

# **5th International Conference on Energy and Environment Research (ICEER 2018)**

Energy Procedia Volume 153

Prague, Czech Republic  
23-27 July 2018

**Editors:**

**Nidia de Sa Caetano**

**Manuel Carlos Felgueiras**

ISBN: 978-1-5108-7456-5

**Printed from e-media with permission by:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571



**Some format issues inherent in the e-media version may also appear in this print version.**

This work is licensed under a Creative Commons Attribution 4.0 International Licence. Licence details:  
<http://creativecommons.org/licenses/by/4.0/>.

Printed by Curran Associates, Inc. (2019)

For additional permission requests, please contact Elsevier B.V.  
at the address below.

Elsevier B.V.  
Radarweg 29  
Amsterdam 1043 NX  
The Netherlands

Phone: +31 20 485 3911  
Fax: +31 20 485 2457

<http://www.elsevierpublishingsolutions.com/contact.asp>

**Additional copies of this publication are available from:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: 845-758-0400  
Fax: 845-758-2633  
Email: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

# TABLE OF CONTENTS

<b>ICEER2018@PRAGUE: RESEARCHING TOWARDS A SUSTAINABLE FUTURE .....</b>	<b>1</b>
<i>Nidia S. Caetano, Manuel C. Felgueiras</i>	
<b>DEVELOPMENT OF TURBOMACHINES FOR RENEWABLE ENERGY SYSTEMS AND ENERGY-SAVING APPLICATIONS .....</b>	<b>10</b>
<i>Ambra Giovannelli</i>	
<b>PREDICTION OF COASTAL SURFACE CURRENTS USING NUMERICAL MODEL AND SOFT COMPUTING MODEL .....</b>	<b>16</b>
<i>Lei Ren, Zhan Hu, Michael Hartnett</i>	
<b>IMPACT OF STRONG CLIMATE CHANGE ON THE STATISTICS OF WIND POWER GENERATION IN EUROPE .....</b>	<b>22</b>
<i>Juliane Weber, Fabian Gotzens, Dirk Witthaut</i>	
<b>OUTDOOR MICROCLIMATIC VALIDATION FOR HYBRID SIMULATION WORKFLOW IN HOT ARID CLIMATES AGAINST ENVI-MET AND FIELD MEASUREMENTS .....</b>	<b>29</b>
<i>Ibrahim Elwy, Yasser Ibrahim, Mohammad Fahmy, Mohamed Mahdy</i>	
<b>EFFECT OF PARTIAL SHADING PATTERNS AND DEGREES OF SHADING ON TOTAL CROSS-TIED (TCT) PHOTOVOLTAIC ARRAY CONFIGURATION .....</b>	<b>35</b>
<i>Chayut Tubniyom, Watcharin Jaideaw, Rongrit Chatthaworn, Amnart Suksri, Tanakorn Wongwuttanasatian</i>	
<b>EVALUATION OF THE PERFORMANCE OF A PHOTOVOLTAIC POWER PLANT INSTALLED IN A BUILDING IN THE NORTH OF PORTUGAL .....</b>	<b>42</b>
<i>Gustavo Pinto Monteiro, Ana I. Palmero-Marrero, Carlos Moreira, Armando C. Oliveira</i>	
<b>AUTONOMOUS ACTIVE POWER MANAGEMENT IN ISOLATED MICROGRID BASED ON PROPORTIONAL AND DROOP CONTROL .....</b>	<b>48</b>
<i>Hyeon-Jin Moon, Jae Won Chang, Seok-Young Lee, Seung-Il Moon</i>	
<b>APPROACH FOR DIMENSIONING STAND-ALONE PHOTOVOLTAIC SYSTEMS .....</b>	<b>56</b>
<i>S. Boulmrharj, Y. NaitMalek, A. ElMouatamid, M. Bakhouya, R. Ouladsine, K. Zine-dine, M. Khaidar, R. Abid</i>	
<b>WIND POTENTIAL EVALUATION WITH URBAN MORPHOLOGY - A CASE STUDY IN BEIJING .....</b>	<b>62</b>
<i>Biao Wang, Shuai Sun, Minglei Duan</i>	
<b>EXPERIMENTAL AND SIMULATION-BASED EVALUATION OF A WIND ENERGY CONVERSION SYSTEM .....</b>	<b>68</b>
<i>R. Rabeh, M. Bakhouya, M. Ferfra, R. Ouladsine, A. Ezbakhe</i>	
<b>OPTIMIZATION POTENTIAL ANALYSIS OF MICRO-HYDRO POWER PLANT (MHPP) FROM RIVER WITH LOW HEAD .....</b>	<b>74</b>
<i>Romy Marliansyah, Dwini Normayulisa Putri, Andy Khootama, Heri Hermansyah</i>	
<b>SUPERCAPACITOR IN BATTERY CHARGES OF PHOTOVOLTAIC PANEL: ANALYSIS OF THE TECHNICAL FEASIBILITY .....</b>	<b>80</b>
<i>Victor Barbosa, Teresa Nogueira, Emerson Carati, Carlos Felgueiras</i>	
<b>ANALYTICAL AND PARTICLE SWARM OPTIMIZATION ALGORITHMS FOR OPTIMAL ALLOCATION OF FOUR DIFFERENT DISTRIBUTED GENERATION TYPES IN RADIAL DISTRIBUTION NETWORKS .....</b>	<b>86</b>
<i>T. S. Tawfeek, A.H. Ahmed, S. Hasan</i>	
<b>INFLUENCES AND UNCERTAINTY OF BATTERY-SWAPPING ELECTRIC SCOOTERS ON ENERGY SYSTEM IN TAIWAN .....</b>	<b>95</b>
<i>Pei-Ying Hsieh, Tai-Yi Yu, Kuang-Chong Wu, Len-Fu W. Chang</i>	
<b>DETERMINATION OF MOST SUITABLE LOW-EMISSION ENERGY TECHNOLOGIES DEVELOPMENT IN POLAND USING INTEGRATED FUZZY AHP-TOPSIS METHOD .....</b>	<b>101</b>
<i>Magdalena Ligus, Piotr Peternek</i>	
<b>FOSSIL FUEL ENERGY CONSUMPTION IN EUROPEAN COUNTRIES .....</b>	<b>107</b>
<i>Florinda Martins, Carlos Felgueiras, Miroslava Smitková</i>	
<b>WORLD ENERGY MARKET IN THE CONDITIONS OF LOW OIL PRICES, THE ROLE OF RENEWABLE ENERGY SOURCES .....</b>	<b>112</b>
<i>L.V. Eder, I.V. Provornaya, I.V. Filimonova, V.D. Kozhev, A.V. Komarova</i>	
<b>OPTIMAL ALLOCATION OF DISTRIBUTED GENERATION UNITS FOR CONVERTING CONVENTIONAL RADIAL DISTRIBUTION SYSTEM TO LOOP USING PARTICLE SWARM OPTIMIZATION .....</b>	<b>118</b>
<i>A.H. Ahmed, S. Hasan</i>	

<b>MOLECULAR DYNAMICS SIMULATION OF CHARACTERISTICS OF THE NANODROPLET EVAPORATION</b> .....	125
<i>Weihong Zhang, Yan Li, Yunshu Qi, Han Yuan, Ning Mei</i>	
<b>SIMULATION OF EXPLOSION CHARACTERISTICS OF SYNGAS/AIR MIXTURES</b> .....	131
<i>Manh-Vu Tran, Gianfranco Scribano, Cheng Tung Chong, Thinh X. Ho</i>	
<b>CONSTRUCTION OF CONICAL SOLAR CONCENTRATOR WITH PERFORMANCE EVALUATION</b> .....	137
<i>Gwi Hyun Lee</i>	
<b>TECHNO-ECONOMIC ANALYSIS OF LIPASE ENZYME PRODUCTION FROM ASPERGILLUS NIGER USING AGRO-INDUSTRIAL WASTE BY SOLID STATE FERMENTATION</b> .....	143
<i>Andy Khootama, Dwini Normayulisa Putri, Heri Hermansyah</i>	
<b>CRUDE GLYCEROL GASIFICATION IN A FIXED BED GASIFIER</b> .....	149
<i>Ana Almeida, Albina Ribeiro, Elisa Ramalho, Rosa Pilão</i>	
<b>ENERGY EFFICIENCY ENHANCEMENT OF MIXED REFRIGERANT PROCESS IN LNG PLANT</b> .....	154
<i>Chaima Derbal, Abdallah Haouam, Hocine Mzad</i>	
<b>COMPARISON AND ANALYSIS OF THERMAL EFFICIENCY AND EXERGY EFFICIENCY IN ENERGY SYSTEMS BY CASE STUDY</b> .....	161
<i>Youyuan Shao, Hanmin Xiao, Baiman Chen, Simin Huang, Frank G.F. Qin</i>	
<b>MEASURING THE WATER-ENERGY-FOOD NEXUS: THE CASE OF LATIN AMERICA AND THE CARIBBEAN REGION</b> .....	169
<i>Jürgen Mahlknecht, Ramón González-Bravo</i>	
<b>SUSTAINABLE DEVELOPMENT OF THE WORLD ENERGY TAKING INTO ACCOUNT DYNAMIC OF ENERGY INTENSITY: CURRENT TRENDS AND LONG-TERM FORECAST</b> .....	174
<i>L.V. Eder, I.V. Provornaya, I.V. Filimonova</i>	
<b>ESTIMATION OF VISCOSITY AND PHASE INVERSION POINT FOR OIL-WATER MIXTURE</b> .....	180
<i>Ji Zhang, Han Yuan, Yan Li, Jian Zhao, Hongyu Si, Ning Mei</i>	
<b>DECOMPOSITION ANALYSIS OF CO<sub>2</sub> EMISSION IN ASEAN: AN EXTENDED IPAT MODEL</b> .....	186
<i>Jaruwan Chontanawat</i>	
<b>FRESHWATER-SEAWATER TRANSITION IN COASTAL TODOS SANTOS AQUIFER, BAJA CALIFORNIA SUR</b> .....	191
<i>Jürgen Mahlknecht, William E. Sanford, Marissa Fichera, Abrahan Mora</i>	
<b>EVOLUTION AND MULTIVARIABLE ANALYSIS OF TRACE ELEMENTS IN GROUNDWATER OF AN AGRICULTURAL AREA IN A SEMI-ARID REGION OF MEXICO</b> .....	196
<i>Abrahan Mora, Jürgen Mahlknecht, Antonio Torres-Martínez</i>	
<b>REPAIR METHODS OF RIVER CHANNEL ECOLOGICAL LANDSCAPE</b> .....	202
<i>Shuai Sun, Biao Wang</i>	
<b>THE INFLUENCE OF CO<sub>2</sub> LEAKING ON ENVIRONMENTAL MONITORING IN THE PROCESS OF CO<sub>2</sub> GEOLOGICAL SEALING</b> .....	207
<i>Xiaowei Zhai, Hui Ge, Xiaokun Chen, Yu Xu, Guixian Fan</i>	
<b>MONITORING OF POLYCHLORINATED BIPHENYLS (PCBS) IN ENVIRONMENTAL OBJECTS OF THE CITY UST-KAMENOGORSK IN KAZAKHSTAN</b> .....	215
<i>Roza Tursunova, Sana Kabdrakhmanova, Bagadat Selenova, Kydyrmolla Akatan, Yesbol Shaimardan, Ainur Kabdrakhmanova</i>	
<b>ENHANCED HYBRID REMOVAL OF DEHP FROM CONTAMINATED WATER USING ACINETOBACTER SP. IMMOBILIZED ON SCRAP TYRES</b> .....	221
<i>U Hin Kelvin Chao, Renata Alves de Toledo, Hojae Shim</i>	
<b>OPTIMIZATION OF MAJOR ENVIRONMENTAL PARAMETERS TO DEGRADE SCRAP TYRES BY BACILLUS SP.</b> .....	226
<i>Weng Chon Lao, Renata Alves de Toledo, Hojae Shim</i>	
<b>BUTANOL PRODUCTION BY CLOSTRIDIUM BEIJERINCKII FROM PINEAPPLE WASTE JUICE</b> .....	231
<i>Vorapat Sanguanchaipaiwong, Noppol Leksawasdi</i>	
<b>CO-DIGESTION OF FOOD WASTE AND DOMESTIC WASTEWATER – EFFECT OF COPPER SUPPLEMENTATION ON BIOGAS PRODUCTION</b> .....	237
<i>Pak Chuen Chan, Renata Alves de Toledo, Hong In lu, Hojae Shim</i>	
<b>PRODUCTION OF IMMOBILIZED EXTRACELLULAR LIPASE FROM ASPERGILLUS NIGER BY SOLID STATE FERMENTATION METHOD USING PALM KERNEL CAKE, SOYBEAN MEAL, AND COIR PITH AS THE SUBSTRATE</b> .....	242
<i>Ratri Kirana Prabaningtyas, Dwini Normayulisa Putri, Tania Surya Utami, Heri Hermansyah</i>	

<b>GROWTH KINETIC OF BACILLUS SUBTILIS FOR PYRENE BIODEGRADATION</b> .....	248
<i>Hanif Yuliani, Meka Saima Perdani, Meilani Manurung, Muhamad Sahlan, Anondho Wijanarko, Heri Hermansyah</i>	
<b>BIOETHANOL PRODUCTION FROM NANNOCHLOROPSIS GADITANA IN MUNICIPAL WASTEWATER</b> .....	253
<i>Melih Onay</i>	
<b>EVALUATION OF BIOACTIVITIES OF DELONIX REGIA EXTRACTS FROM DIFFERENT REGIONS OF THAILAND</b> .....	258
<i>Suttijit Sriwatcharakul</i>	
<b>DESIGN OF PORTABLE BIODIESEL PLANT FROM WASTE COOKING OIL</b> .....	263
<i>Alan Try Putra Samad, Dwini Normayulisa Putri, Meka Saima Perdani, Tania Surya Utami, Rita Arbianti, Heri Hermansyah</i>	
<b>TECHNO-ECONOMIC ANALYSIS OF PORTABLE PLANT FROM WASTE COOKING OIL</b> .....	269
<i>Alan Try Putra Samad, Meka Saima Perdani, Dwini Normayulisa Putri, Heri Hermansyah</i>	
<b>ANTIMICROBIAL ACTIVITY OF BIOSURFACTANT DERIVED FROM BACILLUS SUBTILIS C19</b> .....	274
<i>Hanif Yuliani, Meka Saima Perdani, Imelda Savitri, Meilani Manurung, Muhamad Sahlan, Anondho Wijanarko, Heri Hermansyah</i>	
<b>PHAEODACTYLUM TRICORNUTUM DERIVED BIOSILICA PURIFICATION FOR ENERGY APPLICATIONS</b> .....	279
<i>Monique Branco-Vieira, Sergio San Martin, Cristian Agurto, Marcos A.V. Freitas, Teresa M. Mata, Antonio A. Martins, Nidia Caetano</i>	
<b>DETERMINANTS OF SUSTAINABLE UPGRADE FOR ENERGY EFFICIENCY – THE CASE OF EXISTING BUILDINGS IN AUSTRALIA</b> .....	284
<i>John Dadzie, Goran Runeson, Grace Ding</i>	
<b>EXPLORING DYNAMIC SLAT SYSTEM FOR ENHANCING DAYLIGHTING DISTRIBUTION AT DEEP OFFICE SPACES IN HOT ARID REGIONS</b> .....	290
<i>Anwar Zayed, Mahmoud Elkhateib, Mohamed Mahdy, Ibrahim Elwy</i>	
<b>A CONTROL METHODOLOGY FOR BUILDING ENERGY MANAGEMENT SYSTEMS (BEMS) IN HEAT NETWORKS WITH DISTRIBUTED GENERATION</b> .....	295
<i>Sean Rhys Jones, John Beardmore, Mark Gillott, Rabah Boukhanouf, Gavin Walker</i>	
<b>SHORT-TERM CHARACTERIZATION OF THE INDOOR AIR RADON CONCENTRATION IN A XII CENTURY MONASTERY CONVERTED INTO A SCHOOL BUILDING</b> .....	303
<i>Sérgio I. Lopes, João Silva, Ana Antão, António Curado</i>	
<b>SUPPORT VECTOR REGRESSION MODELING OF THE PERFORMANCE OF AN R1234YF AUTOMOTIVE AIR CONDITIONING SYSTEM</b> .....	309
<i>Murat Hosoz, Kaplan Kaplan, M. Celil Aral, Mukhamad Suhermanto, H. Metin Ertunc</i>	
<b>MONITORING OF INDOOR ULTRAFINE PARTICULATE MATTER AT THE FIRE RESCUE BRIGADE WORKPLACES</b> .....	315
<i>Eva Kellnerová, Josef Kellner, Josef Navrátil, František Paulus</i>	
<b>LOW-ALTITUDE UAV 3D MODELING TECHNOLOGY IN THE APPLICATION OF ANCIENT BUILDINGS PROTECTION SITUATION ASSESSMENT</b> .....	320
<i>Shuai Sun, Biao Wang</i>	
<b>AN INVESTIGATION ON EFFECT OF ULTRASOUND WAVES ON SLUDGE TREATMENT</b> .....	325
<i>Nasser Mehrdadi, Farshad Golbabaei Kootenaei</i>	
<b>STUDY ON ECOLOGICAL RESTORATION TECHNOLOGY OF YANXI RIVER WETLAND IN BEIJING</b> .....	330
<i>Shuai Sun, Biao Wang</i>	
<b>QUIET AREAS AND URBAN SUSTAINABILITY</b> .....	334
<i>Rui Calejo Rodrigues</i>	
<b>IOT AND A SUSTAINABLE CITY</b> .....	342
<i>Limin Liu</i>	
<b>WATER, FOOD AND POWER GRID OPTIMIZATION AT MACROSCOPIC LEVEL INVOLVING MULTI-STAKEHOLDER APPROACH</b> .....	347
<i>Ramón González-Bravo, Jürgen Mahlknecht, Jose Maria Ponce-Ortega</i>	
<b>ACOUSTIC ENVIRONMENT RESEARCH OF RAILWAY STATION IN CHINA</b> .....	353
<i>Yue Wu, Jian Kang, Wenzhong Zheng</i>	
<b>PM2.5 EMISSIONS FROM URBAN CREMATORIIUMS</b> .....	359
<i>Griselda González-Cardoso, Janai M. Hernández-Contreras, Naxieli Santiago-DelaRosa, Mirella Gutiérrez, Violeta Mugica-Alvaréz</i>	
<b>RESEARCH ON THE DESIGN OF THE INDEPENDENT-COMBINATORIAL MOBILE DISASTER EMERGENCY UNIT IN THE COLD AREA</b> .....	364
<i>Tian Wang, Shanshan Zhang, Yi Liu</i>	

<b>ANALYSIS OF INFLUENCE FACTORS OF DISASTER PREVENTION CAPACITY IN URBAN GREEN SPACE BASED ON ANALYTIC HIERARCHY PROCESS .....</b>	<b>370</b>
<i>Yi Liu, Shanshan Zhang, Tian Wang</i>	
<b>A METHODOLOGICAL APPROACH TO IDENTIFY POLICY PRIORITIES OF MUNICIPALITIES IN GREECE .....</b>	<b>376</b>
<i>Alecos Kelemenis, Panagiota Galiatsatou</i>	
<b>IMPACT OF BUILDING FORM ON THE WAKE FLOW WIND POTENTIAL .....</b>	<b>383</b>
<i>Biao Wang, Shuai Sun, Minglei Duan</i>	
<b>COMMUNITY-BASED SPATIAL ARRANGEMENT FOR SUSTAINABLE VILLAGE ENVIRONMENTAL IMPROVEMENT – CASE STUDY OF CANDIREJO VILLAGE, BOROBUDUR, INDONESIA .....</b>	<b>389</b>
<i>Titin Fatimah</i>	
<b>HOW SUSTAINABLE IS A LOW CARBON POWER SYSTEM? HOLISTIC HYBRID MODELLING FOR THE PORTUGUESE CASE-STUDY .....</b>	<b>396</b>
<i>Patrícia Fortes, Sara Proença</i>	
<b>GREEN BUILDING RATING SYSTEMS IN SWEDISH MARKET - A COMPARATIVE ANALYSIS BETWEEN LEED, BREEAM SE, GREENBUILDING AND MILJÖBYGGNAD .....</b>	<b>402</b>
<i>Iuri Abreu Saraiva Freitas, Xingxing Zhang</i>	
<b>WATER CONSUMPTION MONITORING SYSTEM FOR PUBLIC BATHING FACILITIES .....</b>	<b>408</b>
<i>Carlos Felgueiras, Luís Kuski, Pedro Moura, Nídia Caetano</i>	
<b>LIFE-CYCLE ANALYSIS AS AN INDICATOR FOR IMPACT ASSESSMENT IN SUSTAINABLE BUILDING CERTIFICATION SYSTEMS: THE CASE OF SWEDISH BUILDING MARKET .....</b>	<b>414</b>
<i>Suheyla Turk, Samer Nabeel Saad Addin Quintana, Xingxing Zhang</i>	
<b>LCA OF CONSTRUCTING AN INDUSTRIAL BUILDING: FOCUS ON EMBODIED CARBON AND ENERGY .....</b>	<b>420</b>
<i>Vinicius Rodrigues, António A. Martins, Maria Isabel Nunes, Ana Quintas, Teresa M. Mata, Nídia S. Caetano</i>	
<b>WATER FOOTPRINT OF MICROALGAE CULTIVATION IN PHOTOBIOREACTOR .....</b>	<b>426</b>
<i>António A. Martins, Francisca Marques, Madalena Cameira, Edgar Santos, Sara Badenes, Luis Costa, Vitor Verdelho Vieira, Nídia S. Caetano, Teresa M. Mata</i>	
<b>CARBON FOOTPRINT OF MICROALGAE PRODUCTION IN PHOTOBIOREACTOR .....</b>	<b>432</b>
<i>Teresa M. Mata, Madalena Cameira, Francisca Marques, Edgar Santos, Sara Badenes, Luis Costa, Vitor Verdelho Vieira, Nídia S. Caetano, António A. Martins</i>	
<b>ATTITUDE SURVEY OF WINE SECTOR TOWARD RENEWABLES FOR REDUCING GHG .....</b>	<b>438</b>
<i>Nieves García-Casarejos, Pilar Gargallo, Javier Carroquino</i>	
<b>LIFE CYCLE INVENTORY FOR BIOMETHANE AS A DIESEL SUBSTITUTE FOR THE BRAZILIAN ETHANOL INDUSTRY - CASE STUDY .....</b>	<b>444</b>
<i>Joachim W. Zang, Kairo F. Martins, Warde A. Da Fonseca-Zang</i>	
<b>COMPARISON BETWEEN ECO-MANAGEMENT AND AUDIT SCHEME AND ISO 14001:2015 .....</b>	<b>450</b>
<i>Florinda Martins, Luis Fonseca</i>	
<b>SUSTAINABLE ENGINEERING LABS - A PORTUGUESE PERSPECTIVE .....</b>	<b>455</b>
<i>Nídia S. Caetano, Rafael R. Carvalho, Francisco R. Franco, Carlos A.R. Afonso, Carlos Felgueiras</i>	
<b>PHARMACEUTICAL COMPOUNDS ELECTROTREATMENT BY PT ANODES AND EFFECT ON SYNAPTIC FUNCTION .....</b>	<b>461</b>
<i>Morgana Bosio, Bianca Souza, Enrico Saggioro, Marcia Dezotti, Joao Paulo Bassin, Emilia Quinta-Ferreira, Rosa Quinta-Ferreira</i>	
<b>BIOCHEMICAL CHARACTERIZATION OF PHAEODACTYLUM TRICORNUTUM FOR MICROALGAE-BASED BIOREFINERY .....</b>	<b>466</b>
<i>Monique Branco-Vieira, Sergio San Martin, Cristian Agurto, Marcos A.V. Freitas, Teresa M. Mata, Nídia Caetano</i>	
<b>STUDY ON THE MECHANISM OF SO<sub>2</sub> REMOVAL BY ACTIVATED CARBON .....</b>	<b>471</b>
<i>Bing Li, Chunyuan Ma</i>	
<b>RESEARCH ON CHANGES OF SOIL ORGANIC CARBON IN ABANDONED HOMESTEAD OF WEIBEI LOESS UPLAND AFTER LAND REMEDIATION - A CASE STUDY IN CHENGCHENG COUNTY, SHAANXI PROVINCE, IN CHINA .....</b>	<b>478</b>
<i>Chendi Shi, Huanyuan Wang, Juan Li, Yuteng Li, Ao Zhang</i>	
<b>BIODIVERSITY CONSERVATION DEVELOPMENT BASED ON SYSTEMATIC CONSERVATION PLANNING IN URBAN AREAS .....</b>	<b>484</b>
<i>Ming Lu, Yi Qu</i>	
<b>Author Index</b>	