7th International Conference on Environmental Science and Technology

(ICEST 2014)

Houston, Texas, USA
9-13 June 2014

Volume 1 of 2

Editors:

George A. Sorial
Jihua Hong

# TABLE OF CONTENTS

## INTRODUCTION
George A. Sorial and Jihua Hong ................................................................. 1

## PLENARY SESSION
Aerobic Sludge Granulation: Current Perspectives, Advances and the Way Forward. Kuan-Yeow Show, Duu-Jong Lee, Yan Yuegen, and Joo-Hwa Tay ................................................................. 4
Hydraulic Fracturing, Water Conservation and Environmental Protection. Davis L. Ford ................. 10
Global Climate Change -The Quantifiable Sustainability Challenge. Frank Princiotta ................. 11
Development of a PV-Powered Electrochemical Wastewater Treatment System. Michael R. Hoffmann, Kangwoo Cho, Clement Cid, and Qu Yan ................................................................. 12

## WATER POLLUTION AND WATER QUALITY

### Rivers, Lakes and Estuary Systems
New Findings on Sources of Orthophosphate in Upper Malibu Creek Watershed: A Geologic Source Primarily? Barry Hibbs, Kathleen Kuepper, and Yola Wong K ................................................................. 15
Evaluation on Eco-security of Water Resources and Regulating & Control Mode of Environmental Planning for Lake Basin --- A Case of Taping Lake, Anhui Province, China. Xiangrong Wang... 16
Key Issues for River Regulation: An Illustration from Dianchi Inflowing Rivers in China. Baoxue Zhou, Ke Huang, JinHua Li, Jing Bai, ZhuJing Jin, FengLe Yang ................................................................. 17

### Watershed Management
Trace Element Mobilization by Oxidation via Anthropogenic Nitrate in Southern California Watershed. Yola Wong K, Barry J. Hibbs ................................................................. 18
Sustainable or Green Water Management Practices by South African Mining Companies. Mbofho Stanley Liphadzi & Andre Vermaak ................................................................. 19

### Water Resources and Assessment
Crude Palm Oil Production: Environmental Impacts Assessment of Freshwater Consumption Using LCA Approach. Zainura Zainon Noor, Noor Salehan M. Sabli, Che Hafizan Che Ahmad ........... 20
The ART In-Well Technologies, Re-Engineering Existing Remedies to Reduce Time, Costs & Risks. Mohamed Odah .................................................................................................................... 21
Environmental Risk Assessment of Caffeine in Parana’s Rivers (Brazil). Maiara C. Perussolo, Isadora Terumi Saruhashi, Pauline Lais Nasatto, Andréa Fernandes, Eliane Carvalho de Vasconcelos, and Cíntia Mara Ribas de Oliveira. ................................................................. 22
Progress on the Research of Flood Routing under the Effect of Seepage in Seasonal Streams. Wu Guizhi, Li ningning and Wu Zhouhu ................................................................. 23
Mass Fluxes of Urban Micropollutants and Integrated Modelling of the River – Groundwater – Interaction in the City of Halle/Germany. Frido Reinstorf, Sebastian Leschik, Andreas Musolf, Gerhard Strauch, Karsten Osenbrueck and Mario Schirmer

Improving Implementation Capacities of Cities by sharing best practices in Urban Water Cycle Services. Kees van Leeuwen

Sustainability of Water Resources of Ho Chi Minh City, Vietnam. N.C. Woo, Minh T. Ngo, Jae M. Lee

Assessment of Groundwater Recharge Using Water-Table Fluctuation Method and Water Balance Model. Sasmita Sahoo, Madan K. Jha

Evaporation Reduction Based Design of Water Ponds surface Areas Using Palm Frond. Ibrahim Elsebaie

Hydraulic Fracturing: A Look at Efficiency and the Environmental Effects of Fracking. Emily C Jackson and David E Dismukes

Groundwater

Correlations between Chlorinated Aliphatic Hydrocarbons and Environmental Variables in a Contaminated Groundwater in Shanghai, China. Lu Qiang, Li Hui, Lin Kuang Fei, and Liu Yong Di

Remediation of Acidic Groundwater Using a Sodium Bicarbonate Injection System, Christina Brown, Paul Marotta, David Wall, Teresa Jordan, and Christina DeJarlais

A Comparative Study of Enhanced Bioremediation Techniques for a BTEX Compound (Toluene) in Contaminated Groundwater. B.K Yadav, Shreejita Basu, Anuj Mathur and Shashi Mathur

Interactions of Arsenic Desorption and Indigenous Bacterial Activity in Shallow Groundwater System. Zuoming Xie, Guangming Ouyang, Xiaoyan Sun, Dong Yang, Yanxin Wang


Residues of Veterinary Antibiotics in Environmental Waters in Central Jianghan Plain, China. Tong Lei, Wang Yanxin, Liu Hui, Li Minjing

Prediction of County-level Contamination Exceeding Rate from Groundwater Sampling Data through Intelligent Data Dependent Modeling. Qing Li, Fengxiang Qiao, Lei Yu


Non-point Sources

Atmospheric Reactive Nitrogen Deposition onto Coastal Regions of China. Xiao Sheng Luo and Xuejun Liu

Nutrient Load Predictions in Streams using LS-SVM and Wavelet-ANN. Raj Mohan Singh

Wastewater Discharge Management

Theoretical Analysis of Pollutant-Mixing Zone for Rivers with Variant Lateral Diffusion Coefficient. 
Zhou-hu Wu, Wen Wu ...............................................................................................................
Effect of Textile Effluent on Germination and Growth of Gram. Monika Chandel, Tank Shantilal K.

In-Situ Measurement and Monitoring

Monitoring of Cyanotoxin and T&O Compound Producing Cyanobacteria in Drinking Water Reservoirs using qPCR Method. Tsair-Fuh Lin, Yi-Ting Chiu, Hung-Kai Yen
A Novel Flow-cell for in situ Spectrophotometric Detection of Contaminants in Water Samples. Emanuele Reggiani, Richard Bellerby, Kai Sørensen

Drinking Water

Sustaining Safe Drinking Water Supply in Developing Countries: Lebanon Case Study. Mey Jurdi..
Biological Desalination of Seawater Using Marin Microalga Scenedesmus sp. and Chlorella vulgaris. E. Sahlé-Demessie, Ashraf Aly Hassan, Amy Zhao...........................................................
Analysis for Atmospheric Water for Drinking. Qing XIA and Shu GENG ............................................
Source Water Protection for Drinking Water Production: A European River Memorandum. Peter G Stoks and Ina Brüning .........................................................
Community Water Supply and Treatment Project in Cameroon: Chlorinator Design and Development. Kristen Chorney and Sam Miller......................................................
Vulnerability Assessment of Small Community Water Systems in Puerto Rico. Adail Alicea-Martínez, Rafael A. Rios .................................................................

Water Quality Assessment/Management

Improving Surface Water Quality of Agricultural Watershed using Planned Intervention Microwatershed Approach. Durga D. Poudel. .................................................................
An Analytical Model for Pollutant Transport in the Rosetta Branch of the Nile River, Egypt. Mohamed Mostafa and Robert W. Peters. .........................................................
Polychlorinated Biphenyls (PCBs) in Industrial and Municipal Effluents: Concentrations, Congenzer Profiles, and Partitioning onto Particulates. Aparna Balasubramani, Hanadi S. Rifai, and Nathan L. Howell. ..........................................................................................
Quantifying E. coli Discharge from Onsite Sewage Facilities in the Dickinson Bayou Watershed, Texas. Derek Morrison, Clyde Munster, R. Karthikeyan, John Jacob.............................
Impact of Soil Type on the Salt Accumulation Due To Recycled Water Irrigation. Muhammad Muhitur Rahman, Dharma Hagare, Basant Maheshwari and Peter Dillon...........................
Diversity of Aquatic Flora in Relation to Water Quality in Kolleru Lake, Andhra Pradesh, India. P. Brahmagi Rao .................................................................
Heavy Metal Analysis in Catchment and Fish Communities of Mista-Ali Tin Mine Lake, Middle-Belt Nigeria. Jatau-Emeagha, G. L, Wade, J.W.W and Ufodike, E.B.C ........................................
Study on Water Quality Variation during Rainfall Runoff Evolution Process in a City Residential District. Huaien Li, Jiake Li and Zengchao Liu. ........................................................................
Low Cost Autonomous Sensing Platforms for the Direct Determination of Nutrients in Water. 
Deirdre Cogan B, John Cleary, Kamil Jankowski, Dermot Diamond, Mark Bowkett ..................... 120
Technical, Financial and Administrative Capacity Evaluations and Improvement of Small Community Water Systems in Puerto Rico. Adail Alicea-Martínez, Rafael A. Rios ....................... 128

Nitrogen-Phosphorus Wastewater Treatment / Sludge Treatment
Simultaneous Removal of Ammonia and Nitrate by Electrolytic Decomposition as Tertiary Wastewater Treatment. Jing Ding, Qingliang Zhao, Wei Li, and Kun Wang ......................... 134
Enhancement of Anammox Biomass Activity with External Electric Field Application. Sen Qiao, Xin Yin, Jiti Zhou, Yingjun Cheng ................................................................. 140
Anaerobic Oxidation of Ammonium Coupled to Electricity Production in a Microbial Electrolysis Cell. Bo Qu and Bin Fan ................................................................. 146
Effect of Bamboo Biochar on Fertility and Nutrient Leaching of a Sandy Pear Orchard Soil in Southeast China. Lou Liping, George A. Sorial ................................................................. 147

Sludge Treatment
Changes of Bacterial Community Diversity in Oxic-Settling-Anaerobic (OSA) Activated Sludge Process. Lianpeng Sun, Jinxin Tan, Xiaoyu Yu, and Lili Chen....................................................... 148
Compost Bioremediation of Oil Sludge by Using Different Manures under Laboratory Conditions. Ubani O., Atagana H. I. and Thantsha M. S. ................................................................. 156
Identification and Characterization of Oil Sludge Degrading Bacteria Isolated from Compost Ubani O., Atagana H. I. and Thantsha M. S. and Adeleke R ................................................................. 157
Effect of Acid Treatment on Sewage Sludge Derived Carbons for Catalytic Wet Peroxide Oxidation. Yang Yu, Huangzhao Wei, Yamin Wang, Li Yu, Wentiian Jiang, Songbo He, Chenglin Sun .......... 158
Appraisal of Certain Anaerobic Digestion Studies. Ram Pal Singh and P. Pal ......................................... 159

Municipal Wastewater Biotreatment
Life Cycle Assessment of a Municipal Wastewater Treatment Plant- A Case Study in Kinmen, Taiwan. Huan-Yu Shiu and Pei-Te Chiueh ................................................................. 173
Evaluation of Bacteria and Metals in Sewage Dump Site in Jos-Nigeria. Yakubu, Juliet M, Agarry, Olaitan O ................................................................. 174
The Effect of EPS on Mixed Liquor Characteristics and Membrane Fouling in UCT~MBR Process. Qiongyuan Dong, Xiaonan Feng, Tao Tao, Lin Chen, Junhong Zhou and Guohong Yang ....... 175

Industrial Wastewater Biotreatment
Biogenic Manganese Oxide Generation and Mn(II) Removal by Manganese Oxidizing Bacteria using Response Surface Methodology. Narsi R. Bishnoi and Shalu. ......................... 188

Reduction of Vinasse Soybean Pollution Using Different Strains of the Genus Cupriavidus Nector. Elizabed dos Santos Costa Alexandre, Luiz Gustavo Lacerda, Marco Aurélio da Silva Carvalho Filho .............................................................. 194

The Application of Nitrification-Denitrification Process to Enhance Treatment Efficiency in Livestock Wastewater. B. S. Lee, S. S. Ton ........................................................................................................... 195

Refinery Wastewater Treatment: A Challenge towards Zero Liquid Discharge. Farid Benyahia…… 200

Examining Process Wastewater Treatment and Grey Water Footprint of Biofuel Produced via Fast Pyrolysis and Hydrotreating. May Wu. ................................................................................................. 201


Effects of Zinc on Germination, Seedling Growth and Nutrient Contact of Rauvolfia Serpentine. Milvee K. Vyas, Kailash Patel, Parimal Patel ............................... 203

Adsorption/Desorption for Wastewater Treatment

Synthesis and Characterization of Cu(II) Imprinted Nanoparticles Based on Polyethyleneimine for Selective Recognition of Copper. Jin jia, Shengji Luan, and Aihua Wu. ........................... 206

Adsorption of Pb(II) on Nanoscale Iron-Oxide Doped Granular Activated Carbon. Zhihua Xu, Daofang Zhang and Weifang Chen ................................................................. 207


Removal of Dichlofenac Sodium and Carbamazepine from Water by Regenerable Granular Carbon Nanotubes/Alumina Adsorbents. Shubo Deng, Haoran Wei, Bin Wang, Jun Huang, Gang Yu ... 225

Fluoride Biosorption with Modified Eichhornia crassipes and Typha Elephantina. Suvendu Manna, Prosenjit Saha, Debasis Roy, Basudam Adhikari, Ramkrishna Sen............................. 226

Removal of Chromium (VI) by Ethyl Cellulose Treated with Polyaniline. Bin Qiu, Zhanhu Guo, Cuixia Xu, Sayying Wei ........................................................................... 227


Characterization and Absorption Behavior of Ammonia and Methylene Blue by Biochar Derived from Common Reed. Lun Lu, Fengmin Li, and Zhi Liang. ................................. 233

Adsorption of Nicotine on Magnetically Separable Ordered Mesoporous Carbons in Aqueous Solution. Hsin-Yu Lin, Yu-hsuan Liou, and Pei-Te Chiueh. .............................. 234

Cleaning Metal Contaminated Water Using Pyrolyzed Banana Peels. Bluýé Demessie, E. Sahle-Demessie, George A. Sorial ............................................................................ 235

Ion Exchange/Adsorption/Desorption To Recover Nutrients from Conventional and Segregated Streams of Domestic Wastewater for Further Use as Fertilizer. Bilsen Beiler Baykal .............. 236

Elucidating the Role of Phenolics in the Effectiveness of DOM Adsorption on Activated Carbon. Liang Yan and George. A. Sorial ................................................................. 242


Biosorption of Heavy Metals from Aqueous Solution by Bacteria Staphylococcus aureus & Bacillus spp. Patél Ritixa, Tank Shantilal ................................................................. 251
Adsorption of Uranium, Strontium and Cesium in Radioactive Waste by Modified Attapulgite. Jie Yang, Na Guo, Jingsheng Wang, Haiyang Chen................................................................. 255

**Physico-chemical Wastewater Treatment**

Bioinspired Gradient-structure Fibers for Water Collection at Micro- and Nano-level. Yongmei Zheng......................................................................................................................... 260
Unconventional Oil Contaminated Industrial Effluent Treatment by Catalyzed Hydrogen Peroxide and Sodium Persulfate. Niina Dulova, Eneliis Kattel, Marika Viisimaa, Anna Goi, Deniss Klauson, Marina Trapido, Alar Saluste, and Taavo Tenno ................................................................. 262
Efficient Dechlorination of 2,4-Dichlorophenol in An Aqueous Media Using a Pd/TiO₂NTs/Ti Cathode. Jiangkun Du and Jianguo Bao................................................................. 269
Treatability of Aqueous Alcohol Ethoxylates Solution by Electrococagulation and Coagulation. Çisem Ecer, Işık Kabdaşlı, Olcay Tünay, Tuğba Ölmez Hancı ......................................................... 279
Removal of Chromium Cr(VI) From Wastewater Using Saudi Activated Bentonite. Saad Al-Shahrani ..................................................................................................................... 280
Chromium(VI) Removal by a Fe-Mn Binary Oxide with and without H₂O₂. Si-Hyun Do and Yong-Jae Kwon..................................................................................................................... 281
Electrochemical Advanced Oxidation Process for Optimal Decontamination of Phenolic Wastewater Containing Inorganic Species. Nihu Dalhat Muazu, Gulraiz Khan¹ and Nabil Jarrah ................................................................. 282

**Reactions and Degradation of Wastewater Contaminants**

Continuous Treatments of Estrogens through Polymerization and Regeneration of Electrolytic Cells. Vo Huu Cong, Sota Iwaya and Yutaka Sakakibara ......................................................... 283

**Nanotechnology Applications**

Effect of Freshwater Relevant Conditions on the Agglomeration of Titanium Dioxide Nanoparticles, Emel TOPUZ, Laura SIGG and Ilhan TALINLI .................................................................. 292
Using Persulfate Activated by an Emplaced Zone of Iron Nanoparticles to Treat a Trichloroethylene Source Zone. Mohammed A. Al-Shamsi, Neil R. Thomson......................................................................... 293
Mathematical Simulation of Nano Sized Aluminum Phages to Purify Water. V.K. Katiyar and Rohit Agarwal ............................................................................................................. 294
Interaction of Bacterial Biofilms with Engineered Nanoparticles, Hengye Jing, George Sorial, Ashraf Aly Hassan, E. Sahle Demessie, and Christina Bennett-Stamper ............................................................................................................. 295
Environmental Science & Technology 2014 Vol. 1

Evaluating Stability and Structural Changes of Nanocomposites and Developing Methods to Evaluate the Release of Nanoparticles. Amy Zhao, E. Sahle-Demessie, Heidi Grecsek …………….. 296
Preparation of a Novel Magnetic Nanoparticle Adsorbent and Its Adsorption Behavior of Arsenic in Groundwater. Shuqiong Kong, Yanxin Wang, Qinhong Hu and Abass K. Olusegun…………….. 297
Surface Chemistry of Iron-Impregnated Mineral Oxides and Catalytic Activity for Oxidation of Aqueous Contaminants. Yue Li, Weile Yan. ………………………………………………………………………….. 298
Electrocatalytic Characteristics of Hybrid MWCNTs and GNPs with Different Surface Morphology. Yanping Cui, Yu Zhu, Yaohui Wang, Yanyan Qin……………………………………………………….. 299
Visible-Light Responsive Photocatalytic Fuel Cell Based for Simultaneous Wastewater Treatment and Electricity Generation. Baoxue Zhou, Jing Bai, Jinhua Li and Suqin Jiang…………….. 303

Water Purification Technologies

Low Grade Heat: An Underused Energy Source for Desalination Using Membrane Distillation. Farid Benyahia. ………………………………………………………………………………………………… 304

AIR POLLUTION AND AIR QUALITY CONTROL

Aerosol


Air Quality Assessment

PLS-Path Model Analysis for Understanding the Cause-Effect Relationship of Ground Level Ozone Concentration. A. K. Gorai, F. Tuluri, and P. B. Tchounwou…………………………………………………………………………………………………………………… 313
Intra-urban Spatial and Temporal Comparison of Fine and Quasi-Ultrafine Particles in Houston TX. Yuncan Guo, Masoud Afshar, and Inkyu Han………………… 314
Non-Parametric Regionalized Model Performance Evaluation of PM2.5 Chemical Transport Models. Jeanette Reyes and Marc Serre. ……………………………………………………………….. 315
On-line Measurement of Aerosol from Desulfurization Flue Gas Based on Aerosol Mass Spectrometry. Pan Danping, Guo Yanpeng, Bao Jingjing, Yang Linjun……………………………………… 316
Metabolic Characteristics and Community Diversities of Airborne Microbes at Different Functional Regions in Qingdao in Winter. WU Dengdeng, and SONG Zhiwe. ……………………………………………………………………………………… 317
Source Identification of Atmospheric Particulate Matter Using Radiocarbon and Molecular Source Markers. Hyun-Min Hwang, Bruce Buchholz, Thomas Young ………………………………………….. 318
Air Pollutant Watch List of Texas – Port Arthur Example. Tara Capobianco, Ross Jones, and Darrell McCant……………………………………………………………………………………… 319
Occupational Exposure to Chemicals in Nail Salons. Tasneem Islam, Margaret Back, Katherine Chin, Morgan Dashko, Alisa Feinswig, Aliza Heeren, Ben Krause, Molly Pearlman, Maia Rodriguez-Semp, Madeline Rosenberg, Emily Scharf, Shanlai Shangguan, Emily Weisfeld, Brett Aronson, Joseph Allen, Matt Fragala, Theodore Myatt, James Stewart, Laura Goldin……….. 321
Source Apportionment of Indoor PM$_{2.5}$ at Santiago, Chile. Héctor Jorquera and Francisco Barraza. …………………………………………………………………………………………………………… 322
Atmospheric Carcinogenic Polycyclic Aromatic Hydrocarbons in Houston, TX, USA: Pine Needles as Passive Samplers. Sharmila Bhandari, Hyun-Min Hwang
Effectiveness of Low Emission Zones: Analysis of the Changes in Fine Dust Concentrations (PM$_{10}$) in 19 German Cities. Peter Morfeld, David A. Groneberg, and Michael Spallek
A Comparative Study of Economic Evaluation Methods on PM2.5 Health Impact. Hao Yin, Linyu Xu
Impacts of Vehicle to Infrastructure Communication Technologies on Vehicle Emissions. Qing Li, Fengxiang Qiao, Lei Yu
A GIS-Based Spatial Analysis of Air Pollution in Nanning. Bo Wei, Fengxiang Qiao, Zhihu Huang, Juan Ma, Lei Yu
Vehicle Emission Analysis at Restaurant Drive-Through Facilities with Different Configurations. Keziah Hill, Mehdi Azimi, Fengxiang Qiao, and Lei Yu
Prediction of Pollutant Concentration through the Consolidation of Multiple Air Dispersion Models Using a Superensemble. Shou-Yuh Chang and Frank Gronwald
Effects of Quarry Operation Processes to Air Quality in Istanbul Cebeci Zone According to PM$_{10}$ Emissions, Kadir Alp, İsmail TORÖZ, Edip Ayşar, Ezgi Erdoğan, Banu Öziem, İlker Akmuza
Scenario Modeling as A Tool for Multi-Pollutant Policy Development in California. Joshua Cunningham, Nicole Dolney
The Use of Locally Manufactured Activated Carbon Filters for Indoor Air Quality Improvement. Abdullah M. Al-Qahtani, Waleed H. Al-Rwaily, Jamal Al-Radaideh

Transport of Pollutants
Source Apportionment of Selected Heavy Metals in Aerosol Samples Collected from Sebele, Botswana. Alfred S. Likuku, Gilbert K. Gaboutloeloe and Khumoetsile B. Mmolawa
Study on an Ozone Episode over the Pearl River Delta, China. Jin SHEN, Hao CHEN, XueSong WANG, JinFeng LI, Wei LV, YuanHang ZHANG, Luan Yuan, Liuju ZHONG

Waste Gas Control Techniques
Styrene Degradation by Biotrickling Filters with Single and Mixed Packings. Ailing Ren, Huanhuan He, Bin Guo and Xi Lv
Treatment of Mixture of n-Hexane, Benzene, and Methanol in an Integrated Scheme of Cyclic Adsorption/Desorption Beds and Trickle Bed Air Biofilter. Abderrahman Zehraoui and George A. Sorial
Removal of Chloroform as a Model Trihalomethane in the Presence of Co Metabolite and / or Surfactant by Using Anaerobic Biotrickling Filter, Bineyam Mezgebe, George Sorial, E. Sahle Demessie and Ashraf Aly Hassan

Air Pollutant Monitoring
Wrestling with Fenceline Fugitives: Nuisance Air Monitoring. Ben Bolton, John Siler, and Rick Bolton
Characterization of PM$_{2.5}$-bound Nitrated and Oxygenated PAHs in Diesel Exhaust Particles. Meiling Hou, Jianjun LI, Wanglai Cen, Huaqiang Yin, Yangjun Wang
Daily and Seasonal Variations of Volatile Organic Compounds and Carbonyls in the Atmosphere of Monterrey, Mexico. H. Lizette Menchaca and Alberto Mendoza
Characteristics of Greenhouse Gas Emission in the Yellow River Delta Wetland. Qingfeng Chen, Junjian Ma, Hongyan Yang and Wenguo Dong
A Monitoring Study on Fine and Coarse Particulate Matter at Construction Sites. Harmonie A. Hawley, James Miller, and Brian O’Dell .......................................................... 386
2012 Air Quality in Alberta Oil Sands Community of Fort McKay versus Canadian Urban Locations. Warren Kindzierski and Md. Aynul Bari .......................................................... 392
Development of Vehicle Emission Database for Air Quality Analyses. Po-Hsien Kuo, Fengxiang Qiao, Lei Yu .......................................................... 393
Vehicle Emission Estimation while Picking up Passengers at Airport Terminals. Larry Hill, Fengxiang Qiao, Keziah Hill, Lei Yu .......................................................... 398
Effective Approaches for Public Communication of Air Quality Results from Two Environmental Dredging Projects. Scott Manchester and Matt Traister .................................................. 403

**Hazardous Gas Biofiltration / Catalysts for Reducing Emission**

Methane Slip Emission Treatment by Pt/Pd/Al₂O₃ Washcoated Monolith with Spatial Concentration Measurements. Gregory Bugosh, Vencon Easterling, and Michael Harold .................................................. 404
Predicting SO₂ Oxidation over a Pt/Al₂O₃ Diesel Oxidation Catalyst. Tayebh Hamzehlouyan, Chaitanya S. Sampara, and William S. Epling .................................................. 405
Why Silver/Mesoporous Silica Catalyst is Unique for CO and HCHO Catalytic Oxidation Elimination? Zhenping Qu, Dan Chen and Xiaodong Zhang .................................................. 406

**Fuel Gas DeSOx, DeNOx, and Metal Removal**


**Air Pollution Prevention and Management**

Charactering Air Pollutant Effects Caused by Extra Commuting Time due to Housing Price Factor. Ling Liu, Fengxiang Qiao, Lei Yu .......................................................... 408

**Noise**

Modelling of Road Traffic Noise during Journeys in Mumbai Metropolitan Region, India. Vishal Konbattulwar, Saurav Jain, and Nagendra R. Velaga .................................................. 413

**GLOBAL WARMING AND CLIMATE CHANGE**

**Global Warming and Its Impacts**

Adaptation of Agricultural Sector to the Impacts of Climate Change in Saudi Arabia: Reallocation of Irrigation Water among the Comparative Advantage Crops. Ahmed M. Alabdulekader; Fawzi S. Awad; and Ahmed I. Al-Amoud .................................................. 415
Adaptation of Field Crops to Climate Changes Impact. Tawfik M.M., Thalooth A.T., E. M. Abd El Lateef, B. B. Mekki, Amany , A. Bahr and Magda , H. Mohamed .................................................. 424
Influence of ENSO on Rainfall, Streamflow and Vegetation in Pranhita Catchment, India. Rajashree Vinod Bothale, Yashwant B. Katpatal .................................................. 425
Performance Comparison of Methods for Temporal Precipitation Downsampling in Urban Area: the Kunming Case. Hua Bai, Siyu Zeng, Xin Dong, and Jining Chen .................................................. 432
Better To Save A MW Rather To Generate A MW. Mehboob Alam Khan, Asif Hussain Siddiqui, Abdul Fawad

**Carbon Discharge Reduction**

The Interactions of Rock with CO$_2$ and Brine under CO$_2$ Sequestration Conditions. Y. Soong, L. Zhang, B. H. Howard, S. W. Hedges, R. Warzinski, R. Dilmore, D. J. Soeder, R. T. McClendon, M. L. Gray, I. Haljasmaa and D. Crandall

Bioremediation and Biotransformation of CO$_2$ Using Biocatalyst. Bhagat Chintan, Tank Shantilal K, Bhasar Sunilkumar, Dudhagara Pravin

Space Distribution of Carbon Emissions in China. Mi Hong, Zhang Tiantian, Zhou Wei
# TABLE OF CONTENTS

## LAND (SOIL, SOLID WASTE) POLLUTION AND REMEDIATION

*Contaminants in the Subsurface*

Comparison $^{137}$Cs Vertical Distribution Characteristics of Takizawa Research Forest after Fukushima Accident: A Two-Year Follow-Up Study. Seongjoo Kang, Shimada Yoko, Yasuto Matsui, Minoru Yoneda, Naoya SATTA, Yasutaka FUJITA .................................................. 2
Leaching Comparisons of Selected Mississippi Soils Contaminated with Organic and Inorganic Wood Preservatives. Kevin Ragon, Hamid Borazjani, and Saeed Keshani Langroodi and Susan V. Diehl ........................................................................................................ 8
Design of Waste Pond of an Educational Institute, A. K. Singh ................................. 15
Application of Kalman Filter Induced with Particle Swarm Optimization in Subsurface Contaminant Modeling. Godwin Appiah Assumaning and Shoou-Yuh Chang ............................ 16
Subsurface Contaminant Transport Modeling Using an Adaptive Extended Kalman Filter Scheme. Elvis Addai, Shoou-Yuh Chang .......................................................... 17

*Natural Attenuation of Contaminants*

Creating Biobarrier Using Natural Zeolite Support Surface and Investigation of Endosulfan Treatment. Ayla Bilgin and Selim L. Sanin ................................................................. 18
Biodegradation Kinetics of Endosulfan by Mixed Culture Microorganisms. Ayla Bilgin, Selim Latif Sanin .............................................................................................................. 24

*In-Situ Remediation*

In-Situ Electrokinetic Enhanced Remediation of Hazardous Wastes -- The Absolute Green Remediation. Walter W. Loo .......................................................... 29
Phytotreatment of Polychlorinated Biphenyls Contaminated Soil by Chromolaena Odorata (L) King and Robinson. Raymond Oribe Anyasi, Harrison Ifeanyichuku Atagana ................................ 30

*Solid Waste Management / Polymer Waste Recycling and Management*

Drilling Wastes Management: Case Study in Southern Tunisia. H. Mejri, M. Saidi ................. 31
Use of Biosolids Wastes as Froth Flotation Reagents for Copper Sulphides Concentration. Lorenzo Reyes-Bozo, Alex Godoy-Faúndez, José Luis Salazar, Héctor Valdés-González, Eduardo Vyhmeister, Pablo Higueras, and Ronaldo Herrera-Urbina .................................................. 32
Evaluating Socio-Economic Impacts of Solid Waste Disposal with Analytical Hierarchy Process in Johor, Malaysia. Zainura Zainon Noor, Ahmad Halilu Abba ........................................ 38
Production of Bio-Fertilizer from Plant and Animal Wastes Materials. Itelima Janet, Ogbonna Abigail and Itelima Kalada.............................................................. 39
Recovery of Pt from Leaching Solution of Spent Petroleum Catalyst with Anionic Resin. Pan Pan Sun and Sung Yong Cho, Hyong Il Song, Byoung-Jun Min ................................ 40
The Growth of Lolium perenne (perennial ryegrass) on Coal-generated Fly Ash: Implications on Agriculture. Dan McNally, Julie Crowley-Parmentier, and Brian Whitman .................................. 45
Assessment of the Root Causes of Marine Debris Problem in Lagos State Chibuzo Okoye Daniels, Gillian Glegg, Lynda Rodwell ........................................... 46
On-site / Off-site Remediation

Laboratory Studies on Remediation of Soils Contaminated with Pesticide (Lindane) Using Soil Washing Technique. S. U. Chaudhari, V A Mhaisalkar, Suresh Kumar, A.N. Vaidya............ 50

Landfill / Pemeable Reactive Barriers/

Evapotranspiration Landfill Covers: Feasibility of Its Utilization in Tropical, Medium Rain Climates. Francisco Escobar, Milad Fatehnia, Tarek Abichou. ........................................ 55

Waste Fuel Site Remediation

U.S. EPA Looking at Changes in Oil Spill Response for the Better --- Through First Response Bioremediation by Enzyme Additive, the Safer Non-Toxic Solution. Steven Pedigo .............. 65

Waste Recycling

Quantification of Aromatic Compounds from Catalytic Pyrolysis of Waste Polyethylene and Polypropylene. Zhao lei, Ge liya, Yuan Guoan, Wang Zhonghui, Lin Shengxuan, Li Kaixin, Yow Mun Kay and Wang Jing Yuan .................................................. 66
Estimation of the Compressive Strength of High-Strength Concrete with Recycle Aggregate using Ultrasonic Pulse Velocity Method. Yong-Taeg Lee, Seung-Hun Kim and Seong-Uk Hong .... 67
Nd³⁺ Simulated An³⁺-Contained Radioactive Graphite Immobilization by Self-Propagating High-Temperature Synthesis. Mengjui Chen, Rong Wang, Xirui Lu, Tao Duan ....................... 68

Radioactive Waste and Land Pollution


Phytoremediation of Organic Pollutants

Characteristics of Plant Uptake of Organic Pollutants under Sodium and Potassium Stress. Anfei He, Yang Chen, and G. Daniel Sheng................................................................. 75

ECOSYSTEM ASSESSMENT AND RESTORATION

Ecosystem Assessment

Identification of Slum Areas for Improvement Inputs in Lafia Town, Nasarawa State. Bashayi Obadiab, Barau Daniel ........................................................................................................ 77
Emotions Are the Life Line of HR Capital at Areas in Special Reference to CIL-A Case Study. Gopal Singh, R. N. Tripathi, Pouomi Musib, Pramod Pathak .................................................. 78
Assessment of γ-radiation levels and Associated Dose Rates from Surface Soils in the Eastern Part of Botswana. Alfred S. Likuku, Naregundi Karunakara and Gothatomang Patrick Nthoiba... 79
Study of Ecosystem Oriented Ichthyo-Avian Species Diversity and Their Interaction in the Wetlands of Assam. Sultana Hazarika, and Dr. P.K. Saikia. .................................................. 80
Multi Criteria Analysis For Sustainable and Use Management in Some Areas in Egypt. Mohamed E.S., Belal.A., Saleh,A.M .................................................................................. 86
Study of the Fisheries Potential in Wetland Ecosystem of Brahmaputra Valley Corridor. Sultana Hazarika, and Dr. P.K. Saikia

Evaluation of the Operational Performance of a Rain Garden. Ricardo Prado Abreu Reis, Marina Sangoi De Oliveira Ilha

Using CCA for the Assessment of Vivaciousness Ability of Viable Herbaceous Plants in Gatwala Forest Park, Pakistan. Sheikh Saeed Ahmad

Competition between Medaka and Mosquitofish under Different Temperatures. Jingjing Wang, and Yutaka Sakakibara

The Technology of Artificial Plants and Its Treatment Efficiency for Wastewater. Qingfeng Chen, Junjian Ma, Hongyan Yang and Wenguo Dong

High Temperatures and Low Inflows: A Recipe for Stress in Coastal Ecosystems. Jeffrey R. Wozniak, Niki Ragan

Environmental Impact of Dredging Activities in the Niger Delta Freshwater Ecosystem. Seiyaboh, Enetimi I.

On Development of Hyperbolic Nonlinear Growth Models for Application in Life Sciences and Environmental Studies. Samuel Oluwafemi OYAMAKIN & Angela Unna CHUKWU


Nutrients and Functions of Ecosystems

HAB Case Studies in the Coastal Area of Qingdao Region. Zhiming Yu, Yongquan Yuan, Xiuxian Song, Xihua Cao

Effects of Modified Clay Flocculation of the HAB Organism Prorocentrum Donghaiense on Major Nutrients. Xiuxian Song, Guanyuan Lu and Zhiming Yu

Restoration of Ecosystems / Urban Ecosystems

Energy Demand and Emission Analysis of Lahore Industrial Area Using Leap Model. Sheikh Saeed Ahmad


Challenges and Prospect of Environmental Remediation/Restoration in Niger Delta of Nigeria: The Case of Ogoniland. Igbuku Augustine & Mmom, Prince C.

BIO-ASSESSMENT AND TOXICOLOGY

Human Exposure

Role of NAD(P)H Oxidase in Acrolein-induced Stress. Sedigheh Heydari, Zivar Yousefipour, Mohammad Newaz

Evaluation of the Thyroid Disrupting Effects of Water from Guanting Reservoir, Beijing. Jian Li, Jinheng Wang, Rui Zuo, Haiyang Chen, Yuanzheng Zhai and Jie Yang

Determination of Perfluoroalkyl Substances (PFASs) in Urine by Liquid Chromatography Mass Spectrometry (LC-MS/MS). Ivana Kosarac, Carlton Kubwabo, Kaela Lalonde, Warren G. Foster

Detection of Human Pathogens on Fresh Strawberries. Himabindu Gazula, Sarabjit Bhatti, Fur-chi Chen, Suping Zhou

Effect of Calcium Supplementation on Lead-Induced Genotoxicity and Bioaccumulation in Suckling Wistar Rats. Promy Virk and Wedad Saeed Al-Qahtani
Protective Role of either Ginger or Lipoic Acid in Senile Female Rats. *Nadia Mohamed Said Arafa and Elham H.A. Ali* ................................................................. 164

**Bio-response and Ecotoxicology**

Impact of Palm Oil Mill Effluent on Antioxidative Parameters in Maize (*zea mays l.*). *Christopher Chijindu Osubor, Ehigbai Oikeh* ................................................................. 172

Further Studies on the Ibuprofen Genotoxicity in “Oreochromis niloticus” (Tilapia). *Any Caroline Batista de Andradre, Graziela Sponchiado, Mônica Lúcia Adam, Eliane Carvalho de Vasconcelos, and Cíntia Mara Ribas de Oliveira.* ................................................................. 173

Antibiotics Ecotoxicity in Vibrio fischeri and Desmodesmus Subspicatus. *Eliane Carvalho de Vasconcelos, Carlos Roberto Dalke, Cíntia Mara Ribas de Oliveira* ................................................................. 174

The Toxicity of Five Phthalates on Red Tide Algae Gymnodinium Breve. *Zhi Liang, Fengmin Li and Lun Lu.* ................................................................. 175

Toxicity Assessment of Oil-contaminated Soil Using Luminousbacteria. *Jie Wang, Yi Huang* .... 176

The Impact of Aflatoxin and Ochratoxin on Animal Organs - More Experimental Data. *Main Farraj, Valentin Necula, Nicoleta Taus, Boicu Monica, Adrian Macri, Aurel Mironescu * .... 177

Effects of Pesticide Mixtures on Host-Pathogen Dynamics of the Amphibian Chytrid Fungus. *Julia C. Buck, Trang D. Nguyen, Jenny Urbina, Andrew R. Blaustein, Jessica Hua, Aaron B. Stoler, William R. Brogan, Randall J. Bendis, Rick A. Relyea,* ................................................................. 183

Heavy Metals Analysis and Assessment of Genotoxicity of Industrial Effluents. *Bhavsar Sunilkumar, Tank Shantilal* ................................................................. 184

Bisphenol A Induces Hepatotoxicity and Nephrotoxicity through Oxidative Stress in Rat Model. *Mai A Elobeid and Zeinab K Hassan* ................................................................. 190

**Bioavailability and Bio-accumulation**

Enhanced Cu Accumulation and Phytotoxicity of CuO Nanoparticles via Plant Uptake. *Jin Yuan, Anfei He, and G. Daniel Sheng* ................................................................. 191

The Subcellular Form and Humic Acid Effects on nC₆₀ Uptake by Daphnia. *QiFeng Chen, Xiaolin Hu, Daqiang Yin* ................................................................. 192

**Microbiology and Microbial Degradation**

The Effects of Citric Acid and Lactic Acid on the Survival of Escherichia coli O157:H7 Grown on Meat and Carrot. *Itelima Janet, Agina Samuel and Itelima Kalada* ................................................................. 193

Effects of Magnetic Fields on Growth of Bacillus Subtilis and Staphylococcus Aureus. *Ogbonna Abigail, Chagok, N.M.D, Itelima Janet, Ogbonna, C. I. C., Onwuliri Edith, Otukpa Emmanuel, Falamare Babajide and Tanko Jummai.* ................................................................. 194

Screening and Degradation Characteristics of Tetracycline-degrading Strains. *YiFei Leng, Jiangkun Du and Jianguo Bao* ................................................................. 198

Partial Characterization of Beet Mosaic Virus Isolated from Swiss Chard. *Gaber Fegla and Maha Kawanna* ................................................................. 205

Suppressive Effect of Some Microbial Agents on Root Knot Nematode, Meloidogyne javanica Infected Eggplant. *Asmaa A. Alharbi and Asmaa A. Mokbel* ................................................................. 213

The Development and Characterization of an Enriched Microbial Culture for Bioremediation of Petroleum Contaminated Soil. *Sheldon Ramoutar, Adesh Ramsubhag, Azad Mohammed* .... 214

**WETLANDS**
Wetland Conservation

Distribution of Macro-Invertebrates Species Diversity in the Wetlands of Upper Brahmaputra Valley, Dibrugarh, Assam. Sultan Hazarika, and Dr. P.K. Saikia. ................................................................. 216
Conservation Assessment and Prioritization of Freshwater Ecosystem in China. Xiaowen Li and Chen Liang. ................................................................. 222
Restoration of Freshwater Emergent Wetlands on the Southeast Texas Coastal Plain. Marissa Sipocz, Andrew Sipocz ................................................................. 223

Wetlands for Wastewater Treatment

Deriving Vertical Saturated Hydraulic Conductivity of the Soil Using Double Ring Infiltrometer Infiltration Information. Milad Fatehnia, Kamal Tawfiq ................................................................. 224
Hydrogen Peroxide in Tropical and Temperate Aquatic Plants. Shima Suzuki, Yoshihiko Inagaki, and Yutaka Sakakibara, M. Milintawisamai, S. Srilachai ................................................................. 231
Engineered Wetland for the Treatment of Wastewater from Fertilizer Plant. Nasiman Sapari, Ahmad Shafik Bin A. Rahman, Kalu Uka Orji, Olisa Emmanuel and Robabeh Asadpor ……… 236

SEDIMENTS

Assessment of Sediments

Distribution of Polybrominated Diphenyl Ethers in the Surface Sediments of the Taihu Lake, China. Peng Zhou, Kuangfei Lin .......................................................................................... 238
Electrokinetic Migration of Chromium and Copper: A Comparative Behavior Analysis during A Quick Remediation Process. Hafiz Ahmad, Danuta Leszcynska, and Korhan Adalier ……… 239
Highly Carcinogenic Polycyclic Aromatic Hydrocarbons in Bayou Sediments in the Houston Area. Hyun-Min Hwang, Bianca Hays, Taofeek Oلونode ................................................................. 240
Assessment of Polybrominated Diphenyl Ethers In-Situ Microbial Degradation in Arkansas Sediments. Azivy Che Aziz, Hua Wei, Asha Rani, Karl J. Rockne, An Li, Erik Christensen, Yonghong Zou ................................................................................................................. 241
Impact of Dredging on the Sediment Quality of Igbedi Creek, Upper Nun River, Niger Delta, Nigeria. Seiyaboh, E.I., Ogamba, E.N. and Utibe, D.I .................................................................................................................. 242

Remediation of Contaminated Sediments

Remediation of Tributyl Tin (TBT) from Estuarine Sediment: Biostimulation and Phytoremediation. Brett Turner, Meg Teasdell .......................................................................................... 243

METALS

Metal Distribution

Effect of Soil Properties on Cadmium Mobility Evaluated by Soil TLC. Saud AL Oud ..................... 245
Leaching Characteristics of Heavy Metals and Brominated Flame Retardants from Printed Circuit Boards. Xiaoyu Zhou, Kuangfei Lin .......................................................................................... 246
A Rhodamine-Based Visible Fluorescent Probe for the Detection of Hg²⁺. Jiwen Hu, Zhangjun Hu, Yang Cui and Hongwen Gao. ................................................................................................. 247
Vertical distribution and Chemical Behavior of Uranium in the Tailings Material of Schneckenstein (Germany). Taoufik Naamoun, Broder Merkel .......................................................................................... 248
Spatial Distribution of Arsenic, Lead and Cadmium in Water and Sediment Samples in River Subin, an Urban River in Kumasi, Ghana. Yaw Amo Sarpong, Kwasi Obiri-Danso

Quantitative Analysis of Heavy Metal Deposition around Selebi Phikwe Cu–Ni Smelting Area, Botswana. Gilbert K. Gaboutloeloe, Khumoetsile B. Mnolawa and Alfred S. Likuku


Heavy Metals Concentration in Callinectes amnicola and Macrobranchium vollenhoveni from a Tropical Ecosystem in Nigeria. Philomena Edet Asuquo, Albert Philip Ekanem, Honor Tajoes Ifon

Biochemical Changes in Seedling of Cajanus cajan (L.) Mills sp. under the Zinc & Cadmium Stress. Kailash Patel

Removal of Zinc and Cadmium by Two Aquatic Plant Water Lettuce and Water Hyacinth. Kailash Patel

Effect of Coal Fly Ash on Somatic Chromosomes of Helianthus Annus L. (Sunflower). Kailash Patel, Parimal Patel

Structural and Ultra-Structural Changes Induced by Zinc and Cadmium Stress in Cajanus cajan. Kailash Patel, Parimal Patel, Milvee K. Vyas

Study of Lead and Mercury in Common Crabs, From a Region of Puerto Rico. Natalia Olmeda, Jorge Marcano, Nicole López, Gina García, and Rolando Tremont; Angelique Pérez, Támesis Serrano, Cristian Chamorro, Jonathan Pacheco, and Yamil Esquilín

Metal Removal and Remediation

Microbial Biofilms and Bioremediation of Metals from Oil Sands Tailings Ponds. Raymond J. Turner, Susanne Golby, Howard Ceri, Lyriam Marques

Mathematical Modeling of Heavy Metals Leaching from Cylindrical Cement Waste Forms. Norman W. Loney, Mojdeh Tabatabaie

Effect of Environmental Conditions on Pseudomonas Aeruginosa in Heavy Metals Removal. Rajesh Singh, Anita Kirrolia and Narsi R. Bishnoi


Low Cost Soil Material for Efficient Heavy Metals Removal from Water and Wastewater. Jamal A. Radaideh, Matthias Barjenbruch, Ziad Shatnawi

Removal of Metal Ions from Aqueous Solutions Using Sulfonated Grafted Poly-Glycidyl-Methacrylate Polyethylene Films. Myzairah Hamdzah, Zaini Ujang, Mohamed Mahmoud Nasef

Studies on Removal of Metals from Contaminated Soil by Siderphore Producing Bacteria. Tank Shantilal K, Gamit Dhara

Speciation, Bioavailability and Accumulation

Mercury Pollution in the Environment of Hg Mining Areas in Guizhou and Health Risk. Xinbin Feng, Bo Meng, Guangle Qiu, Hua Zhang

Differences of Pb Uptake, Transfer and Translocation of Roadside Grown Wheat in Kano State. ANONGO, M’ember Catherine; BAKO, Sunday Paul; IORTSUUN Dora Nguemo; JAPHET, Wisdom

Phytoremediation
Hydronic Phytoremediation of Lead by Ceratophyllum Demersum L. Nadia Badr, Manal Fawzy; Ahmed El-Khatib and Amany Abo-El-Kassem .................................................. 305

CHLORINATED AND OTHER PERSISTENT ORGANIC COMPOUNDS

Characterization of Organic Pollutants
Degradation of Persistent Organic Pollutants

Optimization of Pseudomonas Stutzeri for Pyrene Degradation under Different Nutritional and Environmental Conditions H. Valsala, K. Thamaraiselvi ................................. 308
Degradation and Interconversion of Endosulfan Isomers in Aerobic Environment. Swantantra Pratap Singh, Purnendu Bose ................................................................. 309
Yarrowia Lipolytica NCIM 3589, a Tropical Marine Yeast, Degrades Bromoalkanes by an Initial Dehalogenation Step. Aakanksha Vatsal, Smita S. Zinjarde, Ameeta Ravi Kumar ................. 310

MODELING

Environmental Simulation

Effect of Electrolyte Concentration on Uranium Species Adsorption: A Molecular Dynamics Study. Xiaoyu Liu, Na Zhang, Chunli Liu .................................................. 312
Modeling of Migration and Infiltration of Cs-137 into Separate Sewer System in Urban Area of Fukushima Prefecture, Japan. Mochamad AdhiragaPratama, Minoru Yoneda, Yosuke Yamashiki .......................................................... 318
Simulation of Hydrodynamics of Wax Lake Delta. Qian Zhang and Chunyan Li, Jun Lin ...... 320

Water Quality Modeling

Situation of Infectious Waste Management Practices among Health Care Workers Working at Tertiary Hospitals of Rawalpindi Pakistan. Ramesh Kumar, Ratana Samrongthong and Babar Tasneem Sheikh .................................................. 321
Simulation of Water Quality in Different Oxidation Ponds in Tropical Area. Azumi Sato, Yutaka Sakakibara ............................................................................. 322
Occurrence of Phytoparasitic Nematodes Attacking Peanut, Reaction and Biocontrol of Meloidogyne arenaria Using Pasteuria penetrans. Asmaa A. Mokbel ..................... 326

Pollutant Estimation and Risk Assessment

Biokinetic Parameter Estimation of Anaerobic Digestion of Brewery Effluent. Abimbola M. Enitan, J. Adeyemo and Feros M. Swalaha .................................................. 327
Development a Pesticide Risk Assessment Tool for Turkey. Mustafa S Yazgan .................................. 328

GIS, DATABASE, AND REMOTE SENSING

GIS for Environmental Assessment

Use of Remote Sensing and GIS in Monitoring Water Quality in Salinas de San Pedro, San Pedro Bay, California, USA. Mohammad Hassan Rezaie-Boroon, Sonya Diaz, Vanessa Torres ..... 331

Environmental Assessment of Parsabad-Moghan for Urban Development Using GIS and AHP. Dariush Nami, Ebrahim Fataei and Arezoo Nejiae. ................................................................. 332


Solid Waste Management GIS Technology & Identification of Landfills Sites as an Example in India. Amandeep Singh .......................................................... 337

Data Management and Statistics

/Environmental Remote Sensing Applications

Spectral Matching using Bitmap Indices of Spectral Derivatives for the Analysis of Hyperspectral Imagery. Rhae-Sung Kim* and Alper Yilmaz. ................................................................. 338

A Novel Algorithm to Accurately Estimate Algal Bloom Coverage in Lake Taihu. Y.C. Zhang, R.H. Ma, H.T. Duan .......................................................... 339

ENVIRONMENTAL ANALYSIS AND MEASUREMENTS

Environmental Analysis

Assessment of Heavy Metal Enrichment and Degree of Contamination around the Copper-Nickel Mine in Botswana. Alfred S. Likuku, Gilbert K. Gaboutloeloe and Khmoetsile B. Mmolawa. 341

Using Light Detection and Ranging (LiDAR) and Multispectral Studies (MSS) to Examine Coastal Environments Influenced by Mining. W. Charles Kerfoot, Martin M. Hobmeier, Foad Yousef, Sarah A. Green, Robert Regis, Colin N. Brooks, Robert Shuchman Jamey Anderson, Molly Reif .......................................................... 342

Bisphenol-A Contamination Surround Japan. Akifumi Okabe, Koshiro Koizumi, Takashi Kusui, Koji Okugawa, Seon-Yong Chung, Tohru Kamo, Yoichi Koder and Katsuhiro Saito...... 343

Chemical Contaminations Derived from Debris Polystyrene in North Pacific Ocean. Katsuhiro Saito, Hideto Sato, Chih-Ming Ou, Qing-Ming Che, Osamu Abe, Yoichi Kodera and Kazuhiro Kogure. .......................................................... 344

Contaminations of Styrene Oligomer form Debris Polystyrene in Japan. Koshiro Koizumi, Hideto Sato, Bum Gun Kwon, Naoto Ogawa, Yasushi Kamaya, Masahiko Nishimura, Yoichi Kodera and Katsuhiro Saito. .......................................................... 345

Environmental and Power System Impacts of Plug-In Electric Vehicles: The Case of California. Asbjorn Moseidjord .............................................................. 346


Field Measurement Technologies

/New Method Applications

Development of a Novel Lateral Flow Immunoassay for the Rapid Detection of Enteric Bacteria. Sumayya IK Mieta and TG Barnard .......................................................... 348
Inter-laboratory Comparison of Different PCR Assays for the Detection of Vibrio Cholerae in Wastewater Samples. Thapelo L.A. Mosiane, Vusi M. Ntema, Tobias G. Barnard and Nico Van Blerk .......................................................... 349

Strain-Level Characterization of Environmental Isolates of Legionella via MALDI-TOF MS. David Otto Schwake, Morteza Abbaszadegan, Todd Sandrin ........................................ 350

Design and Experiments on Solar Powered WSN and UAS for Gas Sensing Monitoring. A. Malaver, F. Gonzalez, N. Motta, S. Schaber .......................................................... 351

Environmental Monitoring

Distribution of Perfluorochemicals (PFCS) and Artificial Sweeteners (AS) in an Urban Reservoir. Viet Tung Nguyen, Huiting Chen, Martin Reinhard, Karina Gin Yew-Hoong ...................... 352

Hydrograph and Chloride Pollutograph Analysis of a Stony Brook Reservoir Subbasin of the Cambridge Water Department in Eastern Massachusetts. David W. Ostendorf .................. 353

DNA Used in Environmental Monitoring. Qiang Wang ......................................................... 359

The Development of Novel Microbial Indicators Used for Environmental Tracking of Biosolid Contaminants. Patsy M. Polston, Elyse Rodgers-Vieira, Michael D. Aitken, Jill R. Stewart ... 360

SOCIETY AND THE ENVIRONMENT

Society and the Environment

A Systems-Thinking Analysis of Environmental and Economic Forces on Sustainable Community Development. Terry L. Polen ......................................................... 362

Using Multivariate Geovisualization to Model the Relationships between Place Vulnerability and West Nile Virus Risk. Abhishek Kala, Sam Atkinson, Chetan Tiwari, Joseph Oppong and Armin Mikler .......................................................... 363

Sustainable Environmental Management and Livelihoods Improvement for Forest Adjacent Communities in Mt. Elgon, Kenya. Faith Milkah Muniale, Julius Muchemi and Thomas Esipila .......................................................... 370

Aspects of Community Farms in Japan: Approach to Utilization of Unused Land and Management. Dongyun KWAK .......................................................... 376

Development of Land Parcel Based On Transit Oriented Development: A Case Study of Surat near Outer Ring Road. Patet Priti, Shri. C. R. Patel ...................................................... 377

Inseparable Links and Impossible Trade-Offs: Demographic Change, Economic Prosperity and Environmental Protection. Michael Herrmann .................................................. 378


The 2050 City: The Feasibility of a Self-Sustaining Urbanism. Herman Jansen, Greg Kiss, Jeff Miles, Lydia Orsi .......................................................... 380

Prevalence of Diarrhoegenic Escherichia Coli Strains in Rural Households in Sub-Saharan Africa. Natasha Potgieter, Rendani Livingstone Mbedzi, Thendo Micheal Ramaliba, Thabelo Ernest Mutavhatsindi and Tobias George Barnard .................................................. 381

Evaluation and Analysis of Seaborne Transport of Nigeria’s Hydrocarbon Trade. Femi Babalola .......................................................... 382

Program Integration across the Forest and Agricultural Sectors in Ghana: The Role of Ideas, Interests and Institutions. Yaw Amo Sarpong, Daniel K.B. Inkoom ........................................ 383

The Challenges and Roles of Land Conservancies to Nature Conservation in Greater Amboseli Region, Kenya. Michael Assafaw Gebreslassie .................................................. 384

Nature and Location Attributes of Noise Pollution in Enugu Urban, Enugu State, Nigeria. 
*Rosemary Ene and H. C. Mba* ................................................................. 386
Urban Agriculture: A Poverty Reduction Strategy of Urban Dwellers in Enugu, Nigeria. *Iwueke, Nyainbua Tarinabo* ................................................................. 395

**Environmental Ethics and Laws**

**Environmental Education**

Comparative Study of Secondary School Students’ Environmental Knowledge and Attitude in Green and Traditional Schools. *Farzam Babaei Semiromi, Mozghan Akbari Armand* .............. 402
Assessment of Good Clinical Governance (as Measured by Leadership Supervision) of Four Health Tertiary Institutions in Enugu Metropolis, Nigeria. *J.C. Nwafor and C.U. Uwa* ...... 403
Environmental Education on Combating Desertification in Turkey. *S. Serdar Yegül, Salih Serdar Yegül* ................................................................. 404
Watershed Monitoring, Training and Educational Programs in the Andes-Amazon Basin of Peru. *Dina L. DiSantis* ................................................................. 405

**ENVIRONMENTAL PLANNING AND MANAGEMENT**

**Environmental Quality and Planning**

844. Pedestrian Response to Road Traffic Noise for Medium Size City in India. *Pritikana Das, M. Parida and V. K. Katiyar* ................................................................. 408

**Energy-related Environmental Problems**


**Environmental Policy and Management**

924. Ecological Compensation of Inundated Habitat from Hydropower Development Based On Habitat Equivalency Analysis. *Bing Yu and Linyu Xu* ................................................................. 410

**RENEWABLE ENERGY DEVELOPMENT**

**Water Energy Nexus**

343. Carbon Capture by Acclimated Activated Sludge-Biosorption Kinetics and Capacity. *Choon-Ping Lim, Jia Ling Neo, Emily Mar’atusalihat, Yan Zhou, and Wun Jern Ng* ......................... 416
606. A Highly Efficient OER IrO2 Electrode Doped with Mn in Neutral Solution. *Wei Sun, Limei Cao, Chenglei Yang, Ji Yang* ................................................................. 417

Wind Energy / Solar Energy / Bio-fuels

313. Screening of Some Indian Jatropha Accessions for Plantation and Production of Biodiesel. Prathibha Devi Cherku, Prathibha Devi, B. Naresh .................................................. 421
610. Coupling Microalgae Biomass Production to Wastewater Treatment and Biofuel Feedstock Production. Fadeyi Omowumi, Kudjo Dzantor, Ekundayo Adeleke ........................................ 436
688. Impact of Viral Infectivity on Phototrophic Microbes for Biofuel Applications. Kyle Kraft, Absar Alum, and Morteza Abbaszadegan .................................................. 438
710. Biohydrogen Production from Food Waste. Chengcheng Hu, Jing-Yuan Wang, Apostolos Giannis, and Chia-Lung Chen ................................................................. 439
732. Cloning of Genes Encoding for Cellulolytic Enzymes from Metagenome in Goat’s Rumen. Santosh Thapa, Hui Li, Sarabjit Bhatti, Suping Zhou .................................................. 442
733. Combining Coal Fly Ash and Poultry Litter Amendments for Biofuel Feedstock Production. E. Kudjo Dzantor, Dafeng Hui, Ekundayo Adeleke, Vanaja Kankarla, Oluwatosin Ogumuyowa, Chih-Li Yu.................................................. 443
745. Goat Rumen Metagenome Extraction, Annotation and Screening for Cellulase and Hemicellulase Genes. Hui Li, Santosh Thapa, Suping Zhou .................................................. 444
890. Lipid Recovery from POME to Serve as a Biofuel Substrate. Hesam Kamayab, Mohd Fadhill Md Din, Chew Tin Lee, Mohanadoss Ponraj, Shaza Eva Mohamad, and Haryati Jamaludin... 447
910. Study on the Hollow Fiber Gas Separation Membrane System for Effective Utilization of Biogas, Yong-Woo JEON, Oh-Hoon KWON and Dong-Hoon LEE ........................................... 448
982. Assessment of Alternative Energy through Production of Biogas from Biodegradable Domestic Wastes. Wachukwu, Confidence Kinikwano; Eleanya, Evangeline; Ollor, Ollor Amber; Abichou Tarek .................................................. 449
985. Anaerobic Co-digestion of Sewage Sludge and Bagasse for Biogas Recovery. Raouf Hassan 450

Special Energy Development
<table>
<thead>
<tr>
<th>Page</th>
<th>Title</th>
<th>Authors</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>605</td>
<td>Hydrogen Production from Regenerating Desulfurization Residuals in an Electro-membrane Reactor.</td>
<td>Chenglei Yang, Chenglei Yang, Limei Cao, Wei Sun, Ji Yang</td>
<td>452</td>
</tr>
<tr>
<td>700</td>
<td>Wave Energy Conversion and Offshore Breakwaters: Solving Coastal Erosion and Electricity Problems.</td>
<td>Derrick Martin Adjei Sowa, Fumin Xu and Mark Amo-Boateng</td>
<td>453</td>
</tr>
<tr>
<td>746</td>
<td>The Role of Calcium in the Process for Harvesting Microalgae from Water.</td>
<td>Jinyong Choi, Kerry A Kinney, Lynn E Katz</td>
<td>454</td>
</tr>
<tr>
<td>781</td>
<td>Simultaneous Carbon Capture and Hydrogen Yield Enhancement in Hydrothermal Gasification of Dewatered Sewage Sludge,</td>
<td>Chao He, Chia-Lung Chen, Apostolos Giannis, Yanhui Yang, and Jing-Yuan Wang</td>
<td>455</td>
</tr>
</tbody>
</table>