

CONTENTS

Preface	v
Organizing Committee	vii
International Advisory Committee	vii
I. Review Articles	
An Overview of Mesoporous Structures of Alumina with Crystalline Framework Walls <i>Thomas J. Pinnavaia, Zhaorong Zhang and Randall W. Hicks</i>	1
Studies of anionic surfactant templated mesoporous structures by electron microscopy <i>Alfonso E. Garcia-Bennett, Shunai Che, Keiichi Miyasaka, Yasuhiro Sakamoto, Tetsu Ohsuna, Zheng Liu, and Osamu Terasaki</i>	11
Design of Functional Nano-Structured Inorganic and Hybrid Materials <i>C. Sanchez, C. Boissière, A. Coupé, F. Goettmann, D. Grosso, B. Julián, M. Llusar and L. Nicole</i>	19
Organic Zeolites <i>D.V. Soldatov and J.A. Ripmeester</i>	37
II. Synthesis of Mesoporous Silicas	
Optimization of silica/surfactant ratio in MCM-41 synthesis <i>Michal Kruk, Mietek Jaroniec, Hyun June Shin and Ryong Ryoo</i>	55
Synthesis of MCM-41 under Ultrasonic Conditions <i>Yongmei Liu, Yingyue Qin, Yongkang Lv, Weiren Bao, Tao Dou and Kechang Xie</i>	63
In-situ Studies of the Formation Mechanism of SBA-15 <i>Viveka Alfredsson, Heinz Amenitsch, Katarina Flodström, Mika Lindén, Cilaine V. Teixeira and Håkan Wennerström</i>	69

Optimization of Synthesis Time of SBA-15 Materials <i>Pasquale F. Fulvio and Mietek Jaroniec</i>	75
Tuning the Morphology of SBA-15 by Stirring in the Presence of Phosphoric Acid: Films, Cakes, Fibers and Bundles of Threads <i>Raghuraman Pitchumani, Wenjiang Li and Marc-Olivier Coppens</i>	83
Acid-Free Synthesis of Mesostructured Silica Materials in a Triblock Copolymer-Based System <i>Shih-Yuan Chen and Soofin Cheng</i>	89
Preparation of Mesostructured Silica Using a Nonionic Fluorinated Surfactant: Relation between Mesoporous Characteristics and Surfactant Phase Behavior <i>J.L. Blin and M.J. Stébé</i>	97
Influence of Synthesis Time on Adsorption Properties of FDU1 Materials <i>Rafal M. Grudzien and Mietek Jaroniec</i>	105
 III. Mesoporous Silicas with Incorporated Inorganic Species	
Synthesis and Characterization of Nanoscale Aluminosilicate Mesoporous Materials by Microwave Irradiation <i>C.-F. Cheng, H.-H. Cheng, L.-L. Wu and B.-W. Cheng</i>	113
Synthesis and Characterization of Mesoporous Aluminosilicates from Zeolitic Precursors and TEOS <i>J.L. Zheng, S.R. Zhai, D. Wu and Y.H. Sun</i>	119
Mesostructured Aluminosilica Oxynitrides: Solid Acid-Base Materials Prepared via Post-Synthesis Grafting Routes <i>Yongde Xia and Robert Mokaya</i>	125
Synthesis and Characterization of Gallosilicate Mesoporous Molecular Sieves SBA-15 <i>C.-F. Cheng and H.-H. Cheng</i>	133
Direct Synthesis of Cu-Modified MCM-41 Functional Materials <i>Z.Y. Wu, Y.M. Wang and J.H. Zhu</i>	139
Behavior of NiO and Ni ⁰ Phases at High Loadings in SBA-15 and SBA-16 Mesoporous Silica Matrices <i>D. Kantorovich, L. Haviv, L. Vradman and M.V. Landau</i>	147

A Novel Mixed Cationic-Nonionic Surfactant Templating Approach for the Synthesis of Mesoporous Niobium Containing Silica - A Promising Epoxidation Catalyst <i>I. Nowak and M. Ziolk</i>	155
Synthesis of Niobium Molecular Sieves with a New Nb Source and Catalytic Oxidation of Cyclohexene <i>Eliezer Ladeia Gomes and Dilson Cardoso</i>	163
Physicochemical Properties of FSM-16 Modified by Fluoride and HPA <i>P. Pérez-Romo, M.L. Guzmán-Castillo, H. Armendáriz-Herrera, R. Flores-Rodríguez, J. Navarrete-Bolaños, J.A. Montoya de la Fuente and J.J. Fripiat</i>	171
Immobilization of Tungstophosphoric Acid in Mesoporous Silica <i>Nongyue He, Chun Yang, Chang-Soo Woo and Ho-In Lee</i>	177

IV. Synthesis of Mesoporous Organosilicas

Morphological Change of PMO and SBA-15 by Metamorphic Reconstruction <i>S.S. Park, S.J. Kim, Y.-K. Seo and D.H. Park</i>	183
Synthesis and Characterization of Vinyl-Functionalized SBA-15 by a Direct Synthesis Grafting Method <i>Byeong-Gyu Park, Jin-Woo Park, Sung Soo Park, Il Kim and Chang-Sik Ha</i>	191
Synthesis and Adsorption Properties of Periodic Mesoporous Organosilicas with Large Heterocyclic Bridging Groups <i>Oksana Olkhvoyk and Mietek Jaroniec</i>	197
Functionalized Mesoporous SBA-15 Silica with Propylsulfonic Groups as Catalysts for Esterification of Salicylic Acid with Dimethyl Carbonate <i>Yan Zheng, Xiaowei Su, Xuehong Zhang, Wei Wei and Yuhan Sun</i>	205
Preparation of Hydrothermally Stable Mercapto-Functionalized Mesoporous Silicas via Assembly of Nanoclustered Zeolite Y Seeds and 3-Mercaptopropyl Trimethoxysilane <i>Ningya Yu, Junlin Zheng, Qunli Tang, Dong Wu, Yuhan Sun, Wei Hu, Wuyang Liu and Feng Deng</i>	213

Functionalization of Mesoporous Silica by Condensation of Tetramethoxysilane and Alkyl Peptidoamine Monomers in the Presence of a Non-Ionic Fluorinated Surfactant 221

J.L. Blin, C. Gérardin, L. Rodehüser, C. Selve and M.J. Stébé

Functionalization of HMS Mesoporous Molecular Sieves and Their Base-Catalytic Performance 229

Chun Yang

Grafting of $[\text{CpMo}(\text{CO})_3]^- \text{Na}^+$ on 3,6-Dichloro-Pyridazine Modified Mesoporous MCM-41 and MCM-48 Molecular Sieves 237

Ayyamperumal Sakthivel, Jin Zhao, and Fritz E. Kühn

V. Synthesis of Non-siliceous Mesoporous Materials

The Generation of Mesoporous CeO_2 with Crystalline Pore Walls Using Novel Block Copolymer Templates 243

T. Brezesinski, B. Smarsly, M. Groenewolt, M. Antonietti, D. Grosso, C. Boissière and C. Sanchez

Preparation of Tailored Pore Size Mesoporous Zirconia with Enhanced Thermal Stability via Controlled Sol-Gel Process 249

Yachun Liu, Jiangang Chen and Yuhan Sun

Hydrotalcites (HTs) and Mesoporous Mixed Oxides Obtained from HTs, Basic Solid Catalysts for Cyclohexanone Condensation 257

E. Angelescu, R. Bîrjega, O.D. Pavel, M. Che, G. Constantin and S. Popoiu

Doping of Rare Earth Elements into Microporous and Mesoporous Aluminophosphate 265

Wenfu Yan, Zongtao Zhang, Jun Xu, Shannon M. Mahurin and Sheng Dai

Colloidal Crystals as Templates for Zinc Sulfide Inverse Opal via Solvothermal Approach 273

J.-M. Cao, X. Chang, M.-B. Zheng, H.-B. Huang, Y.-L. Cao and X.-F. Ke

Preparation of Nanostructured Boron Nitride with Borazinic Precursor 279

P. Dibandjo, L. Bois, F. Chassagneux, B. Toury, D. Cornu, F. Babonneau and P. Miele

Mesostructured and Mesoporous Pure and Substituted Barium Hexaferrite Phases 287

E.E. Macias, V.V. Guliants and M.A. Carreon

VI. Mesoporous Films

- Porosity Analysis of Spin-on Mesoporous Silica Films 295
Chih-Yuan Ting, Hwo-Shuenn Sheu and Ben-Zu Wan
- Controlling Morphological, Orientational and Material Properties of Mesoporous Aluminosilicate Films: Enabling Supercritical Fluid Deposition of Perpendicularly Ordered Nanowire Arrays 303
Kevin M. Ryan, Daniel M. Lyons, Justin D. Holmes, R. Farrell, E. Brennan and M. A. Morris
- Electrochemically Self-Assembled Mesoporous Dye-Modified Zinc Oxide Thin Films 315
J. Rathousky, T. Loewenstein, K. Nonomura, T. Yoshida, M. Wark and D. Schlettwein
- Preparation of Crack-Free, Transparent, Nanoporous Niobium Oxide Film with Crystalline Structure by Evaporation-Induced Self-Assembly (EISA) Process 321
Kiyotaka Nakajima, Nao Shirokura, Byongjin Lee, Junko N. Kondo, Michikazu Hara and Kazunari Domen
- Ordered Mesoporous Organosilica Films 327
M. Matheron, T. Gacoin, J.-P. Boilot, A. Bourgeois, A. Brunet-Bruneau, J. Rivory, A. Jimenez and J. Biteau

VII. Layered Nanomaterials

- Effect of Exchangeable Cation and Hydration Layer on the Swelling Property of 2:1 Dioctahedral Smectite Clay – a Periodic Density Functional Study 335
Abhijit Chatterjee, Fujio Mizukami and Akira Miyamoto
- Isolation, Characterization and Modification of Clay Solids from Oil-Sand Wastes 343
Abdul Majid, Steve Argue and Jim Margeson
- New Modifications of Layered MCM-36 Molecular Sieve Pillared with Various Mixed Oxides: Facts and Perspectives 349
J. Kornatowski, J.-O. Barth and J.A. Lercher
- New Nanoparticle / LDH Composite Materials as Precursors of Supported Metal Catalysts 357
C. Gérardin, D. Kostadinova, N. Sanson, D. Francova, N. Tanchoux, D. Tichit and B. Coq

Synthesis and Catalytic Application of Tantalum and Silica Pillared Porous Materials from Layered Silicate Ilerite	363
<i>Sun Jin Kim, Min Jo Park, Hun Jung, Kwang-Deog Jung and Oh-Shim Joo</i>	

VIII. Nanostructured Catalysts and Other Nanomaterials

Optimal Design of Hierarchically Structured Nanoporous Catalysts	371
<i>Marc-Olivier Coppens, Stefan Gheorghiu and Peter Pfeifer</i>	
Synthesis of Hierarchically Structured MCM-41 with High Hydrothermal Stability and Its Application in Environmental Catalysis	379
<i>Su Liu, Lingdong Kong, Xuewu Yan, Quanzhi Li and Adi He</i>	
Effect of Nanoporous ZrO ₂ Crystal Size on the Surface Sulphur Capacity and Performance of Sulfated Zirconia as an Acidic Catalytic Material	385
<i>M.V. Landau, L. Titelman, A.M. Shapira-Tchelet, P. Wilson, D. Tavor, L. Vradman and A. Wolfson</i>	
A Dry Gel Synthesis Route to Mesoporous ZSM-5 Catalysts	393
<i>C. Chou, C.S. Cundy and A.A. Garforth</i>	
Role of Intrinsic Zeolite Properties on Mesopore Formation by Desilication of MFI Structures	401
<i>J.C. Groen, L.A.A. Peffer, J.A. Moulijn and J. Pérez-Ramírez</i>	
Selective Introduction of Solid Acid Sites into the Mesopore Surface of Non-Acidic USY Zeolite by Aluminum Insertion	409
<i>Hiromichi Shimada, Kosaku Honna, Yasuhiro Araki and Yoichi Nishimura</i>	
Influence of Zirconium on the Crystallisation Kinetics of ETS-4 Molecular Sieves	417
<i>D. Vuono, C.C. Pavel, P. De Luca, J.B. Nagy and A. Nastro</i>	
Synthesis of Silver Nanoparticles within Ordered CMK-3 Mesoporous Carbon	423
<i>J.M. Cao, Y.L. Cao, X. Chang, M.B. Zheng, J.S. Liu and H.M. Ji</i>	
Supercritical Carbon Dioxide as Medium for the Formation of Gold Nanoparticles into MCM-41 and Its Catalytic Activity	427
<i>M. Chatterjee and Y. Ikushima</i>	

3D Design of Self-Assembled Nanoporous Colloids <i>I. Sokolov and Y. Kievsky</i>	433
Fabrication and Porosity Control of Mesoporous Polycarbosilane from SBA-15 Templated Polymethylsilane <i>J.H. Cheon, S.J. Kim, Y.-K. Seo and D.H. Park</i>	443
Structuration of Organo-Minerals: Nanohybrid Materials Resulting from the Incorporation of Alcohols in the Tunnels of Palygorskite <i>W. Kuang and C. Detellier</i>	451
Synthesis and Characterization of Mesostructured Alloys with Controlled Compositions <i>Yusuke Yamauchi, Sivakumar Sadasivan Nair, Tokihiko Yokoshima, Toshiyuki Momma, Tetsuya Osaka and Kazuyuki Kuroda</i>	457
One-Pot Synthesis and Characterization of High Surface Area Perovskite-Type BaTiO ₃ with Mesoporous Texture <i>Bo Hou, Zhijie Li, Yao Xu, Dong Wu and Yuhan Sun</i>	465
Novel Non-Surfactant Pathway to Controllable Micro/Mesoporous Bimodal Xerogels <i>D.-J. Yang, S.-R. Zhai, Y. Xu, J.-L. Zheng, D. Wu, Y.-H. Sun and F. Deng</i>	473
An Ultrafiltration Membrane Prepared with MSU-Type Mesoporous Silica: Preparation and Specific Filtration Behavior <i>Eric Prouzet, André Larbot, Cédric Boissière and Marco U. Martines</i>	481
Synthesis and Adsorption Properties of FDU-1 Silica with Carbon Deposited in Mesopores <i>Ewa B. Celer and Mietek Jaroniec</i>	489

IX. Porous Polymers and Polymer/Inorganic Nanocomposites

Flexible Coordination Polymers as Novel Porous Materials <i>Tapas Kumar Maji, Ryotaro Matsuda and Susumu Kitagawa</i>	497
Conducting Polymer and Carbon Mesoporous Structures by Electrochemical Syntheses <i>L.T. Qu, L.C. Li, V. Bajpai, G.Q. Shi and L. Dai</i>	505

Preparation and Electrorheological Property of Conducting Copolyaniline/MCM-41 Nanocomposite 517
Il Sang Lee, Min Seong Cho, Cheng Hai Hong, Hyoung Jin Choi, Sang Soon Yoon and Wha-Seung Ahn

Synthesis and Characterization of Intercalated Mesoporous PANI/V₂O₅ 523
Li Li and Zi-Feng Yan

Synthesis, Characterization and Application of Poly(Butylacrylate-Co-Methyl Methacrylate)/Clay Nanocomposites via Emulsion Polymerization 529
Zhiyi Zhang, Ning Zhao, Wei Wei, Dong Wu and Yuhua Sun

X. Mesoporous Carbons

Mesoporous Carbon Prepared by Nanocasting of MCM-41 and MCM-48 Nanospheres 535
M. Wallau, L. Dimitrov and E. A. Urquieta-González

Synthesis of SBA-15 Templated-Ordered Mesoporous Carbon: Effect of SBA-15 Microporosity 543
Yong Yang and Abdelhamid Sayari

Well-ordered Cubic Mesoporous Carbon with Im3m Symmetry 551
Wanping Guo and (George) X. S. Zhao

Carbonization of Sucrose in the Presence of Zeolite: Control over Pore Structure and Morphology 557
Fabing Su, Lu Lv, (George) X.S. Zhao

Synthesis of Hollow Spherical Mesoporous N-Doped Carbon Materials with Graphitic Framework 565
Yongde Xia, Zhuxian Yang and Robert Mokaya

Porous N-Doped Carbon with Various Hollow-Cored Morphologies Nanocast Using Zeolite Templates via Chemical Vapour Deposition 573
Zhuxian Yang, Yongde Xia and Robert Mokaya

Pitch-Based Carbons Synthesized by Using Silica Colloids and Ordered Mesoporous Silica Particles as Templates 581
Kamil P. Gierszal and Mietek Jaroniec

Electrical Double-Layer Capacitive Properties of Colloidal Crystal-Templated Nanoporous Carbons 589
I. Moriguchi, F. Nakawara, H. Yamada and T. Kudo

Generating Selective Adsorptive Sites on Activated Carbon 595
Y. Cao, L.Y. Shi, C.F. Zhou, T.T. Zhuang, Y. Wang and J.H. Zhu

Synthesis, Characterization and Hydrogen Storage on Ordered Carbon Adsorbents 603
Louis C. Chen, Ranjeet K. Singh and Paul A. Webley

Monitoring the Preparation of Spherical Activated Carbon from Sulfonated Styrene-Divinylbenzene Copolymer 609
S.B. de Oliveira, D. Rabelo and M.C. Rangel

XI. Adsorption and Characterization of Nanomaterials

The Sorption of Butanes over Carbon Nanotubes 617
Zs. Ötvös, Gy. Onyestyák, J. Valyon, I. Kiricsi, and L.V.C. Rees

Adsorption of Benzene on MCM-41-Type Material: a QM/MM Study 625
Bavornpon Jansang and Jumras Limtrakul

Adsorption of Amino Acid on Mesoporous Molecular Sieves 631
A. Vinu, K.Z. Hossain, G. Satish Kumar, V. Sivamurugan and K. Ariga

Adsorption of Lysozyme over Mesoporous Carbons with Various Pore Diameters 637
A. Vinu, M. Miyahara, K.Z. Hossain, T. Nakanishi and K. Ariga

Competition between organics adsorbed in mesoporous MCM-41 materials: predictions for heterogeneous catalysis 643
Philippe Trens, Nathalie Tanchoux, Daniel Maldonado, Francesco Di Renzo and François Fajula

Famotidine Drug Adsorption on Carboxylic Acid Functionalized Ordered SBA-15 Mesoporous Silica 649
Qunli Tang, Ningya Yu, Zhijie Li, Dong Wu and Yuhan Sun

Acidity and Sorption Properties of Nano-Sized Mesoporous Aluminosilicate Materials 657
Wen-Hua Chen, Shing-Jong Huang, Hui-Hsin Ko, An-Ya Lo, Huang-Kuei Lee, Li-Li Wu, Chi-Feng Cheng and Shang-Bin Liu

Pore Size Characterization of Mesoporous Materials by a Thermodynamic Approach: A Curvature-Dependent Solid-Fluid Potential 663
E.A. Ustinov, D.D. Do and M. Jaroniec

Characterization of Pore Structure of Copolymer-Templated Periodic Mesoporous Organosilicas	673
<i>O. Olkhovyk, M. Kruk, R. Sutton and M. Jaroniec</i>	
Influence of the Wall Heterogeneity on The Layering Transition in Cylindrical Pores	683
<i>B. Kuchta and L. Firlej</i>	
Melting of Krypton Monolayers Adsorbed on Carbon Nanopores	689
<i>L. Firlej and B. Kuchta</i>	
Determination of Cardiac Troponin I by Anodic Stripping Voltammetry at SBA-15 Modified Carbon Paste Electrode	695
<i>Huishhi Guo, Nongyue He, Shuxun Ge, Di Yang and Jinan Zhang</i>	
Spectroscopic Characterization and Catalytic Performances of Iron Substituted Three Dimensional Cubic SBA-1 and KIT-5 Mesoporous Molecular Sieves	703
<i>A. Vinu, G. Chandrasekar, M. Hartmann and K. Ariga</i>	
Photoluminescence Property of $[\text{Eu}(\text{bpy})_2]^{3+}$ Dispersed in Mesoporous Materials SBA-15	711
<i>Shuxun Ge, Nongyue He, Chun Yang, Jieming Cao, Hong Chen and Min Gu</i>	
Microemulsion Templated Mesoporous Silica: Characterisation via Small Angle X-Ray Scattering and Stability in Aqueous Buffers	717
<i>S. Boskovic, C.F. Maitland, J. Connolly, C.E. Buckley, T.W. Turney, M.L. Gee, G.W. Stevens and A.J. O'Connor</i>	
Dynamics of Guests in Microporous Coordination Polymers Studied by Solid State NMR and X-ray Analysis	725
<i>Satoshi Horike, Ryotaro Matsuda and Susumu Kitagawa</i>	

XII. Catalytic Applications of Nanoporous Materials

Molecular Designed Vanadia-Titania Supported SBA-15 for the Oxidative Dehydrogenation of Isobutane and Propane	733
<i>Yolanda Segura, Johan S. Paul, Kevin Huyghe, Walter Vermandel, Pegie Cool, Etienne F. Vansant, Bert F. Sels and Pierre A. Jacobs</i>	
Excited-State Deprotonation Dynamics of 2-Naphthol in NaX Nanoreactors	741
<i>Y.-S. Lee, H. Yu, O.-H. Kwon and D.-J. Jang</i>	

Catalytic Performance of Noble Metals Supported on Al ₂ O ₃ -Modified MCM-41 for Thiophene Hydrodesulfurization <i>Y. Kanda, Y. Uemichi, T. Kobayashi, L. Andalaluna and M. Sugioka</i>	747
Hydrodesulfurization of Thiophene over Cobalt and Molybdenum Sulfides Supported on MCM-41 Materials <i>Marcelo J. B. Souza, Antonio S. Araujo, Anne M. G. Pedrosa, Joana M. F. B. Aquino, Dulce M. A. Melo and Antonio O. S. Silva</i>	755
Oxygen-Free Dehydroaromatization of Methane over Mo-Based Catalysts Supported on MCM-41 and MCM-22 <i>Azfar Hassan and Abdelhamid Sayari</i>	761
Immobilized Molybdovanadophosphoric Acids on SBA-15 for Selective Oxidation of Alkenes <i>N.K. Kala Raj, S.S. Deshpande, R.H. Ingle, T. Raja and P. Manikandan</i>	769
Introduction of Tin into Mesoporous Molecular Sieves for Oxidation of Adamantanone <i>Iveta Nekoksová, Naděžda Žilková, Arnošt Zukal and Jiří Čejka</i>	779
Vapor-Phase Photocatalytic Oxidation of Volatile Organic Compounds over Novel Uranyl-Anchored MCM-41 Heterogeneous Catalyst <i>K. Vidya, V.S. Kamble, N.M. Gupta and P. Selvam</i>	787
Metathesis of Linear α -Olefins with MoO ₃ Supported on MCM-41 Catalyst <i>Hynek Balcar, Pavel Topka, Naděžda Žilková, Joaquín Pérez-Pariente and Jiří Čejka</i>	795
<i>t</i> -Butylation of 1,2-Dihydroxybenzene over Mesoporous Solid Acid Catalysts <i>M. Selvaraj, B.H. Him, J. Han and T.G. Lee</i>	803
Evaluation of MY Zeolites (M= Pt, Pd, Ni) in the Transalkylation of Trimethylbenzene with Benzene <i>M.S. Ramos, S.T. Grecco, L.P. Gomes, A.C. Oliveira, P. Reyes, M. Oportus and M.C. Rangel</i>	809
New Catalysts for Diels-Alder Reaction of Myrcene and Acrolein Prepared by Solid-State Interaction of MCM-41 Silica and ZnCl ₂ <i>Jianfu Liu, Donghong Yin, Liangsheng Qin and Dulin Yin</i>	815
Diels-Alder Cycloadditions of Single-Wall Carbon Nanotubes with Electron-Rich Dienes: a Theoretical Study <i>C. Warakulwit, S. Bamrungsap, P. Luksirikul, P. Khongpracha and J. Limtrakul</i>	823

Fischer-Tropsch Synthesis over Co/SiMCM-41 and Co/SiO ₂ Materials: The Role of Support at Different Cobalt Loadings <i>Marcelo J. B. Souza, Antonio S. Araujo, Antonio O. S. Silva and Luis A. M. Pontes</i>	829
Metathesis of 1-Hexene over MoO ₃ Supported on Mesostructured γ -Al ₂ O ₃ Prepared with Cationic Surfactants <i>J. Aguado, J.M. Escola and M.C. Castro</i>	835
The Catalytic Epimerization of Sugars over Immobilized Heptamolybdate: Comparison of Resins, Layered Double Hydroxides and Mesoporous Silica as Support <i>R. Stockman, J. Dekoninck, B.F. Sels and P.A. Jacobs</i>	843
Immobilization of Mn(salen) Complex on Aluminum-Containing Mesoporous Materials by Microwave Heating for Epoxidation of Styrene <i>Donghong Yin, Jianfu Liu, Yan Zhang, Qiang Gao and Dulin Yin</i>	851
Catalytic Formation of Acetic Anhydride over Tungstophosphoric Acid-Impregnated SBA-15 Mesoporous Materials <i>Nongyue He, Chun Yang, Chang-Soo Woo, Hyeon-Gook Kim and Ho-In Lee</i>	859
Synthesis of Vitamin K ₃ over Mesoporous Zr-MCM-41 Molecular Sieves <i>M. Selvaraj, J. Kim and T.G. Lee</i>	867
A Mild, Eco-Friendly and Efficient Zeolite Catalyzed Synthesis of Vibrindole A and Bis(Indolyl)Methanes <i>M. Karthik, M. Palanichamy and V. Murugesan</i>	873

XIII. Environmental Applications of Nanoporous Materials

A High Capacity, Water Tolerant Adsorbent for CO ₂ : Diethanolamine Supported on Pore-Expanded MCM-41 <i>R. Franchi, P.J.E. Harlick and A. Sayari</i>	879
Amine-Functionalised Mesoporous Silicas as CO ₂ Adsorbents <i>Gregory P. Knowles, Seamus W. Delaney and Alan L. Chaffee</i>	887
Functionalized Mesoporous SBA-15 Silica Molecular Sieves with Mercaptopropyl Groups: Preparation, Characterization and Application as Adsorbents <i>Zhaohua Luan, Jay A. Fournier, Jan B. Wooten, Donald E. Miser and Michael J. Chang</i>	897

New Efficient Al-Containing SBA-15 Materials for Removing Nitrosamines in Mild Conditions	907
<i>C.F. Zhou, Y. M. Wang, J.H. Xu, T.T. Zhuang, Y. Wang, Z.Y. Wu and J.H. Zhu</i>	
Functionalization of Silica by In-Situ Grafting Hydrotalcite	917
<i>An Ji, Li Ying Shi, Yi Cao, Ying Wang</i>	
Synthesis and Characterization of Mesoporous Silicas Functionalized by Thiol Groups, and Application as Sorbents for Mercury (II)	925
<i>C. Lesaint, F. Frébault, C. Delacôte, B. Lebeau, C. Marichal, A. Walcarius and J. Patarin</i>	
Microporous Titanosilicate ETS-10 for the Removal of Divalent Heavy Metals	933
<i>Lu Lv, Fabing Su and (George) X.S. Zhao</i>	
Microwave Synthesis of FDU-1 Silica with Incorporated Humic Acid and its Application for Adsorption of Cd ²⁺ From Aqueous Solutions	941
<i>L.C. Cides da Silva, G. Abate, N. Andrea, M.C.A. Fantini, J.C. Masini, L.P. Mercuri, O. Olkhovyk, M. Jaroniec and J. R. Matos</i>	
Preparation of High Surface Area Mesoporous Activated Carbon Fiber and Its Adsorption Properties of Sulfides from Light Oil	951
<i>W.Z. Shen, J.T. Zheng and Q.J. Guo</i>	
The Recovery of Rhodium Ions at Ultra-Low Concentrations Using Nanostructured Adsorbents	957
<i>Ali Abughusa, Laxman Amaratunga and Louis Mercier</i>	
Author Index	963
Subject Index	969