

The Twenty-Ninth International Conference on Solid Waste Technology and Management

Philadelphia, PA, USA

March 30 – April 2, 2014

AGENDA

(updated March 24, 2014)

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Chair:
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The Journal of Solid Waste Technology and Management



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Scientific Committee:

- Haluk Akgun, Middle East Technical University, Turkey
- Dr. Joseph Akunna, University of Abertay Dundee, UK
- Prof. Ofira Ayalon, Samuel Neaman Institute, Technion & University of Haifa, Israel
- Giuseppe Bonifazi, Sapienza – Università di Roma, Italy
- Maria Cristina Borba Braga, Parana Federal University, Brazil
- Shouou-Yuh Chang, North Carolina A&T State University, USA
- Toru Furuichi, Hokkaido University, Japan
- Ruby Mejía de Gutiérrez, Universidad del Valle (Cali), Colombia
- Mervat El-Hoz, University of Balamand, Lebanon
- Dr. Albert B. Jubilo, Philippine Institute of Chemical Engineers, Philippines
- Maria Lyubarskaya, ENGECON (Saint-Petersburg State University of Engineering and Economics), Russia
- William L. Magette, PhD, UCD School of Civil, Structural and Environmental Engineering (retired), Ireland
- Ilan Nissim, Ministry of Energy and Water Resources, Israel
- Sara Ojeda-Benitez, Autonomous University of Baja California Engineering Institute, México
- Genxing Pan, Nanjing Agricultural University, People's Republic of China
- Dr. Chukwu Onu, Southern University and A & M College, USA
- Professor Paul S. Phillips, University of Northampton, UK
- Dr. Eva Pongrácz, Adjunct Professor, University of Oulu, Finland
- Prof. Krishna Reddy, University of Illinois, USA
- Dr. Jerry E. Uhuo, National Assembly Abuja, Nigeria
- Anita Závodská, Barry University, USA

CONFERENCE SUMMARY

SUNDAY, MARCH 30, 2014

- Pre-Conference Tour of Philadelphia
- Professional Education Short Course
- Opening Reception

MONDAY, MARCH 31, 2014

Opening Plenary

Oral Presentations

- 1A Recycling 1
- 1B Landfill 1
- 1C Innovative Technologies
- 1D Energy Recovery 1

- 2A Agricultural Wastes and Biological Utilization
- 2B Case Studies
- 2C Construction/Demolition Wastes 1
- 2D Research Advances 1

- 3A Construction/Demolition Wastes 2
- 3B Environmental and Social Impacts
- 3C Industrial Wastes
- 3D Waste Tires
- 3E Sludge
- 3F Medical Wastes

- 4A Ash Utilization
- 4B Waste Generation and Composition
- 4C Compost and Organics
- 4D Waste Collection and Facility Siting
- 4E Waste Reduction and Planning

Poster Session 1

TUESDAY, APRIL 1, 2014

Oral Presentations

- 5A Compost
- 5B Goals and Critical Needs of Waste Management
- 5C Recycling 2
- 5D Policy, Economics and Education

- 6A Energy Recovery 2
- 6B Landfill 2
- 6C Modeling and Analysis
- 6D Use of Wastes in Construction 1

Poster Session 2

Oral Presentations

- 7A Waste in Developing Regions
- 7B Carbon Reduction and Biochar
- 7C Advances in Hazardous Wastes
- 7D Contaminated Sites
- 7E Research Advances 2
- 7F Energy Recovery 3

- 8A Use of Wastes in Construction 2
- 8B Landfill 3
- 8C Recycling 3
- 8D Research Advances 3

Closing Reception

WEDNESDAY, APRIL 2, 2014

Technical Field Trips

DETAILED AGENDA

SUNDAY, MARCH 30

12:00 p.m. - 6:00 p.m.

Conference check-in and registration

1:00 p.m. - 5:00 p.m.

Guided Tour of Philadelphia: The tour will include the Liberty Bell, Independence Hall and the Betsy Ross house along with a bus tour of the city.
(additional fee)

1:00 p.m. - 5:00 p.m.

Professional Education Short Course: Natural Gas Recovery and Processing: Hydraulic Fracturing, Landfill Gas, and Anaerobic Digesters.

The abundance of shale gas near population centers and the development of technology to access this underground gas have altered the energy picture worldwide. This natural gas was formed by thermogenic processes over thousands of years and consists primarily of methane and other light alkanes. There are smaller amounts of carbon dioxide, nitrogen, hydrogen sulfide, and inert gases also contained in shale gas. Other sources of natural gas include that produced via biogenic processes working over a shorter time frame. An example is landfill gas which is produced via anaerobic processes in which bacteria decompose the organic constituents of trash. This gas is usually vented, burned or recovered. In this extended seminar, supply of natural gas from all of the various sources will be discussed and the recovery processes and utilization will be presented.

Seminar Director: Gennaro J. Maffia PhD, MBA

After twenty years as a process engineer and manager in the petrochemicals industry, mostly with Atlantic Richfield, Inc., Jerry Maffia joined Widener University in the fall of 1992 as Chairman of the Department of Chemical Engineering. Prof. Maffia has broad research interests in environmental, energy and biotechnology areas. At Widener, Prof. Maffia founded the Collagen Research Group which has involved more than 300 students, industrial and government researchers and faculty colleagues. In 2010, Prof. Maffia retired from Widener as Emeritus Professor. In Fall 2010, Professor Maffia joined his alma mater, Manhattan College as Professor of Chemical Engineering. Prof. Maffia has undergraduate and graduate degrees from Manhattan College, an MBA from the Stern School at NYU and a doctorate from Dartmouth College.

Professional Development Hours will be awarded to participants.
(additional fee)

5:00 p.m. - 6:00 p.m.

Welcome Reception

MONDAY, MARCH 31

8:00 a.m. - 5:30 p.m.

Conference check-in and registration

8:00 a.m. - 9:00 a.m.

Coffee

9:00 a.m. - 9:30 a.m.

Opening Plenary

Welcome: Shawn M. Garvin, Regional Administrator of U.S. EPA's Mid-Atlantic Region, USA

Solid Waste Management at Sochi Olympics, Maria Lyubarskaya, ENGECON (Saint-Petersburg State University of Engineering and Economics), **Russia**

9:30 a.m. – 10:55 a.m.

Sessions 1

SESSION 1A

Recycling 1

Are Real Recycling and Reuse Businesses the Next Endangered Species?, *Corinne Atwood*, BC Bottle and Recycling Depot Association, **Canada**

USEPA Urban Model for Surplus Food Recovery, *Tom O'Donnell*, United States Environmental Protection Agency, *Luke Wolfgang*, United States Environmental Protection Agency, **USA**

Implementation of Communal Recycling Programmes Towards Sustainable Waste Management in the City of Tshwane, *Jacques Snyman*, Tshwane University of Technology, **South Africa**

Economic Feasibility of Waste Separation at Source: Case Study of Neighborhoods in Haifa, Israel, *Lior Regev*, University of Haifa, *Ronald L. Mersky*, Widener University, *Ofira Ayalon*, University of Haifa and Samuel Neaman Institute, **Israel**

SESSION 1B

Landfill 1

Removal of Ammonium Nitrogen by Adsorption in Vermiculite, *Natalia Costa Dias*, Parana Federal University, *Maria Cristina Borba Braga*, Parana Federal University, **Brazil**

Compacted Lateritic Soil Treated with Cement Kiln Dust Asprof, *Kolawole Osinubi*, Ahmadu Bello University, *Suleiman Liman*, Federal Capital Development Authority, Abuja, *George Moses*, Nigerian Defence Academy, **Nigeria**

Reliability Evaluation of Bagasse Ash Treated Black Cotton Soil for Use in Waste Containment Application, *Thomas Ijimdiya*, Ahmadu Bello University, *Kolawole Osinubi*, Ahmadu Bello University, **Nigeria**

Evaluation of Different Landfill Capping Systems on the Stability of the Landfill and Nearby Utilities/Structures, *Amira Fahim*, Sadat Associates, Inc., *Lahbib Chibani*, Sadat Associates, Inc., *Zahid Aziz*, Sadat Associates, Inc., **USA**

SESSION 1C

Innovative Technologies

Loss-Minimized Recovery of Non-Ferrous-Metals from Bottom Ash with Sensor-Based Sorting Technology, *David Ruessmann*, RWTH Aachen University, *Stefan Heinrichs*, *Mattias Berwanger*, *Alexander Feil*, *Thomas Pretz*, **Germany**

Application of Collagen Nanofibrils in the Manufacture of Porous Metallic Materials with Applications in Biomedical and the Chemical Processing Industries, *Judy Elhamalawy*, Manhattan College, *Ahmed Mohamed El-Khaiary*, Alexandria University, *Gennaro Maffia*, Manhattan College, *Neena Joseph*, **USA** and **Egypt**

Arsenic and Mercury Adsorption Using Dihalogen Crosslinked Fe₃O₄-Reduced Graphene Oxide Nanocomposites, *Murugesan Velayutham*, B.S. Abdur Rahman University, *Babu Cedian Mohan*, Anna University, **India**

Case Study Results - Use of an Alternative Passive Treatment System to Remove Silt and Clay Particles from Stormwater Discharges, *Michael Rudy*, BAI Group Inc., *D. Josh Lincoln*, The WHM Group, *Craig Marker*, BAI Group Inc., *Edward Layton*, *Jordan Rajan*, **USA**

Evaluation of Fatigue Behavior of Neat and Polymer Modified Binders and Mastics Using Multiple Test Methods, *Yusuf Mehta*, Rowan University, *Gemma Peebles*, *Jessica Gugleimo*, **USA**

SESSION 1D

Energy Recovery 1

Commercially Deployed Energy from Waste Technology, *Walter Howard*, Westinghouse Plasma Corp., **Canada**

Reforming of Light Volatiles and Aromatic Compounds in Advanced Thermal Treatments of Municipal Solid Wastes, *Massimiliano Materazzi*, University College London, *Paola Lettieri*, University College London, *Chris Chapman*, Advanced Plasma Power Ltd., *Richard Taylor*, **UK**

Waste-to-Energy Gasification: Recovering the Energy in MSW, *Alison Kerester*, Gasification Technologies Council, **USA**

Environmental and Social Appraisal of the Technology in Reducing and Converting the Municipal Solid Waste to Energy, *Mohammad Al-Sarawi*, Kuwait University, *Saji Baby*, GEO Environmental Consultation Company, *Nora Al-Sarawi*, Wilkes University, **Kuwait**

Thermal Plasma Pyrolysis of Crude Oil Residue Using Catalyst for Energy Recovery, *Vijay Kumar Srivastava*, Pandit Deendayal Petroleum University, *Sudhir Kumar Nema*, Institute for Plasma Research, **India**

10:55 a.m. - 11:15 a.m.
Break

11:15 a.m. - 1:10 p.m.
Sessions 2

SESSION 2A

Agricultural Wastes and Biological Utilization

Use of Organic Waste Materials as Replacement for Inorganic Fertilizer in Water Melon (*Citrullus lanatus* L.) Production in Zaria, Nigeria, *Usman Ibrahim*, Ahmadu Bello University, *Idi Lakum Hamma*, Ahmadu Bello University, *Aishatu Abubakar Mukhtar*, Ahmadu Bello University, **Nigeria**

Comparative Analysis of Some Selected Agricultural Wastes' Suitability for Gasification, *Mohamed Ben Oumarou*, University of Maiduguri, **Nigeria**

Impact of Solid Wastes Based Compost and Urea Application on Carrot (*Daucus carota* L.) Production, *Samih Abubaker*, Al-Balqa Applied University, *Tarek Ammari*, Al-Balqa Applied University, *Taleb Abuzahra*, Al-Balqa Applied University, **Jordan**

Towards Integrated Bio-Waste Recycling: Urine Nutrient Reclamation and Its Agricultural Applications in Brattleboro, Vermont and Chiapas, Mexico, *Catherine Bryars*, University of Massachusetts Amherst, **USA**

Collagen Nanofibrils Treatment and Evaluation, *Judy Elhamalawy*, Manhattan College, *Neena Joseph*, Manhattan College, *Gennaro Maffia*, Manhattan College, *Ahmed El-Khaiary*, Alexandria University, **USA** and **Egypt**

SESSION 2B

Case Studies

Status of Solid Waste Management Policy and Implementation in Nigeria – A Case Study of Benin Metropolis, *Dennis Iyeye Igbinomwanhia*, University of Benin, *Benedicta A. Ideho*, University of Jyväskylä, **Nigeria**

Ecodesign, a Strategy of Solid Waste (Packaging) Reduction in El Bosque University. Preliminary Results. Bogotá, Colombia, *Carolina Montoya Rodríguez*, El Bosque University, *Paloma María Teresa Martínez Sánchez*, El Bosque University, **Colombia**

A Case Study Finding Practical and Concrete Problems Linked to Decision Making in a Small Company Establishing a New Recycling Business (Drywall Recycling), *Masafumi Tateda*, Toyama Prefectural University, **Japan**

Solid Waste in Quilombola Communities: A Case Study in Two Communities in Brazil, *Ariadne Andrino*, Dom Bosco Catholic University, *Priscila Lima*, Dom Bosco Catholic University, *Fernando Magalhães Filho*, Dom Bosco Catholic University, **Brazil**

Green Chemistry Application Using Nanotechnology and Microwave Irradiation: Biodiesel a Case, *Shakinaz El Sheltawy*, Cairo University, *Ahmed Refaat*, Cairo University, *Hanem Sibak*, Cairo University, **Egypt**

SESSION 2C

Construction/Demolition Wastes 1

Waste Management Strategies for Construction Waste in the Philippines, *Christian Orozco*, University of the Philippines Diliman, *Stephen Dominic Maningas*, University of the Philippines Diliman, **Philippines**

High Fidelity Modeling of the Gasification of Kentucky RTC Bituminous Coal and Waste Construction Wood: II, *Isam Janajreh*, Masdar Institute, *Idowu Adeyemi*, Masdar Institute, **United Arab Emirates**

Effectiveness of Technical Safeguards for Earth Constructions with Contaminated Soils and Building Materials, *Emanuel Birle*, Zentrum Geotechnik, TU München, *Dirk Heyer*, Zentrum Geotechnik, TU München, **Germany**

BIM to Enhance On-Site Construction Waste Management, *Sujeewa Wimalasena*, SAIT Polytechnic, Calgary, Alberta, *Chadi Darwish*, SAIT Polytechnic, **Canada**

Challenges in Managing Construction and Demolition Waste, *Abioye Oyenuga*, London SouthBank University, *Rao Bhamidiarri*, London SouthBank University, *Shamil Naoum*, London SouthBank University, **UK**

SESSION 2D

Research Advances 1

Research on the Application of Slurry Fuel Prepared by Mixing Wastewater Sludge and Coal, *Ruikun Wang*, State Key Lab of Clean Energy Utilization, Zhejiang University, *Jianzhong Liu*, State Key Lab of Clean Energy Utilization, Zhejiang University, *Jianfei Xi*, State Key Lab of Clean Energy Utilization, Zhejiang University, *Zhenyu Huang*, *Jun Cheng*, *Junhu Zhou*, *Kefa Cen*, **China**

Adsorption of Methylene Blue on Cotton Stalk Adsorbent, *Mohammad El-Khaiary*, Alexandria University, *Gihan Malash*, Alexandria University, **Egypt**

Use of Alcohol in the Motor Vehicle Fuel-Gasoline in the Nepalese Context for Reducing Air Pollution, *Ishwar Sharma Paudel*, Kathmandu Metropolitan City Office, **Nepal**

Experimental Evaluation and Thermochemical Modeling of High Temperature Steam Gasification Using Municipal Solid Waste (MSW), *Uisung Lee*, University of Florida, *Jacob Chung*, University of Florida, *Herbert Ingle*, University of Florida, **USA**

Anaerobic Digestion of Soap Stock Sludge from Refining of Vegetable Oil and Bio-Methane Potential, *Joseph Varghese Thanikal*, Caledonian College of Engineering, *Raya Al Wahaibi*, Caledonian College of Engineering, *Michel Torrijos*, INRA- LBE, **Sultanate of Oman**

A Promising Efficient Recycling Route of Electronic Waste Based on Microwave Pyrolysis and Microwave-Metal Discharge, *Jing Sun*, Shandong University, *Wenlong Wang*, Shandong University, *Chunyuan Ma*, Shandong University, *Qinyan Yue*, **China**

1:10 p.m. - 2:00 p.m.

Awards Luncheon
Presentation of the Russell Ackoff Award, Roy F. Weston Award, Iraj Zandi Award and Student Paper Award

2:00 p.m. – 3:55 p.m.
Sessions 3

SESSION 3A
Construction/Demolition Wastes 2

Investigation of the Effects of Various Cement Types on the Macro-Mechanical Properties of Soils: A Case Study on Stabilization of Waste Excavated Soil Material Using Locally Available Philippine Cements for Pavement Purposes, *Jaime Angelo Victor*, University of the Philippines Diliman, *Jed Alison Alimanza, Nathaniel Diola*, **Philippines**

SESSION 3B
Environmental and Social Impacts

Life Cycle Assessment of Thermal Waste Management Options, *Carla Tagliaferri*, University College of London, *Sara Evangelisti*, University College of London, *Paola Lettieri*, University College of London, *Chris Chapman, Richard Taylor*, **UK**

Methodological Analysis in the Identification of Significant Variables to Establish the Experimental Design of Workstation Hydroponics, *Nadia Lara*, Autonomous State University Morelos, *Martha Lilia Dominguez*, Autonomous University of the State of Morelos, *Miguel Aguilar*, Autonomous University of the State of Morelos, *Dra. Martha Dominguez, M.C. Miguel Aguilar, M.E.M. Luz E. Marin*, **Mexico**

Environmental Sanitation: Understanding Participation and Perception of Residents in Ijebu Ode, *Taiwo Odumosu*, Olabisi Onabanjo University, *Ayodeji Ifegbesan*, Olabisi Onabanjo University, **Nigeria**

Resolution of a Controversy - Do Waste to Energy Plants Cause Public Health Impacts?, *Paul Chrostowski*, CPF Associates, Inc., *Sarah Foster*, CPF Associates, Inc., **USA**

Kathmandu Metropolitan City-A Strategy for Clean Water, *Sarbagya Raj Paudel*, Kathmandu Metropolitan City Office, **Nepal**

Kathmandu Metropolitan City-A Strategy for Clean Air, *Binod Bhattarai*, Kathmandu Metropolitan City Office, **Nepal**

A Study to Evaluate the Attitude of Households towards Recovery of Recyclables in Lahore, **Pakistan**, *Syeda Adila Batool*, University of the Punjab, *Muhammad Nawaz Chaudhry*, University of the Punjab, **Pakistan**

Environmental Examination of Waste Plastic Recycling Industry, *Mervat El-Hoz*, University of Balamand, **Lebanon**

SESSION 3C

Industrial Wastes

Isothermal Separating Perovskite Phase from Titanium Bearing Blast Furnace Slag by Super Gravity, *Juncheng Li*, State Key Laboratory of Advanced Metallurgy, Metallurgical and Ecological Engineering School, University of Science and Technology Beijing, *Zhancheng Guo*, State Key Laboratory of Advanced Metallurgy, Metallurgical and Ecological Engineering School, University of Science and Technology Beijing, *Jintao Gao*, State Key Laboratory of Advanced Metallurgy, Metallurgical and Ecological Engineering School, University of Science and Technology Beijing, **China**

Reuse of Solid Wastes Combined with Industrial Wastewater in the Manufacture of Cement Tiles; Case Study from Egypt, *Mohamed Mostafa*, UAB, *Robert Peters*, UAB, **USA**

Performance Testing of Controlled Low-Strength Material Containing Processed Industrial Waste Fly Ash, *Ma. Doreen Candelaria*, University of the Philippines-Diliman, *Kaz Mikhail David Maurillo*, University of the Philippines-Diliman, *Nathaniel Diola*, University of the Philippines-Diliman, **Philippines**

Dusting Control of Mg Slag in Magnesium Industry, *Laner Wu*, Beifang University of Nationalities, **China**

Ultra-Clear Glass Production from Fly Ash, *Lijun Zhao*, National Institute of Clean-and-Low-Carbon Energy, *Qi Sun*, National Institute of Clean-and-Low-Carbon Energy, *Baodong Wang*, National Institute of Clean-and-Low-Carbon Energy, *Xiaohuan Wang*, *Yongfeng Xiao*, *Gengzhi Yu*, *Xiaoting Liu*, *Zhonghua Zhang*, **China**

Characterisation of an Alkali Industry Legacy Waste, *Kinan Ibrahim*, The University of Manchester, *Colin Hughes*, The University of Manchester, *Alastair Martin*, The University of Manchester, **UK**

SESSION 3D

Waste Tires

Analysis of a Tire-Derived Oil Using GC × GC – TOF/MS for Better Identification and Grouping of Hydrocarbon Compounds, *Sakollapath Pithakratanayothin*, Chulalongkorn University, **Thailand**

Recycled Tires as Coarse Aggregate in Concrete Pavement Mixtures, *Rui Liu*, Kent State University, **USA**

The Use of Asphalt Rubber Mixtures to Improve the Permanent Deformation Performance in New Pavements and Overlays, *Liseane Padilha Thives*, Federal University of Santa Catarina, *Glicério Trichès*, Federal University of Santa Catarina, *Jorge Carvalho Pais*, University of Minho, *Paulo António Alves Pereira*, **Brazil**

Multi-Criteria Evaluation of Scrap Tires Disposal Methods, *Shoou-Yuh Chang*, NC A&T State University, *Frank Gronwald*, NC A&T State University, **USA**

SESSION 3E

Sludge

Sewage Sludge as Bio-Solid for Compost Enhancement in the State of Kuwait,
Mahmoud Khaled Karam, Ministry of Public Works, *Yousuf Al-Monawer*, Kuwait
Municipality, *Mohammad Al-Sarawi*, Kuwait University, **Kuwait**

Analysis of the Root System of Rosebushes Grown with Facultative Pond Sludge, *Jorge
Luiz da Paixão Filho*, Unicamp, *Giuliano Gabrielli*, Unicamp, *Bruno Coraucci Filho*,
Unicamp, *Ronaldo Stefanutti*, *Adriano Luiz Tonetti*, **Brazil**

Joint Meeting of Essex & Union Counties Enhances Biogas Production and Solids
Handling, Saving Over \$400,000 Net Annually, *Joseph Bonaccorso*, CME Associates,
USA

Use of Sewage Sludge Ash (SSA) as Adsorbent Material for Copper Removal from
Wastewater, *Shakinaz El Sheltawy*, Cairo University, *Maha El Shafei*, Housing and
Building National Research Center, *Rasha Sary El Deen*, Housing and Building National
Research Center, **Egypt**

SESSION 3F *Medical Wastes*

An Assessment of HCWM in Selected Health Facilities in Federal Capital Territory
(FCT) & Benue State of Nigeria, *Isa Iyortim*, USAID/Nigeria, *Babatunji Odelola*,
USAID/Nigeria, **Nigeria**

3:55 p.m. - 4:15 p.m.
Break

4:15 p.m. – 6:30 p.m.
Sessions 4

SESSION 4A *Ash Utilization*

Utilization of Biomass Fly Ash in Alkali-Activated Materials, *Juho Yliniemi*, University
of Oulu, *Mirja Illikainen*, University of Oulu, *Jouko Niinimäki*, University of Oulu,
Finland

Dense Slurry Ash Management in the Context of EPA Proposed Regulations for Coal
Ash (CCR) and Power Generation Wastewater (ELG), *Dale Timmons*, NAES
Corporation, **USA**

Resource Recovery from Municipal Solid Waste Ash, *Jinfeng Tang*, Chalmers
University of Technology, *Henric Lassesson*, Chalmers University of Technology, *Britt-
Marie Steenari*, Chalmers University of Technology, **Sweden**

A Potential Explosion Risk for Management of Municipal Solid Waste Incineration
Bottom Ash (IBA): Studies of Hydrogen Generation from IBA, *Yiquan Liu*, Nanyang

Technological University, *Paul Tan*, Nanyang Technological University, *En-Hua Yang*, Nanyang Technological University, **Singapore**

Utilizing Biomass Gasification Ash as an Admixture in Concrete for Sustainable Environment and New Construction Applications, *Mori Toosi*, Eastern Illinois University, *Wafeek Wahby*, Eastern Illinois University, *Peter Ping Liu*, Eastern Illinois University, *Wei Zhang*, *Vinod Patel*, *Brajendra K. Sharma*, **USA**

SESSION 4B

Waste Generation and Composition

Optimal Siting of Solid Waste-to-Energy Facilities Using GIS-Based Assessment, *Md. Mohib-Ul-Haque Khan*, University of Alberta, *Amit Kumar*, University of Alberta, **Canada**

Composition of Solid Waste Generated in a Typical Nigerian University Campus and the Quality of Compost Made Therefrom, *Rufus Sha'Ato*, University of Agriculture Makurdi, *Sunday Igbabo*, University of Agriculture Makurdi, **Nigeria**

Waste Not, Want Not: A Model for Understanding Spokane's Residential Diversion Behavior, *Geoffrey D. Glenn*, City of Spokane - Department of Solid Waste Management, *Nathanial Burch*, Gonzaga University, *Andrea M. Bertotti Metoyer*, Gonzaga University, *Paige Bernier*, *Nathanial Burch*, *Spencer Fry*, *Stephanie Noren*, *Vaughn Roadruck*, **USA**

Waste Generation Composition of Commercial Establishments in UP Diliman, *Ma. Brida Lea Diola*, University of the Philippines Diliman, *Maria Antonia Tanchuling*, University of the Philippines Diliman, *Dominique Charmaine Aranas*, *Paolo Fonollera*, **Philippines**

A Study for Determination of Domestic Solid Waste Management Option for Amassoma Town in Nigeria, *Yemi Philips Olisa*, Niger Delta University, *Dennis Iyke Igbinomwanhia*, University of Benin, **Nigeria**

A Statewide Electronic Waste Composition Study – The Case of Delaware, *Kelsea Schumacher*, University of Delaware, **USA**

Municipal Waste and Conservation Plan, *Saleh Al-Muzaini*, Kuwait Institute for Scientific Research, **State of Kuwait**

SESSION 4C

Compost and Organics

Improvement of Municipal Biowaste Composting in Developing Countries. Case Study: Versalles, Colombia, *Edgar Ricardo Oviedo Ocaña*, Escuela de Ingeniería Civil/Universidad Industrial de Santander; Facultad Ingeniería/Universidad del Valle, *Luis Fernando Marmolejo Rebellon*, Universidad del Valle, *Patricia Torres Lozada*, Universidad del Valle, **Colombia**

Chemical Characteristics of Source Separated Municipal Organic Waste Degraded with Diastic Microbes (of *Achatina achatina*) as Animal Feed, *Nnamdi Mbanefo Anigbogu*, Michael Okpara University of Agriculture, *Destiny Jane Uchealor*, Michael Okpara University of Agriculture, **Nigeria**

Turning Waste into Wealth: Municipal Organic Waste as Part of Formulated Diets for Maradi Goats, *Nnamdi Mbanefo Anigbogu*, Michael Okpara University of Agriculture, *C. B. Chukwurah*, Michael Okpara University of Agriculture, **Nigeria**

SESSION 4D

Waste Collection and Facility Siting

Maximizing the Value of Your Free Re-TRAC Connect Account, *Chris Ronson*, Re-TRAC Connect, **Canada**

Exploring Solid Waste Management Scenarios for the Old Royal Capital Cetinje in Montenegro, *Ulku Yetis*, Middle East Technical University, *Merih Kerestecioglu*, COWI A/S, *Filiz Bengü Dilek*, Middle East Technical University, *Jens Bjorn Jacobsen*, *Enver Kiyık*, **Turkey**

Route Optimization of Solid Waste Transportation in Jaipur: India, *Archana Gupta*, Regional College for Education Research & Technology, **India**

SESSION 4E

Waste Reduction and Planning

The Role of Online Materials Exchange in Pollution Prevention through Product Reuse: A Case Study, *Lorena Fortuna*, City College of New York, *Vasil Diyamandoglu*, City College of New York, *Adanna Roberts*, NYC WasteMatch, New York City Center for Materials Reuse, City College of New York, **USA**

Solid Waste Management, *Raju Shrestha*, Kathmandu Metropolitan City Office, **Nepal**

Kathmandu Recycles, *Dharma Raj Bhattarai*, Kathmandu Metropolitan City Office, **Nepal**

Solid Waste Management in the State of Kuwait, *Alia Al-Shalaan*, Ministry of Electricity and Water, *Noura Al-Sarawi*, Wilkesberre University, *Mohammad Al-Sarawi*, Kuwait University, **Kuwait**

Towards Zero Waste – A Comparative Study on Solid Waste Management between Curitiba in Brazil and Borås in Sweden, *Marisa Soares Borges*, Federal University of Parana, *Ilona Sárvári Horváth*, University of Borås, *Adenise Lorenci Woiciechowski*, Federal University of Parana, **Brazil**

The Quantification of Hazardous Waste in the Czech Republic, *Libuše Benešová*,

Charles University in Prague, *Daniela Máchová*, Charles University in Prague, *Anita Závodská*, Barry University, **Czech Republic**

Achieving Campus Sustainability – The Challenges and Constraints, *Anne Morrissey*, Dublin City University, *Anita Zavodska*, Barry University, **Ireland**

6:30 p.m. – 7:30 p.m
Posters 1 and Reception

POSTER SESSION 1

Experimental Evaluation and Thermochemical Modeling of High Temperature Steam Gasification Using Municipal Solid Waste (MSW), *Uisung Lee*, University of Florida, *Jacob Chung*, University of Florida, *Herbert Ingley*, University of Florida, **USA**

Collagen Nanofibrils Treatment and Evaluation, *Judy Elhamalawy*, Manhattan College, *Neena Joseph*, Manhattan College, *Gennaro Maffia*, Manhattan College, *Ahmed El-Khaiary*, Alexandria University, **USA and Egypt**

Application of Collagen Nanofibrils in the Manufacture of Porous Metallic Materials with Applications in Biomedical and the Chemical Processing Industries, *Judy Elhamalawy*, Manhattan College, *Ahmed Mohamed El-Khaiary*, Alexandria University, *Gennaro Maffia*, Manhattan College, *Neena Joseph*, **USA and Egypt**

Analysis of the Root System of Rosebushes Grown with Facultative Pond Sludge, *Jorge Luiz da Paixão Filho*, Unicamp, *Giuliano Gabrielli*, Unicamp, *Bruno Coraucci Filho*, Unicamp, *Ronaldo Stefanutti*, *Adriano Luiz Tonetti*, **Brazil**

Towards Integrated Bio-Waste Recycling: Urine Nutrient Reclamation and Its Agricultural Applications in Brattleboro, Vermont and Chiapas, Mexico, *Catherine Bryars*, University of Massachusetts Amherst, **USA**

The Use of Asphalt Rubber Mixtures to Improve the Permanent Deformation Performance in New Pavements and Overlays, *Liseane Padilha Thives*, Federal University of Santa Catarina, *Glicério Trichês*, Federal University of Santa Catarina, *Jorge Carvalho Pais*, University of Minho, *Paulo António Alves Pereira*, **Brazil**

Using Sugar Cane Bagasse Ash for Production of Ceramic Tiles, *Wilson Acchar*, Campus Universitario, Lagoa Nova, *Raimundo Paranhos*, Campus Universitario, Lagoa Nova, **Brazil**

Comparison of the Landfill Disposal Options for Bottom and Fly Ash Fractions from an Industrial-Scale (120 MW) Power Plant Incinerating Different Fuel Mixtures, *Risto Pöykiö*, City of Kemi, *Kati Manskinen*, Stora Enso Oyj Heinola Fluting Mill, *Hannu Nurmesniemi*, Stora Enso Oyj Veitsiluoto Mill, *Gary Watkins*, *Olli Dahl*, **Finland**

An Environment-Friendly Method to Catalytically Oxidate NO in Waste Water by Supported Manganese Oxide on Graphite Oxide, *Ruijing Su*, Shanghai Second Polytechnic University, **China**

Preparation of Bacillus Thuringiensis Berliner Biopesticide by Using Mud of Blue-Green Algae, *Chao Tan*, Yunnan Agricultural University, *Naiming Zhang*, Yunnan Agricultural University, **China**

Upgrading of Woody Biomass by Torrefaction, *Yi-Li Lin*, National Kaohsiung First University of Science and Technology, *Ching-Wen Wu*, National Kaohsiung First University of Science and Technology, *Shen-Yi Chen*, National Kaohsiung First University of Science and Technology, **Taiwan**

The Best Practices of RA9003 in Conformance with the IMO MARPOL73/78 Convention for Vessels Plying the Davao City-Manila, Philippines Route, *Lilia Panchito*, Agro Industrial Foundation College of the Philippines, *Albert Jubilo*, Ateneo de Davao University, *Jenna Christy Matalam*, Mount of Olives Diagnostic Laboratory, *Shomae Lilli F. Panchito*, *Ruben R. Basalo*, *Glen O. Baluran*, **Philippines**

Sorptive Removal of Phosphate from Wastewater Using Gravel, *Safaa Ragheb*, Housing and Building National Research Center, *Hala Hegazi*, Housing and Building National Research Center, **Egypt**

Alternative Waste Substrates from Nigeria for Bio-Ethanol Production, *Bartholomew Okolo*, University of Nigeria, *Anene Moneke*, University of Nigeria, *Chioma Amadi*, University of Nigeria, *C.N. Eze*, *J.W. Walker*, *R.C. Agu*, **Nigeria**

Portland Cement Design with Crumb Rubber from Waste Tires as a Fine Aggregate to Make Accessibility Ramps, *Liseane Thives*, Federal University of Santa Catarina - UFSC, *Guilherme Koettker*, UFSC, *Cristine Yohana Ribas*, UFSC, *Fernanda Deucher*, *Matheus Bracht*, *Gunnar Gabriel*, **Brazil**

Study on Influence Factors of Waste Activated Sludge Reduction by Worms' Predation, *Xuefeng Zhu*, Shanghai Second Polytechnic University, **China**

TUESDAY, APRIL 1

8:00 a.m. - 5:30 p.m.

Conference check-in and registration

8:00 a.m. – 8:30 a.m.

Coffee

8:30 a.m. - 10:10 a.m.

Sessions 5

SESSION 5A

Compost

Comparison of Characteristics of Backyard and Municipal Solid Waste Composting Phenomena, *Shiddappa Lagamappa Belagali*, University of Mysore, *Manohara Badekkanadka*, University of Mysore, **India**

Changes in the Physico-Chemical Characteristics During Composting of Municipal Solid Waste and Their Influence on Compost Stability and Maturity, *Siddappa Lagamappa*

Belagali, University of Mysore, *D. C. Shyamala*, University of Mysore, **India**

Biodegradation of Leaf Litter Biomass by Co-Inoculation of *Bacillus* sp. and *Trichoderma reesei* MTCC164, *Nadeem Akhtar*, Thapar University, *Dinesh Goyal*, Thapar University, *Arun Goyal*, IITG, Guwahati, **India**

Biodegradation of Grass Litter by Newly Isolated Cellulose Degrading *Lysinibacillus fusiformis* DGA, *Nadeem Akhtar*, Thapar University, *Dinesh Goyal*, Thapar University, *Arun Goyal*, IITG, Guwahati, **India**

Effects of Long-Term Use of Compost on Soil Properties in Vegetable Cropping Systems in Greenhouse, *Hui Han*, China Agricultural University, *Ake Zhang*, *Hefa Yang*, *Ji Li*, **China**

Promoting Mechanical Biological Waste Treatment, *Chukwu Onu*, Southern University A & M College, **USA**

SESSION 5B

Goals and Critical Needs of Waste Management

Environmental Performance of Waste Recyclers: Ensuring the Quality of the Custody Chain, *Paulo Roberto Janissek*, Universidade Positivo, *Cintia Mara Ribas de Oliveira*, Universidade Positivo, *Julio Jose Neto*, Positivo Informática, **Brazil**

Waste Characterization of Copper Ore Processing for Sustainable Management, *Raul Oliveira Neto*, Federal University of Pampa - UNIPAMPA, *Luis Eduardo de Souza*, Federal University of Pampa - UNIPAMPA, *Regis Sebben Paranhos*, Federal University of Pampa - UNIPAMPA, *Irineu Antônio Schadach de Brum*, *Angela Cristina Fleck*, *Luis Eduardo Zago*, *Adriane Oliveira*, **Brazil**

Chemically Derivatized Textile Cotton Dust for In Situ Remediation of Colored Waste Waters, *José Domingos Fontana*, UTFPR - Federal Technological University of Parana, *Gizele Rejane Baldo*, *Adelia Grzybowski*, *Marcela Tiboni*, *Lucas Blitzkow Scremin*, *Lucas Dohler*, **Brazil**

The Best Practices of RA9003 in Conformance with the IMO MARPOL73/78 Convention for Vessels Plying the Davao City-Manila, Philippines Route, *Lilia Panchito*, Agro Industrial Foundation College of the Philippines, *Albert Jubilo*, Ateneo de Davao University, *Jenna Christy Matalam*, Mount of Olives Diagnostic Laboratory, *Shomae Lilli F. Panchito*, *Ruben R. Basalo*, *Glen O. Baluran*, **Philippines**

The Italian Model for Used Oils Recovery, Reuse, Recycling and Conversion, *Paola Olimpia Achard*, University of L'Aquila, *Massimiliano Fabbricino*, University of Naples Federico II, **Italy**

A Comparative Study of Waste Management Practices Among Different States in the Federation of Brazil, *Marisa Soares Borges*, Federal University of Parana, **Brazil**

Solid and Hazardous Waste Management Configuration in Alexandria – Egypt, *Ahmed*

Hossam Hassan Abd El-Naby, High Inst; Public Health; Alexandria University, **Egypt**

SESSION 5C

Recycling 2

Wood Comminution and the Influence on Grain Size and Particle Shape, *Nils Bauerschlag*, RWTH Aachen University, *Sebastian Kaufeld*, *Alexander Feil*, *Thomas Pretz*, **Germany**

Pyrolysis of the Cross-Linked Polyethylene, *Yuying Du*, Zhejiang University, *Xuguang Jiang*, Zhejiang University, *Alfons Buekens*, Vrije Universiteit Brussel, *Yuqi Jin*, *Fei Wang*, *Yong Chi*, *Jianhua Yan*, **China**

Producing Low-Temperature Co-Fired Ceramics (LTCC) from Thin-Film Transistor Liquid-Crystal Display (TFT-LCD) Waste Glass, *Kung-Cheh Li*, National Taiwan University, *Chen-Shiuan Fan*, National Taiwan University, **Taiwan**

Technological Feasibility Study on Recovery of Metals from One Computer Center of the FCQI, *Miguel Aguilar Cortes*, Universidad Autónoma del Estado de Morelos, *Martha Lilia Domínguez Patiño*, Universidad Autónoma del Estado de Morelos, *Nadia Lara Ruiz*, Universidad Autónoma del Estado de Morelos, *Luz Elva Marín Vaca*, *Rosa María Melgoza Aleman*, **México**

Advances in Post-Consumer Recycling Methods for Plastics, *Matthew Franchetti*, The University of Toledo, **USA**

Recovery of Metals from Spent Hydroprocessing Catalyst Waste: Extraction with Ammonium Salt Solution, *Meena Marafi*, Kuwait Institute for Scientific Research (KISR), *Mohan S. Rana*, Kuwait Institute for Scientific Research (KISR), **Kuwait**

SESSION 5D

Policy, Economics and Education

Capacity Building in Solid Waste Management: A Case Study from Aceh Province and Nias Island, Indonesia, *Praja Shapkota*, *Yayat Kurniawan*, United Nations Human Settlements Programme, 1964, **USA**

Policy and Guidelines vis-à-vis Their Implementation and Compliance: The Key Factor for Sustainability in Solid Waste Management, *Praja Shapkota*, 1964, **USA**

Proposal for an Environmental Information Repository for the State of São Paulo (Brazil) and Its Importance for Protecting Soil Quality and Managing Polluted Areas, *Pedro Luiz Côrtes*, University Nove de Julho/University of São Paulo, **Brazil**

Public Involvement Aiming at the Improvement of Household Solid Waste Management: A Case Study, *Fernando Rodrigo Bortolozoa*, Parana Federal University, *Juliane Rizzi*, Parana Federal University, *Fabiano Ramiro Serpe*, Parana Federal University, *Maria*

Cristina Borba Braga, Brazil

Waste and Recycling Attitude and Practices of Urban Secondary School Students in Lagos State, Nigeria, *Abolaji O. Boyejo*, Johnson Abolaji Nig. Enterprises, *Taiwo Odumosu*, Olabisi Onabanjo University, *Aderonke O. Adekoya*, Alpha Law Firm, *Wale O. Banjo*, *Idowu Oluwatoyin Adenike Tunde Adigun, Nigeria*

Social Technologies Applied in Exploitation of Solid Waste from the Amazon Forest, *Izabel Cristina da Silva*, IFRO - Instituto Federal de Educação de Rondônia / GEITEC - Research Group on Management of Innovation and Technology at the Foundation Federal University of Rondônia, *Alexandre Cruz de Mello Franco*, Foundation Federal University of Rondônia / Department of Administration / CEDSA, *Flávio de São Pedro Filho*, Foundation Federal University of Rondônia / Postgraduation in Administration / GEITEC - Research Group on Management of Innovation and Technology, *Mariluce Paes de Sousa, Sônia Maria Teixeira Machado, Brazil*

Future Waste Policy in Finland According the European Union Waste Strategy, *Jouko Saarela*, Finnish Environment Institute, *Tuuli Myllymaa, Finland*

10:10 a.m. - 10:30 a.m.

Break

10:30 a.m. – 12:15 p.m.

Sessions 6

SESSION 6A

Energy Recovery 2

A Simulation Model of Two Stage Water Scrubbing System for CO₂ Absorption Using ASPEN PLUS Software, *Pradip Narale*, Indian Institute of Technology, Delhi, *Virendra Kumar Vijay*, Indian Institute of Technology, Delhi, *P.M.V. Subbarao*, Indian Institute of Technology, Delhi, *Rimika Kapoor, India*

Isothermal Thermogravimetric Analysis of Biomass Wastes and Their Model Components, *Olumuyiwa Lasode*, University of Ilorin, *Ayokunle Balogun*, Lower Niger River Basin Development Authority, *Armando McDonald*, University of Idaho, **Nigeria**

Catalysts Screening for Plastic Pyrolysis: A Thermo-Gravimetric Study, *Sriraam R. Chandrasekaran*, Illinois Sustainable Technology Center, Prairie Research Institute, University of Illinois Urbana Ch., *Brajendra K. Sharma*, Illinois Sustainable Technology Center, Prairie Research Institute, University of Illinois Urbana Ch., *Nandakishore Rajagopalan*, Illinois Sustainable Technology Center, Prairie Research Institute, University of Illinois Urbana Ch., **USA**

Design and Off-Design Conditions of Waste-to-Energy Cogeneration Plant, *Wondwossen Bogale Eremed*, Politecnico di Milano, *Federico Viganò*, Politecnico di Milano and LEAP-Laboratory, **Italy**

Performance Analysis of Waste-to-Energy Plants at Design and Off-Design Conditions, *Wondwossen Bogale Eremed*, Politecnico di Milano, *Federico Viganò*, Politecnico di

Milano and LEAP-Laboratory, **Italy**

SESSION 6B

Landfill 2

Development of Risk Assessment Tool for Landfill Failure, *Ali Jahanfar*, University of Guelph, *Brajash Dubey*, University of Guelph, **Canada**

Site Characterisation for Landfill Construction in Tarkwa-Nsuaem Municipality, Ghana, *Victoria Elorm Frempong*, University of Mines and Technology, Tarkwa, *Roberta Flemming*, The University of Western Ontario, London, *Ernest Yanful*, The University of Western Ontario, London, *Jerry Kuma*, *Newton Amegbey*, **Ghana**

Evaluation of Gas and Leachate Generation at Al-Qurain Closed Solid Waste Landfill, *Haya Alabdullah*, Kuwait University, *Mohamad Al-sarawi*, Kuwait University, **Kuwait**

Measurement of Hydro-Thermal Variation During Decomposition of MSW in Bioreactor Landfill, *Bhagawan Patil*, Indian Institute of Technology, Bombay, *Devendra Narayan Singh*, Indian Institute of Technology Bombay, **India**

The Properties of Dune Sand-Bentonite Mixtures for Use as Landfill Liners, *Yahia Mohamedzein*, Sultan Qaboos University, *Ahmed Al-Ghaithi*, Sultan Qaboos University, *Mohammed Al-Aghbari*, Sultan Qaboos University, **Oman**

Quantifying Surface Methane Emissions from Two Landfills of the Estado de México, *Laura Verónica Díaz Archundia*, Instituto Tecnológico de Toluca, *María del Consuelo Hernández Berriel*, Instituto Tecnológico de Toluca, *María de la Luz Jiménez Núñez*, Instituto Tecnológico de Toluca, *Otoniel Buenrostro Delgado*, *María del Consuelo Mañón Salas*, **México**

Deconstruction of the Sanitary Landfill Concept and the Management of Solid Waste in Western Amazon, *Jeoval Batista da Silva*, Foundation Federal University of Rondônia/GEITEC - Research Group on Management of Innovation and Technology, *Flávio de São Pedro Filho*, Foundation Federal University of Rondônia/GEITEC - Research Group on Management of Innovation and Technology, *José Moreira da Silva Neto*, Foundation Federal University of Rondônia, **Brazil**

SESSION 6C

Modeling and Analysis

Time-Based Detection of Single Particles in Output Streams of Trommel Screens, *Sebastian Kaufeld*, RWTH Aachen University, *Alexander Feil*, *Thomas Pretz*, **Germany**

Using the Analytic Hierarchy Process for Decision Support in a MSW Collection Scheme, *Alexander Davies*, Cardiff University, *Anthony Griffiths*, Cardiff University, *Nick Oakes*, **UK**

Application of Zero Waste Index as an Alternative Performance Assessment Tool: The Context of Adelaide, *Atiq U. Zaman*, Zero Waste SA Research Centre for Sustainable Design and Behaviour, University of South Australia, **Australia**

Opportunities and Obstacles to Waste Minimization in the US, *Moe Chowdhury*, Jackson State University, **USA**

CRT Obsolescence: Quantification, Modeling and Predictions for the State of Delaware, *Kelsea Schumacher*, Center for Energy and Environmental Policy; University of Delaware, **USA**

An Economic and Environmental Comparison Approach for Food Waste-to-Energy Technologies, *Matthew Franchetti*, The University of Toledo, *Adam Dellinger*, The University of Toledo, **USA**

SESSION 6D

Use of Wastes in Construction I

Fly Ash from Pulp and Paper Mill as a Partial Cement Replacement in Mortar, *Mirja Illikainen*, University of Oulu, *Päivö Kinnunen*, University of Oulu, *Mika Körkkö*, University of Oulu, *Jouko Niinimäki*, **Finland**

Sustainable and Economical Utilization of Biomass Gasification Byproducts, *Wei Zhang*, Illinois Sustainable Technology Center, University of Illinois at Urbana-Champaign, *Vinod Patel*, Illinois Sustainable Technology Center, University of Illinois at Urbana-Champaign, *Peter Ping Liu*, Eastern Illinois University, *Brajendra K. Sharma*, *Mori Toosi*, *Wafeek Wahby*, **USA**

Development of Incineration Bottom Ash (IBA) Aerated Geopolymer, *Zhitao Chen*, Nanyang Technological University, *Yiquan Liu*, Nanyang Technological University, *Zheng Hui Phua*, Nanyang Technological University, *En-Hua Yang*, **Singapore**

12:15 p.m. – 1:15 p.m.

Poster Session 2

POSTER SESSION 2

Resource Recovery from Municipal Solid Waste Ash, *Jinfeng Tang*, Chalmers University of Technology, *Henric Lassesson*, Chalmers University of Technology, *Britt-Marie Steenari*, Chalmers University of Technology, **Sweden**

Parameters Study of High-Frequency Vibration Separator for Recovering Metals from Waste PCB Powder, *Haohua Ren*, China University of Mining and Technology (Beijing), *Jie Guan*, **China**

Compressibility Parameters of MSW from Southeastern Brazil Using a Large Scale Oedometer, *Julio César Beltrame Benatti*, Unicamp, *Jorge Luiz da Paixão Filho*, Unicamp, *Vitor Bochetti Vilela*, Unicamp, *Miriam Gonçalves Miguel*, **Brazil**

Chemical Fractionation of Non-Process Elements in Green Liquor Sludge from the Sulphate Pulp and Board Mill Complex, *Risto Pöykiö*, City of Kemi, *Hannu Nurmesniemi*, Stora Enso Oyj Veitsiluoto Mill, *Olli Dahl*, Aalto University, **Finland**

Characteristics of Malodor Gases Emitted during Preheating of Iron Scraps, *Nayeon Lee*, The University of Suwon, *Bongjin Jung*, The University of Suwon, *Byoung-Lok Jang*, SAC Co., **Republic of Korea**

Landfill Leachate Pollution Index and Fitotoxic Assays, *Liliana Marquez-Benavides*, UMSNH, *Daniela Guerrero*, UMSNH, *Juan M. Sanchez*, UMSNH, *Otoniel Buenrostro*, **México**

Performance Characteristics of Synthetic Zeolite F9 in Treating High Iron and Manganese Acid Mine Drainage, *Mike Masukume*, Tshwane University of Technology, *Maurice Onyango*, Tshwane University of Technology, *Jannie Maree*, Tshwane University of Technology, **South Africa**

Solvent Extraction and Pyrolysis Process: A Comparative Study for Material/Energy Recovery from Cellphone Plastics, *Sumant Avasarala*, Illinois Sustainable Technology Center, Prairie Research Institute, University of Illinois Urbana Ch., *Sriraam R. Chandrasekaran*, Illinois Sustainable Technology Center, Prairie Research Institute, University of Illinois Urbana Ch., *Dheeptha Murali*, Illinois Sustainable Technology Center, Prairie Research Institute, University of Illinois Urbana Ch., *Brajendra K. Sharma*, *Nandakishore Rajagopalan*, **USA**

Monitoring of Microbial Population Dynamics During the Thermophilic Sludge Biorecovery by Real-Time PCR, *Shen-Yi Chen*, National Kaohsiung First University of Science and Technology, *Wen-Hsing Chen*, National Ilan University, *Li-Chieh Chou*, National Kaohsiung First University of Science and Technology, **Taiwan**

Utilization of Biomass Waste as Carbon Source in Direct Carbon Fuel Cell, *Bongjin Jung*, The University of Suwon, *Nayeon Lee*, The University of Suwon, *Rak-Hyun Song*, Korea Institute of Energy Research, **Republic of Korea**

The Effects of Particle Size and Concentration of Waste Polyethylene Terephthalate on the Rutting and Fatigue Cracking Resistance of Composite Trinidad Lake Asphalt/Trinidad Petroleum Bitumen Blends, *Chris Maharaj*, The University of the West Indies, *Rean Maharaj*, The University of Trinidad and Tobago, *Rhea Jaikaran*, The University of the West Indies, **Trinidad and Tobago**

Kinetic Modeling of the Gasification of Utah Bituminous Coal and Waste Wood Using ASPEN Plus, *Idowu Adeyemi*, Masdar Institute, *Isam Janajreh*, Masdar Institute, **United Arab Emirates**

Thermal and Chemical Effects on the Cyclic Shear Behaviors of Geosynthetic-Soil Interface, *Changwon Kwak*, Seoul National University, *Innjoon Park*, Hanseo University, *Junboun Park*, Seoul National University, **South Korea**

A Comparative Study of Waste Management Practices Among Different States in the Federation of Brazil, *Marisa Soares Borges*, Federal University of Parana, **Brazil**

Sugarcane Bagasse: Applications for Energy Production and Ceramic Materials, *Silvio Rainho Teixeira*, UNESP, *Amanda Arenales*, UNESP, *Agda Eunice Souza*, UNESP, *Renata Silva Magalhães*, *Angel Fidel Vilche Peña*, *Davi Aquino*, *Rosane Freire*, **Brazil**

Illegal Dumping in Al-khabourah Town – Sultanate of Oman, *Ali Al-Balushi*, Sultan

Enrichment and Identification of Ammonia Tolerant Microorganisms from Landfill Leachates, *Sunirat Rattana*, Rutgers, The State University of New Jersey, *Donna E. Fennell*, Rutgers, The State University of New Jersey, *Valdis Krumins*, Rutgers, The State University of New Jersey, **USA**

Preparation of Nano-Magnetite Whisker, Rods, and Needles Using Ultrasonic Bathing with Co-Precipitation Technique, *Ahmed Hanafy*, The British University in Egypt, *Shakinaz El Sheltawy*, Cairo University, *Mahmoud Nasr*, Centre Metrology Research and Development Institute, *Mervat Hassan*, **Egypt**

The Issue of Electronic Waste Management. Case Study in the Municipality of Rio de Janeiro, *Marco Figueiredo*, Universidadedo Estado do Rio de Janeiro, **Brasil**

Modular Bricks Produced from Construction and Demolition Waste, Cement and Lime, *Silvio Rainho Teixeira*, Universidade Estadual Paulista - UNESP, *Daniel Lemes Cardoso*, UNESP, *Guilherme Cândido da Silva*, UNESP, *Gustavo Cruz Gregório*, *Agda Eunice de Souza*, *Fernanda Cristina Anastácio*, **Brazil**

1:15 p.m. – 2:15 p.m.

Luncheon

2:15 p.m. – 4:15 p.m.

Sessions 7

SESSION 7A

Waste in Developing Regions

Privatisation of Organic Waste Management in Ghana and Impacts on Local People, *Michael Osei-Antwi*, University of Cologne, *Philip Nti Nkrumah*, Hohai University, **Germany and China**

Urban Solid Waste Management in Ilorin, North Central Nigeria: A Case Study, *Olumuyiwa Lasode*, University of Ilorin, *Adeniyi Aremu*, University of Ilorin, *Ayokunle Balogun*, Lower Niger River Basin Development Authority, **Nigeria**

Municipal Solid Waste Management as Panacea to Economic Development and Wealth Creation: The Role of Private Sector in Africa, *Olufemi Oyedele*, Government of the State of Osun, **Nigeria**

Challenges of Municipal Waste Management and Disposal Criteria in Developing Countries, Addis Ababa, Ethiopia, *Eyilachew Abate*, UiO, **Norway**

Bio-Risk and Health of Informal Waste Management in Kaduna Metropolis, *Abdul Gambo Badamasi*, Kaduna Polytechnic, *Samual Agoezie Ezeudu*, University of Nigeria Nsukka, *Mohammed Shuaibu*, Shehu Idris Shool of Health Technology Makarfi, *Yusuf Abdullahi Rigasa*, National Oil Detection and Response Agency (NOSDRA) Abuja, **Nigeria**

An Appraisal of the Role of Informal Sector in the Management of Electronic Wastes in Nigeria, *Fatima Badiru Ibrahim*, Ahmadu Bello University Zaria, *Abdulraheem Giwa*, Ahmadu Bello University Zaria, *Donatus B. Adie*, Ahmadu Bello University Zaria, *Johnson Adebola Otun*, *Charles Amen Okuofu*, **Nigeria**

Evolution of Waste Management Policies in India, *Lakshmi Raghupathy*, Former

Director, Ministry of Environment & Forests, Govt of India; Consultant & Adviser, *Ashish Chaturvedi*, Deutsche Gesellschaft für Internationale Zusammenarbeit, New Delhi, **India**

Transfer of Knowledge on Solid Waste Management from Sri Lanka to Fiji, *Ajantha Perera*, Fiji National University, **Fiji Islands**

SESSION 7B

Carbon Reduction and Biochar

The Influence of Biochar on Growth of Onion and Tomato and Their Colonization by Vesicular Arbuscular Mycorrhizal Fungi, *Kalika Prasad Upadhyay*, The University of Queensland, *Doug George*, The University of Queensland, *Victor Galea*, The University of Queensland, *Jitka Kochanek*, *Roger S. Swift*, **Australia**

German GHG Mitigation Lighthouse Project MBT Plant Gaobeidian (PR China), *Florian Kölsch*, Dr. Kölsch Geo- und Umwelttechnik GmbH, *Mathias Ginter*, AWN Umwelt GmbH, **Germany**

Detailed Kinetics-Based Modeling of the Gasification of Utah Bituminous Coal and Waste Wood Using ASPEN Plus, *Idowu Adeyemi*, Masdar Institute of Science and Technology, *Isam Janajreh*, Masdar Institute, **United Arab Emirates**

Greenhouse Gases in Low-Income Housing in México: Solid Waste and Energy Profiles, *Liliana Marquez-Benavides*, UMSNH, *Fernanda Alejandre*, UMSNH, *Sara Ojeda*, UABC, *Edgar L. Moreno-Goytia*, *M.C. Hernandez-Berriel*, **México**

Ship Propulsion with Renewable Metal Fuels Augmented with Magnetohydrodynamia Acceleration, *Bert Zauderer*, Coal Tech Corp., **USA**

Biochar Compound Fertilizer as an Option to Reach High Productivity but Low Carbon Intensity in Rice Agriculture, *Qian Li*, Institute of Resource, Ecosystem and Environment of Agriculture, Center of Agriculture and Climate Change, Nanjing Agricultural University, *Chen Lin*, Institute of Resource, Ecosystem and Environment of Agriculture, Center of Agriculture and Climate Change, Nanjing Agricultural University, *Stephen Joseph*, University of New South Wales, *Genxing Pan*, *Lianqing Li*, *Jinwei Zheng*, *Xuhui Zhang*, *Jufeng Zheng*, *Xinyan Yu*, *Jiafang Wang*, **China**

SESSION 7C

Advances in Hazardous Wastes

Leaching of Lead from Geopolymer Prepared by Waste Acid Residue, *Fenglan Han*, Beifang University of Nationalities, **China**

Application Research of Waste Printed Circuit Board (PCB) Powder Recycling by High Frequency Vibration Air Separator, *Guan Jie*, Shanghai Second Polytechnic University, *Ren Haohua*, China University of Mining and Technology (Beijing), **China**

SESSION 7D
Contaminated Sites

Reporting of the Main Areas Contaminated by Organochlorines in Brazil, *Pedro Luiz Côrtes*, University Nove de Julho/University of São Paulo, **Brazil**

SESSION 7E
Research Advances 2

Biocatalyst Based on Immobilization of *Micrococcus Luteus* in a Biotrickling Filter Packed with Polystyrene Foam for Hydrogen Sulfide Removal, *Hoang Nguyen Khanh*, Industrial University of Ho Chi Minh City (IUH), *Hoang Phan Thi*, Tan Binh Medical Centre, **Viet Nam**

Small Scale Biogas Upgradation and Bottling Technology for Vehicular and Cooking Application in India, *Virendra Kumar Vijay*, Indian Institute of Technology, Delhi, *Rimika Kapoor*, Indian Institute of Technology, Delhi, *Pradip Narale*, Indian Institute of Technology, Delhi, **India**

Prospects and Developments of Small Scale Biogas Upgrading & Bottling Technology in Developing Countries, *Rimika Kapoor*, Indian Institute of Technology, Delhi, *Virendra Kumar Vijay*, Indian Institute of Technology, Delhi, *Pradip Narale*, Indian Institute of Technology, Delhi, **India**

Traditional Medicine in Waste Bottles: The Prospects of Integrated Waste Bottle Management in Nigeria, *Chidiebere Onyeka Okafor*, Coal City University, **Nigeria**

Biogas Production with Two Frequencies and Rates of Leachate Recirculation in Municipal Solid Waste, *Elvira Olay-Romero*, Instituto Tecnológico de Toluca, *María del Consuelo Hernández-Berriel*, Instituto Tecnológico de Toluca, *Laura Veronica Díaz-Archundia*, Instituto Tecnológico de Toluca, *Isaías de la Rosa-Gómez*, *Otoniel Buenrostro-Delgado*, *Liliana Márquez-Benavides*, **México**

Recycling of Bag-House Dust from Foundry Sand, *Brandon Dugan*, Kroll Institute for Extractive Metallurgy, *Corby Anderson*, Kroll Institute for Extractive Metallurgy, **USA**

Preparation of Nano-Magnetite Whisker, Rods, and Needles Using Ultrasonic Bathing with Co-Precipitation Technique, *Ahmed Hanafy*, The British University in Egypt, *Shakinaz El Sheltawy*, Cairo University, *Mahmoud Nasr*, Centre Metrology Research and Development Institute, *Mervat Hassan*, **Egypt**

Tea Waste as a Low Cost Adsorbent for the Removal of Cr and Pb from Wastewater, *Safaa Ragheb*, Housing and Building National Research Center, **Egypt**

Red Mud as Low-Cost Adsorbents for Wastewater Treatment, *Maha El Shafai*, Housing and Building National Research Center, **Egypt**

SESSION 7F
Energy Recovery 3

Studies on Pretreatment of Newspaper Waste for Fuel Ethanol Production, *Asha Gupta*, Guru Jambheshwar University of Science & Technology, *Kirti Singh*, Guru Jambheshwar University of Science & Technology, *Usha Punia*, Guru Jambheshwar University of Science & Technology, **India**

4:15 p.m. – 4:35 p.m.
Break

4:35 p.m. – 6:00 p.m.
Sessions 8

SESSION 8A
Use of Wastes in Construction 2

Fly Ash Fractionation with Electrostatic Precipitators to Improve Utilization of Ashes, *Mika Körkkö*, University of Oulu, *Mirja Illikainen*, University of Oulu, *Päivö Kinnunen*, University of Oulu, *Jan Österbacka*, *Jouko Niinimäki*, **Finland**

Microstructure of Porous Corundum and Mullite-Based Composite Water Permeable Ceramics Prepared with Fly Ash and Aluminum Oxide, *Xiu-Wen Wu*, China University of Geosciences, Beijing, **China**

Portland Cement Design with Crumb Rubber from Waste Tires as a Fine Aggregate to Make Accessibility Ramps, *Liseane Thives*, Federal University of Santa Catarina - UFSC, *Guilherme Koettker*, UFSC, *Cristine Yohana Ribas*, UFSC, *Fernanda Deucher*, *Matheus Bracht*, *Gunnar Gabriel*, **Brazil**

SESSION 8B
Landfill 3

Analysis of the Long-Term Data for Stabilizing the Waste in Closed System Disposal Facilities, *Kazuei Ishii*, Hokkaido University, *Toru Furuichi*, Hokkaido University, **Japan**

Maximizing Air Space Capacity Utilization at a Landfill – A Case Study of King County Cedar Hills Regional Landfill, Maple Valley, WA, *Mizanur Rahman*, King County Solid Waste Division, **USA**

Enrichment and Identification of Ammonia Tolerant Microorganisms from Landfill Leachates, *Sunirat Rattana*, Rutgers, The State University of New Jersey, *Donna E. Fennell*, Rutgers, The State University of New Jersey, *Valdis Krumins*, Rutgers, The State University of New Jersey, **USA**

Release of Humic Substances during In Situ Aeration, *HuanHuan Tong*, Nanyang Technological University, *Ke Yin*, Nanyang Technological University, *JingYuan Wang*,

Nanyang Technological University, **Singapore**

Emerging Issues for High Strength Leachate Treatment, *Ivan Cooper*, Civil & Environmental Consultants, Inc., *Olya S. Keen*, University of North Carolina at Charlotte, **USA**

SESSION 8C
Recycling 3

Research Needs for Carbon Footprint in Recycling Scenarios, *Lakshmi Raghupathy*, Former Director, Ministry of Environment & Forests, Govt. of India, **India**

3Es Concept for Recycling Technologies, *Lakshmi Raghupathy*, Former Director, Ministry of Environment & Forests, Govt. of India, **India**

SESSION 8D
Research Advances 3

Fungal Degradation of Ackee (Blighia Sapida) Fruit Waste for Use as a Soil Amendment, *Kaydene Williams*, University of the West Indies, Mona, **Jamaica**

Drainage Characteristics on Silt Deposition in Meghadrigedda Reservoir, *Visakhapatnam*, *Abbulu Yerramsetty*, Andhra University, **India**

6:00 p.m. – 6:45 p.m.

Presentation for Field Trip 1

6:30 p.m. – 7:30 p.m.

Closing Reception

WEDNESDAY APRIL 2

8:00 a.m. – 9:00 a.m.

Conference check-in and registration

8:00 a.m. – 9:00 a.m.

Coffee

9:00a.m. – 2:00 p.m.

Technical Field Trips (choose 1)

FIELD TRIP 1 – Environmental Landfill and Composting

Delaware Solid Waste Authority

The Cherry Island Landfill is a municipal solid waste landfill located in Wilmington, Delaware. The site recently underwent a major landfill expansion. The expansion project included the successful design and construction of an 8,000-ft long, 60-ft high mechanically stabilized earth (MSE) berm over extremely soft river-dredge material. The site is located at the confluence of the Delaware and Christina Rivers. The completion of this landfill expansion project represents a significant engineering achievement considering the size of the MSE berm and the deep layer of very soft soils over which the berm was constructed. The berm consists of 1.5 million cubic meters of fill and is one of the highest and most massive reinforced structures constructed over soft soils ever built in the United States. This pioneering project was selected as a finalist for the 2012 Outstanding Civil Engineering Achievement (OCEA) award by the American Society of Civil Engineers.

The Cherry Island Landfill manages approximately 1200 tons of solid waste per day and operates four (4) unique handling areas. The state-of-the-art operation utilizes recovered resources for all operational needs such as landfill cover and access road construction. Zero virgin materials are imported for operational purposes. The landfill collects and processes approximately 4500 scfm of landfill gas for the generation of green power. The landfill also operates a recycling area including a yard waste composting system utilizing the Gore tarping system.

Wilmington Organic Recycling Center

Accepting 160,000 tons per year of source separated organic waste, WORC is the most state-of-the-art, large scale commercial food and yard waste composting facility in North America. The facility sits on 27 acres across from the Port of Wilmington, Delaware. This location was formerly a brownfield site that was remediated prior to WORC construction. The project was developed by The Peninsula Compost Group over a three-year period at a cost of \$20 million. Ground was broken in May 2009, and construction was complete in December 2009.

FIELD TRIP 2 – Recycling, Energy Recovery and Transfer

Covanta Delaware Valley Energy-from-Waste Facility

The Covanta Delaware Valley Energy-from-Waste facility, located in Chester, Pennsylvania is capable of processing up to 3,510 tons of municipal and commercial solid waste each day. The facility originally opened for commercial operation in 1992. The plant not only meets the municipal solid waste disposal of Delaware County, but also provides capacity for up to 800,000 tons of additional waste each year from surrounding counties. Advanced control systems constantly monitor combustion performance, energy output and emissions at the Delaware Valley facility.

Utilizing six boilers, each with a rated capacity of 585 tons per day, the Delaware Valley facility has the ability to process up to 3,510 tons of municipal and commercial waste each day which, in turn, generates up to 90 MW of clean, renewable power. Additionally, the facility recovers approximately 35,000 tons per year of ferrous and non

ferrous metal for recycling that would otherwise be lost in landfills. This operation conserves valuable landfill space by reducing the waste processed into an inert ash residue that is approximately 10% of its original volume.

A tour of the facility will include a brief overview by operations staff followed by a walking tour through the facility. The walking tour will allow visitors to see:

- Tipping floor – the location where municipal solid waste is unloaded from transfer trailers
- Control room – the command center of the facility
- Turbine Deck – the power generating equipment
- Boiler Floor – the combustion and steam generation equipment

Covanta Energy 58th St Transfer Station and E-vanta WEEE Recycling

The 58th St Transfer Station is permitted as a solid waste & recycling transfer station. It is located in South West Philadelphia & zoned for industrial use & has rail access to CSX line. The site accepts commercial, municipal & demolition type waste as well as cardboard & office paper for recycling purposes.

The facility includes an electronic scrap recycling process. Visitors to the facility will take a tour of the operations including the electronic recycling project.

Revolution Recovery

Providing a complete range of recycling services to the construction, manufacturing, commercial and residential markets in the Philadelphia metropolitan area and Northern Delaware, Revolution Recovery is committed to their mission of keeping materials out of landfills while providing sustainable services at a cost less than traditional landfill disposal. Located on a 3.5 acres (1.4 ha) site with 35,000ft²+ (3300 m²) of warehouse space, their Philadelphia facility accepts over 300 tons/day of both commingled and separated materials. After being placed on the tipping floor, the loads move through a 250 ft automated sort line and recovery system where materials such as wood, drywall, metal, rubble, cardboard, plastics, carpet, mixed paper, and other materials are diverted from landfills. Through this system, the facility is able to recover approximately 80% of inbound materials, process them, and ship them to recyclers and end users.