLOGY OF HETEROSTRUCTURE MOFS IS ALSO OF GREAT SIGNIFICANCE TO THE FUTURE PRACTICAL APPLICATIONS IN INDUSTRY ADSORPTION DESORPTION GAS STORAGE CATALYSIS CONDUCTIVITY OPTICAL ACTIVITY OF THIS CLASS OF COMPLEX POROUS MATERIALS AS THIS UNIQUE BOOK COVERS ALL OF THE ASPECTS OF COMPLEXITY IN MOFS WITH HETEROGENEOUS STRUCTURES IT SERVES AS AN ESSENTIAL REFERENCE TO THE CONCEPTS OF INTRODUCING COMPLEXITY TO DESIGNING THE FUTURE NEW PLATFORMS OF MATERIALS WITH ADVANCED AND SUPERIOR PROPERTIES THIS IMPORTANT COMPACT BOOK PROVIDES THE READER WITH THE PRINCIPAL ASPECTS OF HETEROGENEITY THAT PRODUCE COMPLEXITY IN MOFS THEIR EFFECTS IN THE STRUCTURE CHEMISTRY PERFORMANCE AND APPLICATIONS THE EFFECTS OF COMPLEXITIES ON THE STRUCTURE OF METAL ORGANIC FRAMEWORKS THE ROLES OF COMPLEXITIES ON METAL ORGANIC FRAMEWORKS APPLICATIONS EXPLANATION OF SYNTHESIS STRATEGIES OF THE COMPLEX HETEROSTRUCTURE MOFS AUDIENCE THIS BOOK WILL BE BENEFICIAL FOR CHEMISTS MATERIALS ENGINEERS ADVANCED POSTGRADUATE AND GRADUATE STUDENTS RESEARCHERS AND SPECIALISTS WHO ARE WORKING IN THE AREA OF MATERIALS DESIGN AND THEIR CHEMISTRY POROUS CRYSTALLINE MATERIALS COORDINATION POLYMERS HYBRID AND FUNCTIONAL MATERIALS AS WELL AS INDUSTRY PROFESSIONALS SUCH AS THOSE WORKING ON SELECTIVE CATALYSIS AND ADSORPTION SEPARATION OPTICS GAS CAPTURE PROCESSES OF BIOLOGICAL AND PHARMACEUTICAL

FLEXIBLE METAL-ORGANIC FRAMEWORKS

2024-03-25

PRESENTS STATE OF THE ART KNOWLEDGE OF HETEROGENEOUS CATALYSTS INCLUDING NEW APPLICATIONS IN ENERGY AND ENVIRONMENTAL FIELDS THIS BOOK FOCUSES ON EMERGING TECHNIQUES IN HETEROGENEOUS CATALYSIS FROM NEW METHODOLOGY FOR CATALYSTS DESIGN AND SYNTHESIS SURFACE STUDIES AND OPERANDO SPECTROSCOPIES AB INITIO TECHNIQUES TO CRITICAL CATALYTIC SYSTEMS AS RELEVANT TO ENERGY AND THE ENVIRONMENT IT PROVIDES THE VISION OF ADDRESSING THE FORESEEABLE KNOWLEDGE GAP UNFILLED BY CLASSICAL KNOWLEDGE IN THE FIELD HETEROGENEOUS CATALYSTS ADVANCED DESIGN CHARACTERIZATION AND APPLICATIONS BEGINS WITH AN OVERVIEW ON THE

EVOLUTION IN CATALYSTS SYNTHESIS AND INTRODUCES READERS TO FACETS ENGINEERING ON CATALYSTS ELECTROCHEMICAL SYNTHESIS OF NANOSTRUCTURED CATALYTIC THIN FILMS AND BANDGAP ENGINEERING OF SEMICONDUCTOR PHOTOCATALYSTS NEXT IT EXAMINES HOW WE ARE GAINING A MORE PRECISE UNDERSTANDING OF CATALYTIC EVENTS AND MATERIALS UNDER WORKING CONDITIONS IT COVERS BRIDGING PRESSURE GAP IN SURFACE CATALYTIC STUDIES TOMOGRAPHY IN CATALYSTS DESIGN AND RESOLVING CATALYST PERFORMANCE AT NANOSCALE VIA FLUORESCENCE MICROSCOPY QUANTUM APPROACHES TO PREDICTING MOLECULAR REACTIONS ON CATALYTIC SURFACES FOLLOWS THAT ALONG WITH CHAPTERS ON DENSITY FUNCTIONAL THEORY IN HETEROGENEOUS CATALYSIS FIRST PRINCIPLES SIMULATION OF ELECTRIFIED INTERFACES IN ELECTROCHEMISTRY AND HIGH THROUGHPUT COMPUTATIONAL DESIGN OF NOVEL CATALYTIC MATERIALS THE BOOK ALSO DISCUSSES EMBRACING THE ENERGY AND ENVIRONMENTAL CHALLENGES OF THE 2 1ST CENTURY THROUGH HETEROGENEOUS CATALYSIS AND MUCH MORE PRESENTS RECENT DEVELOPMENTS IN HETEROGENEOUS CATALYSIS WITH EMPHASIS ON NEW FUNDAMENTALS AND EMERGING TECHNIQUES OFFERS A COMPREHENSIVE LOOK AT THE IMPORTANT ASPECTS OF HETEROGENEOUS CATALYSIS PROVIDES AN APPLICATIONS ORIENTED BOTTOMS UP APPROACH TO A HIGH INTEREST SUBJECT THAT PLAYS A VITAL ROLE IN INDUSTRY AND IS WIDELY APPLIED IN AREAS RELATED TO ENERGY AND ENVIRONMENT HETEROGENEOUS CATALYSTS ADVANCED DESIGN CHARACTERIZATION AND APPLICATIONS IS AN IMPORTANT BOOK FOR CATALYTIC CHEMISTS MATERIALS SCIENTISTS SURFACE CHEMISTS PHYSICAL CHEMISTS INORGANIC CHEMISTS CHEMICAL ENGINEERS AND OTHER PROFESSIONALS WORKING IN THE CHEMICAL INDUSTRY

FUNCTIONAL METAL-ORGANIC FRAMEWORKS

2021-01-13

MAGNETIC NANOCATALYSTS ARE BECOMING AN IMPORTANT TOOL FOR GREENER CATALYTIC PROCESSES IN CHEMICAL TRANSFORMATIONS IN VIEW OF THE EASE OF THEIR REMOVAL FROM A REACTION MEDIUM THIS BOOK EXPLORES ASSORTED MAGNETIC NANOCATALYSTS THEIR DEPLOYMENT IN SYNTHESIS CHEMICAL TRANSFORMATION AND THEIR RECOVERY AND REUSE VARIOUS THEMATIC TOPICS EMBODIED INCLUDE MAGNETIC NANOCATALYSTS FOR S S BOND FORMATION N HETEROCYCLE FORMATION C HETEROATOM BOND FORMATION SILICA SUPPORTED CATALYSTS MULTICOMPONENT REACTIONS INCLUDING THEIR RECYCLABILITY ANOTHER AVAILABLE VOLUME EMPHASIZES THE UTILITY OF MAGNETIC NANOCATALYSTS IN INDUSTRIAL APPLIANCES

STRUCTURAL DESIGN AND MODIFICATION OF SURFACE ANCHORED METAL-ORGANIC FRAMEWORKS: FROM

FUNDAMENTAL STUDY TOWARDS APPLICATIONS

2017

THIS UNIQUE COMPENDIUM DESCRIBES RESEARCH PROGRESS ON METAL ORGANIC FRAMEWORK MOF MEMBRANES FOR DIFFERENT RELEVANT INDUSTRIAL GAS SEPARATIONS SPECIFICALLY THE BOOK FOCUSES MAINLY ON GAS SEPARATIONS WHICH ARE IMPORTANT IN FLUE GAS TREATMENT NATURAL GAS PURIFICATION HYDROGEN PURIFICATION AND NUCLEAR REPROCESSING THE ADVANTAGES OF USING MOFS IN MIXED MATRIX MEMBRANES ARE DISCUSSED SOME OF THE PRESSING CHALLENGES IN THE FIELD AND STRATEGIES TO POTENTIALLY OVERCOME THEM ARE ALSO DISTINCTLY OUTLINED THIS VOLUME IS A USEFUL REFERENCE MATERIALS FOR PROFESSIONALS ACADEMICS RESEARCHERS AND POSTGRADUATE STUDENTS IN CHEMICAL ENGINEERING AND MATERIALS ENGINEERING

METAL-ORGANIC FRAMEWORKS WITH HETEROGENEOUS STRUCTURES

2021-10-12

SOME 80 000 METAL ORGANIC FRAMEWORKS MOFS HAVE BEEN REPORTED AS OF 2020 WITH INTRIGUING STRUCTURES AND FASCINATING PROPERTIES MOFS ARE POISED TO BE A DEFINING MATERIAL OF THE 2 1ST CENTURY WITH A GREAT DEAL OF COMMERCIAL POTENTIAL FROM METHANE FUEL AUTOMOBILE TANKS TO CARBON CAPTURING METAL ORGANIC FRAMEWORKS PROVIDES AN INTRODUCTION TO THE COMPLEX WORLD OF MOFS RESEARCHERS NEW TO MOFS CAN USE THIS WORK AS A JUMPING OFF POINT FOR THEORETICAL STUDY OR APPLIED RESEARCH THE WORK IS BROAD AND EXPANSIVE IN SCOPE BUT INCLUSIVE AND COMPREHENSIVE IN DETAIL THE AUTHORS PROVIDE A PERSONAL PERSPECTIVE OF MOF RESEARCH THAT PROVIDES A STRONG FOUNDATION IN THE BASIC METHODS AND THEMES AS WELL AS DIRECTS THE READER IN HOW TO THINK ABOUT MOFS SIXTEEN MOF STRUCTURES ARE ANIMATED PROVIDING MORE CLARITY INTO THE DIMENSIONALITY OF MOFS ACCOMPANYING LINKS TAKE THE READER TO ADDITIONAL 3 D STRUCTURES PROVIDED BY THE CAMBRIDGE CRYSTALLOGRAPHIC DATA CENTRE CCDC

HETEROGENEOUS CATALYSTS

2021-02-23

METAL ORGANIC FRAMEWORKS AND THEIR DERIVATIVES FOR ENERGY CONVERSION AND STORAGE COMPREHENSIVELY COVERS THE UPDATED DESIGN AND SYNTHESIS OF METAL ORGANIC FRAMEWORKS MOFS AND THEIR DERIVED MATERIALS TOGETHER WITH THEIR APPLICATIONS IN ELECTROCHEMICAL ENERGY CONVERSION AND STORAGE IT STARTS WITH A SYSTEMATIC DESCRIPTION OF THE RATIONAL STRUCTURE DESIGN AND FACILE FABRICATION

METHODS OF MOF BASED MATERIALS AND VARIOUS MOF DERIVATIVES THEN REPRESENTATIVE EXAMPLES OF MOFS AND MOF DERIVED MATERIALS USED FOR SOLAR WATER SPLITTING ELECTROCATALYSIS BATTERIES AND SUPERCAPACITORS ARE DEMONSTRATED FINALLY DEVELOPING TRENDS SUCH AS INTEGRATING MOFS WITH OTHER SMART MATERIALS AND EMERGING 3D PRINTING TECHNOLOGY IS ALSO COVERED THIS BOOK IS SUITABLE FOR A WIDE READERSHIP IN MATERIAL SCIENCE CHEMICAL SCIENCE ENERGY FIELD AND ENGINEERING REVIEWS THE CURRENT RESEARCH DIRECTIONS OF METAL ORGANIC FRAMEWORKS AND THEIR DERIVED MATERIALS FOR ELECTROCHEMICAL ENERGY STORAGE AND CONVERSION TECHNOLOGIES DISCUSSES SYNTHESIS AND DESIGN STRATEGIES OF METAL ORGANIC FRAMEWORK DERIVED MATERIALS FOCUSES ON THE MATERIAL STRUCTURE PROPERTY RELATIONSHIP AND THE IMPACT TOWARDS THE IMPROVED PERFORMANCE OF METAL ORGANIC FRAMEWORK MATERIALS

RETROFITTING METAL-ORGANIC FRAMEWORKS

2019

METAL ORGANIC FRAMEWORKS MOFS ARE POROUS CRYSTALLINE POLYMERS CON STRUCTED BY METAL SITES AND ORGANIC BUILDING BLOCKS SINCE THE DISCOVERY OF MOFS IN THE 1990s THEY HAVE RECEIVED TREMENDOUS RESEARCH ATTENTION FOR VARIOUS APPLICATIONS DUE TO THEIR HIGH SURFACE AREA CONTROLLABLE MOR PHOLOGY TUNABLE CHEMICAL PROPERTIES AND MULTIFUNCTIONALITIES INCLUDING MOFS AS PRECURSORS AND SELF SACRIFICING TEMPLATES FOR SYNTHESIZING METAL OXIDES HETEROATOM DOPED CARBONS METAL ATOMS ENCAPSULATED CARBONS AND OTHERS THUS AWARENESS AND KNOWLEDGE ABOUT MOFS AND THEIR DERIVED NANOMATERIALS WITH CONCEPTUAL UNDERSTANDING ARE ESSENTIAL FOR THE ADVANCED MATERIAL COMMUNITY THIS BREAKTHROUGH NEW VOLUME AIMS TO EXPLORE DOWN TO EARTH APPLICATIONS IN FIELDS SUCH AS BIO MEDICAL ENVIRONMENTAL ENERGY AND ELECTRONICS THIS BOOK PROVIDES AN OVERVIEW OF THE STRUCTURAL AND FUNDAMENTAL PROPERTIES SYNTHESIS STRATE GIES AND VERSATILE APPLICATIONS OF MOFS AND THEIR DERIVED NANOMATERIALS IT GIVES AN UPDATED AND COMPREHENSIVE ACCOUNT OF THE RESEARCH IN THE FIELD OF MOFS AND THEIR DERIVED NANOMATERIALS WHETHER AS A REFERENCE FOR INDUSTRY PROFESSIONALS AND NANOTECHNOLOGISTS OR FOR USE IN THE CLASSROOM FOR GRADUATE AND POSTGRADUATE STUDENTS FACULTY MEMBERS AND RESEARCH AND DEVELOPMENT SPECIALISTS WORKING IN THE AREA OF INORGANIC CHEMISTRY MATERIALS SCIENCE AND CHEMICAL ENGINEERING THIS IS A MUST HAVE FOR ANY LIBRARY

SYNTHETIC APPLICATIONS

2022-05-09

A CONCISE INTRODUCTION TO THE CHEMISTRY AND DESIGN PRINCIPLES BEHIND IMPORTANT METAL ORGANIC FRAMEWORKS AND RELATED POROUS MATERIALS RETICULAR CHEMISTRY HAS BEEN APPLIED TO SYNTHESIZE NEW CLASSES OF POROUS MATERIALS THAT ARE

SUCCESSFULLY USED FOR MYRAID APPLICATIONS IN AREAS SUCH AS GAS SEPARATION CATALYSIS ENERGY AND ELECTRONICS INTRODUCTION TO RETICULAR CHEMISTRY GIVES AN UNIQUE OVERVIEW OF THE PRINCIPLES OF THE CHEMISTRY BEHIND METAL ORGANIC FRAMEWORKS MOFS COVALENT ORGANIC FRAMEWORKS COFS AND ZEOLITIC IMIDAZOLATE FRAMEWORKS ZIFS WRITTEN BY ONE OF THE PIONEERS IN THE FIELD THIS BOOK COVERS ALL IMPORTANT ASPECTS OF RETICULAR CHEMISTRY INCLUDING DESIGN AND SYNTHESIS PROPERTIES AND CHARACTERIZATION AS WELL AS CURRENT AND FUTURE APPLICATIONS DESIGNED TO BE AN ACCESSIBLE RESOURCE THE BOOK IS WRITTEN IN AN EASY TO UNDERSTAND STYLE IT INCLUDES AN EXTENSIVE BIBLIOGRAPHY AND OFFERS FIGURES AND VIDEOS OF CRYSTAL STRUCTURES THAT ARE AVAILABLE AS AN ELECTRONIC SUPPLEMENT INTRODUCTION TO RETICULAR CHEMISTRY DESCRIBES THE UNDERLYING PRINCIPLES AND DESIGN ELEMENTS FOR THE SYNTHESIS OF IMPORTANT METAL ORGANIC FRAMEWORKS MOFS AND RELATED MATERIALS DISCUSSES BOTH REAL LIFE AND FUTURE APPLICATIONS IN VARIOUS FIELDS SUCH AS CLEAN ENERGY AND WATER ADSORPTION OFFERS ALL GRAPHIC MATERIAL ON A COMPANION WEBSITE PROVIDES FIRST HAND KNOWLEDGE BY OMAR YAGHLONE OF THE PIONEERS IN THE FIELD AND HIS TEAM AIMED AT GRADUATE STUDENTS IN CHEMISTRY STRUCTURAL CHEMISTS INORGANIC CHEMISTS ORGANIC CHEMISTS CATALYTIC CHEMISTS AND OTHERS INTRODUCTION TO RETICULAR CHEMISTRY IS A GROUNDBREAKING BOOK THAT EXPLORES THE CHEMISTRY PRINCIPLES AND APPLICATIONS OF MOFS COFS AND ZIFS

METAL-ORGANIC FRAMEWORK MEMBRANES FOR MOLECULAR GAS SEPARATIONS

2020-07-30

METAL ORGANIC FRAMEWORKS MOFS ARE SOME OF THE MOST DISCUSSED MATERIALS OF THE LAST DECADE THEIR EXTRAORDINARY POROSITY AND FUNCTIONALITY FROM METALS AND ORGANIC LINKERS MAKE THEM ONE OF THE MOST PROMISING MATERIALS FOR A VAST ARRAY OF APPLICATIONS THE EASY TUNABILITY OF THEIR PORE SIZE AND SHAPE FROM THE MICRO TO MESO SCALE BY CHANGING THE CONNECTIVITY OF THE INORGANIC MOIETY AND THE NATURE OF THE ORGANIC LINKERS MAKES THESE MATERIALS SPECIAL MOREOVER BY COMBINING WITH OTHER SUITABLE MATERIALS THE PROPERTIES OF MOFS CAN BE IMPROVED FURTHER FOR ENHANCED FUNCTIONALITY STABILITY EASE OF PREPARATION AND SELECTIVITY OF OPERATION EMERGING APPLICATIONS AND IMPLEMENTATIONS OF METAL ORGANIC FRAMEWORKS COMBINES THE LATEST EMPIRICAL RESEARCH FINDINGS WITH RELEVANT THEORETICAL FRAMEWORKS IN THIS AREA IN ORDER TO IMPROVE THE READER S UNDERSTANDING OF MOES AND THEIR DIFFERENT APPLICATIONS IN AREAS THAT INCI UDE DRUG DELIVERY HEAVY METAL REMOVAL FROM WATER AND GAS STORAGE THE DESIGN AND SYNTHESIS OF MOFS ARE ALSO INVESTIGATED ALONG WITH THE PREPARATION OF COMPOSITES OF MOFS WHILE COVERING APPLICATIONS THAT INCLUDE WATER DEFLUORIDATION RECHARGEABLE BATTERIES AND PHARMACEUTICALLY ADAPTED DRUG DELIVERY SYSTEMS THE BOOK S TARGET AUDIENCE IS COMPRISED OF PROFESSIONALS RESEARCHERS ACADEMICIANS AND STUDENTS WORKING IN THE FIELD OF PHYSICAL AND

DESIGN PRINCIPLES TO ENHANCE OPTOELECTRONIC PROPERTIES IN OLIGOTHIOPHENE-BASED COVALENT ORGANIC FRAMEWORKS

2020

A COMPREHENSIVE RESOURCE ON TECHNIQUES AND APPLICATIONS FOR IMMOBILIZING CATALYSTS CATALYST IMMOBILIZATION METHODS AND APPLICATIONS COVERS CATALYST IMMOBILIZATION TOPICS INCLUDING TECHNOLOGIES MATERIALS CHARACTERIZATION CHEMICAL ACTIVITY AND RECYCLABILITY THE BOOK ALSO PRESENTS INNOVATIVE APPLICATIONS FOR SUPPORTED CATALYSTS SUCH AS FLOW CHEMISTRY AND MACHINE ASSISTED ORGANIC SYNTHESIS WRITTEN BY AN INTERNATIONAL PANEL OF EXPERT CONTRIBUTORS THIS BOOK OUTLINES THE GENERAL PRINCIPLES OF CATALYST IMMOBILIZATION AND EXPLORES DIFFERENT TYPES OF SUPPORTS EMPLOYED IN CATALYST HETEROGENIZATION THE BOOK S CHAPTERS EXAMINE THE IMMOBILIZATION OF CHIRAL ORGANOCATALYSTS REACTIONS IN FLOW REACTORS 3D PRINTED DEVICES FOR CATALYTIC SYSTEMS AND MORE CATALYST IMMOBILIZATION OFFERS A MODERN VISION AND A BROAD AND CRITICAL VIEW OF THIS EXCITING FIELD THIS IMPORTANT BOOK OFFERS A GUIDE TO SUPPORTED AND THEREFORE RECYCLABLE CATALYSTS WHICH IS ONE OF THE MOST IMPORTANT TOOLS FOR DEVELOPING A HIGHLY SUSTAINABLE CHEMISTRY PRESENTS VARIOUS IMMOBILIZATION TECHNIQUES AND APPLICATIONS EXPLORES NEW TRENDS SUCH AS 3D PRINTED DEVICES FOR CATALYTIC SYSTEMS CONTAINS INFORMATION FROM A LEADING INTERNATIONAL TEAM OF AUTHORS WRITTEN FOR CATALYTIC CHEMISTS ORGANIC CHEMISTS PROCESS ENGINEERS BIOCHEMISTS SURFACE CHEMISTS MATERIALS SCIENTISTS ANALYTICAL CHEMISTS CATALYST IMMOBILIZATION METHODS AND APPLICATIONS PRESENTS THE LATEST DEVELOPMENTS AND INCLUDES A REVIEW OF THE INNOVATIVE TRENDS SUCH AS FLOW CHEMISTRY REACTIONS IN MICROREACTORS AND BEYOND

METAL-ORGANIC FRAMEWORKS

2021-03-25

METAL ORGANIC FRAMEWORKS MOFS ARE CRYSTALLINE COMPOUNDSCONSISTING OF RIGID ORGANIC MOLECULES HELD TOGETHER AND ORGANIZEDBY METAL IONS OR CLUSTERS SPECIAL INTERESTS IN THESE MATERIALSARISE FROM THE FACT THAT MANY ARE HIGHLY POROUS AND CAN BE USED FORSTORAGE OF SMALL MOLECULES FOR EXAMPLE H2 ORCO2 CONSEQUENTLY THE MATERIALS ARE IDEAL CANDIDATESFOR A WIDE RANGE OF APPLICATIONS INCLUDING GAS STORAGE SEPARATIONTECHNOLOGIES AND CATALYSIS POTENTIAL APPLICATIONS INCLUDETHE STORAGE OF HYDROGEN FOR FUEL CELL CARS AND THE REMOVAL ANDSTORAGE OF CARBON DIOXIDE IN SUSTAINABLE TECHNICAL PROCESSES MOFSOFFER THE INORGANIC

CHEMIST AND MATERIALS SCIENTIST A WIDE RANGE OFNEW SYNTHETIC POSSIBILITIES AND OPEN THE DOORS TO NEW AND EXCITINGBASIC RESEARCH METAL ORGANIC FRAMEWORKS MATERIALS PROVIDES A SOLID BASISFOR THE UNDERSTANDING OF MOFS AND INSIGHTS INTO NEW INORGANICMATERIALS STRUCTURES AND PROPERTIES THE VOLUME ALSO REFLECTSPROGRESS THAT HAS BEEN MADE IN RECENT YEARS PRESENTING A WIDERANGE OF NEW APPLICATIONS INCLUDING STATE OF THE ART DEVELOPMENTSIN THE PROMISING TECHNOLOGY FOR ALTERNATIVE FUELS THECOMPREHENSIVE VOLUME INVESTIGATES STRUCTURES SYMMETRY SUPRAMOLECULAR CHEMISTRY SURFACE ENGINEERING RECOGNITION PROPERTIES AND REACTIONS THE CONTENT FROM THIS BOOK WILL BE ADDED ONLINE TO THEENCYCLOPEDIA OF INORGANIC AND BIOINORGANIC CHEMISTRY AHREF WILEYONLINELIBRARY COM REF EIBC WILEYONLINELIBRARY COM REF EIBC A

METAL ORGANIC FRAMEWORKS AND THEIR DERIVATIVES FOR ENERGY CONVERSION AND STORAGE

2024-01-19

THE SERIES STRUCTURE AND BONDING PUBLISHES CRITICAL REVIEWS ON TOPICS OF RESEARCH CONCERNED WITH CHEMICAL STRUCTURE AND BONDING THE SCOPE OF THE SERIES SPANS THE ENTIRE PERIODIC TABLE AND ADDRESSES STRUCTURE AND BONDING ISSUES ASSOCIATED WITH ALL OF THE ELEMENTS IT ALSO FOCUSES ATTENTION ON NEW AND DEVELOPING AREAS OF MODERN STRUCTURAL AND THEORETICAL CHEMISTRY SUCH AS NANOSTRUCTURES MOLECULAR ELECTRONICS DESIGNED MOLECULAR SOLIDS SURFACES METAL CLUSTERS AND SUPRAMOLECULAR STRUCTURES PHYSICAL AND SPECTROSCOPIC TECHNIQUES USED TO DETERMINE EXAMINE AND MODEL STRUCTURES FALL WITHIN THE PURVIEW OF STRUCTURE AND BONDING TO THE EXTENT THAT THE FOCUS IS ON THE SCIENTIFIC RESULTS OBTAINED AND NOT ON SPECIALIST INFORMATION CONCERNING THE TECHNIQUES THEMSELVES ISSUES ASSOCIATED WITH THE DEVELOPMENT OF BONDING MODELS AND GENERALIZATIONS THAT ILLUMINATE THE REACTIVITY PATHWAYS AND RATES OF CHEMICAL PROCESSES ARE ALSO RELEVANT THE INDIVIDUAL VOLUMES IN THE SERIES ARE THEMATIC THE GOAL OF EACH VOLUME IS TO GIVE THE READER WHETHER AT A UNIVERSITY OR IN INDUSTRY A COMPREHENSIVE OVERVIEW OF AN AREA WHERE NEW INSIGHTS ARE EMERGING THAT ARE OF INTEREST TO A LARGER SCIENTIFIC AUDIENCE THUS EACH REVIEW WITHIN THE VOLUME CRITICALLY SURVEYS ONE ASPECT OF THAT TOPIC AND PLACES IT WITHIN THE CONTEXT OF THE VOLUME AS A WHOLE THE MOST SIGNIFICANT DEVELOPMENTS OF THE LAST 5 TO 10 YEARS SHOULD BE PRESENTED USING SELECTED EXAMPLES TO ILLUSTRATE THE PRINCIPLES DISCUSSED A DESCRIPTION OF THE PHYSICAL BASIS OF THE EXPERIMENTAL TECHNIQUES THAT HAVE BEEN USED TO PROVIDE THE PRIMARY DATA MAY ALSO BE APPROPRIATE IF IT HAS NOT BEEN COVERED IN DETAIL ELSEWHERE THE COVERAGE NEED NOT BE EXHAUSTIVE IN DATA BUT SHOULD RATHER BE CONCEPTUAL CONCENTRATING ON THE NEW PRINCIPLES BEING DEVELOPED THAT WILL ALLOW THE READER WHO IS NOT A SPECIALIST IN THE AREA COVERED TO UNDERSTAND THE DATA PRESENTED DISCUSSION OF POSSIBLE FUTURE RESEARCH DIRECTIONS IN THE AREA IS WELCOMED REVIEW ARTICLES FOR THE INDIVIDUAL VOLUMES ARE INVITED BY

THE VOLUME EDITORS READERSHIP RESEARCH SCIENTISTS AT UNIVERSITIES OR IN INDUSTRY GRADUATE STUDENTS SPECIAL OFFER FOR ALL CUSTOMERS WHO HAVE A STANDING ORDER TO THE PRINT VERSION OF STRUCTURE AND BONDING WE OFFER FREE ACCESS TO THE ELECTRONIC VOLUMES OF THE SERIES PUBLISHED IN THE CURRENT YEAR VIA SPRINGERLINK

DESIGN AND FUNCTIONALIZATION OF METAL-ORGANIC FRAMEWORKS FOR CHEMICAL GAS SENSOR APPLICATIONS

2019*

METAL ORGANIC FRAMEWORKS FOR CHEMICAL REACTIONS FROM ORGANIC TRANSFORMATIONS TO ENERGY APPLICATIONS BRINGS TOGETHER THE LATEST INFORMATION ON MOFS MATERIALS COVERING RECENT TECHNOLOGY IN THE FIELD OF MANUFACTURING AND DESIGN THE BOOK COVERS DIFFERENT ASPECTS OF REACTIONS FROM ENERGY STORAGE AND CATALYSTS INCLUDING PREPARATION DESIGN AND CHARACTERIZATION TECHNIQUES OF MOFS MATERIAL AND APPLICATIONS THIS COMPREHENSIVE RESOURCE IS IDEAL FOR RESEARCHERS AND ADVANCED STUDENTS STUDYING METAL ORGANIC FRAMEWORKS IN ACADEMIA AND INDUSTRY METAL ORGANIC FRAMEWORKS MOFS ARE NANOPOROUS POLYMERS MADE UP OF INORGANIC METAL FOCUSES CONNECTED BY NATURAL LIGANDS THESE ENTITIES HAVE BECOME A HOT AREA OF RESEARCH BECAUSE OF THEIR EXCEPTIONAL PHYSICAL AND CHEMICAL PROPERTIES THAT MAKE THEM USEFUL IN DI ERENT ELDS INCLUDING MEDICINE ENERGY AND THE ENVIRONMENT SINCE COMBINATION CONDITIONS STRONGLY A ECT THE PROPERTIES OF THESE COMPOUNDS IT IS ESPECIALLY IMPORTANT TO CHOOSE AN APPROPRIATE SYNTHETIC TECHNIQUE THAT PRODUCES A PRODUCT WITH HOMOGENOUS MORPHOLOGY SMALL SIZE DISPERSION AND HIGH THERMAL STABILITY COVERS THE SYNTHETIC ADVANTAGES AND VERSATILE APPLICATIONS OF METAL ORGANIC FRAMEWORKS MOFS DUE TO THEIR ORGANIC INORGANIC HYBRID NATURE AND UNIQUE POROUS STRUCTURE INCLUDES ENERGY APPLICATIONS SUCH AS BATTERIES FUEL STORAGE FUEL CELLS HYDROGEN EVALUATION REACTIONS AND SUPER CAPACITORS FEATURES INFORMATION ON USING MOFS AS A REPLACEMENT TO CONVENTIONAL ENGINEERING MATERIALS BECAUSE THEY ARE LIGHTWEIGHT LESS COSTLY ENVIRONMENTALLY FRIENDLY AND SUSTAINABLE

ELABORATION AND APPLICATIONS OF METAL-ORGANIC FRAMEWORKS

2018-01-29

METAL ORGANIC FRAMEWORKS FOR ENVIRONMENTAL APPLICATIONS EXAMINES THIS IMPORTANT TOPIC LOOKING AT POTENTIAL MATERIALS AND METHODS FOR THE REMEDIATION OF PRESSING POLLUTION ISSUES SUCH AS HEAVY METAL CONTAMINANTS IN WATER STREAMS RADIOACTIVE WASTE DISPOSAL MARINE OIL SPILLAGE THE TREATMENT OF TEXTILE AND DYE INDUSTRY EFFLUENTS THE CLEAN UP OF TRACE AMOUNTS OF EXPLOSIVES IN LAND AND

WATER AND MANY OTHER TOPICS THIS SURVEY OF THE CUTTING EDGE RESEARCH AND TECHNOLOGY OF MOFS IS AN INVALUABLE RESOURCE FOR RESEARCHERS WORKING IN INORGANIC CHEMISTRY AND MATERIALS SCIENCE BUT IT IS ALSO IDEAL FOR GRADUATE STUDENTS STUDYING MOFS AND THEIR APPLICATIONS EXAMINES THE APPLICATIONS OF METAL ORGANIC FRAMEWORKS FOR THE REMEDIATION OF ENVIRONMENTAL POLLUTANTS FEATURES LEADING EXPERTS WHO RESEARCH THE APPLICATIONS OF MOFS FROM AROUND THE WORLD INCLUDING CONTRIBUTIONS FROM THE UNITED STATES INDIA AND CHINA EXPLORES POSSIBLE SOLUTIONS TO SOME OF TODAY S MOST PRESSING ENVIRONMENTAL CHALLENGES SUCH AS HEAVY METAL CONTAMINATION IN BODIES OF WATER OIL SPILLS AND CLEAN UP OF EXPLOSIVES HIDDEN IN LAND AND WATER PROVIDES AN EXCELLENT REFERENCE FOR RESEARCHERS AND GRADUATE STUDENTS STUDYING IN THE AREAS OF INORGANIC CHEMISTRY MATERIALS CHEMISTRY AND ENVIRONMENTAL SCIENCE

APPLICATIONS OF METAL-ORGANIC FRAMEWORKS AND THEIR DERIVED MATERIALS

2020-06-10

THE EMERGING AND INTERESTING FIELD OF MOF ENCOURAGED US TO BRING FORTH THE BOOK TITLED METAL ORGANIC FRAMEWORKS THE BOOK IS DIVIDED INTO THREE SECTIONS SECTION A CONSISTS OF INTRODUCTION SECTION B COMPRISES THE SYNTHESIS AND CHARACTERIZATION TECHNIQUES AND SECTION C IS DEDICATED TO THE APPLICATIONS OF MOFS THE BOOK WOULD BE USEFUL FOR SCIENTISTS AND RESEARCHERS INTERESTED IN THE FIELD OF MOFS

INTRODUCTION TO RETICULAR CHEMISTRY

2019-08-05

NEW CRYSTALLINE MATERIALS ORGANIC INORGANIC HYBRID ARE PROMISING FOR VARIOUS APPLICATIONS INCLUDING ELECTRICAL PIEZOELECTRIC FERROELECTRIC MAGNETIC AND CATALYTIC PROCESSES IN ADDITION GIVEN THEIR REMARKABLE STRUCTURAL RICHNESS THESE MATERIALS EXHIBIT SEVERAL INTERESTING PHYSICAL PROPERTIES SUCH AS IONIC CONDUCTION ION EXCHANGE AND OTHERS CRYSTAL GROWTH MORPHOLOGY AND GRAIN SIZE ARE FACTORS INFLUENCING THESE PHYSICAL PROPERTIES THIS BOOK EXAMINES METHODS OF SYNTHESIS OF THE MOST COMMON CRYSTALLINE MATERIALS AND DESCRIBES NUCLEATION AND CRYSTAL GROWTH OF VARIOUS MATERIALS

EMERGING APPLICATIONS AND IMPLEMENTATIONS OF METAL-ORGANIC FRAMEWORKS

2021-03-18

METAL ORGANIC FRAMEWORKS MOFS HAVE EMERGED AS A NEW FAMILY OF NANOPOROUS MATERIALS WITH AN ENORMOUS CHOICE OF INORGANIC ORGANIC BUILDING BLOCKS MOFS POSSESS A WIDE RANGE OF SURFACE AREA PORE SIZE AND FUNCTIONALITY AND THUS HAVE BEEN CONSIDERED VERSATILE MATERIALS FOR MANY POTENTIAL APPLICATIONS THIS BOOK PRESENTS A BROAD COLLECTION OF RECENT MODELING STUDIES IN THE FIELD OF MOFS TOWARD POTENTIAL ENGINEERING APPLICATIONS SUCH AS GAS STORAGE SEPARATION CARBON CAPTURE CATALYSIS WATER PURIFICATION AND DRUG DELIVERY THE SUBJECT OF THIS BOOK RENDERS IT UNIQUE FOR WHILE THE VARIOUS TOPICS ON MOFS BOAST VAST LITERATURE THERE IS NOT YET A SINGLE COHERENT COLLECTION FOR MODELING ENDEAVORS THE BOOK WILL APPEAL TO SCIENTISTS ENGINEERS AND STUDENTS IN THE MULTIDISCIPLINARY INTERSECTIONS OF MATERIALS SCIENCE CHEMISTRY AND ENGINEERING

CATALYST IMMOBILIZATION

2020-04-06

COMPOSITES BASED ON METAL ORGANIC FRAMEWORKS MOFS HAVE EXCEPTIONAL PHYSICAL AND CHEMICAL PROPERTIES AND OFFER A GREAT NUMBER OF ADVANCED APPLICATIONS IN SUCH FIELDS AS ENERGY STORAGE ENERGY CONVERSION BY CATALYSIS SENSORS FOR ENVIRONMENTAL APPLICATIONS ENVIRONMENT SAFETY AND INDUSTRIAL WASTEWATER TREATMENTS THEY ALSO HAVE INTERESTING MEDICAL APPLICATIONS SUCH AS ENCAPSULATION OF ENZYMES THE PRESENT BOOK COVERS DESIGN SYNTHESIS AND PREPARATION OF VARIOUS MOFS AS WELL AS THE RESULTING PRODUCT CHARACTERISTICS HOMOGENOUS MORPHOLOGY SMALL SIZE DISPERSION HIGH THERMAL STABILITY AND DESIRED SURFACE AREA

METAL-ORGANIC FRAMEWORK MATERIALS

2014-09-19

A COMPREHENSIVE VOLUME ON PHOTOCATALYTIC FUNCTIONAL MATERIALS FOR ENVIRONMENTAL REMEDIATION AS THE NEED FOR REMOVING LARGE AMOUNTS OF POLLUTION AND CONTAMINATION IN AIR SOIL AND WATER GROWS EMERGING TECHNOLOGIES IN THE FIELD OF ENVIRONMENTAL REMEDIATION ARE OF INCREASING IMPORTANCE THE USE OF PHOTOCATALYSIS A GREEN TECHNOLOGY WITH ENORMOUS POTENTIAL TO RESOLVE THE ISSUES RELATED TO ENVIRONMENTAL POLLUTION BREAKS DOWN TOXIC ORGANIC COMPOUNDS TO MINERALIZED PRODUCTS SUCH AS CARBON DIOXIDE AND WATER DUE TO THEIR HIGH PERFORMANCE EASE OF FABRICATION LONG TERM STABILITY AND LOW MANUFACTURING COSTS PHOTOFUNCTIONAL MATERIALS CONSTRUCTED FROM NANOCOMPOSITE MATERIALS HOLD GREAT POTENTIAL FOR ENVIRONMENTAL REMEDIATION PHOTOCATALYTIC FUNCTIONAL MATERIALS FOR ENVIRONMENTAL REMEDIATION EXAMINES THE DEVELOPMENT OF HIGH PERFORMANCE PHOTOFUNCTIONAL MATERIALS FOR THE TREATMENT OF ENVIRONMENTAL POLLUTANTS THIS TIMELY VOLUME ASSEMBLES AND REVIEWS A BROAD

RANGE OF IDEAS FROM LEADING EXPERTS IN FIELDS OF CHEMISTRY PHYSICS NANOTECHNOLOGY MATERIALS SCIENCE AND ENGINEERING PRECISE UP TO DATE CHAPTERS COVER BOTH THE FUNDAMENTALS AND APPLICATIONS OF PHOTOCATALYTIC FUNCTIONAL MATERIALS SEMICONDUCTOR METAL NANOCOMPOSITES LAYERED DOUBLE HYDROXIDES METAL ORGANIC FRAMEWORKS POLYMER NANOCOMPOSITES AND OTHER PHOTOFUNCTIONAL MATERIALS ARE EXAMINED IN APPLICATIONS SUCH AS CARBON DIOXIDE REDUCTION AND ORGANIC POLLUTANT DEGRADATION PROVIDING INTERDISCIPI INARY FOCUS TO GREEN TECHNOLOGY MATERIALS FOR THE TREATMENT OF ENVIRONMENTAL POLLUTANTS THIS IMPORTANT WORK PROVIDES COMPREHENSIVE COVERAGE OF VARIOUS PHOTOCATALYTIC MATERIALS FOR ENVIRONMENTAL REMEDIATION USEFUL FOR RESEARCHERS AND DEVELOPERS ENCOMPASSES BOTH FUNDAMENTAL CONCEPTS AND APPLIED TECHNOLOGY IN THE FIELD FOCUSES ON NOVEL DESIGN AND APPLICATION OF PHOTOCATALYTIC MATERIALS USED FOR THE REMOVAL OF ENVIRONMENTAL CONTAMINATES AND POLLUTION OFFERS IN DEPTH EXAMINATION OF HIGHLY TOPICAL GREEN TECHNOLOGY SOLUTIONS PRESENTS AN INTERDISCIPLINARY APPROACH TO ENVIRONMENTAL REMEDIATION PHOTOCATALYTIC FUNCTIONAL MATERIALS FOR ENVIRONMENTAL REMEDIATION IS A VITAL RESOURCE FOR RESEARCHERS ENGINEERS AND GRADUATE STUDENTS IN THE MULTI DISCIPLINARY AREAS OF CHEMISTRY PHYSICS NANOTECHNOLOGY ENVIRONMENTAL SCIENCE MATERIALS SCIENCE AND ENGINEERING RELATED TO PHOTOCATALYTIC ENVIRONMENTAL REMEDIATION

METAL-ORGANIC FRAMEWORKS FOR PHOTONICS APPLICATIONS

2014-07-08

METAL ORGANIC FRAMEWORK BASED NANOMATERIALS FOR ENERGY CONVERSION AND STORAGE ADDRESSES CURRENT CHALLENGES AND COVERS DESIGN AND FABRICATION APPROACHES FOR NANOMATERIALS BASED ON METAL ORGANIC FRAMEWORKS FOR ENERGY GENERATION AND STORAGE TECHNOLOGIES THE EFFECT OF SYNTHETIC DIVERSITY FUNCTIONALIZATION WAYS OF IMPROVING CONDUCTIVITY AND ELECTRONIC TRANSPORTATION TUNING IN POROSITY TO ACCOMMODATE VARIOUS TYPES OF ELECTROLYTE AND THE CRITERIA TO ACHIEVE THE APPROPRIATE PORE SIZE SHAPE AND SURFACE GROUP OF DIFFERENT METAL SITES AND LIGANDS ARE EXPLORED THE EFFECT OF INTEGRATION OF OTHER ELEMENTS SUCH AS SECOND METALS OR HETERO ATOMIC DOPING IN THE SYSTEM TO IMPROVE CATALYTIC ACTIVITY AND DURABILITY ARE ALSO COVERED THIS IS AN IMPORTANT REFERENCE SOURCE FOR MATERIALS SCIENTISTS ENGINEERS AND ENERGY SCIENTISTS LOOKING TO FURTHER THEIR UNDERSTANDING ON HOW METAL ORGANIC FRAMEWORK BASED NANOMATERIALS ARE BEING USED TO CREATE MORE EFFICIENT ENERGY CONVERSION AND STORAGE SYSTEMS DESCRIBES MAIOR METAL ORGANIC FRAMEWORK BASED NANOMATERIALS APPLICATIONS FOR FUEL CELL BATTERY SUPERCAPACITOR AND PHOTOVOLTAIC APPLICATIONS PROVIDES INFORMATION ON THE VARIOUS NANOMATERIAL TYPES USED FOR CREATING THE MOST EFFICIENT ENERGY CONVERSION AND STORAGE SYSTEMS ASSESSES THE MAIOR CHALLENGES OF USING NANOTECHNOLOGY TO MANUFACTURE

METAL-ORGANIC FRAMEWORKS FOR CHEMICAL REACTIONS

2021-02-05

METAL-ORGANIC FRAMEWORKS (MOFS) FOR ENVIRONMENTAL APPLICATIONS

2019-06-07

METAL-ORGANIC FRAMEWORKS

2016-10-12

SYNTHESIS METHODS AND CRYSTALLIZATION

2020-10-07

METAL-ORGANIC FRAMEWORKS

2015-01-28

METAL-ORGANIC FRAMEWORK COMPOSITES

2019-07-20

PHOTOCATALYTIC FUNCTIONAL MATERIALS FOR ENVIRONMENTAL REMEDIATION

2019-06-10

METAL-ORGANIC FRAMEWORK-BASED NANOMATERIALS FOR ENERGY CONVERSION AND STORAGE

2022-05-10

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