

# Table of Contents

## Preface, Sponsor and Committee

## Chapter 1: Material Science and Chemical Environmental Technologies

<b>Performance Evaluation of Heat Transfer Tube and Tube Sheet Rubber Ring in Distillation Desalination</b> Y.H. Liu, Y. Li, Q.C. Lv, K. Xu and L.P. Zhang	3
<b>Thermooxidative Aging Studies on Silicone Rubber and Lifetime Prediction</b> Y.S. Wang, S.S. Jiang and Y.P. Liu	11
<b>Study of Nano-Hydroxyapatite Adsorption in Heavy Metals</b> J.X. Liu, F. Wang, J.X. Shen, Q.H. Lai and Y. Gai	15
<b>Research on Drying Sludge in Brick Making</b> Y. Wang, F. Wang and M. Ji	19
<b>Study and Analysis of the Impacts and Mechanisms of Intermittent Aeration and Movement Degree of Membrane on the Permeate Flux in a Submerged Membrane System</b> X.L. Lei, L. Li, J. Wan and D.K. He	26
<b>Design of a Novel Hollow-Fiber Membrane Contactor for Carbon Dioxide Absorption</b> H. Gong and J.S. Shen	33
<b>Dual-Frequency Ultrasonic Desorption of Pb<sup>2+</sup> from Coconut Shell Activated Carbon</b> J. Zhou and S.F. Wang	38
<b>Research Progress and Development of Expanded Graphite in Water Pollution Control</b> L.X. Li, Z.W. Song, X.K. Shi, W.Z. Kang, H.J. Zhang and H.L. Zhao	43
<b>Preparation and Characterization of Stearic Acid-Modified Iron-Doped TiO<sub>2</sub> Nanoparticles</b> J.L. Zuo, H.Q. Tang, Q. Nie, B. Li and Z.W. Liu	47
<b>Study on Electrodeposition Recovery of Cupric and Zinc in Complexation Ultrafiltration Process</b> Y.X. Zhou and K.J. Yan	52
<b>Ballasted Flocculation of Micro-Sand/Magnetic Powder for Landscape Water Treatment</b> Z.Y. Su, X. Li, Y.L. Yang, Z.W. Zhou and Y. Wu	56
<b>High Efficiency Aluminum Coagulant Recovery from Drinking Water Treatment Plant Sludge by Using Ultrasound Assisted Acidification</b> L. Yang, Y.X. Han and D.T. Wang	60
<b>Kinetic Analysis of Catalytic Reductive Dechlorination of Chlorobenzene in Aqueous Solutions</b> H.Y. Zhou, S. Liang, S.S. Zeng and S.J. Lei	65
<b>Chemical Reduction of Nitrate in Aqueous Solution by Iron Powder</b> H.Y. Zhou, S. Liang, S.S. Zeng and S.J. Lei	71
<b>Preparation of Photocatalyst of Nano-TiO<sub>2</sub> Coating on SiO<sub>2</sub> Carrier and its Photocatalytic Activity</b> Y.L. Liu, C.C. Cao and J. Chen	77
<b>TiO<sub>2</sub> Photo-Catalysis Degradation of COD and Chroma for Chemical Wastewater Treatment</b> C.Y. Hu, J.L. Zuo and H.J. Xie	82
<b>A Critical Analysis of MIEX Application in Water Treatment</b> J.B. Wang and M.L. Ni	86
<b>Continuous Flow Microbial Fuel Cell for Organic Wastewater Treatment</b> W.P. Liu and X.F. Yin	92
<b>Research and Development of a New Nano-Attapulgit PVF Suspension Carrier in Wastewater Treatment</b> J. Li, T. Hu and Y. Wang	96
<b>Phenolic Wastewater Treatment by Microwave-Induced H<sub>2</sub>O<sub>2</sub>-Fe (III)-Cu (II)/<math>\gamma</math>-Al<sub>2</sub>O<sub>3</sub> Catalytic Oxidation Process</b> J. Zhang, W.Q. Pan, T. Zheng and P. Wang	101

<b>Sorption of Cr(VI) from Wastewater Using Modified Chitosan</b> Y.Q. He, T. Zheng, L.L. Hao and P. Wang	106
<b>Performance and Influencing Factors of Phosphorus Removal in Two BAFs with Artificial Crystal Seed Media</b> J.F. Meng, L.P. Qiu, J.B. Wang, K. Huang, D. Wang and S.B. Zhang	112
<b>Performance of Polluted Source Water Treatment by Biological Aerated Filter (BAF) with Zeolite, Activated Carbon and Anthracite Media</b> D. Wang, L.P. Qiu, C.H. Guo and Q. Liu	117
<b>Diethyl Phthalate Esters Wastewater Treatment by Fenton Reagent / Fly Ash Combined Process</b> L.P. Wang, X.Y. Li and X.M. Li	122
<b>Characteristics of Emitted Odor and Discharged Condensate Water of Sludge Thermal Drying Project in Shenzhen Nanshan Thermal Power Plant</b> Y. Wang, F. Wang and M. Ji	127
<b>Research on Methods of Treatment of S-Triazine Wastewater by UAOPs Enhanced METs</b> T.L. Song, X.N. Yi, Z.Q. Li and X. Jin	133

## Chapter 2: Biomaterials and Biotechnology

<b>Enhanced Anaerobic Digestion of Sewage Sludge by Addition of Food Waste</b> L. Han, R.Y. Li and M. Ji	139
<b>Suspended Carrier Used in Municipal Wastewater Treatment</b> T.Y. Huang, R. Wang, W. Wu and F. Liu	143
<b>Influential Factors of the Rapid Startup of Nitrosation at Ambient Temperature in SBR for Domestic Sewage</b> D. Wu, D. Li, X.X. Tao, H.P. Zeng and J. Zhang	151
<b>Start-Up of ANAMMOX Bio-Filter for Domestic Secondary Effluent in Ambient Temperature</b> D. Wu, D. Li, W.N. Gao, H.P. Zeng and J. Zhang	161
<b>Eutrophication Regulation and Control by Combination of Microorganism Agents and Aquatic Plants for Urban Ecological Village Landscape Water</b> Z.Z. Yang, M.D. Liu, J.G. Cao and H. Zhang	168
<b>Hydrogen Production from Cornstalk with Different Pretreatment Methods by Anaerobic Fermentation</b> X.Y. Liu, R.Y. Li, M. Ji, D. Liu and Y.M. Cai	173
<b>Performances of Dominant Thermophilic Cellulolytic Bacteria for the Bio-Drying</b> Y.L. Tang, J.L. Zhang, L.Y. Wang, J. Yu, J. Liu and J.X. Fu	178
<b>Acclimation of Granules when Treating Actual Coking Wastewater: Continuous <i>versus</i> Intermittent Oxygenation</b> C.J. Dong, H.Y. Lu and Y.Q. Sun	182
<b>Nitrogen and Phosphorus Removal of Modified A<sup>2</sup>/O Process on Low-Carbon Domestic Sewage under Low Temperature</b> S.M. Li, G.S. Du and F.B. Tang	187
<b>Application of CYYF Whole Process Deodorization in Jizhuangzi Wastewater Treatment Plant</b> L. Wu, W.L. Gao and B.Y. Liu	192
<b>Microbial Community Dynamics and Nutrient Removal Performances in A<sup>2</sup>O System Using Ultrasonic-Disintegrated Sludge Supernatant as Internal Carbon Source</b> Y.L. Liu, Y.X. Yuan and M.A. Du	196
<b>Modeling and Simulation of Pollutants Removal in the Modified Oxidation Ditch</b> F.K. Su, J.J. Yu, L.P. Sun, S.P. Wang and J.F. Zheng	201
<b>Characteristics of Start-Up Period in Biological Filters with Multiple Compounded Filling for Treating Low Concentration Domestic Sewage</b> L.T. Pan, N.Y. Zhang, K. Wu and W.L. Wang	206
<b>Study on Nutrient Removal Performance and Biological Community Structure in Hybrid Biofilm Reactor</b> L. Zhou, G. Li, H.S. Shin, L.L. Jiang, G.F. Fang, L.Z. Xing and T. Li	213

<b>Research on the Start-Up of Anaerobic Ammonia Oxidation and the Influence Factors Experiment</b>	
Y.F. Li and W.J. Zhang	221
<b>VFAs Production Potential of Brewery Industry Wastewater and Starch Wastewater</b>	
H. Liu, L. Xie, Y.G. Chen and Q. Zhou	225
<b>Effect of Carbon Nitrogen Ratio on Simultaneous Nitrification and Denitrification via Nitrite Technology in Sequencing Batch Biofilm Reactor and the Process Control</b>	
H.W. Zhao, K.F. Zhang, H.W. Rong, C.S. Zhang and Z.W. Yang	232
<b>Microbial Community Analysis in Bio-Filter Bed of Iron and Manganese Removal Treating High Iron, Manganese and Ammonia Nitrogen Groundwater</b>	
X.R. Kang and Y.L. Liu	238
<b>Isolation and Characterization of a Strain of <i>Acidithiobacillus ferrooxidans</i></b>	
J.F. Xiao, S.Y. Qin, P. Huang, L.N. Guo and Y.C. Chen	242
<b>Research of Biological Phase in Contact Oxidation Pond for Jeans Washing Wastewater Biochemical Treatment</b>	
Z.B. Ding, Z. Lu and C. Zhang	247
<b>Influence of Uniform Electric Field in Bioremediation of Oil-Contaminated Soils</b>	
J.L. Xu, D.D. Sun, T.L. Huang and L.F. Han	253
<b>Comparative Bioremediation of Oil Contaminated Soil by Natural Attenuation, Biostimulation and Bioaugmentation</b>	
J.L. Xu, J. Zhang, T.L. Huang and A.L. Xi	258
<b>Effect of pH Value on Nitrogen and Phosphorus Removal in Biochemical Reactor</b>	
H.W. Rong, M.X. Lin, K.F. Zhang, C.S. Zhang, H.N. Xue and M.J. Luo	263
<b>Mixotrophic Cultivation of <i>Scenedesmus</i> sp. as Biodiesel Feedstock</b>	
J.H. Wang, H.Z. Yang and F. Wang	268
<b>Study on Operating Principle and Application of an Advanced Integrated Processing Technology - Air Lift Bioreactor (ALB) for Nitrogen and Phosphorus Removal</b>	
X.B. Liu and X.L. Lei	274
<b>Start-Up of Denitrifying Dephosphatation with Nitrite as Electron Acceptor and Microbial Community Analysis</b>	
C.S. Zhang, J.H. Tang, K.F. Zhang, H.W. Rong and J.M. He	280
<b>COD Removal from Actual Coking Wastewater in a Granular Bio-Film Reactor</b>	
C.J. Dong, Z.Y. Geng and M.R. Feng	286
<b>Study on Technology of Anaerobic-SBR Process for Raw Wastewater Treatment</b>	
J.L. Zuo, Z.W. Liu, H.Q. Tang and B. Li	291
<b>Improvement of Operational Performance of MBR with the Emphasis on Enhanced N and P Removal by Modification in Design</b>	
K.H. Zhang and B.Z. Wang	296
<b>Effect of MLSS on Nitrosation Denitrifying Phosphorus Removal System</b>	
L.C. Zhang, Q. Liu, Y. Lan and Y. Yu	303
<b>Study on the Combination of Fixed Bed and Moving Bed Biofilm Reactor for Papermaking Terminal Wastewater Treatment</b>	
Z.Z. Yang, Z.M. Yang, J.G. Cao, Y.Y. Jia and J.X. Xu	309
<b>Detection and Analysis of Intracellular Polymers Stored by Polyphosphate-Accumulating Microorganisms</b>	
Y.H. Ge, L. Zhao and Y. Zhou	314
<b>Treatment of Textile Wastewater Using Facultative Contact Reactor-Biological Contact Oxidation and Ozone Biological Aerated Filter</b>	
J.Q. Cui, X.J. Wang and X.L. Lin	318
<b>Study of Advanced Technologies of METs for Herbicides Wastewater Treatment with High Salinity</b>	
T.L. Song, X.N. Yi, Z.Q. Li and X. Jin	326
<b>Study on Treatment of Odor Containing H<sub>2</sub>S and NH<sub>3</sub> by Industrial Scale Bio-Trickling Filters</b>	
Y.Q. Chen, J.W. Wu, W.F. Cai and Y. Zhong	330

### **Chapter 3: Environmental Science and Engineering, Water Engineering and Management**

<b>Variation of Disinfection By-Products Formation Potential Species at Several Stages of Drinking Water Treatment Plants</b> Q. Zhang and B. Liu	337
<b>Study on Valve-Closure Water Hammer in Gravity Pressured Water-Delivery System with Branch Line</b> R. Dong	341
<b>Influences of COD Model Components in ASM2D on Oxygen Mass Transfer Coefficient</b> X.W. Fu, C.M. Lin and Y.P. Guo	347
<b>Deep-Well Seawater Desalination Technology</b> R. Dong	352
<b>Design and Running for a Hospital Wastewater Treatment Project</b> J.L. Yu, Q. Li and S.C. Yan	356
<b>Health Risk Assessment of Disinfection By-Products in the Water Distribution Network in a Southern City of Jiangsu</b> Y. Li, F.E. Zhang, J. Xu and C.F. Chen	360
<b>Study on Treatment of Cellulose Fuel Ethanol Wastewater and Application</b> Y.B. Zhao	365
<b>Comparative Research on Treating Vehicle-Washing Wastewater with Two and Three-Dimensional Electrode Method</b> H.L. Guan	370
<b>Effect of Water Body Morphology on Phytoplankton Biomass and Species Composition</b> Y.H. Zhang, F.P. Li, H.H. Zhao and H.P. Zhang	375
<b>Strategic Research on Urban Stormwater Resource Utilization in the Resource Water Shortage Cities - Base on Stormwater Data of 58 Resource Water Shortage Cities</b> C.F. Huang and J. Zhou	380
<b>Study on Arsenic Removal in the Simulating Constructed Wetland</b> J.Y. Zhao and H.M. Guo	386
<b>Research on Effects of Environment Policies and Systems on Environmental Protection Industry</b> Y.H. Zhao, L. Xin, N. Sun and X. Chen	390
<b>Environmental Risk Assessment on Chlorination By-Products in Discharge Water from Once-Through Seawater Cooling System</b> J. Liu, X.Y. Zeng, Y. Wang and X.H. Pan	397
<b>Water Quality Reliability Analysis of Water Distribution Systems Based on Monte-Carlo Simulation</b> X. Li, Y. Sun, X. Han and X.H. Zhao	401
<b>Discussion on the Harm and Protection of Water Hammer of Cavities Collapsing during Long Distance Water Transfer Project</b> L. Zhao and Y.D. Lu	407
<b>Study on OC and EC Characteristics of Atmospheric Particulate Matter in Harbin</b> L.K. Huang	412
<b>Study on Concentration Characteristics of TSP, PM<sub>10</sub> and PM<sub>2.5</sub> in Harbin</b> L.K. Huang	416
<b>Study on Pollution Status of Nitrogen and Phosphorus in Typical Reservoirs in Liaoning Province</b> C.X. Mi	420
<b>Features on Head Loss of Flocculation Tank Installed with Small Mesh Grid</b> H.Y. Ai, M.M. Wang, L. Han, Burigude, B. Wei and Y.Q. Jia	424
<b>A Conceptual Tank Model for Urban Storm Water System</b> X.P. Liu	430
<b>2-D and 3-D Numerical Simulation of High-Sludge Setting Tank in Water Treatment Plant</b> X.L. Lei, J. Wan, K.P. Chen, B. Tao and X.T. Fang	434

<b>Simulation Research of Effect of Salinity Wastewater Discharging Ways on Range of Salt Content Rise Nearby the Outfall</b>	
Y. Chen, L. Li, B.L. Yang and C.L. Li	440
<b>SWMM-Based Urban Storm Sewer System Modeling</b>	
X.P. Liu	444
<b>Study on Removal of COD in Horizontal Subsurface Flow Constructed Wetlands by Regression Equation</b>	
P. Zheng, Z.D. Deng and Z.B. Ding	449
<b>Effect of Raw Water Characteristics on Sludge Reuse Process for Synthetic Low Temperature and Low Turbidity Water Treatment</b>	
Z.W. Zhou, Y.L. Yang, X. Li and Z.Y. Su	453
<b>Effect of Turning on Moisture Content in Sewage Sludge Composting</b>	
N. Hong, J. Chen, X.H. Zhang and T.B. Chen	457
<b>Comparative Analysis of Environmental Impacts between Dregs Disposal and Conventional Cement Production by Life Cycle Assessment (LCA)</b>	
K. Fu, X.Y. Ren, J.Q. Lin and P. Yue	461
<b>Pretreatment Process of Nanofiltration for Silting Density Index Reduction in Drinking Water Treatment System</b>	
L. Wang, Y.C. Li, H. Zhao, Z.H. Zhang, B. Zhao, H.W. Zhang and L.X. Cui	467
<b>Study on Chemical Pre-Oxidation Enhanced Coagulation for Micro-Polluted Raw Water Treatment</b>	
H. Zhao, L. Wang, Z.H. Zhang, B. Zhao, H.W. Zhang, H. Zhang and R. Ma	472