

GUIDEBOOK

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sardinia_2017

16th INTERNATIONAL WASTE MANAGEMENT
AND LANDFILL SYMPOSIUM

Forte Village / S. Margherita di Pula (CA) / Italy
2-6 October 2017

Organised by / Organizzato da:

IWWG - International Waste Working Group

With the scientific support of / Con il supporto scientifico di:

University of Padova (IT)

Tongji University (CN)

Technical University of Denmark (DK)

Fukuoka University (JP)

University of Central Florida (US)

Hamburg University of Technology (DE)

Promoted by / Promosso da:

AIAT - Association of Land and Environmental Engineers (IT)

GITISA - Italian Group of Sanitary Environmental Engineering (IT)

IGS - International Geosynthetics Society (US)

IWMSA - Institute of Waste Management of Southern Africa (ZA)

IUPAC - International Union of Pure and Applied Chemistry

LIFE PROGRAMME - European Commission Environment Programme (EU)

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PRESENTAZIONE

PRESENTATION

The International Symposia Sardinia were established in 1987 in order to make ideas and experiences in the rapidly developing field of waste management and landfilling readily available to professional communities worldwide. Since then the Symposia have rapidly become the international reference forum where every two years planners, operators, public officials and scientists present their relevant experiences and discuss new concepts and technologies of waste management.

All new ideas and approaches applied worldwide in the last three decades were thoroughly debated and reviewed during the numerous sessions in the Symposia, some of them purposely organized in cooperation with the IWWG task groups.

The fifteenth Symposium was held in October 2015, in the traditional venue of the Forte Village Complex at S. Margherita di Pula (Cagliari), with an attendance of more than 700 delegates from 70 different countries.

The 2017 edition will focus as per tradition on the advances of Waste Management science and technology, presenting case studies and discussing the main controversial subjects, sharing experiences among different countries, valuating social and economical balances.

I Simposi Sardinia sono stati istituiti nel 1987 con lo scopo di rendere facilmente disponibili e condivisibili le conoscenze e le esperienze nel campo della gestione dei rifiuti e dello scarico controllato. Da allora sono diventati uno dei principali forum di riferimento a livello mondiale per gli esperti del settore che ogni due anni si ritrovano in Sardegna per presentare e discutere nuove strategie e tecnologie in quella che è unanimemente riconosciuta come una delle vetrine più prestigiose per la ricerca nazionale e internazionale.

Nel corso delle edizioni i Simposi hanno testimoniato e contribuito allo sviluppo dei moderni concetti di gestione integrata e smaltimento sostenibile dei rifiuti: non c'è innovazione che negli ultimi venticinque anni non sia stata presentata e discussa durante le conferenze e i numerosi workshop dei Simposi, alcuni dei quali organizzati grazie alla proficua collaborazione con i membri dell'International Waste Working Group.

Il programma si articolerà in otto sessioni parallele dedicate alla presentazione contributi orali, svariati workshop e una sessione poster.

SYMPOSIUM STRUCTURE

STRUTTURA SIMPOSIO

The Symposium is structured in oral sessions, a poster session and an exhibition by companies and institutions working in the field. Oral presentations are organized in two general sessions (A and B), and six specialized and workshop sessions (C, D, E, F, G and H) for a total of eight parallel tracks, in which over 500 presentations will be delivered.

General sessions A and B are usually attended by a considerable number of delegates and contributions within these sessions are presented following a strict schedule, in order to enable delegates to plan participations adequately. Twenty minutes are devoted to discussion. Topics discussed during sessions A and B will be examined in greater detail during specialized sessions and workshops. Sessions F and G are dedicated to workshops and are primarily addressed to experts on the specific topics. Introductory presentations are included in order to open discussion on more controversial aspects.

Poster papers will be presented in an appropriate session, which will be accessible to Symposium delegates throughout the week, and discussed in the presence of authors in the afternoons from Monday to Thursday.

Papers were selected according to quality by the Symposium Executive Programme Committee from over 850 offers of papers from 75 different countries. All papers are presented in English; in addition, six sessions held entirely in Italian will contribute to the dissemination of key contents at a national level.

Il Simposio è strutturato in sessioni orali, una sessione poster e un'esposizione commerciale dedicata a ditte ed enti che operano nel settore. Le sessioni orali sono organizzate in due sessioni generali (A e B), cinque sessioni specializzate e workshop (C, D, E, F, G), a cui si aggiunge una sessione prevalentemente in lingua italiana (H), per un totale di otto sessioni parallele, in cui verranno presentati oltre 500 contributi. La sessione italiana è accreditata con 6 CFP riconosciuti dall'Ordine degli Ingegneri di Cagliari.

Data la natura dei temi trattati le sessioni generali A e B vedono tradizionalmente la partecipazione di un gran numero di delegati; le relazioni presentate all'interno di tali sessioni seguiranno un programma particolarmente preciso in modo da consentire ai partecipanti di seguire le relazioni di loro interesse in sessioni parallele.

Gli argomenti affrontati durante le sessioni A e B troveranno approfondimento nelle sessioni specializzate e nei workshop. Nelle sessioni specializzate C e D sarà dedicato ampio spazio alla discussione. I workshop, svolti nelle sessioni F e G, sono prioritariamente rivolti ad esperti dell'argomento trattato e sono strutturati allo scopo di stimolare il dibattito dopo una o più relazioni introduttive.

I lavori selezionati sono stati scelti in base alla loro qualità scientifica dal Comitato Esecutivo di Programma fra oltre 850 abstracts arrivati da 75 diversi paesi. Tutti i lavori saranno presentati in inglese, ad eccezione di quelli inseriti nelle sessioni in lingua italiana.

COMMITTEES

COMITATI

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Marco RITZKOWSKI, Hamburg University of Technology (DE)
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INSTRUCTIONS

ISTRUZIONI

INSTRUCTIONS FOR SESSION CHAIRS & SPEAKERS / ISTRUZIONI PER PRESIDENTI DI SESSIONE E RELATORI

Instructions for Chairs of Sessions

On arrival at the Symposium venue Chairs of oral sessions, specialised sessions and workshops are kindly requested to contact the Speakers' Room where curricula vitae of speakers will be provided and any last-minute changes in the programme of the session to be chaired will be notified.

Fifteen minutes prior to the start of the sessions, Chairs should report to the conference room where the session will take place, to meet the speakers.

Chairs are furthermore requested to ensure that all speakers remain seated at the table throughout the entire session and that the timetable is strictly adhered to. This aspect is of extreme importance in order to allow delegates to schedule their attendance in the parallel sessions.

Istruzioni per i Presidenti di sessione

I Presidenti delle sessioni orali, specializzate e workshop sono gentilmente pregati di contattare la Sala Relatori al proprio arrivo presso la sede del Simposio affinché vengano forniti loro i curricula vitae dei relatori e vengano comunicate eventuali modifiche al programma della sessione che dovranno presiedere.

Quindici minuti prima dell'inizio delle rispettive sessioni, i Presidenti si presenteranno presso la sala dove si svolgerà la sessione per prendere contatto con i relatori.

I Presidenti di sessione sono inoltre pregati di adoperarsi affinché nessuno dei relatori abbandoni la sala prima della conclusione della sessione e venga rispettata la tempistica prevista. Quest'ultimo aspetto è di particolare importanza al fine di consentire ai partecipanti di seguire le relazioni di loro interesse in diverse sessioni parallele.

Information for Speakers

Speakers should contact the Chair 15 minutes prior to the start of the session in which their paper is to be presented. The Chair will be available in the conference room where the session is to take place. Speakers should be present at the conference table from the beginning of the session and remain for the entire duration. During the presentation commercial advertising should be avoided. Mention of affiliations or company name should be very discreet.

A duty member in the Speakers' Room is on hand for all requirements. A PC is available for speakers' use and priority will be given in line with session timetable. The computer in the Speakers' Room may not be used to prepare presentations, but only to make last-minute changes or a final check.

Speakers who have not sent a copy of their PowerPoint presentation to the Organising Secretariat prior to the conference are kindly requested to contact the Speakers' Room no later than during the session prior to that in which their own presentation is scheduled (should this be scheduled in a morning session, the deadline for contacting the Speakers' Room is the evening of the day before).

INSTRUCTIONS

ISTRUZIONI

re). Speakers should ensure their presentations are delivered to the pertinent conference staff in a timely manner. No additional time will be provided for late arrival presentations.

If your allowed time runs out, do not under any circumstances hurry to finish the entire presentation but go straight to the conclusions. To this regard, it may be of use to prepare a slide illustrating the conclusions in a synthesized version. The poster session will be held in the external foyer of the main conference hall. On arrival in the Poster Hall, all authors should check the exact position assigned to their poster. The staff at the Registration Desk will be pleased to provide assistance and fixing materials.

Informazioni per i relatori

I relatori dovranno contattare il Presidente della sessione durante la quale presenteranno la propria relazione almeno 15 minuti prima dell'inizio della stessa nella sala conferenze di riferimento. Gli autori dovranno essere presenti al tavolo della conferenza dall'inizio della sessione e rimanervi per tutta la durata della stessa. Nella presentazione va assolutamente evitata qualsiasi forma di pubblicità. La presenza di enti o ditte di appartenenza deve essere molto discreta.

Nella Sala Relatori sarà sempre presente un incaricato dell'organizzazione per fornire eventuale assistenza. Un computer sarà a disposizione dei relatori con precedenza che rispetta gli orari della sessione di presentazione. Non sarà possibile utilizzare il computer della Sala Relatori per preparare le relazioni, ma solo per apportare piccole modifiche e per un controllo finale.

I relatori che non avessero inviato una copia della loro presentazione PowerPoint alla Segreteria Organizzativa prima del Simposio sono cortesemente pregati di recarsi nella Sala Relatori non oltre la sessione precedente a quella in cui devono presentare la propria relazione (se si tratta di una sessione in programma per la mattina, il termine ultimo per contattare la Sala Relatori sarà la sera prima). I relatori dovranno assicurarsi che la presentazione sia consegnata allo staff di riferimento secondo le tempistiche indicate; non sarà possibile garantire tempo supplementare agli autori le cui presentazioni non saranno pervenute per tempo. Durante la comunicazione orale, nel caso stia per terminare il tempo a disposizione, si prega di non accelerare per esporre il resto della relazione ma di passare direttamente alle conclusioni. A tal proposito, potrebbe rivelarsi utile preparare una slide che sintetizzi le conclusioni.

La sessione poster si terrà nel foyer esterno del centro congressi. Gli autori sono pregati di controllare l'esatta ubicazione assegnata al proprio poster sulla mappa a disposizione nella Sala Poster. Lo staff al banco registrazioni sarà a disposizione in caso di necessità.

SMART TECHNOLOGIES

APPLICAZIONI SMART

SYMPOSIUM MOBILE APP / APP DEL SIMPOSIO

Make the most of your participation at Sardinia 2017 Symposium by downloading the official conference app. Get the latest information straight on your mobile device or tablet! The app will keep you up to date on all conference activities and allows to: view the agenda and explore sessions / build your personal schedule / access and read speaker profiles / view exhibitor floorplan and exhibitor information / receive important program updates and notifications / create your own personal delegate profile.

The app is available in the App iTunes Store and Google Play Store. To find it, please search for 'Sardinia Symposium 2017'. To access the mobile web version visit: <http://rdfphq.attendify.io/>

Rendi la tua partecipazione al Sardinia 2017 ancora più interattiva scaricando l'applicazione ufficiale della conferenza. Scaricala gratis e ottieni il programma aggiornato direttamente sul tuo smartphone o sul tuo tablet!

La nostra app ti permetterà di essere costantemente aggiornato su tutte le attività che si svolgeranno durante tutta la durata dell'evento: controlla l'agenda e esplora le sessioni / crea il tuo programma / leggi i profili degli speaker / guarda la mappa della venue / ottiene informazioni sulle aziende / ricevi gli aggiornamenti di programma con notifiche in diretta / valuta le sessioni che hai frequentato / crea il tuo profilo personale ed entra in contatto con gli altri partecipanti.

L'app può essere scaricata tramite App Store e Google Play Store. Per trovarla, basta cercare 'Sardinia Symposium 2017' o scaricarla direttamente dal seguente link: <http://rdfphq.attendify.io/>

AUGMENTED REALITY / REALTA' AUMENTATA

Augmented Reality is a technology that takes the world around you and adds virtual content to make it seem like the real world. Whenever you see a Zapcode like this (simbolo) you know there's exciting hidden content to discover. All you have to do is download the app and point the camera at a zapcode to make it come to life. Zappar is available for iPhone, iPad, iPod Touch and most Android phones & tablets.

Per realtà aumentata si intende l'arricchimento della percezione sensoriale umana mediante contenuti virtuali in genere convogliati elettronicamente. All'interno delle diverse aree congressuali sono visibili codici Zappar che vi permetteranno la visualizzazione di contenuti multimediali. Utilizzarli è semplicissimo: basta scaricare l'app Zappar (disponibile per iPhone, iPad, iPod Touch e per la maggior parte dei tablet e telefoni Android) e puntare la fotocamera verso il codice.

Zapcode / Codici Zappar



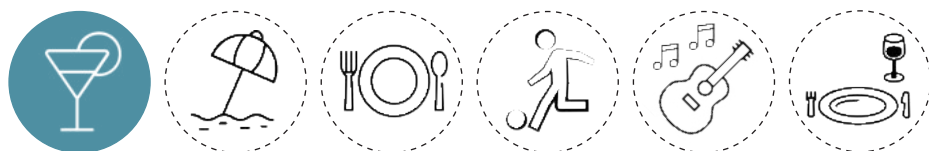
MEMBER'S AREA / AREA RISERVATA

All accepted papers are available for download (PDF documents) from the website members' area (available upon login to registered participants only).

Tutti i paper accettati sono disponibili per il download (file PDF) nell'area riservata del sito ufficiale del Simposio (accesso con login solo per i partecipanti).

SUNDAY OCTOBER 2

SOCIAL EVENT



WELCOME COCKTAIL / OASIS SWIMMING POOL **COCKTAIL DI BENVENUTO / PISCINA OASIS**

H. 19:00

Get the Symposium off to a great start and meet old and new friends and colleagues in a relaxing atmosphere by the Oasis swimming pool.

Per iniziare il Simposio con il piede giusto non c'è niente di meglio di un cocktail di benvenuto da sorseggiare insieme a nuovi colleghi e vecchi amici nella rilassante cornice delle piscine Oasis.

DAY 1 / MONDAY
OCTOBER 2

MONDAY OCTOBER 2 MORNING

OPENING SESSION / CENTRAL HALL / 9:00-13:00

Chair / *Presidente*: Raffaello Cossu (IT)

WELCOME ADDRESSES / SALUTI DI BENVENUTO

9:00-10:00 Raffaello COSSU / University of Padova (IT)
Pinjing HE / Tongji University (CN)
Peter KJELDSEN / Technical University of Denmark (DK)
Yasushi MATSUFUJI / Fukuoka University (JP)
Debra REINHART / University of Central Florida (US)
Rainer STEGMANN / Hamburg University of Technology (DE)

INTRODUCTORY LECTURES / RELAZIONI INTRODUTTIVE

10:00-10:50 Raffaello COSSU / University of Padova (IT)
Rainer STEGMANN / Hamburg University of Technology (DE)

10:50-11:20 Coffee Break

OPENING LECTURE / RELAZIONE DI APERTURA:

11:20-11:50 Dieter GERTEN / Potsdam Institute for Climate Impact
Research (DE)
Maintaining environmental planetary boundaries: a grand
challenge for the 21st century

JAPAN SPECIAL GUEST COUNTRY / GIAPPONE SPECIAL GUEST:

11:50 - 12:20 Yasushi MATSUFUJI / Fukuoka University (JP)

MONDAY OCTOBER 2

AFTERNOON

SESSION A1 / CENTRAL HALL / 15:30-17:10

IWWG ACTIVITIES IN WASTE MANAGEMENT

Chair / *Presidente*: Marco Ritzkowski (DE), Evangelos Gidakos (GR)

The IWWG encourages and supports integrated and sustainable solid waste management. In order to accomplish this aim task groups have been established on a range of topics, with the aim of coordinating interdisciplinary research and discussing related results. Moreover, several regional branches have been established in different regions of the world to exchange and discuss information on local, regional and global waste management issues.

In this session a series of short presentations will create an opportunity to get acquainted with the work of the different task groups, the results achieved and future activities. In addition, the regional branches will be introduced by the accordant representatives and regional-specific activities will be presented.

Participants will have the opportunity to get in touch with the different leaders of IWWG task groups and regional branches.

17:10 - 18:00 Coffee break and Japanese tea ceremony + Poster discussion

SESSION A2 / CENTRAL HALL / 18:00-19:40

WASTE MANAGEMENT CONCEPTS IN DIFFERENT COUNTRIES

Chair / *Presidente*: Muhammed Alamgir (BD)

B. Staley, D. Kantner (US)

Evaluation of municipal solid waste management trends and policy in the United States with comparative analysis to Europe and other countries

C.F. Mahler, G.P. Mendez (BR)

Evaluation of municipal solid waste management in Brazilian cities according to the updated waste management condition index - ICGRA

S.E. Taelman, J. Dewulf (BE)

Waste Management in (peri-)urban areas: integrated assessment of environmental, social and economic sustainability in a collaborative decision support environment

G. De Feo, S. De Gisi, C. Ferrara, M. Notarnicola (IT)

Comparison between the waste management of two Southern Italy regions: lessons learnt and future perspectives

SESSION B1 / CENTRAL HALL 2 / 15:30-17:10

LANDFILL SITING AND ENGINEERING

Chair / Presidente: Raffaello Cossu (IT)

V. Kumar, A.L. Haldar, A. Yadav, P. Singh (IN)

Landfill site selection modelling for solid waste disposal using remote sensing data and weighted overlay analysis for Gorakhpur City, Uttar Pradesh, India in geographical information system environment

R. Stegmann (DE)

Discussion of landfill problems and proposals for solutions

N. Sliusar, A. Kichkin (RU)

A decision support tool for shifting from old dumpsites to sanitary landfills

M. Godiksen, J.B. Hansen, J. Aabling, I.L. Therkildsen (DK)

Methodology for site-specific risk assessment of landfilling of waste

O. Bour, I. Zdanevitch (FR)

Completion criteria for MSW landfill aftercare

N. Ruxton (AU)

Geotechnical challenges of brownfield sites for use as landfill

17:10 - 18:00 Coffee break and Japanese tea ceremony + Poster discussion

SESSION B2 / CENTRAL HALL 2 / 18:00-19:40

GENERAL ASPECTS IN WASTE MANAGEMENT

Chair / Presidente: Michael Nelles (DE)

R.M. Rosendal, O. Hjelmar (DK)

Sorting and separation of landfilled non-hazardous waste at five Danish landfills

K.S. Wilson (GB)

Minimising the cost of environmental monitoring around landfill sites using modern data management systems - A case study of CEMEX UK

S. Moreau, M. Audebert, T. Jouen, S. Loisel, R. Clement (FR)

What's new in the field of geophysical methods to study waste mass behaviour landfilled

R. Fanni, L. Du Preez, D.A. Williams (AU)

A case study of the challenges of industrial sludge disposal

R.P. Beaven, A.M. Stringfellow, R.J. Nicholls, I.D Haigh, A.S. Kebede, J. Watts (GB)

The impact of coastal landfills on shoreline management plans

MONDAY OCTOBER 2

AFTERNOON

SESSION C1 / PANORAMA HALL / 15:30-17:10

CONTAMINATED SITES

Chair / *Presidente*: Fabio Tatàno (IT)

W.C. Ma, L.Y. Tai, Z. Wang, K.X. Fu, L. Zhong, Z. Qiao, G.Y. Chen (CN)

Assessment of heavy metals contamination in soil: a case study in China

C. Tsompanidis, G. Lolos, Th. Lolos, K. Pitsaki, A. Mavropoulos, A. Mentzis, S. Papa-grigoriou, K. Manitarà (GR)

Contaminated sites from industrial-hazardous wastes in Attica region and nine prefectures of Greece: identification, characterization and preliminary risk assessment

H. Raveh-Amit, O. Klein-Bendavid, G. Atlas, N. Banano, G. Bar-Nes (IL)

Catalytic pyrolysis of high density polyethylene over zeolites as a method for contaminated solid waste treatment

A. Cristaldi, C. Restuccia, G. Oliveri Conti, C. Copat, A. Grasso, P. Zuccarello, M. Ferrante (IT)

An in vitro control study on soil micoremediation from heavy metals and Polycyclic Aromatic Hydrocarbons (PAHs)

17:10 - 18:00 Coffee break and Japanese tea ceremony + Poster discussion

SESSION C2 / PANORAMA HALL / 18:00-19:40

WASTE GENERATION UNDER VARYING CONDITIONS

Chair / *Presidente*: Sandra Aparcana (DK)

P. Hennebert, N. Humez (FR)

Waste data on line: a part of the collaborative future big data in waste and resources?

G. Obersteiner, I. Gruber (AT)

Waste flows resulting from tourist activities

C.M.H. Keske, M. Mills, J. Dicker (CA)

Landfill and waste management in remote rural communities across the Canadian north: challenges and opportunities

H.A. Abu Qdais, S. Gibellini, M. Vaccari (JO)

Managing solid waste under crisis: the case of Syrian refugees in northern Jordan

SESSION D1 / BALDACCHINO HALL / 15:30-17:10

GENERATION OF WEEE

Chair / *Presidente*: Giuseppe Bonifazi (IT)

P. Beigl, N. Unger, G. Höggerl, S. Salhofer (AT)

E-waste - From collection to secondary resource

M.T. Parsons, I.D. Williams (GB)

Quantifying annual flows and the carbon footprint of household WEEE from an affluent city

R.G. Souza, M.A. Nabarretti, C.F. Palanca (BR)

Household WEEE generation estimate in Sao Jose dos Campos, Brazil

M. Gusukuma, R. Kahhat, J. Lepawsky, E. Araujo (PE)

Reducing e-waste flows by extending lifespan through repair practices: case study of laptops in Lima

M. Gusukuma, R. Kahhat, A. Pillihuman (PE)

Material flow analysis of e-waste: domestic flows, stocks and end-of-life of CRT-TVS in Peru

17:10 - 18:00 Coffee break and Japanese tea ceremony + Poster discussion

SESSION D2 / BALDACCHINO HALL / 18:00-19:40

MATERIAL COMPOSITION OF WEEE

Chair / *Presidente*: Ata Utku Akcil (TR)

A. Jandric, P. Beigl, S. Salhofer (AT)

Material analysis of complex components from waste electrical and electronic equipment

G. Bonifazi, G. Capobianco, S. Serranti (IT)

Integrated micro x-ray fluorescence and chemometric analysis for printed circuit boards recycling

A. Otsuki (FR)

Non-destructive liberation analysis of printed circuit board

M. Arshadi, S. Yaghmaei, S.M. Mousav (IR)

The analysis of complex content of e-waste

A. Bartl, A.H. Tkaczyk, A. Amato, F. Beolchini, V. Lapkovskis, M. Petranikova (AT)

Solutions for critical raw materials under extreme conditions: state-of-the-art of cobalt, niobium, tungsten, yttrium and rare earth elements

MONDAY OCTOBER 2

AFTERNOON

SESSION E1 / BIANCA HALL FOYER / 15:30-17:10

WASTE CHARACTERIZATION

Chair / Presidente: Alexander Cabral (CA)

G. Mondelli, M.A. De Oliveira, C. Jacinto, S.A. Andrade, S.C. Moreira (BR)

Strategies to characterize the MSW refuse of São Paulo City

K. Rybova, B. Burcin, J. Slavik (CZ)

Spatial and non-spatial analysis of socio-demographic aspects influencing municipal solid waste generation in the czech republic

S.A. Andrade, G. Mondelli (BR)

Gravimetric composition of selective collection waste generated in the central area of São Paulo City

G. Blanca, M. Sánchez, N. de Castro, P. Fullana-i-Palmer (ES)

The LIFE+ zero cabin waste project. Waste characterizations

E. Marklund, L. Andreas, A. Lagerkvist (SE)

Float-sink separation of C&D waste: a case of treatment oriented waste characterization

J. Roembke (DE)

Testing of 24 potentially hazardous wastes using 6 ecotoxicological tests

17:10 - 18:00 Coffee break and Japanese tea ceremony + Poster discussion

SESSION E2 / BIANCA HALL FOYER / 18:00-19:40

WASTE SEPARATION AND COLLECTION

Chair / Presidente: Kaimin Shih (HK)

A. Happenhofer, P. Beigl, S. Salhofer (AT)

Analysis of economic incentive schemes to promote efficient source separation

A. Niskanen, J. Kemppi (FI)

Tool for calculating the environmental impacts and costs for household solid wastes in different source-separation collection intensities

I. Karagiannaki, E. Gidaragos (GR)

Alternative spacial arrangement of small-sized municipal solid waste bins

P.S. Calabrò, D. Komilis (IT)

Integrating performance and customer satisfaction evaluation in separate collection and street cleaning services: an Italian case study

F. Chen, M. Yu, Z. Luo, Y. Yang, G. J. Liu, J. Ma (CN)

The effect of compulsory source separation policy on household solid waste disposal in pilot megacities: a case study in Nanjing, China

R. Babaei, M. Mirabi, M. Abbasi, M. Tavakoli (IR)

Developing a practical framework for aluminium waste separation at source and estimating its benefit

SESSION F1 / CHIESA ROOM / 15:30-17:10

THE LIFE PROGRAMME: FUNDING OPPORTUNITIES & INNOVATIVE WASTE MANAGEMENT SOLUTIONS (I)

Chair / *Presidente*: Anna-Natasa Asik (BE)

The workshop aims at presenting the LIFE funding opportunities and the latest and most replicable solutions developed by the LIFE programme in the field of waste management. The event is of interest to investors and stakeholders in the waste sector in search of innovative and marketable waste management solutions, and potential applicants to the LIFE call for projects.

The following projects will be presented and discussed:

WASP Tool - An innovative waste prevention support tool for local authorities

BREAD4PLA - Producing poly-lactic acid (PLA) biopolymer from waste products of bakery industry

GISWASTE - GIS based decision making tool for food by-products valorization

MICROTAN - Recovery of tannery wastes for functional micro encapsulated product

GREEN LIFE - Developing a greener liming agent for leather tanning

17:10 - 18:00 Coffee break and Japanese tea ceremony + Poster discussion

SESSION F2 / CHIESA ROOM / 18:00-19:40

THE LIFE PROGRAMME: FUNDING OPPORTUNITIES & INNOVATIVE WASTE MANAGEMENT SOLUTIONS (II)

Chair / *Presidente*: Anna-Natasa Asik (BE)

In session F2 the discussion started in the previous session will be continued. The funding slot in this workshop will cover the call topics, eligibility criteria and the focus on close-to-market dimension. The following projects will be presented and discussed:

EXTRUCLEAN - Removal of hazardous substances in polyethylene packages using supercritical carbon dioxide in recycling process

LIFE MED - An innovative integrated system to reduce waste by medical equipment and medical WEEE

WEENMODELS life - A new logistic system for WEEE collection

LIFE- Ino.Pro.Wire - New polymer coatings for eco-sustainable non galvanized steel wires

MONDAY OCTOBER 2

AFTERNOON

SESSION G1 / PINETA ROOM / 15:30-17:10

IWWG WORKSHOP: ENGINEERED NANOMATERIALS IN WASTE

Chairs / *Presidenti*: Nicole Berge (US), Marion Huber-Humer (AT), Florian Part (AT)

It is critical to develop appropriate end-of-life management strategies for discarded materials and/or products that contain engineered nanomaterials (ENM) to ensure human and/or environment exposure is minimized. Significant knowledge and data gaps associated with the fate of ENMs incorporated in consumer products in waste management processes (e.g. landfilling, incineration, recycling) exist and limit our current ability to develop such strategies. The purpose of this workshop is to highlight currently existing knowledge associated with ENM fate in waste management processes, potential implications associated with ENM disposal, challenges associated with conducting ENM-based research in waste environments, and research needs.

Introductory lectures:

N.D. Berge, J.R.V. Flora, G. Brar, A. Alsharaballi, C.E. Pierce (US) / Landfilling of engineered nanomaterial (ENM) containing products: potential ENG-geomembrane interactions

F. Part, M. Huber-Humer (AT) / Challenges in predicting the environmental fate of engineered nanomaterials in waste management systems

P. Hennebert, P. Merdy (FR) / Mineral colloids and nanoparticles in municipal solid waste incinerator bottom ashes and sunscreens leachate

17:10 - 18:00 Coffee break and Japanese tea ceremony + Poster discussion

SESSION G2 / PINETA ROOM / 18:00-19:40

WORKSHOP: TESTING BIOLOGICAL STABILITY OF BIODEGRADABLE WASTE

Chair / *Presidente*: Roberto Raga (IT)

Waste characterization for the evaluation of biological stability and the potential biogas emissions involves the use of test methods that are being continuously improved. During the workshop issues related to standardization of test methods and their use in specific situations will be addressed and discussed.

Introductory lectures:

J. Heerenklage, D. Rechtenbach, I. Atamaniuk, K. Kuchta (DE) / Development of a method to produce standardised and storable inocula for biomethane potential tests

A. Schievano (IT) / Application of microbial fuel cells (MFCS) as biosensors for BOD concentrations in waste eluates

R. Cossu, T. Lai, A. Pivato (IT) / Development of a standardized procedure to determine the BOD5/COD ratio for solid waste characterization

MONDAY OCTOBER 2

SOCIAL EVENT



WHITE PARTY ON THE BEACH / FORTE VILLAGE'S BEACH WHITE PARTY IN SPIAGGIA / SPIAGGIA FORTE VILLAGE

H. 21:00

We cordially invite you to join us for an all white theme party to be held on the Forte Village beach, a stretch of white sand in one of the most beautiful settings in Sardinia. Enchanted by its beauty, Forbes magazine named it one of the 25 most beautiful beaches in the world. Cocktails and dance music will be provided to celebrate the beginning of the conference week!

White attire is kindly required

Siamo lieti di invitarvi ad un party a tema che si terrà sulla spiaggia del Forte Village, una meraviglia della natura, pura poesia degli elementi. Una lingua di sabbia bianca ritagliata in uno degli angoli più suggestivi della Sardegna, tra Pula e Capo Spartivento, sdraiata ai piedi dei monti, al riparo dal mondo. Stregata dalla sua bellezza, la rivista Forbes l'ha eletta come una delle 25 spiagge più affascinanti del mondo. Unisciti a noi per una serata all'insegna del divertimento, con cocktail e musica dal vivo.

Si richiede abito bianco

DAY 2 / TUESDAY
OCTOBER 3

TUESDAY OCTOBER 3

MORNING

SESSION A3 / CENTRAL HALL / 9:00-10:40

WASTE MANAGEMENT POLICIES AND STRATEGIES I

Chair / Presidente: Pinjing He (CN)

C.A. Fletcher, R.M. Dunk (UK)

In the search for effective waste policy: alignment of UK waste strategy and the EU circular economy package

X. Wang, X. Wei, K. Huang, N. Stanisavljevic, X. Peng, L. Li (CN)

Toward sustainable management of municipal solid waste in China: status, challenges, and opportunities

G. Obersteiner, K. Stoll (AT)

The ecological effects of e-commerce with focus on waste generation

F.V. Andretti, J.A. Ferreira, C.F. Mannarino (BR)

Study of the art state in the analysis of economic feasibility of the implantation of a municipal solid waste incinerator with generation of electrical energy in Rio de Janeiro

E. Berenyi (US)

The present and future of alternative waste treatment approaches in the United States: tonnage and trends

10:40 - 11:10 Coffee break

SESSION A4 / CENTRAL HALL / 11:10-12:50

WASTE MANAGEMENT POLICIES AND STRATEGIES II

Chair / Presidente: Gudrun Obersteiner (AT)

T. Trentinella (JP)

Product stewardship as a principle of waste policy and its application in Japan

R.C. Marques, P. Simões (PT)

Tariff regulation in the waste sector: an unavoidable future

J. Cocker (CA)

North America's first circular economy framework - Challenges and opportunities

C.A. Fletcher, P. D. Hooper, R. M. Dunk (UK)

Unintended consequences of secondary legislation: a case study of the UK landfill tax (qualifying fines) order 2015

A. Richter, K.T.W. Ng, D. Bolingbroke (CA)

Effects of government and capital operating expenditure on Nova Scotia recycling behaviors and diversion rates

Q. Ma, K.P. Paudel, L.Q. Cui (CN)

Profit and carbon emission: a multi-objective optimization problem for using poultry litter in electricity production

SESSION B3 / CENTRAL HALL 2 / 9:00-10:40

LANDFILL PROCESSES

Chair / Presidente: Debra Reinhart (US)

A.G. Van Turnhout, T.J. Heimovaara (NL)

Improving insight into the full scale emission potential of landfills with high resolution in-situ measurements

X. Liu, L. Zhang, S. Wu, X. Wu, Z. Li (CN)

Observation of the pores over degradation in simulated municipal solid waste landfills

S. Muaaz-Us-Salam, P. Cleall, M. Harbottle (GB)

Enhanced delignification and methane generation in waste repositories-overcoming heterogeneity

T.J. Heimovaara, A.G. Van Turnhout (NL)

A particle filter approach to quantify the mass balance of a MSW landfill

A.G. Van Turnhout, T.J. Heimovaara (NL)

Coupled modeling of water flow, mass transport and biogeochemical activity to predict emission behavior of landfills

10:40 - 11:10 Coffee break

SESSION B4 / CENTRAL HALL 2 / 11:10-12:50

LANDFILL AERATION

Chair / Presidente: Johann Fellner (AT)

R. Cossu, R. Raga, G. Agostini, E. Priante, D. Yue, A. Pivato (IT)

Effects of intermittent aeration on carbon and nitrogen turnover in landfill simulation reactors

M. Ritzkowski, K. Kuchta, R. Stegmann, B. Walker (DE)

Aeration of the Teuftal landfill - Importance of monitoring and lab scale investigations

A.G. Van Turnhout, H. Oonk, H. Scharff, T.J. Heimovaara (NL)

Optimizing landfill aeration strategy with a 3-D multiphase model

M. Hrad, M. Huber-Humer (AT)

Comparative performance assessment of different aeration projects in Europe

TUESDAY OCTOBER 3 MORNING

SESSION C3 / PANORAMA HALL / 9:00-10:40

ANAEROBIC DIGESTION PROCESSES I

Chair / *Presidente*: William Clarke (AU)

A. Fatah Soomro, J. Liu (CN)

Separation of biodegradable matter from OFMSW through a wet percolation reactor

A. Cesaro, V. Belgiorno (IT)

Integrated ozonation and anaerobic digestion for the recovery of organic solid waste

R.J. Ravindran, B.H. Yan, A. Selvam, O. Parthiba Karthikeyan, J.W.C. Wong (HG)

Effect of in-situ biogas pressure and hydrogen concentration of food waste hydrolysis and acidogenesis

L. Zhou, X. Gao, J-H. Ko, Q. Xu (CN)

Effects of iron materials on methane generation from food waste anaerobic digestion

T. Reinelt, T. Clauss, M. Hradd, C. Scheutz (DE)

"MetHarmo" is setting the standards - Joint European research project develops standards for determining methane emissions from anaerobic digestion plants

R. Rafeenia, A. Pivato, M. C. Lavagnolo (IT)

Lab scale tests for the investigation of a novel method to inhibit hydrogen consumption in anaerobic digestion

10:40 - 11:10 Coffee break

SESSION C4 / PANORAMA HALL / 11:10-12:50

ANAEROBIC DIGESTION PROCESSES II

Chair / *Presidente*: Jonathan Wong (HK)

V. Abad, T. Vicent, X. Font (ES)

Use of codigestion for the increase of biogas production in a full scale municipal solid waste anaerobic digestion plant

H.W. Duan, F. Lü, K. J. Guo, L.M. Shao, P.J. He (CN)

Metabolic response of multi-nutrients-utilizing methanogen - *Methanosarcina* sp. to the stress of acid and ammonium during anaerobic digestion

N. Engler, A.S. Emmerich, J. Dührkop, M. Nelles (DE)

Improved biodegradability and digestibility of straw by using poultry manure for alkaline pretreatment: energetically enhanced process management

J. Tong, X.T. Lu, Y.S. Wei (CN)

Fate of antibiotic resistance bacteria and genes during enhanced anaerobic digestion of waste sludge with different pretreatment

M. Akhlagi, M.R. Boni, G. De Gioannis, A. Muntoni, A. Poletini, R. Pomi, A. Rossi, D. Spiga (IT)

Dark fermentation for hydrogen production from cheese whey: a parametric study

SESSION D3 / BALDACCHINO HALL / 9:00-10:40

WEEE: CHARACTERIZATION AND TREATMENT

Chair / Presidente: Andreas Bartl (AT)

H. Wang, G. Zhang, J. Yang, Y. He, T. Zhang, J. Hao (CN)

Removing inorganics from nonmetallic fraction of waste PCB by using a novel triboelectric separator

P. Evangelopoulos, S. Arato, H. Persson, E. Kantarelis, W. Yang (SE)

Brominated flame retardants (BFRS) reduction in plastics from electronic and electric equipment waste (WEEE) fraction as a treatment method prior to pyrolysis

P. Hennebert (FR)

WEEE plastic sorting for bromine content is essential to enforce EU regulation

Y.V. Vazquez, S.E. Barbosa (AR)

Use of ABS from WEEE without an accurate previous separation

10:40 - 11:10 Coffee break

SESSION D4 / BALDACCHINO HALL / 11:10-12:50

WEEE: TECHNOLOGIES FOR METAL RECOVERY

Chair / Presidente: Pierre Hennebert (FR)

H. Yoshida, S. Izhar, E. Nishio, Y. Utsumi, N. Kakimori, S.A. Feridoun (MY)

Use of sub-critical water for revival of tin in LCD panel e-waste

S. Das, Y-P. Ting (SG)

In-vitro synthesis of gold nanoparticles using thiourea leachate of electronic waste

F. Purhossein, S.M. Mousavi (IR)

Effect of heavy metals and BFRS concentration on the adaptation of acidithiobacillus ferrooxidans for the led waste bioleaching

M. Li, J. Yang, W. Yu, J. Wang, Y. Hu, S. Liang (CN)

Green recovery and regeneration of spent lead-acid battery by leaching reagents treatment and low-temperature calcination

A. Rigoldi, E.F. Trogu, G.C. Marcheselli, N. Picone, P. Deplano, M. Colledani, A. Serpe (IT)

Noble-metals recovery from printed circuit boards: a multidisciplinary approach towards sustainability

J.-C. Lee, M. Jun, R. R. Srivastava, M.-S. Kim (KR)

Recycling of Cu and Ni from waste surface-coated plastic using ammoniacal leaching and solvent extraction

TUESDAY OCTOBER 3

MORNING

SESSION E3 / BIANCA HALL FOYER / 9:00-10:40

LANDFILL LINERS PERFORMANCE

Chair / *Presidente*: Daniele Cazzuffi (IT)

D. Cazzuffi, D. Gioffré, P. G. Recalcati (IT)

Performance and durability aspects related to the use of geosynthetics in capping systems

V. Hruby, S. Barrie (SK)

Geomembrane integrity surveys - Difference between US and EU concepts

L.A. Martins, K.M.W. Rebelo, Y.G. Cunha, P.J.M. Pires (BR)

Influence of the addition of bentonite in alternative mixtures for CCL purpose of landfill

J. Andresen, E. Kavazanjian (US)

Experimental evaluation of strain concentrations in HDPE geomembranes due to scratches

10:40 - 11:10 Coffee break

SESSION E4 / BIANCA HALL FOYER / 11:10-12:50

LANDFILL COVER

Chair / *Presidente*: Jurate Kumpiene (SE)

F. Garbo, R. Cossu (IT)

Landfill cover systems - An overview

P. Kjeldsen (DK)

Role of methane oxidation in landfill covers

K. Berger, A. Gröngroft, J. Gebert, C. Harms, A. Eschenbach (DE)

20 years of long-term water balance measurements of a landfill cover system with components constructed from pre-treated dredged material

L. Andreas, S. Diener, A. Lagerkvist (SE)

Reuse of steel slags as landfill cover material - Results from a full-scale experiment

SESSION F3 / CHIESA ROOM / 9:00-10:40

WORKSHOP: HEALTHCARE WASTE

Chair / *Presidente*: Claudio Mahler (BR)

Healthcare waste management (HCWM) is a current problem, mainly in developing countries. After two introductory presentations, the discussion will mainly focus on the following issues:

- Assessing generation rates and composition of healthcare waste
- Optimization of logistics
- Applicability of different treatment options in different situations

Introductory lectures:

L.L. Moura, C.F. Mahler, H.M. Caulliaux (BR) / Application of a new protocol for health care waste management assessment

V.E. Messerle, A.L. Mosse, A.B. Ustimenko, O.A. Lavrichshev, Z. Jankoski, R.V. Baimuldin (KZ) / Processing of biomedical waste in plasma gasifier

10:40 - 11:10 Coffee break

SESSION F4 / CHIESA ROOM / 11:10-12:50

WORKSHOP: RECYCLING OF TIRES

Chairs / *Presidente*: Hannu Aurinko (FI)

Hundreds of millions of used tires are discarded every year worldwide. Options for recycling will be discussed based on the outcomes of lab-scale and full scale tests in the framework of projects for using tire chips and crumb rubber tiles as building material in parking lots and playgrounds.

Introductory lectures:

S. De Gisi, F. Di Canio, C. Freda, A. Molino, P. Casella, M. Notarnicola, G. De Feo (IT) Recycling of tire, ASR and biomass pyrolysis products: a comparative evaluation

I. Janajreh, S. Elagroudy, M. Hussain (EG) / Technical assessment of post-consumer tire granular business into kids play ground tiles

H. Aurinko (FI) / A full-scale application of parking structure stabilization for circular economy materials

TUESDAY OCTOBER 3

MORNING

SESSION G3 / PINETA ROOM / 9:00-10:40

WORKSHOP: INNOVATIVE APPLICATIONS OF MFC TECHNOLOGIES TO WASTE MANAGEMENT

Chair / *Presidente*: Andrea Schievano (IT)

In microbial electrochemical technologies, electroactive bacteria in bio-electrochemical systems generate electrical current or undergo imposed electrical fields, to accelerate/favor several physical, chemical and microbial processes. This technology has still few applications in solid waste management. In this workshop, the introductory lectures will introduce new ideas: a) the electromethanogenesis process, where an integration between electrochemical systems and microbial autotrophic methanogenesis is reached to store electrical power, while treating organic waste; b) the application of microbial fuel cells (MFC) and situ aeration for landfills in order to reduce the long term emissions both for the solid phase than for the liquid phase. Besides, other utilizations, limits and future perspectives of the technology will be discussed.

Introductory lectures:

A. Schievano, A. Goglio, C. Erckert, S. Marzorati (IT) / Organic waste and bio-electrochemical systems: the future interface between electricity and methane grids

A. Pivato, R. Raga, S. Marzorati, M.C. Lavagnolo, G. Cerminara, E. Romio, G. Agostini, F. Peres, A. Schievano (IT) / The "La la land" project: lithotrophic microbial activity and aeration applications to landfills for a landscape requalification

10:40 - 11:10 Coffee break

SESSION G4 / PINETA ROOM / 11:10-12:50

WORKSHOP: USE OF GEOPHYSICS IN OLD LANDFILL SURVEY

Chairs / *Presidente*: Alberto Godio (IT)

Geophysical surveys are aimed at the global representation of landfills by mapping the lateral and vertical distribution of relevant parameters for the evaluation of the areal extent and volume of the landfill, the physical characteristics and the pattern of the bedrock, the presence of buried metal objects and of leachate and biogas pockets. Example of multi-methodological geophysical approach and integration of geophysical surveys with other test methods will be presented and discussed in the workshop.

Introductory lectures:

A. Godio, A. Arato, F. Chiampo, M. Fischetti, E. Perissinotto (IT) / Geophysical approach for monitoring a full scale use of liquid injection in pre treated waste landfill

R. Balia (IT) / Old municipal and industrial waste landfills: some examples of possible contribution of geophysical survey techniques for their assessment before reclamation



SESSION H3 / NATURISTA ROOM / 9:00-10:40

WORKSHOP: ENVIRONMENTAL EDUCATION - CREATING SOCIAL VALUE FROM WASTE MANAGEMENT THROUGH ARCHITECTURE

Chair / *Presidente*: Israel Alba (ES)

Infrastructures are key to the transformation of the city and the territory in an increasingly and profound way, with a future projection, in which a great migration from the countryside to the city is foreseen, places where in a few years the greater part of humanity will be concentrated. Since this position, infrastructures appear as a **necessity** and **opportunity** for the development of the city of the XXI century. Nowadays, in our planet we produce more than 1.300 million tons of urban waste per year. Where does this waste go?

A **waste treatment plant** must have a positive feedback on the whole community, through the process of waste treatment itself and the energy production obtained therefrom. However, the social benefits and educational efforts that we propose from our waste treatment plant model are geared towards the younger sectors of society.

Our projects are conceived as real public facilities, capable of eliminating the negative connotations associated with this type of facilities, incorporating an educational and cultural center that relates the energy and the environmental potential of the plant, making all sectors of society be involved in the process, because they also play an important role in the management of our waste. As an observatory, the plant is a place to study, understand and contemplate contemporary society, which relates waste, energy and the city.

As architects, we believe that preparation, through education, represents a fundamental aspect in the contemporary issue of waste and the problems that can be associated with it. For this, we propose to listen to the different sectors and collectives of our society, concerned about the impact that a plant can produce on its environment, and incorporate their proposals with the objective of improving the management of our waste and our relationship with environment.

10:40 - 11:10 Coffee break

SESSION H4 / NATURISTA ROOM / 11:10-12:50

WORKSHOP: WASTE MANAGEMENT AND THE RELATION WITH THE CITY AND THE COMMUNITY

Chair / *Presidente*: Elena Cossu (IT)

Introductory lectures:

J. Muller (US) / The architecture of waste: creating new avenues for public engagement with trash

S. Massaro (IT) / Rethinking the spaces of waste management infrastructure: towards integrated urban strategies to avoid urban solid waste in the contemporary city

TUESDAY OCTOBER 3

AFTERNOON

SESSION A5 / CENTRAL HALL / 15:30-17:10

FOOD WASTE: GENERATION, REDUCTION, FOOTPRINT

Chair / Presidente: Nicole Berge (US)

C. Malefors, M. Eriksson, C. Persson Osowski (SE)

From quantification to reduction - Identification of food waste reduction strategies in public food services

E. Schmied, J. Mayerhofer, S. Schwödt, G. Obersteiner (AT)

Gleaning activities as contribution to food waste reduction

I. Garcia-Herrero, J. Laso, E. Fandiño, M. Margallo, M.J. Durá, C. Sarabia, R. Abajos, A. Irabien, P. Fullana, A. Bala, A. Poletti, I. Vazquez-Rowe, R. Aldaco (ES)

Measuring the nutritional price of food wastes from a life cycle approach: the nutritional food waste footprint

S. Scwoldt, G. Obersteiner (AT)

Generation of fruit and vegetable waste in Austrian households - With special focus to the influence of the distribution channel

F. Tatàno, C. Caramiello, E. Laici, T. Paolini, M. Pezzolesi, G. Tombari, L. Tripolone (IT)

Characterization and evaluation of the generation and collection of restaurant waste: a case study in central Italy

17:10 - 18:00 Coffee break + Poster discussion

SESSION A6 / CENTRAL HALL / 18:00-19:40

FOOD WASTE VALORIZATION

Chair / Presidente: Alessandra Poletti (IT)

N.D. Berge, J.R.V. Flora, I. Idowu, L. Li, K.S. Ro (US)

Sustainable conversion of food wastes to value-added products

S. Scherhauser, G. Obersteiner, M. Huber-Humer (AT)

Food waste in a circular economy: current gaps, barriers and recommendations for future prevention and valorisation

J. Laso, M. Margallo, I. Garcia-Herrero, P. Fullana, A. Bala, C. Gazulla, I. Vazquez-Rowe, A. Irabien, R. Aldaco (ES)

Waste-to-food in a circular economy approach: the case study of the anchovy canning industry

P.S. Calabrò, A. Folino, V. Tamburino, G. Zappia, D.A. Zema, S.M. Zimbone (IT)

Valorisation of citrus processing waste: a review

I. Moukazi, M. Pitsios, F.-M. Peller, E. Gidaracos (GR)

Investigation of different valorization methods for brewer's spent grains

SESSION B5 / CENTRAL HALL 2 / 15:30-17:10

SEMI-AEROBIC LANDFILLING

Chair / Presidente: Toshihiko Matsuto (JP)

R. Cossu, M.C. Lavagnolo (IT)

Semi-aerobic landfilling - An overview

V. Grossule, M.C. Lavagnolo (IT)

Innovative semi aerobic landfill management in tropical countries

R. Cossu, M.C. Lavagnolo, L. Morello, A. Pivato, R. Raga, D. Yue (IT)

Role of semi-aerobic phase in hybrid landfilling: the S.An.A method

S. Suzuki, R. Yanase, A. Tachifuji, Y. Matsufuji (JP)

Longterm behavior on heavy metals of incineration residues in semi-aerobic landfill type

17:10 - 18:00 Coffee break + Poster discussion

SESSION B6 / CENTRAL HALL 2 / 18:00-19:40

CHARACTERIZATION OF LANDFILL LEACHATE

Chair / Presidente: Andre van Zomeren (NL)

S. Bolyard, B. Cottrell, D. Lozinski, D. Reinhart, A. Motlagh (US)

A chemical characterization of landfill leachate: operational and treatment compositional variations for leachate organic matter

K. Knox (GB)

Review of chromium in landfill leachate: occurrence, speciation, significance and removal

F. Fate Ali (NG)

Leachate characteristics and pollution threat in a tropical urban setting

F. Von Buchwald De Janon (EC)

Leachate production analysis under different organic matter composition in Guayaquil's solid residues - Ecuador

R.M.P. Farage, C.M. Silva, A.A.P. Rezende, J.J.L.L. De Souza (BR)

Influence of the alkaline residues from the cellulosic pulp industry on characteristics of urban solid waste leachate

TUESDAY OCTOBER 3

AFTERNOON

SESSION C5 / PANORAMA HALL / 15:30-17:10

LANDFILL BIOCOVER SYSTEMS

Chair / Presidente: Maria Chiara Zanetti (IT)

B. Ahoughalandari, A. Cabral (CA)

A new design criterion to consider biogas flow behavior in performance evaluations of passive methane oxidation biosystems

A.O.U. Olesen, A.M. Fredenslund, C. Scheutz, P. Kjeldsen (DK)

Investigating the state of a 6 years old full-scale biocover at a Danish landfill

M. Huber-Humer, M. Hrad, K. Schloffer, G. Kammerer (AT)

Implementation of biowindows for degasification of an older municipal solid waste landfill after removal of the active gas extraction system

I. Pecorini, D. Bacchi, A. Baldi, G. Ferrara, E.A. Carnevale (IT)

Microbial oxidation technologies for landfill gas emissions mitigation in landfill aftercare: abatement of methane and trace components in biofiltration prototypes in Mediterranean regions

17:10 - 18:00 Coffee break + Poster discussion

SESSION C6 / PANORAMA HALL / 18:00-19:40

METHANE OXIDATION IN BIOFILTERS AND BIOCOVERS

Chair / Presidente: Julia Gebert (NL)

T.B. Thomassen, C. Scheutz, P. Kjeldsen (DK)

Treatment of dilute landfill gas by open biocover systems - Column experiments

K. Vondrakova, M. Sir, P. Novak (CZ)

Czech biofilter as an effective technology for methane oxidation in landfill gas: laboratory and field tests

J. Møller, P. Kjeldsen, C. Scheutz (DK)

Environmental assessment of landfill gas mitigation using a biocover system

I. Pecorini, D. Bacchi, L. Zipoli, F. Menghetti, S. Spadi, L. Lombardi (IT)

Comparison between conventional technologies and microbial oxidation systems as cost-effective gas control measures for landfill aftercare

SESSION D5 / BALDACCHINO HALL / 15:30-17:10

WEEE: REGULATIONS AND STRATEGIES

Chair / *Presidente*: Susan Thorneloe (US)

S. Salhofer, B. Kopacek, M. Gericke (AT)

Developing a roadmap for e-waste management in South Africa

V. Neves Palmeira, G. Ferreira Guarda, L.F. Whitaker (BR)

Illegal international trade of e-waste: Europe and the take-back

S. Salhofer, A. Jandric, T.D. Chung (AT)

Impacts from informal e-waste recycling

R.M.R. Turaga, K. Bhaskar (IN)

EPR and policy instruments for e-waste management: a review and lessons for India's new e-waste regulations

R.H. Arduin, C. Charbuillet, F. Berthoud, N. Perry (FR)

Life cycle assessment of end-of-life scenarios: tablet case study

17:10 - 17:40 Coffee break + Poster discussion

SESSION D6 / BALDACCHINO HALL / 18:00-19:40

THERMAL TREATMENT PERSPECTIVES WORLDWIDE

Chair / *Presidente*: Umberto Arena (IT)

R.M. Sebastian, D. Kumar, B. Alappat (IN)

Comparative assessment of incinerability of municipal solid waste over different economies

M. Pu, D. Chen, Y. Hu (CN)

Small scale MSW incinerators and their applications in countryside in China

D. Chen, N. Yang (CN)

Perspective of MSW to power generation through gas engine

G.N.K. Rockson, I. Acheampong, E. Yanfu (GH)

Incineration as an option for municipal solid waste in developing countries: the case of Greater Accra metropolitan area

M. Materazzi, R. Taylor, C. Chapman, C. Manson-Whitton (GB)

Production of biosng from municipal solid waste: pilot plant operation and preliminary assessment

TUESDAY OCTOBER 3

AFTERNOON

SESSION E5 / BIANCA HALL FOYER / 15:30-17:10

RECYCLING AND CIRCULAR ECONOMY STRATEGIES

Chair / Presidente: Kai-Uwe Heyer (DE)

J. Hřebíček, J. Soukopová (CZ)

Municipal waste strategy for approaching European Union recycling targets

J. Fellner, D. Laner, R. Warrings, K. Schustereder, J. Lederer (AT)

Potential impacts of the EU circular economy package on the utilization of secondary resources

A. Bartl (AT)

Are recycling rates appropriate means to move towards a circular economy?

J. Bachér, H. Pihkola, L. Kujanpää, U-M. Mroueh (FI)

Advancing circular economy through group decision-making and stakeholder involvement

J. Slavík, J. Remr, E. Vejchodská (CZ)

Soft measures and their relevance in the transition to circular economy - The case study of the Czech Republic

B.P. Bose, M.K. Mondal, P. Raj (US)

Recycling coal mine wastes in construction materials to advance end-of-life

17:10 - 18:00 Coffee break + Poster discussion

SESSION E6 / BIANCA HALL FOYER / 18:00-19:40

CLIMATE CHANGE IMPACT OF WASTE MANAGEMENT FACILITIES

Chair / Presidente: Susan Thorneloe (US)

S.J. Burnley, C.P. Boardman (GB)

The use of dynamic life cycle assessment to evaluate the long term climate change impacts of waste management processes

C. Tsompanidis, T. Lolos, G. Lolos, E. Ieremiadi (GR)

Assessment of climate change-vulnerability through integrated waste management system and climate resilience analysis: case of Dubrovnik - Neretva county/Croatia

T. Schwarzboeck, P. Aschenbrenner, S. Mühlbacher, S. Szidat, S. Spacek, J. Fellner (AT)

Determination of the climate relevance of refuse derived fuels - Validity of literature-derived values in comparison to analysis-derived values

M.L. Betasolo, C. Kopal, W. Pikire, L. Hemetsberger (PG)

The theme "greening civil" a campaign to mitigate climate change

SESSION F5 / CHIESA ROOM / 15:30-17:10

WORKSHOP: GUIDELINES FOR SUSTAINABLE LANDFILLS - THE LOMBARDIA REGION EXAMPLE

Chair / *Presidente*: Raffaello Cossu (IT)

Uncertainties and difficulties in the application of the Italian National legislation on building and managing landfills have been the driver for writing these regional guidelines, aiming at supporting engineers and landfill managers towards the design and operation of sustainable landfills. During the workshop the genesis, structure and contents of the guidelines will be presented and discussed together with the outcomes of their implementation.

Introductory lectures:

R. Cossu, S. Landonio, D. Sciunnach, S. Cappa, G. Gallina, R. Raga, R. Rampazzo (IT) / The Lombardia guidelines for sustainable landfilling

F. Peres (IT) / Landfill regulation in Italy between national law and regional guidelines

17:10 - 18:00 Coffee break + Poster discussion

SESSION F6 / CHIESA ROOM / 18:00-19:40

IWWG WORKSHOP: EDUCATION IN WASTE MANAGEMENT - WEEE

Chairs / *Presidenti*: Ian Williams, Peter Shaw (GB)

The workshop will consider:

- What key messages about WEEE should we aim to deliver to effect positive change? (public, private sector, municipalities ...)
- What should be the focus of these messages? (prevention, recycling, targeting materials, repair...)
- Which medium/media serve as the best means to deliver our focused message(s) to our target audience

TUESDAY OCTOBER 3

AFTERNOON

SESSION G5 / PINETA ROOM / 15:30-17:10

WORKSHOP: ENHANCED LANDFILL MINING

Chairs / *Presidenti*: Frederic Coulon (GB)

Abandoned landfill sites present environmental and human health risks very difficult to quantify. Moreover, it has been estimated that landfills could provide up to 5% of the total needs of Europe for non-energy, non-food materials and minerals for the next 25 years. Nonetheless, there are still several challenges in ELFM, which means that further research and development is needed before the full potential will be realized. After two introductory lectures, these issues will be addressed during the workshop.

Introductory lectures:

H. Särkkä, T. Kaartinen, E. Hannus, S. Hirvonen, T. Valjus, J. Lerssi, G. A. Dino, P. Rossetti, Z. Griffiths, S. T. Wagland, F. Coulon (GB) / Assessing the opportunities of landfill mining as a source of critical raw materials in Europe

G. Sauve, K. Van Acker (BE) / How the evolution of MSW composition affects the environmental impact of landfills: a review on European case studies

17:10 - 18:00 Coffee break + Poster discussion

SESSION G6 / PINETA ROOM / 18:00-19:40

WORKSHOP: ELEVATED TEMPERATURES IN LANDFILLS

Chair / *Presidente*: Brian Staley (US)

Recent studies report conditions where temperatures within the waste mass have persistently exceeded 100 °C, over a substantial area of a landfill cell. The phenomenon has exhibited traits that contrast with symptoms typically observed with landfill fires or subsurface oxidation, including: increased hydrogen concentrations, odor problems, inhibition or cessation of methane production, increased leachate production, substantially higher leachate strength and increased settlement of the waste mass over short periods of time.

However, there is considerable uncertainty as to the mechanisms controlling heat accumulation in landfills.

Introductory lectures:

B. Staley, M. Barlaz, C. Benson, M. Castaldi, S. Leuttich (US) / Distinguishing elevated temperature landfill characteristics from landfill fires and subsurface oxidation events

J. White, R. Beaven (GB) / Simulation of thermal phenomena in models of landfill processes



SESSION H5 / NATURISTA ROOM / 15:30-17:10

ARCHITECTURE OF WASTE MANAGEMENT FACILITIES

Chair / *Presidente*: Israel Alba (ES)

J.M. Nicás, F.J. Padilla (ES)

San Claudio sewage treatment plan volume and outdoor envelope studio, San Claudio (Oviedo, Spain)

M.L. Nobile (IT)

Architecture as a device. The design of the recycle waste management centres

M. Piscitelli, F. Piscitelli (IT)

Facilities for separated waste collection and waste minimization in a small urban area: the project of a waste collection center and three urban composting facilities

P. Simone, F. Bernar, P.G. Vasino, L. Conti (IT)

Design of a sludge treatment plant in Northern Italy: from segregation to landscape integration

17:10 - 18:00 Coffee break + Poster discussion

SESSION H6 / NATURISTA ROOM / 18:00-19:40

WASTED LANDSCAPES

Chair / *Presidente*: Maria Cristina Lavagnolo (IT)

M.C. Lavagnolo, R. Malesani, L. Stendardo (IT)

Urban mining and water recycle for abandoned trans urban areas (DATA Project)

M. Rigillo, L. Amenta, A. Attademo, L. Boccia, E. Formato, M. Russo (IT)

Eco-innovative solution for wasted landscapes

N. Slingerland, N.A. Beier, G.W. Wilson (CA)

Enhanced geomorphic design for rural waste-scapes

C. Padoa Schioppa (IT)

Notes from the underworld. Recycling strategies for the Sulcis-Iglesiente mining compound

TUESDAY OCTOBER 3

SOCIAL EVENT



SARDINIAN DINNER / 'CORTE NOA' RESTAURANT **CENA SARDA / RISTORANTE 'CORTE NOA'**

H. 21:00

A variety of typical Sardinian hors d'oeuvres, pasta dishes and barbecued meats, tasty side dishes and sweets will be served accompanied by local wines in the traditional restaurant 'Corte Noa', a typical *campidanese* house located near the Forte Village Resort. During the evening music and entertainment will be provided. Bus transport will be arranged by the Symposium Organizing Secretariat. Delegates wishing to participate are requested to book tickets at a cost of 60 euros per person. Places are limited so please book early. Residents of the Forte Village Resort, who already have their evening meal included in half board accommodation, may request that lunch be provided at Forte Resort instead of dinner.

Una selezione di piatti tipici sardi (antipasti, carne grigliata, contorni e dolci) saranno serviti nell'affascinante e suggestivo ristorante 'Corte Noa', un'antica casa campidanese situata nelle vicinanze del Forte Village Resort. Un gruppo folkloristico intratterrà gli ospiti con musiche e balli tipici sardi. I trasporti saranno garantiti dalla segreteria organizzativa del simposio.

Per partecipare alla serata è necessario acquistare il biglietto (60 euro a persona) presso il banco registrazione. I posti sono limitati, si prega di prenotare il prima possibile. Coloro che risiedono al Forte Village potranno eccezionalmente consumare il pranzo al posto dell'abituale cena.

DAY 3 / WEDNESDAY
OCTOBER 4

WEDNESDAY OCTOBER 4 MORNING

SESSION A7 / CENTRAL HALL / 9:00-10:40

ENVIRONMENTAL ISSUES: DIFFUSE CONTAMINATION OF SOIL AND WATER

Chair / *Presidente*: Susan Thorneloe (US)

R. Stegmann (DE)

Global pollution ... Time to act

S. Werner (DE)

Plastic in rivers and oceans - A massive waste problem

S. Serranti, R. Palmieri, G. Bonifazi, A. Cózar Cabañas (IT)

Optical sensing technology for monitoring of microplastics from oceans

I.D. Williams, K. Roberts, P.J. Shaw, B. Cleasby (GB)

Integrating education & research to apply circular economy thinking to industry: a case study for southern water

10:40 - 11:10 Coffee break

SESSION A8 / CENTRAL HALL / 11:10-12:50

SUSTAINABLE WASTE MANAGEMENT OPPORTUNITIES

Chair / *Presidente*: Gianni Andreottola (IT)

C. Cord'Homme (FR)

Close landfill with "material-from-waste" and "energy-from-waste" solutions: United Kingdom case

K. Pivnenko, M.E. Edjabou, A. Boldrin, T.F. Astrup (DK)

Challenge of material recycling at large public events

P. Fullana-I-Palmer, G. Blanca-Alcubilla, A. Bala, J.I. Hermira, N. De-Castro, R. Chavarri, R. Perales, I. Barredo (ES)

Tackling international airline catering: the LIFE zero cabin waste project

K. Haarstad (NO)

Recycling waste resources as plant nutrients

SESSION B7 / CENTRAL HALL 2 / 9:00-10:40

BIOLOGICAL TREATMENT FOR LANDFILL LEACHATE

Chair / Presidente: Keith Knox (GB)

T.T.N. Dieu, T.T. Canh, J.L. Vassel (VN)

Removal of COD and nitrogen in leachate by using combined anoxic/attached-growth bioreactor

Y. Ren, Q. Yuan, F. Ferraz (CA)

Biological leachate treatment: suspended growth activated sludge vs aerobic granular sludge

G. Chauvon, J-L. Vassel, A. Vande Wouwe (BE)

Modelling Ph calculation to control an SBR system for leachate treatment

G. Cerminara, G. Agostini, R. Raga, A. Pivato (IT)

Denitrification capacity of an old MSW landfill under anoxic conditions

10:40 - 11:10 Coffee break

SESSION B8 / CENTRAL HALL 2 / 11:10-12:50

MEMBRANE FILTRATION FOR LANDFILL LEACHATE TREATMENT

Chair / Presidente: Howard Robinson (GB)

A. Kremen (US)

Reversible membrane blinding in leachate pre-treatment

S. Ramaswami, J. Behrendt, R. Otterpohl (DE)

Treatment of mature landfill leachate - RO-NF or NF-RO?

L. Zhang, D. Yue (CN)

Evaluation of treatment technologies for leachate concentrate from NF/RO using analytic hierarchy process

D. Yue, L. Zhang, W. Zhang (CN)

Full treatment of landfill leachate by using combined reverse osmosis and submerged combustion evaporator: case study

WEDNESDAY OCTOBER 4 MORNING

SESSION C7 / PANORAMA HALL / 9:00-10:40

ANAEROBIC DIGESTION - DIFFERENT SUBSTRATES

Chair / *Presidente*: William Clarke (AU)

F. Baldi, I. Pecorini, E. Albini, D. Bacchi, L. Lombardi, E. A. Carnevale (IT)
Optimization of biohydrogen production using different types of inoculum

F-M. Pellerà, E. Gidarakos (GR)

Anaerobic digestion of agroindustrial waste in Mediterranean countries

A.C.P. Lopes, C.M. Silva, S.F. Aquino, D.R.S. Lima, A.A.P. Rezende (BR)

Mesophilic anaerobic digestion of bleached kraft pulp mill primary and secondary sludge

S. Nilsson Paledal, E. Nordell, J. Moestedt (SE)

Co-digestion of slaughterhouse and food waste - Experiences from 20 years of full-scale operation

10:40 - 11:10 Coffee break

SESSION C8 / PANORAMA HALL / 11:10-12:50

ANAEROBIC DIGESTION - BIOGAS UTILIZATION

Chair / *Presidente*: Muhammed Alamgir (BD)

F. Ardolino, F. Parrillo, U. Arena (IT)

The management of organic waste for the production of a fuel for the transport sector

A. Białowiec, W. Piesik (PL)

Energetically passive municipal solid waste treatment plant

J. Kohl, F. Bozankaya, S. Drescher-Hartung, C. Klapproth (DE)

Sustainable management of energy supply including the use of waste-based biogas processes

L. Lombardi, E. Carnevale, I. Pecorini (IT)

Biogas upgrading by wood combustion ash accelerated carbonation

S. Sfez, S. De Meester, J. Dewulf (BE)

Co-digestion of agricultural waste and cow manure to supply cooking fuel and fertilizers in rural India: life cycle assessment and substance flow analysis

SESSION D7 / BALDACCHINO HALL / 9:00-10:40

CHARACTERIZATION OF MSWI BOTTOM ASH

Chair / Presidente: Alessandra Polettini (IT)

O. Hjelmar, J. Hyks (DK)

Trends in the environmental properties of Danish MSWI bottom ash during the past two decades

M. Ueshima, H. Sakanakura (JP)

Microstructural and morphological studies of incineration bottom ash: mineral formation and associated processes

M. Šyc, A. Kopriva, T. Hrstka, O. Samusevich, Š. Václavková, B. Zach, M. Pohořelý, K. Svoboda, M. Punčochář (CZ)

Characterization of bottom ash fine fraction with respect to recovery potential

M. Miyake, T. Komiya, A. Saffarzadeh, T. Shimaoka (JP)

Evaluating the crucial factors affecting hydrogen gas generation from municipal solid waste incineration bottom ash (MSWIBA)

10:40 - 11:10 Coffee break

SESSION D8 / BALDACCHINO HALL / 11:10-12:50

RECYCLING OF MSWI BOTTOM ASH

Chair / Presidente: Giovanna Cappai (IT)

J. Lederer, M. Syc, A. Bogush, J. Fellner (AT)

A network approach towards a secondary raw material inventory for Europe applied to waste incineration residues

C.A. Fletcher, E.P. Randviir, C.E. Banks, R.M. Dunk (UK)

A review of end of waste criteria and its application to MSW-derived incinerator bottom ash

M. Van Praagh, M. Johansson, J. Fagerqvist, R. Grönholm, N. Hansson, H. Svensson (SE)

Decision making tool and risk assessment for recycling of MSWI-bottom ash in road constructions in Sweden

I. Deviatkin, A. Sormunen, R. Rantsi, J. Havukainen, M. Horttanainen (FI)

LCA of MSWI BA treatment with an advanced treatment technology and consequent recycling of the mineral fractions obtained

WEDNESDAY OCTOBER 4 MORNING

SESSION E7 / BIANCA HALL FOYER / 9:00-10:40

HAZARDOUS WASTE MANAGEMENT

Chair / *Presidente*: Evangelos Gidaracos (GR)

A. Van Zomeren, T. Klymko, J.J. Dijkstra (NL)

Difficulties and opportunities in the assessment of ecotoxicity (HP14) for hazard classification of waste

R. Šerovic, B. Karigl, S. Ghita, M. Neubauer, Kh. Striegel (DE)

Establishment of the integrated hazardous waste management plan in Serbia

E. Dimitrakakis, E. Chalarakis, S. Paptzani (GR)

Policy discrepancies and wrongful perceptions for the transport of hazardous wastes not characterized as radioactive

L. Biktasheva, P. Galitskaya, S. Selivanovskaya (RU)

Bioaugmentation for oily waste remediation: harm or benefit?

10:40 - 11:10 Coffee break

SESSION E8 / BIANCA HALL FOYER / 11:10-12:50

WORKSHOP: FATE OF BIOPLASTICS

Chair / *Presidente*: Salvatore Masi (IT)

Biodegradable plastics are increasingly being used to store and transport food waste to biological waste treatment facilities. Theoretically, biodegradable plastics should be compatible with composting and anaerobic digestion processes, however, scientific research and industrial experience shows that degradation is polymer specific and influenced by operating conditions, such as temperature, treatment time and feedstock material. In response to the current situation, a reduction in plastic degradation times is needed. In the workshop these issues will be addressed after the presentation of two case studies related to bioplastics biodegradation tests.

Introductory lectures:

M.C. Lavagnolo, A. Pivato, F. Ruggero (IT) / Fate of bioplastics in composting process

C.P. Boardman, S. Summers, K. Olsson-Francis, T. Gladding (GB) / Plastic microbial acclimation and optimisation of composting and anaerobic digestion processes may improve degradation times

SESSION F7 / CHIESA ROOM / 9:00-10:40

WORKSHOP: WASTE MANAGEMENT IN BRAZIL

Chair / *Presidente*: Claudio Mahler (BR)

Modern society wastes a lot, despite the lack of resources and crises. One of the least advanced areas in the Third World is solid waste treatment. This generates numerous environmental problems and social losses for present and future society. Solutions are put off because politicians think only of the next election, never the next generation. Bays, gulfs, rivers, soil and groundwater are contaminated, making them impossible to use, damaging environmental health. This problem is found in all Third World countries. While many people are aware of the problems, providing impetus to research into new procedures such as composting, bio-digesting, sorting, recycling, etc., others are skeptical or more interested immediate profit, so they do not accept new proposals. There are two antagonistic forces, which has hampered progress to improve waste management. Some new proposals developed in Brazil and other countries for waste treatment will be presented and the problems of their implementation will be discussed.

10:40 - 11:10 Coffee break

SESSION F8 / CHIESA ROOM / 11:10-12:50

WORKSHOP: DISASTER WASTE MANAGEMENT

Chair / *Presidente*: Mark Milke (NZ)

Compared to 20 years ago, societies have a much better knowledge base to use to address problems of disaster waste management. Unfortunately, we still see disaster response teams without solid waste expertise, and solid waste issues misunderstood or overshadowed during disaster recoveries. The workshop will explore how significant these problems are and how the world's solid waste experts can work together to reduce the problems that exist. Attend the workshop and contribute to an exploration of how to ensure that solid disaster waste expertise is used effectively after disasters.

Introductory lectures:

H. Fujiwara, H. Kuramochi, K. Nomura, T. Maeseto, M. Osako (JP) / Incineration of disaster waste contaminated by radiocesium in Fukushima

A. Basti (IT) / Environmental assessment of earthquake debris management strategies: the case of L'Aquila earthquake

WEDNESDAY OCTOBER 4 MORNING

SESSION G7 / PINETA ROOM / 9:00-10:40

WORKSHOP: JAPANESE EXPERIENCE AND PROPOSALS FOR LANDFILL AFTERCARE

Chair / *Presidente*: Yasushi Matsufuji (JP)

Landfilled waste are likely to be a potential source of contamination for a long time after landfill closure. Landfill managers are expected to take adequate measures to prevent pollution processes; however there is neither an established standard procedure with a list of parameters to be controlled nor the related limit values to be reached. Different waste stabilization levels involve the need of different approaches and measures for emission control during the aftercare phase and allow for different reuse options for the landfill site. These issues will be addressed during the workshop and the Japanese experience will be reported and discussed.

Introductory lectures:

T. Ishigaki, M. Yamada (JP) / Aftercare method by semi-aerobic concept

O. Hirata, S. Suzuki (JP) / Evaluation of methane potential from old landfilled wastes for landfill aftercare

H. Yoshida (JP) / Reusing of landfill site for solar battery in Japan

10:40 - 11:10 Coffee break

SESSION G8 / PINETA ROOM / 11:10-12:50

IWWG WORKSHOP: LANDFILL AERATION - ACHIEVEMENTS AND CHALLENGES AFTER TWO DECADES OF EXPERIENCE

Chair / *Presidente*: Marco Ritzkowski (DE)

In the late nineties the first landfill aeration projects started in Europe. Meanwhile, the methodology is widely accepted as a means for enhanced, controlled and sustainable bio-stabilisation of MSW landfills. Positive effects are related to a significant reduction of current and future greenhouse gas emissions, a widely completion of landfill settlings as well as improved leachate quality. However, results reported from different aeration projects are not always concordant and may differ significantly with regard to the achieved level of stabilisation. The aim of the workshop is to identify both the potential of the methodology and further research needs.

Introductory lectures:

H. Yoshida (JP) / Landfill gas and temperature distributions in a semi-aerobic landfill with passive aeration system in Japan

T. Wohlhuter (FR) / Application of the in-situ aerobic stabilization technology: results after 2 years of operation of the first French full-scale pilot

M. Ritzkowski (DE) / Challenges in connection with an aerobic landfill project in Switzerland



SESSION H7 / NATURISTA ROOM / 9:00-10:40

ARCHITECTURAL ISSUES IN LANDFILLING

Chair / *Presidente*: Raffaello Cossu (IT)

I. Alba (ES)

Analytical tools in landfill transformation

E. Cossu, A. Artuso (IT)

Afteruse of landfills: methodological approach, project requisites and relationship with the territory

S. Mariappan, N.K. Devanayagam, S.A. Badarudin, F.H. Hood (MY)

Sustainable development of existing landfill by performing vertical expansion

F. Chen, Z.B. Luo, Y.J. Yang, J. LV, G.J. Liu, J. Ma (CN)

Designing e-waste landfill as a landscape infrastructure: a case study based on public perceptions in Nanjing, China

10:40 - 11:10 Coffee break

SESSION H8 / NATURISTA ROOM / 11:10-12:50

FUNCTIONAL REQUALIFICATION OF OLD LANDFILL SITES

Chair / *Presidente*: Elena Cossu (IT)

D. Cinti (IT)

Requalification of pit lakes and environmental recovery of an MSW landfill located on the floodplain of the Tiber river in Tuscany with a view to reuse and valorization of the river embankment

B. Bolaane, G. Lethugile, N. Nkhwanana (BW)

From a brownfield to a recreational facility: the case of the old Gaborone landfill, Botswana

A. Długoński (PL)

Ecological utilization of constructional waste: a case study of Górka Rogowska landfill in Łódź city, Poland

C. Kobal, M. Betasolo, S. Magiri (PG)

Lae City Second Seventh landfill rehabilitation

K-M. Pehme, M. Kriipsalu (EE)

Full scale project - from landfill to recreational area

WEDNESDAY OCTOBER 4

AFTERNOON

SESSION A9 / CENTRAL HALL / 15:30-17:10

INTEGRATED EVALUATION OF WASTE MANAGEMENT SYSTEMS

Chair / *Presidente*: Timo Heimovaara (NL)

A. Amato, F. Gabrielli, S. Balducci, L. Magi Galluzzi, F. Beolchini (IT)

Environmental impact assessment of different strategies of waste management within Italian emergency scenarios

C. Ferrara, C. Chechile, G. De Feo (IT)

Life cycle assessment (LCA) of the management phase of a MBT plant in the Campania region of southern of Italy

I.D. Williams, P.J. Shaw (GB)

Improving waste management systems using student-led activities: a case study for an international airport

F. Bartolacci, R. Cerqueti, A. Paolini, M. Soverchia (IT)

Assessing efficiency to support waste management companies' strategies

17:10 - 18:00 Coffee break + Poster discussion

SESSION A10 / CENTRAL HALL / 18:00-19:40

DECISION MAKING IN WASTE MANAGEMENT

Chair / *Presidente*: Peter Kjeldsen (DK)

D. Panepinto, M. C. Zanetti (IT)

Environmental and economic analysis for different scenarios of municipal solid waste disposal

V. Bisinella, T.F. Astrup (DK)

Decision making within waste management: combined uncertainty and scenario analysis for the life cycle assessment of a Danish case study

T. Henriksen, T.F. Astrup, A. Damgaard (DK)

Addressing spatial variability of waste treatment technologies

J.T. Agredo, D.G. Alzate, S.G. Restrepo, F.Á. Hincapié (CO)

Industrial manufacturing of ceramic bricks added with a secondary lead smelting slag - A performance assessment

T. Sasao (JP)

How does municipal solid waste policy affect heat and electricity produced by incinerators?

SESSION B9 / CENTRAL HALL 2 / 15:30-17:10

ALTERNATIVES IN LANDFILL LEACHATE TREATMENT I

Chair / Presidente: Dongbei Yue (CN)

S. Bolyard, B. Staley (US)

State of practice of leachate management and treatment in the US

H. Robinson, K. Wilson, A. Stokes, J. Olufsen, T. Robinson (GB)

Recent state-of-the-art leachate treatment plants in Eastern England

T. Robinson (GB)

Robust and reliable treatment of leachate at a closed landfill site in Sussex, UK

M. Saleem, A. Spagni, L. Alibardi, R. Cossu, M.C. Lavagnolo (IT)

Treating stabilized landfill leachate: a case of dynamic membrane bioreactor (DMBR), strategy for start-up and performance evaluation

17:10 - 18:00 Coffee break + Poster discussion

SESSION B10 / CENTRAL HALL 2 / 18:00-19:40

ALTERNATIVES IN LANDFILL LEACHATE TREATMENT II

Chair / Presidente: Keith Knox (GB)

D. Lozinski, D. Reinhart, S. Bolyard, A. Motlagh, B. Cottrell (US)

Treatment of leachate organic matter through sun-light driven photolysis

H. Robinson (GB)

Removal of dissolved methane and sulphides from landfill leachate

T. Robinson (GB)

The use of reed beds for leachate treatment at closed landfill sites

F. Garbo, M.C. Lavagnolo, M. Malagoli (IT)

Wetland lab scale investigations for leachate treatment

S. Ramaswami, J. Berendt, S. Kalyanasundaram, S. Eggers, R. Otterpohl (DE)

Nitrification of mature landfill leachate in packed bed biofilm reactors

WEDNESDAY OCTOBER 4

AFTERNOON

SESSION C9 / PANORAMA HALL / 15:30-17:10

COMPOSTING

Chair / *Presidente*: Ketil Haarstad (NO)

M. Quintern, M. Morley (DE)

One solution fits all - How households, schools, prisons, municipalities and industries successfully use vermicomposting for organic waste up-cycling

T. Castkova, A. Hanc (CZ)

Change of the parameters of layers in a large-scale grape marc vermicomposting system with continuous feeding

R. Avidov, I. Saadi, A. Krassnovsky, A. Hanan, Sh. Medina, M. Raviv, Y. Chen, Y. Laor (IL)

Organic compost of sugarcane wastes and phosphate mobilizing bacteria (PMB) improve phosphorus uptake and change the soil bacterial community in the sugarcane

E. Cardoso, G. A. Estrada-Bonilla, A. Durrer (BR)

Organic compost of sugarcane wastes and phosphate mobilizing bacteria (PMB) improve phosphorus uptake and change the soil bacterial community in the sugarcane culture

17:10 - 18:00 Coffee break + Poster discussion

SESSION C10 / PANORAMA HALL / 18:00-19:40

COMPOST AND DIGESTATE QUALITY

Chair / *Presidente*: Paolo Calabrò (IT)

A. Lieto, D. Zingaretti, F. Lombardi (IT)

Experimental study to evaluate the environmental behaviour of mechanically - biologically treated municipal solid waste

F. Guilayn, J. Jimenez, M. Rouez, M. Crest, D. Patureau (FR)

Biogas digestate typologies

P. Kuryntseva, L. Biktasheva, P. Galitskaya, S. Selivanovskaya (RU)

Production of suppressive composts from agricultural wastes in Russian economic conditions

V. Pallier, O. Toundou, K. Tozo, G. Feuillade (FR)

Impacts of wastes composts enrichment on nutrients and metals uptakes by leaves and kernels of corn (*zea mays* l.): application to municipal solid wastes in togo under specific irrigation conditions

G.M. Shah, N. Tufail, H.F. Bakhat, I. Ahmed, M.I. Rashid, E. Lantinga (PK)

Assessment of fertilizer value and associated health risks from putrescible solid waste as affected by the composting techniques

SESSION D9 / BALDACCHINO HALL / 15:30-17:10

TREATMENT AND UTILIZATION OF MSW FLY ASH

Chair / Presidente: Ole Hjelm (DK)

Z. Yang, L. Liu, X. Wang, Z. Zhang (CN)

Long-term leaching behaviors of cement composites prepared by hazardous wastes

J. Lederer, A. Bogush, J. Fellner (AT)

The utilization of solid residues from municipal solid waste incineration in the cement industry: a review

F. Huber, J. Lederer, D. Laner, J. Fellner (AT)

Comparative life cycle assessment of the utilisation of MSWI fly ash in cement production and metal recovery

F. Wang, Y. Li, T. Yang, R. Li (CN)

Thermodynamic and dynamic analysis of sludge incineration fly ash melting process with different particle size

M.C. Siame, J. Kaoma, R. Muvhiiwa, N. Hlabangana, G. Danha, A.S. Afolabi (BW)

An attainable region approach for the reclamation of iron and zinc from electric arc furnace dust

17:10 - 18:00 Coffee break + Poster discussion

SESSION D10 / BALDACCHINO HALL / 18:00-19:40

STABILIZATION AND ENVIRONMENTAL IMPACT OF INCINERATION RESIDUES

Chair / Presidente: Hans Van der Sloot (NL)

G. Costa, F. Lombardi, R. Pomi, A. Poletini, R. Spagnuolo (IT)

Analysis of the effects of different types of carbonation treatments aimed at allowing the unrestricted reuse of waste incineration bottom ash

K. Miki, T. Komiya, S. Muradia, T. Shimaoka (JP)

Accelerated stabilization of MSW incineration bottom ash in landfill by oxygen ultrafine bubbles

V. Enzner, O. Holm, M. Abis, K. Kuchta (DE)

The characterisation of the fine fraction of MSWI bottom ashes for the pollution and resource potential

K. Ishii, T. Furuichi, M. Hanashima (JP)

Stabilization of incineration residue and shredded incombustible waste using artificial watering in closed system disposal facilities

S. Seraj, M. Nikravan, A.A. Ramezaniapour, P. Zendehtdel (IR)

Evaluation of the application of municipal solid waste incinerator (MSWI) ash in civil engineering using sustainability approach

WEDNESDAY OCTOBER 4 AFTERNOON

SESSION E9 / BIANCA HALL FOYER / 15:30-17:10

WORKSHOP: PLASTIC IN RIVERS AND OCEANS - A MASSIVE WASTE PROBLEM

Chair / *Presidente*: Stefanie Werner (DE)

The problem of plastics in rivers and oceans will be discussed with international waste experts and marine biologists. The accent will be put on results that have already been achieved and actions to be planned.

Introductory lecture:

S. Werner, R. Stegmann (DE) / Plastic in rivers and oceans, a massive waste problem

17:10 - 18:00 Coffee break + Poster discussion

SESSION E10 / BIANCA HALL FOYER / 18:00-19:40

WORKSHOP: PROBLEMS AND OPPORTUNITIES IN PLASTIC WASTE MANAGEMENT

Chair / *Presidente*: Evangelos Gidakos (GR)

Plastics are usually non-biodegradable and therefore can remain as waste in the environment for a very long time, posing risks to human health as well as the environment. But at the same time, plastics are also a key resource for circular economy. During the workshop, the main aspects of plastic waste management will be discussed and new data, policies, targets, achievements and limitations will be presented.

Introductory lecture:

E. Gidakos (GR) / Problems and opportunities in plastic waste management

SESSION F9 / CHIESA ROOM / 15:30-17:10

WORKSHOP: ENVIRONMENTAL FORENSICS I

Chair / *Presidente*: Alberto Pivato (IT)

The workshop aims to unite renowned scientists and researchers to discuss the most advanced theories and newly-emerging challenges in the field of environmental forensics.

Introductory lectures:

S. Vanin (IT) / Environmental forensics in the forensic sciences

F. Peres (IT) / Waste and by-products: New guidelines in the Ministry of Environmental Protection's Letter N. 7219 of 30 May 2017

A. Fujiyama, K. Ishii, M. Sato, T. Furuichi, S. Washio (JP) / Study on categorization of multievaluators into groups for selecting remedial goals and methods at illegal dumping sites using analytic network process

E. Bietlot, V. Lebrun, C. Collart (BE) / Groundwater protection around landfills: from EU regulation to site-specific action plans

17:10 - 18:00 Coffee break + Poster discussion

SESSION F10 / CHIESA ROOM / 18:00-19:40

WORKSHOP: ENVIRONMENTAL FORENSICS II

Chair / *Presidente*: Stefano Vanin (GB)

In session F10 the discussion started in the previous session F9 will be continued.

Introductory lectures:

A. Limoli, A. De Pretto, C. De Muri (IT) / Illegal landfill - A multidisciplinary approach

P. Aswathi, M. Siddik, G.K. Varghese (IN) / An environmental forensic investigation at a biomedical waste treatment and disposal facility in Kerala, India

M.A. Siddik, G.K. Varghese, B.J. Alappat (IN) / Environmental forensic investigation of landfill induced contamination: a case study from Kerala, India

A. Pivato, R. Raga, F. Giroto, L. Megidos (IT) / How to consider the role of landfills as carbon sink in environmental forensic cases

WEDNESDAY OCTOBER 4

AFTERNOON

SESSION G9 / PINETA ROOM / 15:30-17:10

IWWG WORKSHOP: GUIDING DOCUMENTS FOR METHANE OXIDATION SYSTEMS

Chairs / *Presidenti*: Marion Huber Humer (AT), Julia Gebert (NL)

During the past years in many different countries worldwide (e.g. Austria, Germany, Australia, Great Britain, Denmark) new technical guidelines and/or regulation for the practical implementation of methane oxidising systems like bio-covers, biowindows or biofilters have been developed and implemented or are currently under development. The main purpose of this workshop is to produce a joint "review" of the existing guiding documents, to identify similarities and disparities, exchange ideas for harmonization of such documents and to jointly consider open research questions and further steps. After an introductory presentation current guiding documents and key-issues will be presented briefly in impulse presentations.

Introductory lectures:

J. Gebert (DE) / Germane methane oxidation guideline

M. Huber-Humer (AT) / Austrian methane oxidation guideline

H. Scharff (NL) / Methane oxidation guideline for the Basque Country

P. Kjeldsen (DK) / Methane oxidation guideline in Denmark

K. Vondrakova (CZ) / Czech technical standards on methane oxidation

O. Bour (FR) / Biomitigation in French normative documents

D. Bacchi, I. Pecorini (IT) / Development of a guideline for the Tuscany region

17:10 - 18:00 Coffee break + Poster discussion

SESSION G10 / PINETA ROOM / 18:00-19:40

IWWG WORKSHOP: LONG-TERM LANDFILL EMISSIONS

Chairs / *Presidenti*: Heijo Scharff (NL), Dongbei Yue (CN)

As part of landfill aftercare completion procedure it is important to demonstrate that the landfill in the absence of active aftercare measures no longer presents a hazard to human health and the environment. The focus of the workshop will be on the role that an assessment of long-term emission could or should play in aftercare completion procedures. The topics will be introduced with short and focused presentations.

Introductory lectures:

O. Hjelmar (DK) / Assessment of long-term emissions from landfills as part of a landfill aftercare completion procedure

A. Van Zomeren (NL) / Potential role of geochemical speciation modelling in the determination of long-term emissions

T. Heimovaara (NL) / Potential role of preferential pathways and hydrological modelling in the determination of long-term emissions



SESSION H9 / NATURISTA ROOM / 15:30-17:10

WORKSHOP: ARCHITECTURE OF WASTE

Chairs / *Presidenti*: Hanif Kara, Leire Asensio Villoria (US), Elisabet Höglund (SE)

Waste to energy facilities offer a proven and increasingly attractive solution for dealing with solid waste in an era of rapid urbanisation and population growth though the managing of waste in this context is not a new problem.

In collaboration with Harvard University Graduate School of Design the presenters spent three years undertaking design research to dispel unjustified canards that spur lobbies against this type of waste treatment. Sweden (a community that is recognised as a mature and pioneering in the field) has been compared to the East Coast of the USA where land availability still encourages landfill as a primary method for disposal. The presentation will share the findings over the three years and unfold a methodology that reengages “design thinking” to ignite a renewed interest in this type of facility through an interdisciplinary approach. Techniques and operations in design will be showcased in the presentation as well as the impacts that have the potential to change consumer behaviour will be part of the discussion.

17:10 - 18:00 Coffee break + Poster discussion

SESSION H10 / NATURISTA ROOM / 18:00-19:40

REUSE OF WASTE MATERIALS IN BUILDING PRODUCTS

Chair / *Presidente*: Carlo Pellegrino (IT)

S. Thorneloe (US)

Reuse of ‘waste’ in making building products

F.H. Smith, V. Tramontin, C. Trois (ZA)

The use of waste products as substitutes in sustainable construction materials as part of a circular economy

F. Kleemann, J. Lederer, J. Fellner (AT)

Circular economy in the building sector - Regional implications for resource management in Vienna

M. Struk (CZ)

The effects of waste management company change on municipal solid waste expenditures

F. Faleschini, M. A. Zanini, L. Hofer, C. Pellegrino (IT)

Demolition waste management after recent Italian earthquakes

WEDNESDAY OCTOBER 4

SOCIAL EVENTS



INTERNATIONAL FOOTBALL TOURNAMENT / FOOTBALL PITCHES TORNEO INTERNAZIONALE DI CALCETTO / CAMPI DA CALCETTO H. 21:00

Don't miss the traditional international six-a-side football tournament at Forte Village's professional floodlit pitches. A poster on which potential players may sign up will be displayed at the registration desk; teams will then be formed by selecting randomly from registered players.

A buffet dinner will be served to football players at Hotel Castello at the end of the tournament.

La partita di calcio a sei è ormai una tradizione irrinunciabile al Sardinia. Gli interessati sono pregati di scrivere il proprio nome sull'apposito cartellone che sarà affisso vicino al banco registrazioni del Simposio. Le squadre saranno formate tramite sorteggio.

Alla fine del torneo ai giocatori sarà offerto un buffet freddo presso l'Hotel Castello.

CAGLIARI BY NIGHT TOUR VISITA SERALE GUIDATA ALLA CITTÀ DI CAGLIARI H. 20:00

Discover the beauty of Cagliari's Castello quarter with its narrow streets and historical sites. Departure from Forte Village at the end of Symposium sessions, fish dinner and walking tour of Cagliari's most characteristic quarter by night. Bookings to be made directly with the Symposium's travel agency, F.A. Travel. Cost: €80 / What's included: return bus transfer, fish dinner, tour guide / Minimum number of participants: 30

Partenza dal Forte Village al termine delle sessioni pomeridiane, cena in un ristorante tipico e passeggiata serale guidata attraverso i caratteristici vicoli del quartiere Castello alla scoperta dei più importanti monumenti di Cagliari.

Gli interessati sono pregati di contattare lo staff della F.A. Travel presente nella hall del Centro Congressi.

Costo: € 80,00 / Incluso nel prezzo: trasporto andata e ritorno, cena, visita guidata / Numero minimo di partecipanti: 30

DAY 4 / THURSDAY
OCTOBER 5

THURSDAY OCTOBER 5

MORNING

SESSION A11 / CENTRAL HALL / 9:00-10:40

LCA: A TOOL FOR WASTE MANAGEMENT ASSESSMENT

Chair / Presidente: Anders Damgaard (DK)

S. Thorneloe (US)

Opportunities and challenges of using Life-Cycle Assessment to encourage more sustainable materials management

F. Tanguay-Rioux, S. Viau, G. Majeau-Bettez, L. Spreutels, R. Samson, R. Legros (CA)

Development of a tool for waste management planning based on the integration of material flow analysis and Life Cycle Assessment

V. Bisinella, T.H. Christensen, T.F. Astrup (DK)

Future scenario analysis within waste management and Life Cycle Assessment of waste management solutions

G. Costa, A. Lieto, L. Bergamin, L. Franz, G. Vallardi, P. Muraro, F. Lombardi (IT)

Analysis by Life Cycle Assessment of the reduction in environmental impacts resulting from the current MSW management system of the "Sinistra Piave" basin

G. De Feo, C. Ferrara, V. Iannone, P. Parente (IT)

Combination of life cycle thinking and environmental communication to improve the efficacy of paper and cardboard collection in southern Italy

10:40 - 11:10 Coffee break

SESSION A12 / CENTRAL HALL / 11:10-12:50

LANDFILL MINING

Chair / Presidente: Roberto Raga (IT)

G. Pastre, Z. Griffiths, J. Val, A.M. Tasiu, E.V. Camacho-Dominguez, S. Wagland, F. Coulon (GB)

A decision support tool for enhanced landfill mining

R. Møller Rosendal, J. Mølgaard Christensen, P. Reimann, L. Baltzer Overgaard, S. Poulsen, H. Felding, P. Sundberg, S. Nielsen (DK)

Landfill mining demonstration project at Skaarup landfill, Denmark

S.T. Wagland, F. Coulon, L. Canopol (GB)

The UK case for enhanced landfill mining

C. Garcia Lopez, A. Clausen, T. Pretz (DE)

Landfill mining: a case study on sampling, processing and characterization of excavated waste from an Austrian landfill

T. Mönkäre, M. Palmroth, J. Rintala (FI)

Technical evaluation of suitability of biological treatment methods for fine fraction from landfill mining

SESSION B11 / CENTRAL HALL 2 / 9:00-10:40

LANDFILL GAS GENERATION

Chair / Presidente: Hideki Yoshida (JP)

J. Gebert, C. Knoblauch (NL)

Long-term gas generation from landfilled dredged sediment

X. Wang, K. Huang, X. Wei, M. Barlaz (CN)

What are the best values for carbon dissimilation factors for landfilled harvested wood products?

M. Sato, D. Kakiuchi, A. Fujiyama, K. Ishii (JP)

An approach for decision of landfill gas monitoring points considering distribution of underground temperature in landfill site - Case study in a closed system disposal facility

M. Ritzkowski, K. Kuchta (DE)

Landfill gas production before, during and after landfill aeration

10:40 - 11:10 Coffee break

SESSION B12 / CENTRAL HALL 2 / 11:10-12:50

LANDFILL GAS GENERATION MODELLING

Chair / Presidente: Aldo Muntoni (IT)

G. Andreottola, R. Cossu, M. Ritzkowski (IT)

Landfill gas generation modelling

K-U. Heyer, K. Hupe, R. Stegmann (DE)

Adaptation of IPCC default values on national landfill conditions

R.G. Gregory (GB)

Landfill gas modelling: combining scientific rigour and commercial key performance indicators for reliable forecasting

K. Haro, I. Ouarma, B. Nana, A. Bere, J. Koulidiati (BK)

In-situ measurement and theoretical calculations of annual biogas generation: case of Polesgo landfill at Burkina Faso

THURSDAY OCTOBER 5 MORNING

SESSION C11 / PANORAMA HALL / 9:00-10:40

GASEOUS EMISSIONS FROM BIOLOGICAL TREATMENT PLANTS AND COLLECTION VEHICLES

Chair / *Presidente*: Raffaella Pomi (IT)

T.I. Gladding, C.A. Rolph (GB)

Time varying emissions from composting sites

M.L. Mastellone, R. Lotito (IT)

Indirect monitoring of the air quality affected by biowaste treatment facilities

Z. Duan, W. Lu (DK)

Odor gas emissions during the turning process of sewage sludge and green waste co-composting windrows

C. Rolph, T.L. Gladding (UK)

Size fractionation of endotoxin from organic waste

M. Héroux, M. Drakonakis, A.K. Dib Bali, R. Legros, L. Spreutels (CA)

Odour emissions from waste collection vehicles in the cases of municipal food and mixed waste: characterization and modelling

10:40 - 11:10 Coffee break

SESSION C12 / PANORAMA HALL / 11:10-12:50

BIOREFINERIES

Chair / *Presidente*: Lidia Lombardi (IT)

C. Lodato, D. Tonini, A. Damgaard, T.F. Astrup (DK)

Advanced Life Cycle Assessment modelling of organic-waste refineries

W.H. Han, P.J. He, L.M. Shaa, F. Lü (CN)

High-value biochemical production by mixed cultures grown on waste-derived syngas

Y. Song, B.-J. Bae (KR)

Co-production of value-added products, bioethanol and rare sugar, from agricultural wastes

C. Zurbrügg, B. Dortmans, A. Fadhila, B. Verstappen, S. Diener (CH)

From pilot to full scale operation of a waste-to-protein treatment facility

SESSION D11 / BALDACCHINO HALL / 9:00-10:40

LOW TEMPERATURE THERMAL WASTE TREATMENT (BIOCHAR, TORREFACTION, HYDROTHERMAL)

Chair / *Presidente*: Nicole Berge (US)

F. Yang, Y. Hu, F. Zhou, D. Chen (CN)

A comparison between CO₂ gasification of various biomass chars and CO₂ gasification of coal char

W.D. Chanaka Udayanga, A. Veksha, A. Giannis, V.W.-C. Chang, T.T. Lim (SG)

Physicochemical transformation of heavy metals in sludge-biochar produced by pyrolysis treatment

S.S. Li, F. Lü, P.J. He, M. Shao (CN)

Redox property of biochar and its relationship with biochar's function in the biodegradation of waste

P. Stępień, A. Białowiec (PL)

Kinetic parameters of torrefaction process of alternative fuel produced from Municipal Solid Waste and characteristic of carbonized refuse derived fuel

G. Haarlemmer, A. Roubaud, J. Roussely, M. Déniel (FR)

Hydrothermal liquefaction of wet waste streams

10:40 - 11:10 Coffee break

SESSION D12 / BALDACCHINO HALL / 11:10-12:50

TREATMENT AND RECYCLING OF BIO-SLUDGES

Chair / *Presidente*: Jurate Jumiene (SE)

K.Y. Show, Y.G. Yan, M. Ling (CN)

Low frequency ultrasonication for sludge disintegration and digestion

J. Yang, S. Liang, W. Yu, S. Tao, J. Yu, Q. Gan, R. Guan, H. Li (CN)

Two recycling methods of deep-dewatered sludge cake conditioned by fenton's reagent and red mud

W. Yu, J. Yang, Y. Gu, S. Liang, X. Wu (CN)

Influence of voltage on electro-dewatering of activated sewage sludge by in-situ linear-sweep voltammetry analysis

T.Y.R. Oda, A.A.P. Rezende, C.M. Silva, C.L. Silva (BR)

Production and characterization of adsorbents derived from textile biological sludge by carbonization and chemical activation

S. Vaclavkova, M. Syc, M. Pohorely, B. Zach, J. Mosko, K. Svoboda, M. Puncchar (CZ)

Phosphorus recycling - A way to replace the conventional P-fertilizers by P-products derived from sewage sludge

N.A. Hafiz, S.M. T. Islam, M. Alamgir (BD)

Management of faecal sludge through co-composting approach in Kushtia municipality of Bangladesh

THURSDAY OCTOBER 5 MORNING

SESSION E11 / BIANCA HALL FOYER / 9:00-10:40

IWWG WORKSHOP: PREVENTION OF FOOD WASTE

Chairs / *Presidenti*: Ian Williams, Peter Shaw (GB)

The workshop will focus on the issue of avoidable food waste. After a short presentation to introduce the workshop, participants will focus on two tasks via a structured critical appraisal and analysis:

1. Which factors cause what type of avoidable food waste?
2. Can we identify potential interventions to alter householders' behaviour such that better prevention of avoidable food waste can be achieved?

Introductory lectures:

P.J. Shaw, I.D. Williams (GB) / Avoidable food waste: causes, types and prevention

H. Yamakawa, I.D. Williams, P.J. Shaw, K. Watanabe (JP) / Food waste prevention: lessons from the love food, hate waste campaign in the UK

10:40 - 11:10 Coffee break

SESSION E12 / BIANCA HALL FOYER / 11:10-12:50

AIR POLLUTION IMPACT AND CONTROL IN THERMAL TREATMENT

Chair / *Presidente*: Cristophe Cord'Homme (FR)

A. Beylot, S. Muller, M. Descat, Y. Menard, P. Michel, J. Villeneuve (FR)

WILCI: a LCA tool dedicated to MSW incineration in France

A. Haddad, S. Moqbel (JO)

Impact assessment of open combustion of Municipal Solid Waste (MSW) through biomonitoring of dioxin concentration in pine trees needles in an urban site in Amman - Jordan

R. Yang, H. Zhang, L.M. Shao, P.J. He (CN)

Use ammonium dihydrogen phosphate to inhibit chlorobenzenes formation

SESSION F11 / CHIESA ROOM / 9:00-10:40

WORKSHOP: WM IN TRANSIENT COUNTRIES - FROM SOCIALISTIC TO MARKET ECONOMIES

Chairs / *Presidente*: Alexandra Pukhnyuk (AT)

In this workshop, the issues related to the effects on waste management systems of the transition from planned to market economy in post-socialistic states of the former Eastern Bloc are addressed and discussed.

Introductory lectures:

R. Maletz, S. Wohmann, A. Pukhnyuk (DE) / Comparison of waste management systems in western and transition economies within the project Watra

H. Skryhan, O. Khandogina, I. Shilova (BY) / Municipal Solid Waste management in the cities of Belarus and Ukraine: lost soviet efficiency and weakness of modern governance instruments

H. Skryhan, I. Shilova, O. Khandogina, K. Abashyna, O. Chernikova (BY) / Waste management in post-soviet countries: how far away from EU?

K. Abashyna, O. Chernikova, O. Khandogina, M. Pavlova, F. Stolberg (UA) / Development of information and communication strategies for increase of public awareness in municipal waste management in the low-middle and upper-middle-income countries

10:40 - 11:10 Coffee break

SESSION F12 / CHIESA ROOM / 11:10-12:50

WORKSHOP: MONITORING GAS EMISSIONS FROM WASTE MANAGEMENT FACILITIES

Chair / *Presidente*: Charlotte Scheutz (DK)

Due to the high global warming potential of methane, fugitive emissions from waste management facilities are an issue. The assessment of methane emissions is difficult to obtain by measurements and the results are expected to be highly variable from facility to facility. During the workshop case studies will be presented and different evaluation methods will be discussed, mainly focusing on anaerobic digestion plants and old landfills.

Introductory lectures:

A.M. Fredenslund, C. Scheutz (DK) / Total methane loss from biogas plants determined by tracer dispersion measurements

M. Hrad, M. Piringer, M. Huber-Humer (AT) / Quantification of methane emissions from anaerobic digestion plants using laser absorption spectroscopy and inverse dispersion modelling

A.M. Fredenslund, J. Mønster, P. Kjeldsen, C. Scheutz (DK) / Screening method to assess greenhouse gas mitigation potential of old landfills based on downwind methane concentration measurements

THURSDAY OCTOBER 5 MORNING

SESSION G11 / PINETA ROOM / 9:00-10:40

WORKSHOP: LANDFILL ENGINEERING - PROBLEMS AND SOLUTIONS

Chair / *Presidente*: Raffaello Cossu (IT)

Landfill engineering involves the application of state of the art technology in the framework of current legislation. However, not necessarily this leads to the construction of sustainable landfills. The main issues in landfill engineering will be discussed in the workshop, examples of recurrent problems and possible solutions will be discussed.

Introductory lecture:

R.Cossu (ITA) / Landfill engineering: problems and solutions

10:40 - 11:10 Coffee break

SESSION G12 / PINETA ROOM / 11:10-12:50

WORKSHOP: LEACHATE MANAGEMENT - NEW CHALLENGES

Chair / *Presidente*: Howard Robinson (GB)

Landfill leachate remains a very important potential source of water pollution from landfill sites and its management is critical if contamination of surface and groundwaters is to be avoided. After the introductory lecture presenting a case study in Australia, the particular challenges involved in successful leachate management and treatment at different sites in different situations will be presented and discussed. Among the new challenges, the use fully automated plants to minimize staff attendance requirements in closed landfills and leachate management in developing countries, where intense rainfall events regularly affect leachate production and composition.

Introductory lecture:

S. Dever, B. Lau, A. Roberts (AU) / Transforming leachate management at the Kimbriki resource recovery centre, Sydney, Australia

SESSIONE H11 (IN ITALIANO) / NATURISTA ROOM / 9:00-10:40 **INGEGNERIA FORENSE APPLICATA ALLA GESTIONE DEI RIFIU- TI I**

Chair / *Presidente*: Alberto Pivato (IT)

Invited speakers / *Relatori invitati*: Federico Peres, Giuseppe Vadalà, Stefano Vanin

- Introduzione al workshop: significato dell'ingegneria ambientale forense; cause generali alla base della contenziosità legale; profilo professionale e maturità scientifica dei tecnici nel settore (Alberto Pivato)
- Il ruolo del Consulente Tecnico di Parte (CTP): il conferimento dell'incarico e la speciale competenza (Federico Peres)
- Rigore scientifico delle indagini preliminari (Stefano Vanin)
- La bonifica dei siti di discarica abusivi sul territorio nazionale oggetto della sentenza della Corte di Giustizia dell'Unione Europea: analisi, aspetti normativi e procedure per la definizione del caso (Giuseppe Vadalà)

10:40 - 11:10 Coffee break

SESSIONE H12 (IN ITALIANO) / NATURISTA ROOM / 11:10-12:50 **INGEGNERIA FORENSE APPLICATA ALLA GESTIONE DEI RIFIU- TI II**

Chairs / *Presidenti*: Raffaello Cossu, Alberto Pivato (IT)

Invited speakers / *Relatori invitati*: Gianfranco Carboni, Franco Gianpietro, Federico Peres

- Significativi casi di studio e lotta ai "luoghi comuni" (Raffaello Cossu)
- Procedure di indagine per la verifica di danni ambientali e per l'identificazione delle responsabilità (Raffaello Cossu)
- Inquinamento e danno all'ambiente: dal TUA all'art. 452-bis cod.pen. (Franco Gianpietro)
- La gestione dei rifiuti solidi ed il codice etico nella conduzione delle aziende (Gianfranco Carboni)
- Rifiuti e sottoprodotti: i chiarimenti del Ministero con la circolare n. 7219 del 30.05.2017" (Federico Peres)

THURSDAY OCTOBER 5

AFTERNOON

SESSION A13 / CENTRAL HALL / 15:30-17:10

PACKAGING WASTE RECYCLING

Chair / Presidente: Andreas Bartl (AT)

N. Stanisavljević, V. Mrkajić, X. Wang, D. Ubavin, B. Batinić (RS)

What should we learn from key challenges of packaging waste management system in EU accession country

B.D. Such, A. Bala, R. Colomé, J. Ribas, S. Ayuso, I. Muñoz, B.P. Weidema, P. Fullana-I-Palmer (ES)

A comparative sustainability assessment of two packaging waste management systems in dispute in Spain. The Ariadna project.

R. Warrings, J. Fellner (AT)

Where aluminium household goods get lost - Gaps on the way to a circular economy

G. Obersteiner, R. Ramusch (AT)

Assessing the informal diversion of aluminium beverage cans in selected eastern European cities

V. Decottignies, Ml. Sablayrolles, Mc. Magnie, O. Vilcot (FR)

Plastics recycling, from a market push to a market pull - Example of a waste-management company

17:10 - 18:00 Coffee break + Poster discussion

SESSION A14 / CENTRAL HALL / 18:00-19:40

RECYCLING AND RECOVERY OF PLASTIC

Chair / Presidente: Giuseppe Bonifazi (IT)

J. Hřebíček, O. Faldík, Z. Horsák, O. Trenz (CZ)

Sustainable investment in waste management - A case study on LDPE plastics

T.S. Gomes, L.L.Y. Visconte, E.B.A.V. Pacheco (BR)

Comparative assessment of two different pet recycling systems in Brazil from a life cycle perspective

E. Seiler, A. Kessler, F. Henning, U. Teipel (DE)

Efficient dismantling of fiber reinforced plastics like rotor blades with energetic materials

Z. Jin, L. Yin, D. Chen, Y. Hu, Y. Jia (CN)

The heat transfer characteristics of molten waste plastic pyrolysis in a vertical falling film reactor

B. Chiwara, E. Makhura, G. Danha, S. Bhero, E. Muzenda, P. Agachi (BW)

Pyrolysis of plastic waste into fuel and other products

SESSION B13 / CENTRAL HALL 2 / 15:30-17:10

LANDFILL GAS EMISSION MONITORING

Chair / Presidente: Martin Héroux (CA)

L. Fjelsted, C. Scheutz, A.G. Christensen, P. Kjeldsen (DK)

Screening tool for landfill gas emission hot spots based on infrared images

M. Bourn, G. Allen, P. Hollingsworth, K. Kababbe, P.I. Williams, H. Ricketts, J.R. Pitt, A. Shah (GB)

The development of an unmanned aerial system for the measurement of methane emissions from landfill

F. Tatàno, A. Viscione, S. De Rosa, G. Corigliano, B. Capaccioni (IT)

Landfill gas emission monitoring with the static, non-stationary chamber method: a long-term (2005-2016) study at an Italian site

J. Mønster, T. Rees-White, R. Beaven, C. Scheutz (DK)

Quantification of the methane emissions from Masons landfill, UK

17:10 - 18:00 Coffee break + Poster discussion

SESSION B14 / CENTRAL HALL 2 / 18:00-19:40

LANDFILL GAS COLLECTION

Chair / Presidente: Kai-Uwe Heyer (DE)

E. Fathi Aghdam, A.M. Fredenslund, P. Kjeldsen, C. Scheutz (DK)

Gas collection efficiency at two Danish landfills

W.H. Stachowitz (DE)

LFG projects in between old Europe (Germany) and old eastern bloc (Russia and Belarus)

A. Richter, K.T.W. Ng (CA)

Snow cover effects on active landfill gas collection systems in a semi-arid climate

S. Jeong, M.H. Park, J.Y. Kim (KR)

Spatial and temporal variation of landfill gas collection in Sudogwon landfill in republic of Korea

W.H. Stachowitz (DE)

LFG projects in Germany due to the national climate initiative by the German government

THURSDAY OCTOBER 5

AFTERNOON

SESSION C13 / PANORAMA HALL / 15:30-17:10

ASSESSMENT OF WM IN DEVELOPING COUNTRIES

Chair / Presidente: Jakob Lederer (AT)

F. Di Maria, E. Lovat, M. Caniato (IT)

Comparing waste management in developed and developing countries: the case study of the Umbria region (Italy) and of West Bank (Palestine)

E.M. Mukhtar, I.D. Williams, P.J. Shaw (GB)

Visible and invisible factors in solid waste management in developed and developing countries

B.K. Sharma, M.K. Chandel (IN)

A Life Cycle Assessment to compare composting schemes for the treatment of municipal solid waste in Mumbai, India

B.K. Mavakala, C.K. Mulaji, P.T. Mpiiana, V. Elongo, J-P. Otamonga, E.M. Biey, W. Wildi, J. Pote, G. Giuliani (CH)

Citizen sensing of solid waste disposals: crowdsourcing as a tool supporting waste management in a developing country

17:10 - 18:00 Coffee break + Poster discussion

SESSION C14 / PANORAMA HALL / 18:00-19:40

RECYCLING BY THE INFORMAL SECTOR

Chair / Presidente: Christian Zurbrugg (CH)

S. Aparcana (DK)

Barriers and success factors of approaches to formalization of the informal waste sector in developing countries: a review

B. Steuer, R. Ramusch, S. Salhofer (AT)

Can the informal recycling sector in urban China survive amidst worsening circumstances?

R. Ramusch (AT)

Measuring informality? Challenges in quantifying informal recycling sector activities

K. Watanabe, S. Sasaki, K. Tiew, D. Irwan (JP)

Comparison of recycling activities at landfills in Indonesia and Malaysia

S. Ramaswami (DE)

Waste management scenario in Bangalore: scope for in-situ valorisation of bio-waste

SESSION D13 / BALDACCHINO HALL / 15:30-17:10

THERMAL TREATMENT OF SEWAGE SLUDGE

Chair / *Presidente*: Roman Maletz (DE)

A. Tsybina, C. Wuensch (DE)

Analysis of thermal sewage sludge treatment methods in the context of circular economy

S. Tang, C. Zheng, Z. Zhang (CN)

Effect of internal minerals on sewage sludge pyrolysis: products characteristics, kinetics and thermodynamics

Y. Tang, X. Zheng, P. Wu (CN)

Beneficial utilization of sewage sludge incineration ash for thermal immobilization of zinc in spinel structure

M. Abis, K. Kuchta (DE)

Innovative technologies for phosphorus recovery from sewage sludge ash

V. Singh, H.C. Phuleria, M.K. Chandel (IN)

Thermal investigation and ftir analysis of sewage sludge generated from municipal wastewater treatment plants in India

A.A. Alamgir, K. Debnath, Md.D. Hossain, M.A. Jalil (BD)

Solid waste management of tannery industrial estate Dhaka

17:10 - 18:00 Coffee break + Poster discussion

SESSION D14 / BALDACCHINO HALL / 18:00-19:40

TREATMENT AND RECYCLING OF INDUSTRIAL WASTE

Chair / *Presidente*: Evangelos Gidarakos (GR)

W. Ipsmiller, A. Bartl (AT)

State-of-the-art and future perspectives of end-of-life textiles management

V.S. Rodrigues, B. Karolski, D.C.R. Espinosa, J.A.S. Tenório (BR)

Biodegradation of pollutants found in waste foundry sand

A. Niskanen, J. Kemppe, K. Koivunen, P. Kouvo (FI)

A novel monitoring tool for material flow management

T. Tesfaye, B. Sithole, D. Ramjugernath (ZA)

Valorisation of chicken feathers: recycling and recovery routes

J. Zhou, H. Hou, Q. Liu, M. Lin, Y. Su, Y. Lu, J. Zhang, G. Qian (CN)

Spontaneous formation of photocatalytic SiO₂-TiO₂ composite in the F-assisted leaching process of Ti bearing slag

THURSDAY OCTOBER 5

AFTERNOON

SESSION E13 / BIANCA HALL FOYER / 15:30-17:10

COMPANIES WORKSHOP: VERMICOMPOSTING FOR ORGANIC WASTE RECYCLING I

Chairs / *Presidenti*: Michael Quintern (DE), Max Morley (NZ)

Vermicomposting has become the strategy of choice for households, small enterprises, municipalities, agriculture, and industries globally. Vermicomposting is transforming organic wastes and sludge - even sewage sludge - into a safe and highly valued fertiliser and soil conditioner known as vermicast for uses in home gardens, agriculture, horticulture and recreation areas. The workshop will provide key information and base knowledge of the vermicomposting technology, its requirements, economics, opportunities, and limitations at all scales of organic wastes producers. Case studies will be developed with the delegates for individual households, small enterprises and communities, and large industries by describing the design, performance, environmental impacts, and economic frameworks.

17:10 - 18:00 Coffee break + Poster discussion

SESSION E14 / BIANCA HALL FOYER / 18:00-19:40

COMPANIES WORKSHOP: VERMICOMPOSTING FOR ORGANIC WASTE RECYCLING II

Chairs / *Presidenti*: Michael Quintern (DE), Max Morley (NZ)

In session E14 the discussion started in E13 will be continued.

SESSION F13 / CHIESA ROOM / 15:30-17:10

WORKSHOP: DATA QUALITY ASSESSMENT OF WASTE TECHNOLOGIES AND SYSTEMS I

Chairs / Presidenti: Anders Damgaard (DK), James Levis (US), Trine Henriksen (DK)

Life cycle assessment frequently relies on disparate and heterogeneous data sources, thus, data quality information is needed to evaluate the reliability of a study. Some data quality indicators are case-dependent, and data quality assessment of these indicators is often non-transparent and subjective. Transparency can be enhanced by adapting the data quality indicators to the characteristics of the technical domain of interest. Data quality and documentation is important both for the researcher carrying out the study to be able to interpret the results correctly, and data quality indicators are also important for the reader of a study to evaluate the quality of the results, and to determine how well the results can be transferred to other areas with similar technologies, waste materials and systems.

Therefore, there is a need for standards for data transparency, accessibility, and quality assessment that ensures that the study results are consistent with the goal and scope of the study. Meeting these standards will require the development of new tools and frameworks for managing data. The goal of this workshop is thus twofold: to discuss different aspects of data that are critical for a good study, namely data representativeness and data completeness, and to discuss data transparency and accessibility requirements.

Introductory lectures:

T. Henriksen (DK) / Temporal and spatial representativeness

T. Henriksen (DK) / Data Completeness

J. Levis (US) / Transparency in LCA

17:10 - 18:00 Coffee break + Poster discussion

SESSION F14 / CHIESA ROOM / 18:00-19:40

DATA QUALITY ASSESSMENT OF WASTE TECHNOLOGIES AND SYSTEMS II

Chairs / Presidenti: Anders Damgaard (DK), James Levis (US), Trine Henriksen (DK)

The second session of the workshop will focus on group discussions on how to address raised questions and issues.

THURSDAY OCTOBER 5

AFTERNOON

SESSION G13 / PINETA ROOM / 15:30-17:10

WORKSHOP: DISCUSSION OF DIFFERENT VALUES OF THE IPCC LFC MODEL

Chairs / *Presidenti*: Kai-Uwe Heyer, Rainer Stegmann, Gerhard Rettenberger (DE)

After short introductory presentations, the following subjects will be discussed:

- How were the default values developed
- How realistic are the existing default values
- Proposal for modified default values
- Research on the degradability of specific waste compounds

Introductory lecture:

K-U. Heyer, K. Hupe, G. Rettenberger, R. Schneider, R. Stegmann (DE) / Long term experience with the IPCC default values, time to rethink?

17:10 - 18:00 Coffee break + Poster discussion

SESSION G14 / PINETA ROOM / 18:00-19:40

WORKSHOP: SMART GROUND - SECONDARY RAW MATERIALS

Chair / *Presidente*: Stuart Wagland, Frederic Coulon (GB)

The estimated 500,000 landfills across Europe are expected to be a valuable source of secondary raw materials [SRM]. Existing knowledge, reporting standards and inventory on SRM seems to be inefficient.

The SMART GROUND project will promote resource recovery in landfills by improving the availability and accessibility of data and information on SRM across the EU. This workshop will present the developed SMART GROUND databank and tools to assess the SRM economic potential with workshop attendees, providing a discussion on the assessment of landfill sites material recovery targeting end-users. The recovery methods and approaches will be analysed with input from workshop delegates, with the key technical, environmental and economical considerations explored.

SESSIONE H13 (IN ITALIANO) / NATURISTA ROOM / 15:30-17:10
L'ECONOMIA CIRCOLARE NELLA GESTIONE DEI RIFIUTI

Chair / Presidente: Giuseppe Bonifazi (IT)

G. Faraca, A. Boldrin, A. Damgaard, T.F. Astrup (DK)

Potenziali criticita' in un'economia circolare - La presenza di impurita' nel riciclo del legno

A. Di Maria, K. Van Acker (BE)

Come valutare i benefici ambientali dell'economia circolare: differenze tra attributional and consequential LCA applicate ad un caso studio nell'industria siderurgica

A. Rigoldi, E.F. Trogu, G.C. Marcheselli, N. Picone, P. Deplano, M. Colledani, A. Serpe (IT)

Recupero dei metalli nobili da schede elettroniche (PCB): un approccio multidisciplinare verso la sostenibilita'

F. Bartolacci, R. Cerqueti, A. Paolini M. Soverchia (IT)

La valutazione dell'efficienza a supporto delle strategie nelle aziende di igiene urbana

B. Orrico, A. Marotta (IT)

La questione ecoballe in Campania

17:10 - 18:00 Coffee Break + Poster discussion

SESSIONE H14 (IN ITALIANO) / NATURISTA ROOM / 18:00-19:40
ASPETTI PROGETTUALI, AMBIENTALI E SOCIALI NELLA GESTIONE DEI RIFIUTI SOLIDI

Chair / Presidente: Silvio Landonio (IT)

I. Minardi, E. Giovenali, T. Rizzo, G. Virgili (IT)

Analisi di rischio sanitario ambientale attraverso l'utilizzo di tecniche avanzate di stima delle emissioni di biogas e modelli di dispersione: caso studio di una discarica RSNP in Puglia

M. Piscitelli, D. Minervini, I. M. Mancini, V. Martone, S. Masi, E. Trulli, D. Caniani (IT)

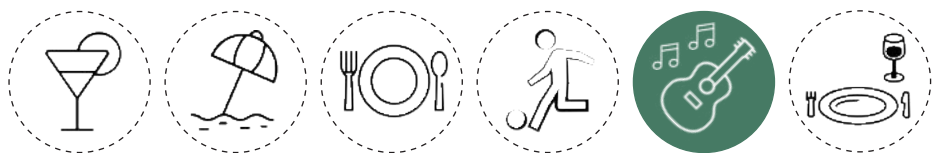
Analisi sociologica per valutare la propensione dei cittadini alla raccolta differenziata e acquisire elementi per la progettazione del nuovo servizio di raccolta dei rifiuti per un comune di circa 20.000 abitanti

P. Simone, A. Angeloni, M. Condorelli (IT)

Progetti di discarica e compensazione ambientale con progetti di bonifica - Un caso e una strategia

THURSDAY OCTOBER 5

SOCIAL EVENT



BEATLES TRIBUTE CONCERT / PIAZZA MARIA LUIGIA SERATA DEDICATA AI BEATLES / PIAZZA MARIA LUIGIA H. 21:00

Gather in the impressive Piazza Maria Luigia at Forte Village for an evening of entertainment provided by The Vaghi Beatles Tribute Band.

The group will perform live and faithfully reproduce the atmosphere of the fantastic 1960s using costumes and musical instruments similar to those the 'Beatles' used during their concerts.

The titles played by the Vaghi is so extensive that it embraces the entire career of the Fab Four... from 'SHE LOVES YOU' to 'LET IT BE' and including 'A HARD DAY'S NIGHT', 'ALL MY LOVING', 'MICHELLE', 'LOVE ME DO', 'CAN'T BUY ME LOVE', 'YELLOW SUBMARINE', 'COME TOGETHER', 'YESTERDAY', 'TICKET TO RIDE'... 'HELP!'.

A nostalgic dive into the past that is still today dear to the many of us who continue to love the music and the spirit of the most famous group of all times.

Recati nella piazza principale del Forte Village, Piazza Maria Luigia, e partecipa ad una serata musicale animata da 'I Vaghi', la tribute band dei Beatles.

I Vaghi sono una band che si esibisce proponendo uno spettacolo sulla storia dei fantastici quattro scarafaggi di Liverpool. Il gruppo si esibirà in un concerto dal vivo riproducendo fedelmente l'atmosfera dei mitici anni '60, utilizzando costumi di scena e strumenti musicali simili a quelli che gli stessi 'Beatles' usavano durante i loro concerti.

Il repertorio dei Vaghi è talmente vasto da ricoprire l'intera carriera dei Fab Four... Da 'SHE LOVES YOU' a 'LET IT BE' passando per 'A HARD DAY'S NIGHT', 'ALL MY LOVING', 'MICHELLE', 'LOVE ME DO', 'CAN'T BUY ME LOVE', 'YELLOW SUBMARINE', 'COME TOGETHER', 'YESTERDAY', 'TICKET TO RIDE'... 'HELP!'.

Un tuffo nostalgico in un passato ancora vivo nell'animo di tanti di noi che continuano ad amare le musiche e lo spirito del gruppo più famoso al mondo di ogni tempo.

DAY 5 / FRIDAY
OCTOBER 6

FRIDAY OCTOBER 6

MORNING

SESSION A15 / CENTRAL HALL / 9:00-10:40

CONTROL OF CHEMICALS IN WASTE MATERIAL RECYCLING

Chair / *Presidente*: Kostyantyn Pivnenko (DK)

G. Okkenhaug, N.A.O. Morin, S.E. Hale, Å.R. Almås, P.L. Andersson. H.P.H. Arp (NO)
Flame retardants in solid waste materials: presence and mobility at Norwegian waste-handeling facilities

G. Faraca, A. Boldrin, A. Damgaard, T.F. Astrup (DK)

Challenges to a circular economy - The presence of impurities in wood waste for recycling

M.K. Eriksen, T.F. Astrup (DK)

Recycling of plastic waste from households: importance of contaminants

K. Stoknes, F. Scholwin, A. Jasinska, E. Wojciechowska, M. Mleczek, A. Hanc, P. Niedzielski (NO)

Cadmium mobility in a circular food-to-waste-to-food system and the use of a cultivated mushroom (*agaricus subrufescens*) as a remediation agent

10:40 - 11:10 Coffee break

SESSION A16 / CENTRAL HALL / 11:10-12:50

SOCIAL ASPECTS IN WASTE MANAGEMENT

Chair / *Presidente*: Ian Williams (GB)

M. Kottara (GR)

Demographic changes and their impact on the management of mixed and recyclable waste case study: the waste management in the municipality of Athens, in the period of economic crisis

S.A.B. Diop, P.J. Shaw (GB)

On the buying, gifting and giving of textiles: a comparative study of societal and situational factors in the UK and Senegal

S. Kissoon, C. Trois (ZA)

Advancement of the waste resource optimization and scenario evaluation (WROSE) model to include social indicators for waste management decision making in developing countries

A. Pfeiffer, P. Harborth, K. Fricke (DE)

Teach4waste - First international e-learning platform for waste and resource management

SESSION B15 / CENTRAL HALL 2 / 9:00-10:40

LANDFILL GAS - TREATMENT AND EFFECTS

Chair / Presidente: Marco Ritzkowski (DE)

D. Uhlig, R. Berger (DE)

Advantages of using recuperative FLOX® combustion for the thermal treatment of landfill gas

C. Trois, A. Borello, S. Kisson, P. Chetty (ZA)

Feasibility of landfill gas upgrade for use as a fuel source for refuse trucks: a case study in South Africa

P. Špičák, Z. Horsák, J. Hřebíček (CZ)

Landfill gas utilization in recycling technology for LDPE plastics

O. Schlosser, S. Robert, M. Peron, C. Debeaupuis (FR)

Appraising a "safe" buffer distance around waste disposal facilities - A case study of moulds and aspergillus fumigatus in air in the surrounding environment of non-hazardous waste landfill sites

10:40 - 11:10 Coffee break

SESSION B16 / CENTRAL HALL 2 / 11:10-12:50

REMEDICATION OF LANDFILLS

Chair / Presidente: Stuart Wagland (GB)

A. Limoli, L. Dallago, M. Gabrielli, G. Andreottola (IT)

Leachate contamination on groundwater: a lab-scale study on biosparging remediation

R. Beaven, A. Stringfellow, S. Brown, A. Murthaza, R.J. Nicholls (GB)

A preliminary investigation of options for remediation of a coastal landfill in the Maldives

M. Araujo, C. Bernardes Jr. (BR)

A solution for closing open dumps for small municipalities in Brazil

J. Righi, A. Meliande, L. Moura, C. Mahler (BR)

Environmental monitoring of a closed irregular landfill in Brazil: evaluation of parameters in the period of operation and post-closure associated to the qualitative research

FRIDAY OCTOBER 6 MORNING

SESSION C15 / PANORAMA HALL / 9:00-10:40

LEACHATE IMPACT ON GROUNDWATER

Chair / *Presidente*: Richard Beaven (GB)

C. Pan, K.T.W. Ng, A. Richter (CA)

Hydrochemical assessment of groundwater quality near Regina municipal landfill

R. Cossu, F. Santaloia, L.E. Zuffiano', P.P. Limoni, P. Pizzardini, T. Miano, D. Mondelli, R. Garavaglia, C. Carella, M. Polemio (IT)

Geochemical and hydrogeological study to identify the source of nitrate in the carbonate groundwater (Southern Italy)

S.A. Kartha, B. Pradhan, P.J. Barman (IN)

Statistical interpretation of leaching of zinc from Boragaon (India) landfill refuse

10:40 - 11:10 Coffee break

SESSION C16 / PANORAMA HALL / 11:10-12:50

DIFFERENT ASPECTS OF WM IN DEVELOPING COUNTRIES

Chair / *Presidente*: Roland Ramusch (AT)

J. Lederer, J. Karungi, F. Ogwang (AT)

Knowledge creation among local stakeholders in CDM waste composting projects: a case study from Uganda

E. Antwi, S. Lekchiri, N. Engler, H. Latrache, M. Nelles, A. Schüch (DE)

Agro waste management strategies in low income countries - Future perspectives to use waste as a resource

M.S. Islam, S.M. Moniruzzaman, M. Alamgir (BD)

Simulation of sustainable solid waste management system of Khulna city in Bangladesh through Life Cycle Assessment

J. Levis, A. Weisbrod, G. Van Hoof, M. Barlaz (US)

Life-Cycle Modelling of open dumping and burning of solid waste in emerging and developing countries

S. Begum, A.G.R. Anupoju, N. Esthiagi, S. Sridhar, V. Jegatheesan (IN)

Significance of biogas solutions in transition towards circular and bio based economy: case studies of decentralised biogas plants in India

SESSION D15 / BALDACCHINO HALL / 9:00-10:40
CONSTRUCTION AND DEMOLITION WASTE

Chair / *Presidente*: Lale Andreas (SE)

F. Kleemann, H. Lehner, A. Szczypińska, J. Lederer, J. Fellner (AT)

An innovative method to determine amount and composition of building demolition waste on a regional level – The case of Vienna

L.P. Rosado, C.S.G. Penteado (BR)

Environmental performance evaluation of an inter-municipal consortium of construction and demolition waste management in Brazil

S. Tuprakay, S.R. Tuprakay (TH)

The study of standard concrete recycle as aggregates in concrete products

A. Albeeshi, Z. Mohammad, K. Alfadhel (KW)

Construction & demolition waste management in the state of Kuwait: challenges & solutions

G. Borghi, S. Pantini, L. Rigamonti (IT)

Application of LCA to construction and demolition waste (CDW) management in Lombardy region

10:40 - 11:10 Coffee break

SESSION D16 / BALDACCHINO HALL / 11:10-12:50
RECYCLING OF WASTE FROM COAL AND STEEL INDUSTRY

Chair / *Presidente*: Aldo Muntoni (IT)

P. Rossetti, G.A. Dino, G. Biglia, E. Costa (IT)

Characterization of secondary raw materials from mine waste: a case study from the Campello Monti Ni±Cu±CO±PGE mining site (Western Alps, Italy)

P. Wang, S. Kara, M. Z. Hauschild (AU)

The role of circular economy, consumption reduction, and material efficiency in peak waste

A. Taskin, V. Petukhov, A. Yudakov, O. Danilov (RU)

The question of integrated use of ash and slag wastes on the far east of the Russian federation (case of chp-2, Vladivostok)

A. Di Maria, K. Van Acker (BE)

How to evaluate environmental benefits in circular economy: attributional vs a consequential life cycle approaches for a case study in the steel industry

FRIDAY OCTOBER 6 MORNING

SESSION E15 / BIANCA HALL FOYER / 9:00-10:40

WORKSHOP: ACIDOGENIC FERMANTATION

Chair / *Presidente*: Anders Lagerkvist (SE)

Through Acidogenic Fermentation organic wastes can be valorized as base chemicals, including methane-rich biogas and also more valuable organic acids, alcohols and hydrogen. This workshop aims to discuss and evaluate the state of the art in acidogenic fermentation technology today, and outline its potentials and bottle necks for application in waste treatment.

Introductory lecture:

S. Bengtsson, F. Morgan-Sagastume, S.S. Pawar, I. Sárvári-Horváth, A. Lagerkvist (SE) / Acidogenic fermentation as hub-biotechnology for the valorization of organic wastes

10:40 - 11:10 Coffee break

SESSION E16 / BIANCA HALL FOYER / 11:10-12:50

WORKSHOP: CHEMICALS AND CIRCULAR ECONOMY

Chair / *Presidente*: Anders Damgaard, Kostyantyn Pivnenko (DK)

There is a large political interest in moving towards a circular economy where material resources are constantly cycled back into new materials. This workshop aims to discuss the challenges that chemicals in products will have in the move towards a circular economy. The workshop will build on the presentations from session A15, to which this session will add two presentations before we have a group discussion on the topic.

Introductory lecture:

Kostyantyn Pivnenko (DK) / Chemicals and circular economy: general overview

L. Xanthopoulou, T.F. Astrup (DK) / Chemicals and circular economy: challenges related to Life Cycle Assessment

SESSION F15 / CHIESA ROOM / 9:00-10:40
COMPANIES FORUM I

Chair / *Presidente*: Lorenzo Nettuno (IT)

The primary goal of these forums is to create a balance in the event between the scientific content and the industry contributions, in order to foster exchanges between practitioners and the academics, to promote novel solutions to today's challenges in the area of Waste Management, and to provide practitioners in the field an early opportunity to evaluate leading-edge research and present their own products and services. Ample time will be given to discussion and networking.

The forum will be freely accessible for all delegates and visitors of the conference, thus representing the perfect chance for companies to gain visibility, meet new potential clients and present products to a seated public.

CONFIRMED COMPANIES:

ReSource International ehf. (IS)
Arvia Technology (GB)
Enviraf Ltd (GB)
Geos Environment (IT)

10:40 - 11:10 Coffee break

SESSION F16 / CHIESA ROOM / 11:10-12:50
COMPANIES FORUM II

Chair / *Presidente*: Lorenzo Nettuno (IT)

In Session F16 the discussion started in the previous session F15 will be continued with exhibitors and supporters.

CONFIRMED COMPANIES:

Fountain Green Energy (ZA)
Lindum AS (NO)
Enviroplan S.A. Consultants & Engineers (GR)
Interwaste (Pty) Ltd (ZA)

FRIDAY OCTOBER 6 MORNING

SESSION G15 / PINETA ROOM / 9:00-10:40

IWWG WORKSHOP: LEACHATE MANAGEMENT IN TROPICAL AREAS - CONSTRAINTS, SOLUTIONS, CHALLENGES

Chairs / *Presidenti*: Maria Cristina Lavagnolo (IT), Howard Robinson (GB), Muhammed Alamgir (BD), Mario Malagoli (IT)

Leachate treatment is still a problematic issue in the waste management system worldwide, especially in developing countries, given constraints related to institutional capacity and economic conditions. This is even true in the tropical climate countries since the heavy rainfall during the wet season could negatively affect the performances in the degradation processes and the leachate and biogas management. Specific solutions in the landfill design and management should be considered in order to promote not only a quick and effective leachate drainage during the rainy season but also to guarantee the degradation process during the dry season when the moisture content in the waste mud could be the limiting factor. The aftercare phase is also a critical issue that has not yet been highlighted in its whole dimension.

The workshop is a possibility to discuss problematics and experiences with the aim to suggest tailor-made solutions, taking into account that the majority of the developing countries are situated in tropical climate. Both anaerobic and semi-aerobic landfill will be considered.

10:40 - 11:10 Coffee break

SESSION G16 / PINETA ROOM / 11:10-12:50

FOOD WASTE: PREVENTION, REDUCTION, RECOVERY

Chair / *Presidente*: Elisabeth Schmied (AT)

T. Okayama, K. Watanabe (JP)

The influence of food habits and experiences on Japanese young people's perception on wastage of edible food

G. Obersteiner, S. Schwoedt (AT)

Barriers of food waste prevention in austrian households

G. Hafner, D. Leverenz, P. Pils, M. Kranert (DE)

Refowas - Pathways to reduce food waste

G. Hafner, M. Rubach, D. Leverenz, P. Pils, M. Kranert (DE)

Large scale food waste monitoring in Germany

F. Girotto, M. C. Lavagnolo, R. Cossu (IT)

Bio-plastic precursors recovered through acidogenic fermentation of food waste and cheese whey

SESSIONE H15 (IN ITALIANO) / NATURISTA ROOM / 9:00-10:40
INNOVAZIONI NEL SETTORE DELLE BONIFICHE

Chair / Presidente: Francesco Di Maria (IT)

S. Berardi, E. Bemporad, M.P. Bogliolo, A. Guercio (IT)

Caratterizzazione e bonifica di discariche abusive: rischi specifici per i lavoratori

D. Sciunnach, S. Cappa, M. Zanotti (IT)

Landfill mining: inquadramento amministrativo di un caso pratico

E. Bemporad, P. Napolitano, A. Ledda (IT)

Rifiuti contenenti o contaminati da inquinanti organici persistenti: criticità ed indicazioni per una gestione realmente sostenibile

Q. Napoleoni, F. Garbin, M. Scarapazzi, L. Tramonti (IT)

Prove di permeabilità sui giunti di Palancole

S. Bellagamba, F. Paglietti, S. Malinconico, B. Conestabile Della Staffa, P. De Simone (IT)

La rimozione in sicurezza di tubazioni interrato in cemento-amianto: istruzioni operative INAIL

10:40 - 11:10 Coffee break

SESSIONE H16 (IN ITALIANO) / NATURISTA ROOM / 11:10-12:50
GESTIONE DI RIFIUTI ORGANICI BIODEGRADABILI

Chair / Presidente: Marco Ragazzi (IT)

G. Barulli, G. Ferrari, D. Felici, R. Ferrari (IT)

Il compostaggio aerobico dei rifiuti organici gestito nella repubblica di San Marino

A. Cesaro, V. Belgiorno (IT)

Processi anaerobici avanzati per il recupero sostenibile della frazione organica dei rifiuti solidi

I. Moukazis, F.M. Pellerà, M. Pitsios, E. Gidakos (GR)

Indagine su differenti metodi di valorizzazione delle trebbie di birra

M.L. Mastellone, D. Battaglia (IT)

Valutazioni tecnico economiche sul trattamento meccanico biologico del rifiuto residuale alla raccolta differenziata

M.L. Mastellone, R. Lotito (IT)

Valutazione di impatto odorigeno: proposta di legge per attività commerciali ed industriali

FRIDAY OCTOBER 6 AFTERNOON

CLOSING SESSION / CENTRAL HALL / 15:30-17:30

ROLE OF DIFFERENT WASTE MANAGEMENT PRACTICES AND TECHNOLOGIES IN THE CIRCULAR ECONOMY

Chair / *Presidente*: Rainer Stegmann (DE)

The action plan for a circular economy released by the European Union involves a *"transition to a more circular economy, where the value of products, materials and resources is maintained in the economy for as long as possible, and the generation of waste is minimized..."*

Waste management may play a central role in this framework and contribute to the development of a sustainable and resource-efficient economy.

During the Round Table the outcomes of several symposium sessions and workshops on waste management and the circular economy will be summarized and discussed, with specific emphasis on:

- Influence of circular economy action plans on waste management practices;
- Perspectives in valorization of specific waste streams and utilization of secondary resources;
- Integration of education and research towards circular economy thinking;
- Chemicals and circular economy;
- Role of landfilling in closing the material cycles.

FRIDAY OCTOBER 6

SOCIAL EVENT



GALA DINNER / WHITE HALL FORTE VILLAGE **CENA DI GALA / SALA BIANCA FORTE VILLAGE** **H. 21:00**

To celebrate the closure of the conference week all delegates are invited to a formal dinner in the elegant Sala Bianca at Forte Village, next to the Oasis swimming pool. Entrance to the Gala Dinner is by invitation only - these should be collected from the Secretariat starting from Wednesday 4th October. The cost of the Gala Dinner is included in the registration fee for Symposium participants. Tickets for non-delegates should be purchased from the Secretariat. During the dinner the 2017 "Life for Waste" Award will be officially presented, and best paper awards delivered to the winners of the different categories. Dark suit would be appreciated. Live music will accompany the evening.

Nella serata di venerdì, a conclusione dei lavori, è tradizione ormai consolidata che i partecipanti siano invitati a prendere parte alla Cena di Gala che si svolge nell'elegante Sala Bianca del Forte Village.

Il costo della Cena di Gala è incluso nella quota di iscrizione al Simposio. I partecipanti potranno ritirare il proprio invito rivolgendosi allo staff presente al banco registrazioni del Simposio a partire da mercoledì 4 ottobre.

Presso il banco registrazioni saranno inoltre in vendita biglietti per eventuali accompagnatori non iscritti al Simposio.

Durante la cena sarà consegnato il premio "Una vita per i rifiuti" e saranno, inoltre, annunciati i vincitori dei premi per i lavori migliori presentati durante il Simposio.

POSTER SESSIONS
SESSIONI POSTER

POSTER SESSIONS

SESSIONI POSTER

Poster presentations will be accessible to Symposium delegates at all times. Poster discussion will take place in the presence of authors in the afternoon from Monday to Thursday from 17:40 to 18:00.

Le presentazioni poster saranno sempre accessibili ai partecipanti al Simposio. La discussione dei poster avverrà alla presenza degli autori dal lunedì, al giovedì pomeriggio dalle 17:40 alle 18:00.

A. WASTE RECOVERY AND RECYCLING

A01 / B. Tarko, K. Gorazda, Z. Wzorek (PL)

Phosphorus recovery from polish sewage sludge ash - Potential of fertilizer production

A02 / H. Kominko, K. Gorazda, Z. Wzorek (PL)

Dried sewage sludge as a component of organo-mineral fertilizers - Polish perspective

A03 / E. Kłosek-Wawrzyn, P. Murzyn, W. Wons (PL)

Analysis of the possibility of limestone sludge usage in the production of clay masonry units

A04 / C. Martínez García, M.T. Cotes Palomino, F. De A. Torres Fernández, F.J. Iglesia Godino, V. Molina Moreno, F.A. Corpas Iglesias (ES)

Development of eco-friendly materials from sewage sludge used as technological nutrient for a circular economy

A05 / K. Shih, H. Yan, L. Kong (HK)

Quantitative X-Ray diffraction technique for characterizing phosphates recovered from wastewater

A06 / M. Kanayama, M. Fujii, M. Kudo, S. Kawamura, K. Nakamura (JP)

Study on solidification treatment of soil using waste oyster shell

A07 / S. Kawamura, M. Kanayama, R. Yamazaki, K. Yuge (JP)

Study on engineering properties of bamboo fiber mixed soil

A08 / A.F. Braga, H. Ribeiro, W.M.R. Gunther (BR)

Preliminary evaluation of the program goals for recycled solid waste in the São Paulo municipality, Brazil

A09 / Y.M. Atinuke, M.A. Gunbiade, S. Dan (NG)

Organic and non organic waste recycling management

A10 / M.T. Cotes-Palomino, C. Martínez-García (ES)

Preliminary study of the use of liquid extract obtained from olive oil waste as fertilizer

A11 / A.R. Dutra, A.L.V. Cubas, E.H.S. Moecke (BR)

Pilot equipment for the soap production

A12 / P. Murzyn, M. Pyzalski (PL)

Characterization of waste material after coal enrichment process and research of possible use for building materials production

A13 / *G.L. Vieira, A.P. Trovão, C.R. Teles (BR)*

Perspective of environmental sustainability with waste recycling plaster in construction

B. BIOLOGICAL TREATMENT

B01 / *S.K. Ghosh, F. Di Maria (IT)*

A comparative study of issues, challenges and strategies of bio-waste management in India and Italy

B02 / *F. Di Maria, F. Sisani, M. Lasagni (IT)*

Substitution of energy crops with bio-waste in an existing anaerobic digestion plant: a Life Cycle Analysis

B03 / *M. Zielińska, M. Dębowski, A. Cydzik-Kwiatkowska, M. Zielińska, A. Głowacka-Gil, P. Rusanowska (PL)*

Change-pressure disintegrator - Technology for small biogas plant presented in record biomap

B04 / *O. Yavorovska (UA)*

Dynamics of organic fraction of Municipal Solid Waste in Vinnitsa (Ukraine)

B05 / *M. Zieliński, M. Dębowski, M. Zielińska, A. Cydzik-Kwiatkowska, A. Głowacka-Gil, P. Rusanowska (PL)*

Device for ultrasound disintegration of organic matter - Technology for small biogas plant presented in record biomap network

B06 / *C. Lee, J.Y. Kim (KR)*

Methane production and biodegradability of cattle manure with chlortetracycline during mesophilic anaerobic digestion using lab-scale batch test

B07 / *A.K. Sander, A.L.V. Cubas, E.H.S. Moecke (BR)*

Use of non-thermal plasma in the pretreatment of lignocellulosic wastes for bioethanol production

B08 / *I. Pecorini, M. Akhlaghi, F. Baldi, E. Albin, A. Rossi, D. Bacchi, A. Polettoni, L. Lombardi, R. Pomi (IT)*

Influence of pH and food to microorganism ratio on fermentative biohydrogen production from organic fraction of municipal waste

B09 / *S. Saha, M. Alamgir (BD)*

Experimental study on the safe use of faecal sludge and organic solid waste through co-composting in aquaculture

B10 / *T. Wawilow, S. Herbert, U. Theilen, N. Hasport, M.J. Gellert, C. Thomsen (DE)*
Nutrient removal with microalgae - Reduction of the effluent concentration from wastewater treatment plant

B11 / *E. Hroncová, J. Ladomersky (SK)*

Gradual loss of effectiveness and failure of biofilter for cleaning waste air from a waste water treatment plant. Case study

POSTER SESSIONS

SESSIONI POSTER

B12 / *S. Eichenauer, U. Theilen (DE)*

Comparison of wastewater management strategies using anaerobic (co-)digestion in rural and urban areas regarding energy-efficiency and carbon footprint

B13 / *M. Alamin, Q.H. Bari, A.A. Alamgir (BD)*

Seasonal variation on extent of stabilization of faecal sludge co-composting in Khulna City of Bangladesh

B14 / *S.B. Montoro, J. Lucas Jr, D.F.L. Santos, M.S.S.M. Costa (BR)*

Anaerobic codigestion of sweet potato and dairy cattle wastewater: a technical and economical evaluation for the energy and biofertilizer production

B15 / *A. Sagula, J. Lucas Jr, L.V.C. Costa, S.B. Montoro (BR)*

Evaluation of biogas production from anaerobic biodigestion of poultry manure diluted to 1:10, with separation of solids and using recycle

B16 / *S. Drescher-Hartung, T. Ahrens (DE)*

Energy production from residuals: economic assessment of biogas installations - Development of a calculation tool

C. THERMAL TREATMENT

C01 / *F. Fedrizzi, A. R. Finotti, S.R. Soares, A. R. Cabral (CA)*

Characterization of insular sewage sludge stabilization by liming and thermal treatment

C02 / *J. Wang, Y. Liao, Q. Xu, J.H. Ko (CN)*

Polycyclic aromatic hydrocarbons formation in particulate matter during sewage sludge pyrolysis

C03 / *K. Tameda, S. Higuchi, M. Hanashima, N-H. Lee, E-A. Cho, M. Kawashimaf (JP)*

Study on recycling of waste plastics disposed of in landfills by washing treatment

C04 / *I. Sánchez López, A. Gallardo Izquierdo, N. Edo-Alcón (ES)*

Study of the gasification process of the refuse derived fuels through simulation in a bubbling fluidized bed reactor

C05 / *G. Cali, E. Maggio, A. Pettinau, U. Arena, F. Parrillo (IT)*

Fluidized bed gasification of biomass residues at the new Sotacarbo research centre

D. LANDFILL ENGINEERING

D01 / *K. Chae, S. Inazumi, J. Won, J. Park, J. Han (KR)*

Structural performance evaluation of the joint of vertical cutoff walls in offshore waste landfill

D02 / *S. Bae, D. Lim, S. Yoon, D. Seo, J. Lee (KR)*

The physical characteristics of the water cutoff materials, which applied into the inter-connection joint seam of vertical shaft in offshore landfill site

D03 / *K. Berger (DE)*

Comparison and validation of swms_2D and hydrus (2D/3D) for capillary bar-

riers using data of a 10-m tipping trough

D04 / *H. Raveh-Amit, N. Banano, G. Bar-Nes, M. Tsesarsky (IL)*

Bio-cementation for physico-mechanical soil improvement of capping layers in near-surface radioactive disposal sites

D05 / *A. Tachifuji, Y. Matsufuji, S. Suzuki, O. Hirata (JP)*

Application of survival rate of soil bacteria and biodiversity index using “Biolog” assay for evaluating landfill stabilization level

D06 / *R.L. Moretto, A.C.S. Neto, V.R. Elis, M.G. Miguel (BR)*

Detection of leachate pockets in experimental cell of municipal solid waste with aid of geophysics

D07 / *S. Usami, K. Shibata, J. Hinobayashi (JP)*

Evaluation of crack generation formed by local subsidence using the large-scale bentonite-mixed soil layer model

D08 / *J. Esteban- Altabella, J. Mcdougall, F.J. Colomer- Mendoza, A. Gallardo, N. Edo-Alcón (ES)*

Review and application of a settlement model for landfills

D09 / *A. Almohana, D. J. Richards, A. M. Stringfellow (GB)*

The geotechnical properties of high organic content waste

D10 / *J.C. Hernández Parrodi, D. Höllen, R. Pomberger (BE)*

Characterization of fine fractions from landfill mining: a review of previous landfill mining investigations

D11 / *L.R. Correia, A.G.H.P. Van Elk, E. Ritter (BR)*

Settlements in old dump in Rio De Janeiro, Brazil

D12 / *E. Ritter, G.O. Joaquim Jr., J.C. Campos (BR)*

Evaluation of the performance in relation to infiltration of three types of cover in a Brazilian landfill

E. LANDFILL EMISSION AND ENVIRONMENTAL IMPACT

E01 / *L.S.M.S. Lima, R. Almeida, D.M. Bila, J.C. Campos (BR)*

Evaluation of Fenton process for humic substances removal in different landfill leachate in Rio de Janeiro state, Brazil

E02 / *F.M. França, G. Gomes, L.C. Felix, A.S. Argolo, D.M. Bila (BR)*

Evaluation of estrogenic activity and toxicity of landfill leachate

E03 / *J. Kumpiene, A. Kasiuliene I. Carabante (SE)*

Leachate treatment with iron-coated peat

E04 / *C.P. Pereira, T.C. Pereira, D.M. Bila, J.C. Campos (BR)*

Evaluation of residual estrogenic activity in the combined treatment of landfill leachate and domestic sewage

E05 / *L.S.M.S. Lima, R. Almeida, B.R. Quintaes, D.M. Bila, J.C. Campos (BR)*

Characterization of leachates generated in three different landfills in Rio de Janeiro state, Brazil

POSTER SESSIONS

SESSIONI POSTER

E06 / R. De Almeida, F.A. Oroski, J.C. Campos (BR)

Treatment of landfill leachate by a combined process of coagulation-flocculation and nanofiltration

E07 / D. Caniani, M. Caivano, I.M. Mancini, M.T. Tito, R. Pascale, S. Piomano, A. Sofo, A. Scopa, S. Masi (IT)

Towards new management tools for the monitoring and management of landfill gas in small sites

E08 / C. Sánchez, M.M. De La Fuente, A. Narros, I. Del Peso, E. Rodríguez (ES)
Determination of methane oxidation in landfill fugitive emissions by ¹³C isotope measurements

E09 / E. Hroncová, J. Ladomersky (SK)

Landfill air pollution by ultrafine and microparticles in case of dry and windless weather conditions

E10 / K. Ishii, T. Furuichi, A. Fujiyama, M. Sato (JP)

Flow and transport parameter estimation for 1,4-dioxane groundwater contamination at an illegal dumping site

E11 / H. Park, M. Oh, O. Kwon, W. Cho (KR)

Numerical analysis on the seepage and contaminant transport through seabed at offshore landfill considering sea level variations

E12 / A. Tetreault, T. Øian, J.K. Reistad, K. Haarstad (NO)

Electrocoagulation used in treatment of biogas reactor liquid waste

E13 / N. Hlabangana, G. Danha, C. Bhondayi, N. G Mguni, D. Hildebrandt (BW)

Processing of gold-bearing sand dumps: a case study in Zimbabwe

E14 / W. Peng, A. Pivato, M. C. Lavagnolo, R. Raga (IT)

Nitrogen removal of nitrified leachate through a biofilter column packed with solid digestate

F. WASTE MANAGEMENT POLICIES AND STRATEGIES

F01 / Y. Ikeda (JP)

Citizen activities may be effective in waste reduction in a region

F02 / M. Rehan, I.M.I. Ismail, A.S. Nizami (SA)

Municipal Solid Waste and circular economies: a case study of Madinah City

F03 / G. Guarda, R.S. Martins, L.F.V. Kitajima (BR)

Green it: virtualization and reverse logistics as sustainable practices

F04 / C. Martínez García, T. Cotes Palomino, A.M. Coves Martínez, J. Martínez Nájera (ES)

The influence of music in the teaching of engineering study practices

F05 / M. Ragazzi, N. Ferronato, M. Gorrity, I. A. Katsoyiannis, E.C. Rada, L.I. Ciocca, V. Torretta (IT)

Waste flow analysis and future scenarios for improving solid waste management in developing countries: a case study

F06 / *A.R. Dutra, A.L.V. Cubas, E.S. Silva, E.H.S. Moecke (BR)*

The innovation ecosystems and environmental sustainability actions: case study in Brazil

F07 / *E. Favero, D.C. Paciornik, C. Vargas (BR)*

La gestione dei rifiuti delle attività di costruzione civile - Acc: una revisione sistematica della letteratura

F08 / *S. Golder, M. Alamgir (BD)*

Use of geographical information system for the evaluation of solid waste management practice in Khulna City

F09 / *C. Neculau, R. De Rijdt (BE)*

Enhanced inventory framework for landfills within rawfill project concept

F10 / *E. Ozerova (RU)*

Solid municipal waste management in the Russian Federation: the transition to a new regulatory system

F11 / *R. Mosquera-Losada, A. Amador-García, N. Ferreiro-Domínguez, N. Muñoz-Ferreiro, J.J. Santiago-Freijanes, A. Rigueiro-Rodríguez (ES)*

Policy changes for sewage sludge applications based on zinc

G. SPECIAL AND INDUSTRIAL WASTE MANAGEMENT

G01 / *A.P. Gabriel, B.B. Giordani, A. Kasper, H.M. Veit (BR)*

Indium extraction from LCD screens

G02 / *A.P. Gabriel, B.B. Giordani, A.C. Kasper, H.M. Veit (BR)*

LCD screens - Indium leaching

G03 / *M. Liu, A. Iizuka, E. Shibata (JP)*

Magnetic properties of acid mine drainage sludge derived hexagonal ferrite

G04 / *H.S. Kim, J.B. Kim (KR)*

Recycling of mine residue contaminated by arsenic ions through immobilization process

G05 / *O. Danilov, A. Taskin, I. Grebenyuk, A. Belov (RU)*

Comprehensive scheme of the lignite waste recycling using electromagnetic microwave radiation

G06 / *A.B. Botelho Junior, V.S. Rodrigues, D.C.R. Espinosa, J.A.S. Tenório (BR)*

Tailing treatment of nickel mining using ion exchange process

G07 / *I.D. Perez, M.M.J. Correa, V.S. Rodrigues, D.C.R. Espinosa (BR)*

Selective nickel and cobalt uptake from mining effluent of lateritic nickel by using chelating resin dowex xus43605

G08 / *V. Bocullo, D. Vaičiukynienė, V. Vaitkevičius, D. Nizevičienė, R. Bistrickaitė, E. Ivanauskas, A. Grinys, V. Sasnauskas, A. Augonis (LT)*

Concrete produced with sulphur slime and modified sulphur slime aggregates

G09 / *K. Podbiera-Matysik, K. Gorazda, Z. Wzorek (PL)*

Phosphogypsum as an alternative source of rare earth elements - Polish case studies

POSTER SESSIONS

SESSIONI POSTER

G10 / *A.P. Gabriel, L.R. Santos, A.C. Kasper, H.M. Veit (BR)*

Characterization and studies of metal recovery from copper smelting slag

G11 / *S. Das, K.N. Goh, Y-P. Ting (SG)*

Bioleaching of platinum group metals (pt, pd, rh) from spent automotive catalytic converters using genetically modified bacteria

G12 / *C.S. Theóphilo, M.A.G. Hinojosa, B.R. Quintaes, J.C. Campos (BR)*

Diagnosis of health care waste generation of a hospital unit in Rio de Janeiro municipality, Brazil

H. ENVIRONMENTAL ASPECTS

H01 / *M.L. Mastellone, R. Lotito (IT)*

Odour impact assessment: a regulation proposal for industrial activities

H02 / *P. Innemanová, M. Šereš, V. Pilnáček, T. Cajthaml, Z. Křesinová, M. Pohořelý, J. Moško (CZ)*

Elimination of substances with antibiotic or estrogenic activity from dewatered sewage sludge

H03 / *D.R. Lapen, E. Topp, N. Gottschall, M. Edwards (CA)*

land application of municipal biosolids: managing the fate and transport of contaminants of emerging concern

H04 / *K. Yamamoto, A. Kobayashi, K. Harashina, Y. Muto, E. Kurashima (JP)*

Electrical-conductivity-distribution measurement using an electromagnetic survey of paddy fields damaged by tsunami

H05 / *G. Feuillade-Cathalifaud, V. Pallier, M. Tcha Tom, C. Baccot (FR)*

Valorization of fractions of dissolved organic matter extracted from municipal solid waste leachate as agricultural soil enrichment: study on a soil from Togo

H06 / *C. Brígido, I. Santos, P. Radino-Rouse, A. Dutra (BR)*

Ammoniacal nitrogen removal from effluent generated by storage and handling of fertilizer products by electrochemical process

H07 / *F. Azeez, Y. K. Abdel-Monem, M. Arafa, E-S.E. El-Shereefy, A. A. Nazeer, M. Madkour (KW)*

Chargeable titania nanoparticles for photocatalytic degradation of wastewater pollutants: surface charge-photoactivity relationship

H08 / *M.A. Liadi, B. Tawabini, R. Shawabkeh, N. Jaraah (SA)*

Removal of methyl tert-butyl ether (MTBE) using sewage sludge-derived activated carbon

H09 / *M. Abbasi, A. Keshavarz, B. Nasirian (IR)*

Predicting municipal solid waste generation using support vector machine (SVM): the case of Tehran city

EXHIBITORS
ESPOSITORI

EXHIBITORS ESPOSITORI

Our companies exhibition will be held in the Foyer of the Congress Center and will be accessible to Symposium delegates at all times from Monday to Friday. Please find below a list of exhibitors.

L'esposizione commerciale sarà allestita nel foyer del Centro Congressi e sarà accessibile in qualsiasi momento dal lunedì al venerdì.

Si elencano di seguito gli espositori presenti.

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Bioprocess Control is a technology provider in the area of advanced instrumentation and control technologies for research and commercial applications in the biogas industry. The company brings to market more than 16 years industry leading research and development in the area of instrumentation, control and automation of anaerobic digestion processes.

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ECOMONDO - RIMINI FIERA

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5 Unique features of Ecomondo:

- It is the platform of reference for the Mediterranean basin dedicated to the principal European and international strategies for ecological innovation and the transformation of waste into a resource.
- It is the ideal forum where exhibitor companies can meet competing enterprises, national and international public/private partners and new target clients from industry, services, construction, public service administrations and utilities.
- It is the most extensive showcase in the whole of the Mediterranean area where the most efficient technical solutions for the correct management and exploitation of waste in all its forms are on display, as well as those for water-saving measures, for the efficient use of waste and raw or secondary materials, and for energy efficiency.
- It is the principal B2B and R2B meeting point for operators in the Mediterranean Basin where national and international experts can delve into the technical problems linked to the management of waste in the priority industrial sectors (ground, air), environmental protection and restoration, sustainable transport and the technological priorities of smart cities.
- It is the highly qualified hub for national and international Training - Information - Refresher Courses - Innovation - Research and Development.

EXHIBITORS ESPOSITORI

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Elsevier brings together the best research tools for the scientific community through a combination of journals, books, major reference works, scientific search engines and databases.

The official Journal of IWWG is Waste Management, published by Elsevier, with an impact factor of 3.220 and edited by Raffaello Cossu with a highly qualified team of Associate Editors.

Other top-level journals in the environmental field such as Journal of Cleaner Production, Resources, Conservation and Recycling, Environmental Innovation and Societal Transitions, and Journal of Environmental Management demonstrate the important and exciting research published through Elsevier.

LIFE Programme

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<http://ec.europa.eu/environment/life/index.htm>



The LIFE programme is the EU's funding instrument for the environment and climate action. It aims to support the development, implementation, monitoring, evaluation and communication of EU environment and climate action legislation and policy, in particular, the priorities of the EU's Environment Action Programme to 2020.

Since 1992, LIFE has co-financed more than 4500 projects aiming to preserve Europe's nature and biodiversity, reduce the environmental impact of several human activities and fight climate change. In the area of waste and the circular economy the programme has co-funded over 700 projects. In fact, waste management is the most popular theme tackled by the programme.

The LIFE programme has focused in particular on demonstrating innovative technologies for recycling specific materials from different waste streams, such as hazardous, agricultural and municipal waste. Linking waste management to other environmental topics, such as the protection of water resources and soil management, has been another issue much covered by the programme. Furthermore, LIFE has actively contributed to waste prevention by raising public awareness, promoting the exchange of knowledge and developing information tools for waste prevention and better waste management.

GEOS Environment

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www.geosgroup.it



Founded in 1987 as an environmental protection services firm, Geos Environment S.r.l. has been continually adapting to the copious changes of this important sector, occurred in the society over the past 25 years; specifically to the more stringent legal and social requirements that have nowadays become the fundamental milestones of our future environmental behaviour.

Today, the Company is a truly European operator with excellent human capital, technological capabilities and business references; it states itself as a benchmark in this field, due its capacity to meet clients' needs and develop customized, open-ended solutions to the problems they encounter in the areas of waste management optimizing.

Geos Environment Ltd. has the resources and expertise to deal with all of the environmental concerns of Local Authorities and Industrial Companies offering a range of services designed to protect the environment and make our clients much more competitive and self-assured within their areas of influence.

GREGORY Environmental Consulting

4A Middle Lane, Nether Broughton
Leicestershire LE14 3HD (UK)
tel. +44.7943060467
info@gregoryenvironmental.com
www.gregoryenvironmental.com



Gregory Environmental Consulting Ltd (GECL) is an independent UK based consultancy with the technical knowledge and international experience to offer sound environmental solutions and pragmatic commercial advice to the following sectors: waste and resource management, renewable energy, late-life landfill management and redevelopment.

GECL has a client focussed philosophy, and continues to build on its founder's international reputation based on trust and long-lasting professional relationships.

Project teams can be built as required from an extensive network of associates, to serve your needs across the whole project cycle, or embedded in your own team to deliver specific projects: site selection and planning / feasibility, technology review, design / environmental assessment and permitting / operation and compliance / due diligence, acquisition and divestiture / decommissioning, and site redevelopment.

EXHIBITORS ESPOSITORI

HERAMBIENTE Spa

Viale Carlo Berti Pichat nr. 2/4
40127 Bologna, Italy
Tel. +39.051287111
www.herambiente.it



HERAmbiente is Italy's leading company in the construction and operation of waste treatment plants, material and energy recovery, and waste disposal. Founded in 2009 as part of Hera Group, the company is currently 25% owned by international funds Eiser and APG. HERAmbiente offers customised environmental services to companies through a dedicated commercial structure. Sustainability, environmental protection and investment in technological innovation ensure safe and effective solutions which are subject to transparent certification procedures.

- 6.4 million tonnes/year of waste treated
- 4.6 million tonnes/year of special waste treated
- 91 waste disposal plants including 10 waste-to-energy plants
- 974 GWh of electricity generated/year
- 122 GWh of thermal energy produced/year
- 240 GWh of thermal energy produced/year

IWWG International Waste Working Group

Marco Ritzkowski
c/o Hamburg University of Technology
Harburger Schloßstr. 36 20179, Hamburg (DE)
Tel. +49.040428782053
Fax +49.040428782375
info@iwwg.eu / www.iwwg.eu



The International Waste Working Group, founded in 2002 and registered as a no-profit organisation, serves as a forum for the scientific and professional community. The IWWG aims to provide an intellectual platform to encourage and support integrated and sustainable waste management and to promote practical scientific development in the field.

The group was conceived to provide a "home" for professionals and researchers, and give us a voice to be able to beneficially influence waste management and research.

MDPI

St. Alban-Anlage 66
4052 Basel, Switzerland
Tel. +41.616837734
Fax +41.613028918
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Our mission is to foster scientific exchange in its various forms, across all scientific disciplines. All our content is open access, distributed under a Creative Commons License. MDPI is a member of COPE, STM and OASPA.

The journal Sustainability was launched in 2009, and is now covered by both SCIE and SSCI (Web of Science), with an impact factor of 1.343 (2015).

MONTANA Spa

Via Angelo Fumagalli, 6
20143 Milano, Italy
Tel. +39.0254118173
Fax +39.0254129890
segreteria@montanambiente.com
www.montanambiente.com



Montana is an engineering company that provides design and consultancy services in the environmental field, standing out for its 20 years professionalism and independence.

With a staff of over 70 professionals with different and complementary technical backgrounds, Montana offers both private and public clients specialized and integrated advisory services related to waste management, land remediation, territory and energy, with the purpose of contributing to the achievement of a sustainable development for the environment, the society and the economy.

The services provided, at the cutting edge of the rapid technological and normative evolution, cover all the stages of the projects, from development to realization to post-commissioning management.

EXHIBITORS ESPOSITORI

MyNOKE®

PO Box 347, Seventh Avenue
Tauranga 3140
Freephone: 0800 MyNoke (0800 696 653)
info@mynoke.co.nz
www.mynoke.co.nz



MyNOKE® proudly claim a pre-eminent position as one of the best suppliers of Wormfarms, Vermicast, Vermicompost, Earthworms and related products and services in the country. New Zealand owned, we believe in connecting people with nature to provide the best results for their business or community. As world leaders in vermicomposting technology they are driving innovations to provide affordable and effective solutions for all types of business - farming, horticulture, industries and councils.

REA IMPIANTI Srl

Loc. Le Morelline Due snc
57016 Rosignano Solvay (LI), Italy
Tel. +39.0586765326
Fax: +39.0586744224
info@reaimpanti.it
www.reaimpanti.it



REA Impianti Srl is a company focus on integrated waste management. Our activities include:

- Management of plants for the treatment and disposal of municipal and non-hazardous wastes;
- production of electricity from landfill biogas, from photovoltaic and other sources of alternative energy;
- management of a system of valorization of the recyclable fractions of municipal and special wastes;
- transportation and brokerage, to ensure a comprehensive service and expertise for all our clients;
- maintenance of public green areas and environmental hygiene.

REMTECH EXPO

Silvia Paparella, Project Manager

Tel. +39 0532 909495

Fax +39 0532 976997

spaparella@ferrarafiere.it

Ferrara Fiere Congressi S.r.l.

Via della Fiera, 11 44124 Ferrara, Italy

Tel. +39.0532900713

Fax +39.0532976997

www.remtechexpo.com



RemTech Expo is the most specialized event in Italy dedicated to remediation technologies and territory requalification. Companies, public administrations, associations, industry, real-estate, oil sector, research and universities: these are the worlds which RemTech referred to. The very qualified exhibition area, to give specialized societies the most qualified window, is accompanied by high level conferences, training courses for operators, authorities and decision makers, pilot tests and outdoor demonstrations, foreign delegations representative of the principal buyers, focuses on innovative technologies field, degree and Ph.D. awards, and special awards.

A particular attention is given to sectors of demolitions, inert wastes, natural, recycled and manufactured aggregates, INERTIA Special Section, to sediment cleaning and coastal protection, Coast Expo, inland water and hydro-geological risk, ESONDA.

RIVERSO Srl

Legal head office:

Via Barcellona, 2 09100 Cagliari, Italy

Controlled landfill:

località Serra Scirieddus

Tel. +39.078121368

Fax +39.078121369

info@ecodump-riverso.it

www.ecodump-riverso.it



One of the biggest controlled landfills in Sardinia was set up in 2001 over an old disused mine, close to the area of Serra Scirieddus, Barga, which lies in the countryside around Carbonia. The total landfill capacity for industrial waste is about 1.520,000 mc. Once completed, it will enable it to restore pre-existing landscape lines and withal to resolve the problem of disposal waste.

With 20 staff, machines, lorries and other types of specialised vehicles, the company works daily to reduce pollution and make the environment a better place to live in. The RIVERSO S.r.l. (ltd) Company has since implemented a System of Environmental Management. It holds the Certificate UNI EN ISO 14001:2004.

EXHIBITORS ESPOSITORI

UNISMART PADOVA Enterprise

Registered office:

Via Otto Febbraio 2

35121 Padova (Italy)

Tel. +39.3292828534

international@smartunipd.it

www.unismart.it



Unismart is the wholly-owned subsidiary of the University of Padova in charge of managing all the technology transfer and innovation consulting activities directed to companies, industrial associations, professionals, investors, banks, and other public and private bodies - both on a national and international scale. Unismart is the one-stop-shop to systematically commercialize the most promising multidisciplinary research results and intellectual property along the innovation chain, leveraging on the competences and networks of the university. Unismart systematically assists its 5000 researchers from 32 Departments as well as its 60,000 students in maximizing the exposure of their research which has market potential, making sure it is brought in front of the most relevant stakeholders to generate impact on society.

ORGANIZERS

ORGANIZZATORI

IWWG - INTERNATIONAL WASTE WORKING GROUP

Find out more about the IWWG activities and its regional brands and become a member. The International Waste Working Group, founded in 2002 and registered as a no-profit organisation, serves as a forum for the scientific and professional community. The IWWG aims to provide an intellectual platform to encourage and support integrated and sustainable waste management and to promote practical scientific development in the field.

The group was conceived to provide a "home" for professionals and researchers, and give us a voice to be able to beneficially influence waste management and research.

The benefits of IWWG membership are the following:

- Subscription to IWWG official Journal Waste Management at a special discount price, both print subscription or print+electronic subscription. (electronic subscription includes access to back numbers from 1995).
- Access to the members area on the website
- Access to previous editions of IWWG conferences proceedings (Index)
- Access to the IWWG members discussion forum on the website
- Free download of LeachXS - Lite from the members area on the website
- Discount on IWWG Training Course Registration
- Discount on IWWG Seminar Registration
- Discount on the entrance fee of IWWG international waste management symposia (official IWWG conferences)
- Discount on IWWG publications (e.g. textbooks)
- Discount on Elsevier publications
- Participation in all activities of IWWG including task groups

For further information please contact:

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c/o Hamburg University of Technology

Harburger Schloßstr. 36 20179 Hamburg, Germany

tel. +49 040 428 78 20 53 / fax +49 040 428 78 23 75

info@iwwg.eu / www.iwwg.eu



ORGANIZERS

ORGANIZZATORI

EUROWASTE Srl

Eurowaste Srl is a small specialised Company developed to manage communication and education tools (conferences, seminars, training courses) in connection with research activities performed in the field of environmental engineering by the University of Padova.

Since 2005 Eurowaste has set up a collaboration with IWWG-International Waste Working Group, established in 2002, following a world-wide demand, to serve as a forum for the scientific and professional community.

Eurowaste periodically organizes some of the main Conferences promoted by IWWG such as the Sardinia Waste management and Landfilling Symposium, the Venice Energy from Waste and Biomass Symposium and the SUM Symposium on Urban Mining.

Via Beato Pellegrino 23 - 35137 Padova, Italy
Tel. +39 049 8726986 / Fax +39 049 8726987
info@eurowaste.it / www.eurowaste.it



CISA PUBLISHER

Cisa Publisher is an imprint of Eurowaste Srl. Cisa Publisher represents the Eurowaste section dealing with transfer to the media (books, reports, textbooks, CD, etc) of the wealth of information accumulated throughout activities performed by the University of Padova (in particular in the field of waste management and contaminated site remediation) and by IWWG and member scientists.

CATALOGUE:

IWWG Monograph series:

- Participation in all activities of IWWG including task groups
- Sustainable Landfilling
- Management and Landfilling of Solid Wastes in Developing Countries
- Landfill Aeration

Other Monographs:

- Urban Mining: A global cycle approach to resource recovery from solid waste

Conference Proceedings:

- Venice International Symposium on Energy from Biomass and Waste
- Sardinia International Waste Management and Landfill Symposium
- SUM - Symposium on Urban mining

Publications are available at the registration desk and may be ordered online from the website www.cisapublisher.com.

Operational head office:
Via Beato Pellegrino, 23 - 35137 Padova, Italy
Tel. +39 049 8726986 / Fax +39 049 8726987
info@cisapublisher.com / www.cisapublisher.com



STUDIO ARCOPLAN / WASTE ARCHITECTURE PLATFORM

Arcoplan is a consultancy of professionals, founded in 2009 by Anna Artuso, architect, and Elena Cossu, engineer, active in the architectural aspects connected to waste management systems. It cooperates with international leading experts in the technologies involved in the field.

Arcoplan also strives to disseminate the above topics by collaborating to the organization of scientific conferences connected to the research activities carried out by the University of Padova in the field of environmental engineering. Arcoplan has recently given rise to **'Waste Architecture Platform'**, a complex project conceived as a container of initiatives devoted to environmental architecture in connection with interventions concerning the collection, disposal and management of waste. Waste Architecture is a new and relatively unexplored conceptual and design topic which promises to give rise to a lively debate between environmental professionals, and architecture and urban design experts.

ARCOPLAN / Studio Associato
di Ingegneria e Architettura
Via Beato Pellegrino 23 - 35137 Padova, Italy
Tel. +39 320 3630505 / Fax +39 049 8726987
studio@arcoplan.it / www.arcoplan.it



UNIVERSITY OF PADOVA

The University of Padova, founded in 1222, is one of the oldest universities in the world. The most famous among its professors was Galileo Galilei while Nicolaus Copernicus was undoubtedly one of its most brilliant students.

The University of Padova offers a two-year M.Sc. Programme in Environmental Engineering and welcomes applications from international students wishing to study environmental science and engineering at an advanced technical level together with Italian students.

Lectures are in English only.

Raffaello Cossu
raffaello.cossu@unipd.it
Tel. +39 049 827 8985/5454

Daniela Riccardi
*Educational Manager of the
Environmental Engineering Programme*
manager.cdl.iat@unipd.it



CREDITI FORMATIVI

Only for Italian participants

ORDINE DEGLI INGEGNERI DI CAGLIARI / CREDITI FORMATIVI PROFESSIONALI

La partecipazione alla sessione italiana del Simposio Sardinia 2017 dà diritto a tutti gli ingegneri iscritti all'Albo all'acquisizione di un totale di **6 CFP** - crediti formativi professionali, certificati dall'Ordine degli Ingegneri di Cagliari - Scuola di Formazione.

All'entrata di ciascuna sessione saranno disponibili i moduli per la raccolta delle firme in entrata ed uscita. Gli interessati sono pregati di contattare la segreteria organizzativa per richiedere l'attestato di frequenza e per comunicare il proprio codice fiscale, ordine di appartenenza, sezione e numero di iscrizione all'Albo. Ai sensi del Regolamento per la Formazione Continua, agli ingegneri che parteciperanno al convegno saranno riconosciuti:

Sessione	data	ore	CFP
H11 + H12	5/10 mattina	4	2
H13 + H14	5/10 pomeriggio	4	2
H15 + H16	6/10 mattina	4	2
Totale			6

Ordine Ingegneri Cagliari - Scuola di Formazione

Via Tasso 25, 09128 Cagliari

Tel. +39.0702041417

info@ingegneri-ca.net



JAPANESE ACTIVITIES

INIZIATIVE GIAPPONESI

JAPAN SPECIAL GUEST COUNTRY

Since 2013 the Sardinia Symposia have featured a different Special Guest Country at each edition. We are pleased to announce that Japan has been elected as this year's Guest Country by the Symposium Programme Committee and we are grateful to all our Japanese friends for their substantial participation in this edition of the Symposium.

Japanese-themed initiatives will be organized throughout the week and a special award for the 'Best Japanese Paper' presented during the traditional Gala Dinner on Friday 6th October.

ACTIVITIES AND SOCIAL EVENTS

MONDAY 2nd	h. 17:10-18:00	Japanese tea ceremony
TUESDAY 3rd	h. 17:10-18:00	Origami & Calligraphy classes
FRIDAY 6th	h. 21:00	Sakè tasting (during the gala dinner)
FRIDAY 6th	h. 22:00	Best Japanese paper award

GIAPPONE PAESE OSPITE

Dal 2013 i Simposi Sardinia hanno nominato per ciascuna edizione un diverso Paese Ospite. Siamo lieti di annunciare che quest'anno il Comitato di Programma del Simposio ha eletto il Giappone.

Vorremmo esprimere la nostra gratitudine a tutti gli amici giapponesi per la loro partecipazione numerosa a questa edizione del Simposio.

Durante tutta la settimana verranno proposte diverse attività a tema giapponese e in occasione della cena di gala di venerdì 6 ottobre verrà assegnato un premio per il miglior lavoro presentato da un autore giapponese.

ATTIVITÀ ED EVENTI SOCIALI

LUNEDÌ 2	h. 17:10-18:00	Cerimonia del tè
MARTEDÌ 3	h. 17:10-18:00	Corso di origami e calligrafia
VENERDÌ 6	h. 21:00	Degustazione di sakè (durante la cena di gala)
VENERDÌ 6	h. 22:00	Premio del miglior lavoro giapponese

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REGISTRATION

REGISTRAZIONE

WHAT'S INCLUDED IN YOUR REGISTRATION / CHE COSA È INCLUSO NELLA VOSTRA REGISTRAZIONE

- Participation in Symposium sessions
- Printed volume of 'Sardinia 2017 - 30th Anniversary Book'
- Symposium proceedings
- Conference materials
- Coffee breaks
- Admission to the welcome cocktail
- Gala Dinner (supplement to evening meal)

- *Partecipazione alle sessioni del Simposio*
- *Volume stampato 'Sardinia 2017 - 30th Anniversary Book'*
- *Atti del convegno*
- *Materiale congressuale*
- *Coffee breaks*
- *Invito al cocktail di benvenuto*
- *Cena di Gala (come supplemento alla mezza pensione alberghiera)*

REGISTRATION / REGISTRAZIONI

The Registration Desk will be open in the Conference Centre with the following schedule:

- Sunday October 1st from 16:00 - 19:00
- Monday October 2nd from 8:30 - 9:00, 10:50 - 13:00 and 15:00 - 20:00
- Tuesday October 3rd - Friday October 6th from 08.30 - 13.00 and from 15.00 - 20.00

Il banco segreteria per la registrazione al Simposio sarà aperto presso la hall del Centro Congressi ai seguenti orari:

- *domenica 1 ottobre dalle 16.00 alle 19.00*
- *lunedì 2 ottobre dalle 8:30 alle 9:00, 10:50 - 13:00 e 15:00 - 20:00*
- *da martedì 3 ottobre a venerdì 6 ottobre dalle 08.30 alle 13.00 e dalle 15.00 alle 20.00*

MEALS

PASTI

MEAL FUNCTIONS / PASTI

All Delegates residing at Forte Village Resort are accommodated on a half-board basis (breakfast and evening dinner included). Delegates resident at Forte Village Resort and external guests who wish to obtain a buffet lunch in the hotel restaurants may do so but will be required to pay an extra 25 Euros per person per day.

For those who do not wish to consume a full lunch, several snack bars and the pizzeria will be open in the hotel complex. Under no circumstances, with the exception of Tuesday 3rd, Wednesday 4th October for delegates who join the Sardinian dinner and Cagliari by night tour, will it be possible to exchange dinner for lunch; meals included in your package and not consumed will not be reimbursed.

Per i partecipanti che alloggiano nel complesso Forte Village Resort è prevista una sistemazione di mezza pensione (incluse prima colazione e cena). I partecipanti residenti al Forte Village Resort e gli ospiti esterni che desiderassero pranzare nei ristoranti del complesso alberghiero lo potranno fare ad un costo di 25 Euro per persona al giorno.

Per coloro che non intendono usufruire dei ristoranti, nel complesso alberghiero sono presenti alcuni snack bar e una pizzeria. In nessun caso per i partecipanti sarà possibile effettuare scambi fra pranzo e cena, ad eccezione di coloro che prenderanno parte alla cena sarda e al tour notturno di Cagliari martedì 3 e mercoledì 4 ottobre. I pasti inclusi nel pacchetto alberghiero acquistato e non consumati non potranno essere rimborsati.

RESTAURANTS / RISTORANTI

- Bar Oasis: open for breakfast / aperto per colazione 7:30 - 10:00
- Pizzeria / Pasta House - Rocce Restaurant: open at lunchtime / aperto per pranzo 12:30 - 14:30
- Pineta: open for dinner / aperto per cena 19:30 - 21:30

Meals consumed at lunch time should be paid for separately (see "Meal Functions").

Dinner will be served in the Pineta Restaurant. Residents in Hotel Castello and Villa del Parco may have breakfast and dinner in their hotel.

I pasti consumati per pranzo dovranno essere pagati separatamente (vedere "Pasti").

La cena sarà servita al ristorante Pineta. Gli ospiti dell' Hotel Castello o del Villa del Parco potranno far colazione e cenare presso i loro rispettivi hotel.

LEISURE

TEMPO LIBERO

SPORT & ENTERTAINMENT / SPORT ED INTRATTENIMENTI

A wide range of entertainment opportunities are available for Forte Village guests: a superb stretch of private beach, eleven floodlit tennis courts, five swimming pools, a sauna and gymnasium, horse riding, basketball, volleyball, table tennis, mini golf, trampolines and much more.

Hotel costs include the use of sports equipment (basketball, volleyball, swimming pools, disco dancing); they do not include costs of bicycle hire, water sports, soccer, tennis and golf.

The array of possibilities for evening entertainment include exclusive bars and cafes, live music and dancing until the small hours at the Forte Fortissimo club.

A disposizione degli ospiti un ventaglio di opportunità davvero senza eguali: numerosi ristoranti dove poter gustare piatti preparati da rinomati chef internazionali, spiaggia privata, undici campi da tennis con illuminazione artificiale, cinque piscine, palestra e la possibilità di praticare equitazione, pallacanestro, pallavolo, ping pong, mini golf e tante altre attività.

Il costo del soggiorno comprende l'uso delle attrezzature sportive ad esclusione del noleggio biciclette, delle attrezzature per sport nautici, dei campi da calcio, tennis e golf e dei servizi offerti dal laThalasso del Forte.

Per il dopo cena il Resort offre bar e café esclusivi, musica live, spettacoli e la possibilità di ballare fino a tardi presso la discoteca del villaggio.

THE "THALASSO DEL FORTE" HEALTH CENTRE / LA THALASSO DEL FORTE

We heartily recommend a visit to the marvellous Thalasso del Forte health centre, recognized as Leading Spas of the World, thanks to its extraordinary team and the splendour of its tropical garden setting. Here you can relax in a secluded oasis dotted with heated swimming pools with artificial waterfalls, hydro massage and wave-makers. Moreover you may work out in a fully equipped gym or regain top form in a sauna, Turkish bath or in the beauty centre and massage rooms.

Entrance to the Terme del Parco costs € 65 (exclusively for Sardinia 2017 delegates) for a full day and includes entrance to the thermal complex, use of thalassotherapy baths, sauna, Turkish bath and fitness centre.

Consigliamo vivamente una visita al centro benessere Thalasso del Forte. In un'atmosfera di assoluto relax, circondati da un giardino tropicale gli ospiti potranno usufruire dei servizi talassoterapici di piscine termali con cascate, onde artificiali ed idromassaggio della Thalasso del Forte, appartenente alla ristretta cerchia delle "Leading Spas of the World".

Inoltre, per chi desidera tenersi in forma, è disponibile una palestra completa di sauna, bagno turco, sala massaggi e centro estetico.

Il costo per l'ingresso alla Thalasso del Forte, in esclusiva per i partecipanti al Sardinia 2017 è pari a € 65 a persona, per l'intera giornata, e comprende l'utilizzo delle piscine termali, l'uso dei bagni di talassoterapia, la sauna, il bagno turco e il centro fitness.

'A LIFE FOR WASTE' 'UNA VITA PER I RIFIUTI'

SARDINIA SYMPOSIUM AWARD "A LIFE FOR WASTE" / PREMIO SIMPOSIO SARDINIA "UNA VITA PER I RIFIUTI"

In 1999, the International Advisory Board for the Sardinia Symposium set up an award "A Life for Waste", to be presented biennially to individuals who have made an outstanding contribution to advances in international waste management research and technology.

It is our great pleasure to announce that the recipient of this year's "A Life for Waste" award is Professor Raffaello Cossu. Innovator and visionary, outstanding scientist and leader, he contributed like no other to the development and dissemination of new concepts and to the end of well-established wrong ideas.

Nel 1999, il Comitato Scientifico Internazionale del Simposio Sardinia ha istituito il Premio "Una Vita per i rifiuti" da consegnare ogni due anni ad una personalità scientifica di alto livello che, nel corso della sua attività, si sia distinta a livello internazionale nella ricerca sulla gestione dei rifiuti.

E' un grande piacere annunciare che il vincitore dell'edizione 2017 del premio "A Life for Waste" é il prof. Raffaello Cossu. Innovatore e visionario, celebre scienziato e leader carismatico, ha contribuito come nessun altro allo sviluppo e alla diffusione di nuovi concetti e al superamento di consolidate idee sbagliate.

HALL OF HONOUR "A LIFE FOR WASTE" / ALBO D'ORO DEL PREMIO "UNA VITA PER I RIFIUTI"

2017 - Raffaello COSSU

2015 - Werner BIDLINGMAIER / Bernd BILITEWSKI

2013 - Jean BOGNER

2011 - Héctor Collazos PEÑALOZA

2009 - Rainer STEGMANN

2007 - Grahame FARQUHAR

2005 - John PACEY

2003 - Robert HAM

2001 - Eugenio DE FRAJA FRANGIPANE

1999 - Masataka HANASHIMA

BEST PAPER AWARDS

PREMI 'BEST PAPER'

BEST JAPANESE PAPER AWARD / PREMIO MIGLIOR PAPER GIAPPONESE

In occasion of the nomination of Japan as Sardinia 2017 Special Guest Country, an award will be given for the best paper by a Japanese author.

In occasione della nomina del Giappone a paese ospite d'onore del Sardinia 2017, verrà assegnato un premio per il miglior lavoro presentato da un autore giapponese.

LUIGI MENDIA AWARD / PREMIO LUIGI MENDIA

Award for the best paper on waste management policy. In memory of Professor Luigi Mendia, University of Naples, one of the first scientists to begin the research in the field of Sanitary Engineering in Italy.

Premio per il miglior lavoro sulle politiche di gestione dei rifiuti. In memoria del Professor Luigi Mendia, Università di Napoli, fra i primi ad avviare in Italia le attività di ricerca scientifica e le iniziative di formazione universitaria nel settore della Ingegneria Sanitaria.

KRITON KURI AWARD / PREMIO KRITON KURI

Award for the best paper on developing country waste management issues. In memory of Professor Kriton Kuri, Bogazici University, Istanbul, one of the main international experts in appropriate technologies for waste management in developing countries.

Premio per il miglior lavoro sulla gestione dei rifiuti nei paesi in via di sviluppo. In memoria del Professor Kriton Kuri, Università Bogazici di Istanbul, uno dei massimi esperti internazionali sulla gestione dei rifiuti nei paesi in via di sviluppo.

GIOVANNI BOZZINI AWARD / PREMIO GIOVANNI BOZZINI

Best Italian paper award. In memory of Professor Giovanni Bozzini, University of Pavia, one of the Italian pioneers in the waste management research.

Premio per il miglior lavoro italiano. In memoria del Professor Giovanni Bozzini, Università di Pavia, uno dei pionieri italiani nella ricerca sulla gestione dei rifiuti.

ALBERTO ROZZI AWARD / PREMIO ALBERTO ROZZI

Award for the best paper on biological treatment. In memory of Alberto Rozzi, Professor of Environmental Engineering at the Technical University of Milan, one of international leading researchers on anaerobic digestion.

Premio per il miglior lavoro sul trattamento biologico dei rifiuti. In memoria di Alberto Rozzi, professore di Ingegneria Sanitaria Ambientale al Politecnico di Milano, uno dei principali ricercatori internazionali sui processi di digestione anaerobica.

JOHN PACEY AWARD / PREMIO JOHN PACEY

Award for the best paper on landfill gas management. In memory of Professor John Pacey, who has recently passed away. John took part in our Symposia several times and won the "A Life for Waste Award" in 2005 for his great experience in landfill geotechnical work, with specific focus on landfill gas and lining evolutions.

Premio per il miglior lavoro sulla gestione del biogas da discarica. In memoria del Professor John Pacey, recentemente scomparso. John ha partecipato a molte edizioni dei nostri Simposi e nel 2005 ha vinto il premio "A Life for Waste - Una vita per i rifiuti" per la sua straordinaria esperienza in tecnologie innovative relative allo smaltimento in discarica, in particolar modo al biogas e all'evoluzione dei sistemi di impermeabilizzazione

BEST POSTER AWARD / PREMIO MIGLIOR POSTER

A poster presentation is a high effective medium for a direct communication with all interested delegates on specific topics. Posters are evaluated on the base of the quality of the contents reported and the quality of visual presentation itself.

Il premio viene conferito sulla base del design e della qualità dei contenuti riportati nel poster.

GUIDED TOURS

TOUR GUIDATI

The following guided excursions have been arranged by the Symposium's official travel agency, F.A. Travel, to enable Symposium participants and accompanying persons to discover the beauties of the Sardinian territory. All excursions have a minimum number of participants (30 persons) and will not be activated if this number is not reached. For further information and booking please contact F.A. Travel directly.

Le seguenti visite guidate sono state organizzate dall'agenzia di viaggi ufficiale del Simposio, la F.A. Travel, per permettere ai partecipanti e ai loro accompagnatori di scoprire le bellezze del territorio sardo. Tutte le escursioni hanno un numero minimo di persone (30) e non saranno finalizzati se il numero non viene raggiunto. Per maggiori informazioni e per le prenotazioni vi preghiamo di contattare direttamente la F.A. Travel.

IS ZUDDAS CAVES / GROTTA IS ZUDDAS

Along a designated walkway of approximately 500 meters, at a constant temperature of 16 degrees Celsius, we will stroll among wonderful concretions of incredible shape (stalactites and stalagmites).

When: Tuesday, October 3rd / Duration: max 8 hours / Cost: €75 per person

What's included: return bus transfer, tour guide, entrance ticket, lunch

Su un percorso di 500 metri si possono ammirare imponenti concrezioni, stalatti e stalagmiti, colonne, stalattiti a formazione tubolare, cannule e soprattutto le rare aragoniti aghiformi, concentrate in una unica sala e chiamate dagli speleologi "fiori di grotta".

Quando: Martedì, 3 Ottobre / Durata: max 8 ore / Costo: €75 per persona

Cosa è incluso: autobus, guida, biglietto, pranzo

NORA / NORA

Founded by the Phoenicians around the 9th century B.C. as a strategic location in the Mediterranean, Nora was an important resting point before continuing the long travel to Britain in search of raw materials.

When: Wednesday, October 4th

Duration: max 4 hours / Cost: €32 per person

What's included: return bus transfer, tour guide, entrance ticket

Fondata dai Fenici intorno al 9° secolo A.C. come una posizione strategica nel Mediterraneo, Nora era un importante punto di ristoro prima di continuare il viaggio verso la Gran Bretagna in cerca di materie prime.

Quando: Mercoledì, 4 Ottobre / Durata: max 4 ore / Costo: €32 per persona

Cosa è incluso: autobus, guida, biglietto

BARUMINI / BARUMINI

Visit to the Nuragic of complex of Su Nuraxi.

When: Thursday, October 5th / Duration: max 8 hours / Cost: €75 per person

What's included: return bus transfer, tour guide, entrance ticket, lunch

Visita al complesso nuragico di Su Nuraxi.

Quando: Giovedì, 5 Ottobre / Durata: max 8 ore / Costo: €75 per persona

Cosa è incluso: autobus, guida, biglietto, pranzo

NOTEBOOK
QUADERNO APPUNTI

