

Contents

Chapter 1	Nanoporous Materials-An Overview <i>G.Q. Lu and X.S. Zhao</i>	1
Chapter 2	Advances in Mesoporous Materials Templated by Nonionic Block Copolymers <i>C. Yu, B. Tian, X. Liu, J. Fan, H. Yang and D.Y. Zhao</i>	14
Chapter 3	Zeolite/Mesoporous Molecular Sieve Composite Materials <i>Do Trong On and S. Kaliaguine</i>	47
Chapter 4	Chromium-Containing Ordered Nanoporous Materials <i>P. Selvam</i>	101
Chapter 5	Surfactant-Templated Mesoporous Materials: Synthesis and Compositional Control <i>M.S. Wong and W.V. Knowles</i>	125
Chapter 6	Organic Host-Guest Structures in the Solid State <i>A. Nangia</i>	165
Chapter 7	Nonsurfactant Route to Nanoporous Phenyl-Modified Hybrid Silica Materials <i>Y. Wei, H. Dong, J. Xu, C.E. Wang, Q. Feng, K-Y. Qiu, Z-C. Li and S.A. Jansen</i>	188
Chapter 8	3D Macroporous Photonic Materials Templated by Self Assembled Colloidal Spheres <i>Z.C. Zhou and X.S. Zhao</i>	206
Chapter 9	Hydrophobic Microporous Silica Membranes for Gas Separation and Membrane Reactors <i>S. Giessler, J.C. Diniz da Costa and G.Q. Lu</i>	237

Chapter 10	Synthesis and Characterization of Carbon Nanotubes for Hydrogen Storage <i>H-M. Cheng, C. Liu, F. Li, H-T. Fang and Q-H. Yang</i>	263
Chapter 11	Physical Adsorption Characterization of Ordered and Amorphous Mesoporous Materials <i>M. Thommes</i>	317
Chapter 12	Molecular Simulation of Adsorption in Porous Materials <i>D. Nicholson</i>	365
Chapter 13	Surface Functionalization of Ordered Nanoporous Silicates <i>X.S. Zhao, A.S. M. Chong and G.Q. Lu</i>	393
Chapter 14	Surface Alumination of Mesoporous Silicates <i>R. Mokaya</i>	427
Chapter 15	Acidity Measurement of Nanoporous Aluminosilicates – Zeolites and MCM-41 <i>J. Zheng, C. Song, X. Xu, U.T. Turaga and X.S. Zhao</i>	464
Chapter 16	Nanocatalysts Prepared by the Molecularly Designed Dispersion Process <i>P. Cool, M. Baltes and E.F. Vansant</i>	487
Chapter 17	Acidity-enhanced Nanoporous Catalytic Materials <i>F-S. Xiao and Y. Han</i>	519
Chapter 18	Modified Mesoporous Materials as Acid and Base Catalysts <i>D.J. Macquarrie</i>	553
Chapter 19	Lewis Acid/Base Catalysts Supported on Nanoporous Silica as Environmental Catalysts <i>V.R. Choudhary and B.S. Uphade</i>	596

Chapter 20	Nanoporous Catalysts for Shape-Selective Synthesis of Specialty Chemicals: A Review of Synthesis of 4,4'-Dialkylbiphenyl <i>J.-P. Shen and C. Song</i>	623
Chapter 21	Catalysis Involving Mesoporous Molecular Sieves <i>W.S. Ahn, G.J. Kim and G. Seo</i>	649
Chapter 22	Adsorption and Transport in Nanoporous Materials <i>J.P.B. Mota</i>	694
Chapter 23	Adsorption of Organic Molecules in Nanoporous Adsorbents from Aqueous Solution <i>R. Denoyel</i>	727
Chapter 24	Functionalized Nanoporous Adsorbents for Environmental Remediation <i>M.C. Burleigh and S. Dai</i>	756
Chapter 25	Nanoporous Adsorbents for Air Pollutant Removal <i>P. Le Cloirec</i>	772
Chapter 26	Bioadsorption and Separation with Nanoporous Materials <i>A. Daehler, G.W. Stevens and A. J. O'Connor</i>	812
Chapter 27	Nanoporous Materials as Supports for Enzyme Immobilization <i>H.H.P. Yiu and P.A. Wright</i>	849
Chapter 28	A Novel Non-surfactant Route to Nanoporous Materials and its Biological Applications <i>Y. Wei and K-Y. Qiu</i>	873