



INTERNATIONAL SYMPOSIUM ON
WASTE MANAGEMENT, RESOURCE RECOVERY
AND SUSTAINABLE LANDFILLING

13-17 OCTOBER 2025 / FORTE VILLAGE
S.M. DI PULA, CAGLIARI (IT)

SARDINIA 2025

ORGANISED BY:

IWWG - INTERNATIONAL WASTE WORKING GROUP

WITH THE SCIENTIFIC INVOLVEMENT OF:

UNIVERSITY OF PADOVA (IT)

BOKU UNIVERSITY, VIENNA (AT)

HAMBURG UNIVERSITY OF TECHNOLOGY (DE)

LULEÅ UNIVERSITY OF TECHNOLOGY (SE)

TONGJI UNIVERSITY (CN)

SYMPOSIUM GUIDEBOOK / DAILY PROGRAMME
USEFUL INFO, SYMPOSIUM APP, SOCIAL PROGRAMME
EXHIBITORS, AWARDS, ORGANIZERS, NOTEBOOK

SARDINIA 2025

20th INTERNATIONAL SYMPOSIUM ON WASTE MANAGEMENT
AND SUSTAINABLE LANDFILLING / **13-17 OCTOBER 2025** /
FORTE VILLAGE RESORT / S. MARGHERITA DI PULA, ITALY

Scientific organisation /
Organizzazione scientifica:



With the scientific involvement of /
Con il coinvolgimento scientifico di:

University of Padova (IT)
BOKU University, Vienna (AT)
Fukuoka University (JP)
Hamburg University of Technology (DE)
Luleå University of Technology (SE)
Tongji University (CN)

Promoted by / Promosso da:

US-EPA - United States Environmental Protection Agency
EPHA - European Public Health Alliance
EWABA - European Waste-based & Advanced Biofuels Association
FEAD - European Waste Management Association
IRACE - International Research Association for Circular Economy
IWMSA - Institute of Waste Management of Southern Africa
JSMCWM - Japan Society of Material Cycles and Waste Management
KSWM - Korea Society of Waste Management
WtERT Germany - Waste-to-Energy Research and Technology Network
AIAT - Italian Association of Environmental and Planning Engineers
AICA - International Association for Environmental Communication
GITISA - Italian Group of Environmental and Sanitary Engineering
RUS - Italian Network of Universities for Sustainable Development

Official Journal / Rivista Ufficiale:



Under the patronage of / *Con il patrocinio di:*



MINISTERO DELL'AMBIENTE
E DELLA SICUREZZA ENERGETICA



REGIONE AUTONOMA DE SARDIGNA
REGIONE AUTONOMA DELLA SARDEGNA



ISPRA
Istituto Superiore per la Protezione
e la Ricerca Ambientale



Under the aegis of / *Sotto l'egida di:*



CONTENTS

SOMMARIO

PRESENTATION <i>PRESENTAZIONE</i>	6
SCIENTIFIC COMMITTEES & ORGANISING SECRETARIAT <i>COMITATI SCIENTIFICI E SEGRETERIA ORGANIZZATIVA</i>	7-10
REGISTRATION <i>REGISTRAZIONE</i>	11
INSTRUCTIONS FOR SESSION CHAIRS & SPEAKERS <i>ISTRUZIONI PER PRESIDENTI DI SESSIONE E RELATORI</i>	12-13
SYMPOSIUM APP <i>APP DEL SIMPOSIO</i>	14-15
SOCIAL PROGRAMME <i>PROGRAMMA SOCIALE</i>	16-17
SARDINIA AWARD "A Life for Waste - 2025" <i>PREMIO SARDINIA "Una Vita per i Rifiuti - 2025"</i>	18-19
OTHER AWARDS <i>ALTRI PREMI</i>	20-21
ORAL SESSIONS AND ACTIVE LABS <i>SESSIONI ORALI E LABORATORI PRATICI</i>	
Monday / <i>Lunedì</i>	23-34
Tuesday / <i>Martedì</i>	35-50
Wednesday / <i>Mercoledì</i>	51-66
Thursday / <i>Giovedì</i>	67-82
Friday / <i>Venerdì</i>	83-94
POSTER SESSIONS <i>SESSIONI POSTER</i>	95-99
EXHIBITORS <i>ESPOSITORI</i>	101-107
ORGANISERS <i>ORGANIZZATORI</i>	108-110
OFFICIAL PARTNER JOURNAL <i>RIVISTA PARTNER UFFICIALE</i>	112-113
IRACE - International Research Association on Circular Economy <i>IRACE - Associazione Internazionale di Ricerca sulla CE</i>	114-116
OUR NEXT EVENTS <i>PROSSIMI EVENTI</i>	117-121
MEDIA PARTNERS	122



Established in 1987, the Sardinia Symposia were conceived as a global platform to share ideas, innovations, and experiences in the rapidly evolving fields of waste management and landfilling. Over the years, the Symposia have grown into the premier international forum for experts, practitioners, policymakers, and academics, convening every two years to explore new concepts, technologies, and strategies for sustainable waste management.

Now celebrating its 20th edition, Sardinia 2025 marks a major milestone in this longstanding tradition of scientific excellence and global collaboration. Throughout the past four decades, the Symposia have provided a space where groundbreaking ideas and pioneering approaches have been critically examined and discussed. Many of these sessions have been organized in cooperation with the IWWG (International Waste Working Group) task groups, ensuring high scientific quality and relevance.

The scientific programme of Sardinia 2025 is both comprehensive and dynamic. Structured across 8 parallel tracks, the Symposium will feature a total of 107 sessions and over 400 presentations. Contributions will be delivered through a variety of formats, including Oral Sessions, Workshops, Active Labs, and Poster Sessions, allowing for rich interaction and knowledge exchange.

In addition the Symposium includes four plenary Focus Sessions, to be held in the afternoon, dedicated to specific themes of high public interest. These sessions aim to foster deeper engagement on emerging global challenges and innovative policy directions.

Sardinia 2025 promises to be a landmark event – not only for reflecting on the achievements of the past 38 years, but also for shaping the future of sustainable waste management worldwide.

I Simposi Sardinia sono stati istituiti nel 1987 con l'obiettivo di creare una piattaforma internazionale per la condivisione di idee, innovazioni ed esperienze nei settori in rapido sviluppo della gestione dei rifiuti e delle discariche. Nel corso degli anni, i Simposi sono diventati il principale forum internazionale di riferimento per esperti, professionisti, decisori politici e accademici, che si riuniscono ogni due anni per esplorare nuovi concetti, tecnologie e strategie per una gestione sostenibile dei rifiuti

Il Sardinia 2025 celebra la sua ventesima edizione, un traguardo significativo che testimonia una lunga tradizione di eccellenza scientifica a livello internazionale. Nel corso degli ultimi 38 anni, i Simposi hanno offerto uno spazio privilegiato per l'analisi critica e il confronto su idee innovative e approcci pionieristici, molti dei quali presentati all'interno di sessioni organizzate in collaborazione con i gruppi di lavoro dell'IWWG

Il programma scientifico di Sardinia 2025 è strutturato in 8 sessioni parallele, con un totale di 107 sessioni e oltre 400 presentazioni. Gli interventi si svolgeranno in diverse modalità: Sessioni Orali, Workshop, Active Labs e Sessioni Poster, favorendo l'interazione e lo scambio di conoscenze tra i partecipanti. In programma, al pomeriggio, 4 Focus Session plenarie, dedicate a tematiche di particolare interesse pubblico.

Sardinia 2025 si preannuncia come un'edizione storica – non solo per celebrare i risultati raggiunti in quasi quarant'anni di attività, ma anche per contribuire a definire il futuro della gestione sostenibile dei rifiuti a livello mondiale.

SCIENTIFIC COMMITTEES

COMITATI SCIENTIFICI

SYMPOSIUM CHAIRS



Raffaello Cossu
University of
Padova (IT)



Pinjing He
Tongji University
(CN)



**Marion
Huber-Humer**
BOKU Univ. (AT)



Jurate Kumpiene
Luleå University of
Technology (SE)



Rainer Stegmann
Technical University
of Hamburg (DE)

SCIENTIFIC SECRETARY



Valentina Grossule
University of
Padova (IT)

International Advisory Board / Comitato Scientifico Internazionale

- Ata AKCIL, Nazarbayev University (KZ)
- Muhammed ALAMGIR, University Grants Commission of Bangladesh (BD)
- Luca ALIBARDI, Cranfield University (UK)
- Umberto ARENA, University of Campania "Luigi Vanvitelli" (IT)
- Damià BARCELÓ, Institute of Environmental Assessment and Water Research (ES)
- Nicole BERGE, University of South Carolina (US)
- Mehmet Sinan BILGILI, Yildiz Technical University (TR)
- Giuseppe BONIFAZI, Sapienza University of Rome (IT)
- Ralf BRÜNING, Dr. Brüning Engineering UG (DE)
- Alexandre CABRAL, University of Sherbrooke (CA)
- Daniele CAZZUFFI, CESI SpA (IT)
- Dezhen CHEN, Tongji University (CN)
- William CLARKE, The University of Queensland (AU)
- Giulia COSTA, Tor Vergata University of Rome (IT)
- Marco FREY, Sant'Anna School of Advanced Studies, Pisa (IT)
- Mario Andres GANDINI AYERBE, Universidad Autónoma de Occidente (CO)

SCIENTIFIC COMMITTEES

COMITATI SCIENTIFICI

- Robert GREGORY, *Gregory Environmental Consulting (UK)*
- Jutta GUTBERLET, *University of Victoria (CA)*
- Jae Young KIM, *Seoul National University (KR)*
- Dimitrios KOMILIS, *Democritus University of Thrace (GR)*
- Anders LAGERKVIST, *Luleå University of Technology (SE)*
- Maria Cristina LAVAGNOLO, *University of Padova (IT)*
- Weisheng LU, *University of Hong Kong (HK)*
- Giuseppe MANCINI, *University of Catania (IT)*
- Claudio MAHLER, *Federal University of Rio de Janeiro (BR)*
- Massimiliano MATERAZZI, *University College London (UK)*
- Andjelka MIHAJLOV, *Environmental Ambassador for Sustainable Development, Serbia (RS)*
- Aldo MUNTONI, *University of Cagliari (IT)*
- Michael NELLES, *University of Rostock (DE)*
- Alessandra POLETTINI, *Sapienza University of Rome (IT)*
- Tarek RASHWAN, *The Open University (UK)*
- Sergio REYES, *National University of the South (AR)*
- Marco RITZKOWSKI, *Hamburg University of Technology (DE)*
- Jan SLAVIK, *Jan Evangelista Purkyne University (CZ)*
- Natalia SLIUSAR, *Perm National Research Polytechnic University (RU)*
- Masaki TAKAOKA, *Kyoto University (JP)*
- Fabio TATANO, *University of Urbino "Carlo Bo" (IT)*
- Susan THORNELOE, *United States Environmental Protection Agency (US)*
- Jeffery K. TOMBERLIN, *Texas A&M University (US)*
- Cristina TROIS, *Stellenbosch University (ZA)*
- George K. VARGHESE, *National Institute of Technology Calicut (IN)*
- Beidou XI, *CRAES - Chinese Research Academy of Environmental Sciences (CN)*
- Ian WILLIAMS, *University of Southampton (UK)*
- Jonathan WONG, *Hong Kong Baptist University (HK)*
- Hideki YOSHIDA, *Muroran Institute of Technology (JP)*
- Dongbei YUE, *Tsinghua University (CN)*
- Maria Chiara ZANETTI, *Polytechnic University of Turin (IT)*

ORGANISING TEAM

SQUADRA OPERATIVA

ORGANISING SECRETARIAT



Gioia Burgello
Symposium Manager
Eurowaste Srl



Elena Cossu
General Manager
Eurowaste Srl / Arcoplan



Francesca Fava
Administration
Eurowaste Srl



Anna Artuso
Graphics and website
Arcoplan



Sofia Zanchin Impiumi
Managing Editor
Detritus Journal



Michela Giangrosso
Registration Desk
MG Events (IT)



Marzia Pisoni
Press & Communication
Padova (IT)



Sara Deidda
Official Photographer
Cagliari (IT)



Valentina Benincasa
Conference Hall
*University of Salerno
(IT)*



Ioannis Moukazis
Conference Hall
*Technical University
of Crete (GR)*



Edgar Ritzkowski
IWWG stand
*Technical University
of Hamburg (DE)*

ORGANISING TEAM

SQUADRA ORGANIZZATIVA



Virginia Cavalletto
Conference Hall
University of Padova
(IT)



Federico Illuminati
Conference Hall
University of Padova
(IT)



Valentina Poli
Conference Hall
University of Padova
(IT)



Gaia Rossetto
Conference Hall
University of Padova
(IT)



Denis Topao
Conference Hall
University of Padova
(IT)



Sardinia 2025 Organising Secretariat:

Eurowaste Srl / Via Beato Pellegrino 23, Padova, Italy / + 39 049 8726986 /
info@euowaste.it / www.euowaste.it / www.sardiniasymposium.it

REGISTRATION

REGISTRAZIONE

WHAT'S INCLUDED IN YOUR REGISTRATION / CHE COSA È INCLUSO NELLA VOSTRA REGISTRAZIONE

- Participation in Symposium sessions
- Participation in the Active Labs
- Sardinia 2025 - Symposium Guidebook
- Digital Symposium proceedings (Access to the members' area)
- Conference materials
- Coffee breaks
- Admission to the welcome cocktail - Pool Party
- Prize Ceremony Sardinia Award "A Life for Waste" and other social events or social activities
- Gala Dinner (supplement to evening meal)
- Symposium App
- *Partecipazione alle sessioni del Simposio*
- *Partecipazione agli Active Lab*
- *Programma stampato Sardinia 2025 - Symposium Guidebook*
- *Atti del convegno (Accesso alla Members area)*
- *Materiale congressuale*
- *Coffee breaks*
- *Invito al cocktail di benvenuto - Festa in piscina*
- *Invito alla cerimonia di consegna del Premio Sardinia "A life for Waste" e ad altri eventi serali e attività sociali*
- *Cena di Gala (come supplemento alla mezza pensione alberghiera)*

REGISTRATION / REGISTRAZIONI

The Registration Desk will be open in the Congress Centre with the following schedule:

- Sunday 12th October from 15:30 - 17:30
- Monday 13th October from 8:30 - 9:00, 10:30 - 13:00 and 15:15 - 19:00
- from Tuesday 14th October to Friday 17th October from 8.45 - 12.45 and from 15.15 - 19:00

Il banco segreteria per la registrazione al Simposio sarà aperto presso la hall del Centro Congressi ai seguenti orari:

- *domenica 12 Ottobre dalle 15.30 alle 17.30*
- *lunedì 13 Ottobre dalle 8:30 alle 9:00, 10:30 - 13:00 e 15:15 - 19:00*
- *da martedì 14 Ottobre a venerdì 17 Ottobre dalle 8.45 alle 12.45 e dalle 15.15 alle 19:00*

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 and workshops must contact the Speakers' Room to collect the sessions materials: our staff will provide the curricula vitae of speakers and inform of any last-minute changes in the programme.

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 the timetable is strictly respected. This aspect is of extreme importance in order to allow delegates to schedule their attendance in the parallel sessions.

Our staff member will be always available in the room for any technical assistance.

Istruzioni per i Presidenti di sessione

I Presidenti delle sessioni orali 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.

Ciascuna sala sarà presidiata da un membro del nostro staff a disposizione per qualsiasi esigenza tecnica.

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 member of our staff is on hand in the Speakers' Room for all requirements. Speakers who have not sent a copy of their Power Point presentation to the Organising Secretariat are kindly requested to contact the Speakers' Room in a timely manner, at the latest within the session prior to the one in which their own presentation is scheduled.

INSTRUCTIONS

ISTRUZIONI

If your allotted 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 useful to prepare a slide illustrating the conclusions in a summarised version. The poster session will be held in the foyer of the congress centre. On arrival all authors should check the exact position assigned to their poster. The staff at the Registration Desk will be pleased to provide assistance.

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. 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 l'esposizione 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 interno 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.

SOCIAL PROGRAMME

PROGRAMMA SOCIALE

Social events have always played a crucial role in the success of the Sardinia Symposia, representing for all delegates the chance to network and enjoy the company of colleagues and friends and relax after a full day of conference sessions.

From Sunday to Friday enjoy the Social Programme of the 2025 edition:

Gli eventi sociali hanno sempre avuto un ruolo cruciale nel successo dei Simposi Sardinia, offrendo a tutti i partecipanti momenti di intrattenimento e svago in cui godere della compagnia di colleghi e amici e rilassarsi dopo un'intensa giornata di conferenza.

Dalla domenica al venerdì, scopri il programma sociale della edizione 2025:



SUNDAY / 12 October / h. 17:30

POOL PARTY & WELCOME COCKTAIL

DRESS CODE:

pool party mood! Swimsuit, bathrobe, casual chic.

Free event for symposium delegates.

Pag. 22



MONDAY / 13 October / h. 21:30

LATIN AMERICAN PARTY

Get ready for a night full of rhythm and fun!

Free event for symposium delegates and accompanying persons

Pag. 34



TUESDAY / 14 October / h. 20:30

SARDINIAN DINNER & FOLK GROUP

Limited availability! Reservation is mandatory by Monday

Cost: €95 + VAT (22%) per person, including aperitif buffet, dinner and transportation by bus.

Pag. 50



WEDNESDAY / 15 October / h. 19:15

FOOTBALL TOURNAMENT

Event managed by Valentina Grossule (IT)

To participate, please write your name on the sign-up board located inside the conference center.



WEDNESDAY / 15 October / h. 22:00

KARAOKE SING-ALONG NIGHT

Feeling ready to have fun, sing your heart out, and enjoy a great time with fellow conference attendees?

Free event for symposium delegates & accompanying persons. Pag. 66



WEDNESDAY / 15 October / h. 19:30

CAGLIARI BY NIGHT + LIGHT DINNER

Event managed by FA Travel.

Bookings should be made directly with the travel agency, on site or by filling in their form.

Pag. 66



THURSDAY / 16 October / h. 21:30

SARDINIA'S GOT TALENT & 80-90'S PARTY

Get ready to dance, sing along and relive the iconic atmosphere of the '80s and '90s. Please contact us!

Rehearsal on Thursday afternoon.

Pag. 82



FRIDAY / 17 October / h. 18:30

AWARD CEREMONY & GALA DINNER

DRESS CODE: Formal dress appreciated

The access to the dinner is by invitation only. Dinner is included in the conference fee. Accompanying persons should purchase their ticket. Pag. 94



DURING THE WEEK

SOUTH AFRICA SPECIAL GUEST COUNTRY

South African themed initiatives and scientific activities will be organised throughout the week.

Managed by prof. Cristina Trois & her team!

SUNDAY OCTOBER 12

SOCIAL EVENT

WELCOME COCKTAIL - POOL PARTY / COCKTAIL DI BENVENUTO

Oasis Swimming Pool, Forte Village, h. 17:30 - 20:00

We are pleased to invite you to an exclusive welcome aperitif to kick off the conference in a relaxed and friendly atmosphere. It will be the perfect opportunity to reconnect with colleagues, meet new people, and officially launch the event... in style!

With cocktails, background music, and the charming setting of the Oasi swimming pool, we look forward to toasting the opening of this new edition with you. The pool will be open, so don't forget your swimsuit and take the opportunity to enjoy a swim and a moment of relaxation!

The welcome cocktail takes on the colors of South Africa, the Special guest country of this edition. A dedicated corner will feature a selection of South African sparkling wines

DRESS CODE:

pool party mood! Swimsuit, bathrobe, casual chic...

Free event for symposium delegates

Siamo lieti di invitarvi a un esclusivo aperitivo di benvenuto con un party in piscina per dare il via alla conferenza in un'atmosfera rilassata e conviviale. Sarà l'occasione perfetta per ritrovare i colleghi, conoscere nuove persone e inaugurare ufficialmente l'evento... con stile!

Tra cocktail e musica di sottofondo, nella suggestiva cornice della piscina Oasi, vi aspettiamo per brindare insieme all'apertura di questa nuova edizione.

La piscina sarà aperta, quindi non dimenticate il costume e approfittatene per un tuffo e un brindisi in acqua!

Il cocktail di benvenuto si veste inoltre dei colori del Sudafrica, Paese ospite d'onore di questa edizione. Un corner dedicato offrirà una selezione di bollicine sudafricane.

DRESS CODE:

pool party mood! Costume da bagno, accappatoio, pareo, casual chic...

Evento gratuito per i partecipanti al simposio



DAY 1 / MONDAY
OCTOBER 13

MONDAY OCTOBER 13

9:00 - 10:30

OPENING SESSION / Central Hall

Chair / Presidente: Raffaello Cossu (IT)

9:00-10:00

WELCOME ADDRESSES / SALUTI DI BENVENUTO

Raffaello Cossu, University of Padova (IT)

Marion Huber-Humer, BOKU University (AT)

Pinjing He, Tongji University (CN)

Jurate Kumpiene, Luleå University of Technology (SE)

Rainer Stegmann, Hamburg University of Technology (DE)

Cristina Trois, IWWG President (ZA)

Rosanna Laconi, Regional Councilor for the Environment, Sardinia (IT)

10:00 - 10:30

OPENING LECTURE / RELAZIONE DI APERTURA

Matilde Nardelli, University of West London (UK)

Waste and the Image: The Lure of (Im)materiality, from Celluloid to AI slop

"The anthropologist Mary Douglas famously claimed in her 1966 book *Purity and Danger* that 'dirt is matter out of place'. Can the same be said of waste? Or does waste – even when 'out of place' – remain waste, unless rescued by some kind of transformation succeeding in turning its matter into something else? What happens when that matter is the 'matter' of the image – including, in our times, digital images and so-called AI slop?

Through a tour of examples from cinema, photography, contemporary art and vernacular media, my talk will explore these questions – and the wider discussions they engender about technology and the environment – by broaching the relation between the image and – and even as – waste across different technological generations".



Matilde Nardelli is Associate Professor in the School of Film, Media and Design of the University of West London. Her work addresses media aesthetics, visual culture, art cinema and artist moving image.

Her essays have appeared in, among others: Screen, The Journal of Visual Culture, NECSUS, Tate Papers, Oxford Art Journal, Photographies. She is the author of Antonioni and the Aesthetics of Impurity (2020) and co-editor of Bruno Munari: The Lightness of Art (2017).

 **COFFEE BREAK / 10:30 - 11:00**

MONDAY OCTOBER 13

11:00 - 12:30

DAY 1

INTRODUCTORY LECTURES

Raffaello Cossu, University of Padova (IT)

Development of the Sardinia Symposia over the Years

Rainer Stegmann, Hamburg University of Technology (DE)

Milestones in Waste Management over the Past Forty Years

Thomas Højlund Christensen, Technical University of Denmark (DK)

Environmental aspects of waste management during the Green Transition –

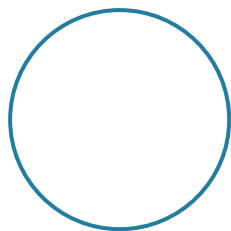
The future of waste management in a fossil-free society

Guest country Lecture: South Africa

Cristina Trois, University of Stellenbosch (ZA)

IWWG Award Waste Vision 2100

WASTE VISION 2100 is a bi-annual IWWG award, established in 2019, for younger researchers in connection to the Sardinia Symposium. The award is addressed to early career researchers developing groundbreaking ideas and innovative solutions for big challenges in waste management.



The award winner of the 4th edition is **Dr. Miguel Filipe da Costa Nogueira**, a postdoctoral researcher at LEAF, School of Agriculture at the University of Lisbon (PT). With his PhD thesis, entitled *Tyre4REEcycle: Recovery of Rare Earth Elements from NdFeB Magnets Using Porous Carbons Produced from Rubber of Spent Tyres*, he addresses two globally pressing waste challenges: electronic waste (e-waste) and end-of-life tyres.



LUNCH BREAK / 12:30 - 15:30

MONDAY OCTOBER 13

15:30 - 17:00

SESSION A01 / CENTRAL HALL

CIRCULAR ECONOMY IN THE INDUSTRIAL SECTOR

Chair: Deborah Panepinto (IT)

T. Waseem, M. Schmidt, N. Schnurrenberger, S. Griza, A. Gottlieb, D. Vollprecht (DE)
Internal recycling of iron foundry dusts using silicon carbide briquettes

C.M. Llamedo, D.R. Jove, L. Megido, Y. Fernández-Nava, F. Afshari, L. Alcalá, J. Rodríguez-Iglesias (ES)

Blast furnace slag valorization as fluoride specific adsorbent in tertiary treatment of industrial wastewater and its comparison with ionic exchange performance

A. Bergani, Y. Ait-khouia, M. Benzaazoua, E. Fuente, Á. Blanco, Y. Taha (MA)
Investigating the impact of flocculation dynamics on the dewatering of fine phosphate tailings

M. Mladenov (BG)

Analytical characteristics of a method for determining zinc in waste from galvanizing factories

M. Pettersson, O. Johansson (SE)

Mining Waste Recycling - The establishment of a Circular Industrial Park

SESSION B01 / CENTRAL HALL 2

STRATEGIES FOR IMPROVING CIRCULARITY OF BIOWASTE

Chair:

M. Nelles, R. Backes, K.-F. Cyffka, A. Gröngroft, P. Kornatz, V. Lenz (DE)

The role of biogenic waste and residues in a climate neutral world

J. Singh (SE)

Challenges and opportunities to circular management of material resources in the organic fraction of municipal solid waste

S. Estévez, A. Arias, F. Gumersindo, M.T. Moreira (ES)

Transitioning to a certified economy from biological waste: fostering circularity and long-term sustainability criteria

C. Trois, V. Benincasa, Y. Abera, A. Dell'Orto, V. Naddeo (ZA)

Assessment of alternative organic waste treatment strategies in the city of Cape Town, South Africa

M. Mariani, M. Fundoni, S. Tessitore, F. Corsini, M. Frey (IT)

Is industrial agro-symbiosis a form of frugal innovation? Evidence from nine agri-food companies

M. Schiavon, F. Illuminati, A. Sandon, W.-S. Chen, A. Li, I. Corten, F. Jorritsma, M.C. Lavagnolo (IT)

Defining best recipes and optimum parameters for the valorization of agri-food residues through compost heat recovery systems

 **COFFEE BREAK / 17:00 - 17:30**

MONDAY OCTOBER 13

15:30 - 17:00

DAY 1

SESSION C01 / PANORAMA HALL

LEACHATE GENERATION AND CONTROL

Chair: Richard Beaven (GB)

N. Ruxton (AU)

Leachate water balance assessments – The importance of sensitivity analysis

N. Ruxton (AU)

The impact of a catastrophic rainfall event at a landfill in a sub-tropical region – A case study

A. Varma A., G.K. Varghese, M. Siddik A. (IN)

Reassessing the Leachate Pollution Index - needs and suggestions

P. Zidan, L.F. Aquino, A.F. Gonçalves, E. Ritter (BR)

Bubbles formation in the geomembrane of leachate ponds: case study

SESSION D01 / PANORAMA HALL 2

CIRCULAR ECONOMY AND WASTEWATERS

Chair:

A. Sobral-Lores, S. Estévez, G. Feijoo, M.T. Moreira (ES)

EU taxonomy and wastewater treatment: driving sustainability and environmental compliance

M. Smol, P. Marcinek (PL)

Shaping Circular Economy policies in the wastewater sector - A stakeholder approach

J. Valeri, G. Costa, S. De Assis Bombardelli Miranda, N.M. Gusmerotti, L. Migliore, R. Baciocchi (IT)

Evaluation of the environmental/social and economic benefits of an innovative process for upcycling microfibers from washing machine wastewater

M. Smol, M. Andrunik, K. Ramm (PL)

Recovery and reuse of nutrients from waste generated in wastewater treatment plants - Case study of the Baltic Sea Region

 **COFFEE BREAK / 17:00 - 17:30**

MONDAY OCTOBER 13

15:30 - 17:00

SESSION E01 / EX CHIESA HALL

LARGE LANGUAGE MODELS IN WASTE MANAGEMENT

Chair:

W. Lu, J. Hao, Z. Peng, J. Chen, Z. Yi, B. Yang (HK)

Prospects and challenges of emerging large language models (LLM) to waste management

J. Chen, W. Lu, Z. Dong, J. Lu (HK)

Exploring large language models for automated recognition of construction waste composition

Y. Zhang, Z. Wen (CN)

Unveiling the impact of domain knowledge and scaling law on open-source large language model specialization in anaerobic digestion

B. Yang, W. Lu, J. Chen, Z. Peng, L. Yuan, J. Hao, Z. Bao (HK)

Profiling illegal dumping using large language models (LLM)-enabled panoramic street view analytics

SESSION F01 / ITALIAN SESSION / BALDACCHINO HALL

RIFIUTI E SALUTE: CRITERI DI GESTIONE, TECNOLOGIE E IMPATTI - PRESENTAZIONE DEL RAPPORTO FINALE DEL CIRS

Chairs: Raffaello Cossu, Margherita Ferrante

La salute delle comunità vicino agli impianti di trattamento e smaltimento rifiuti è una preoccupazione crescente, così come la necessità di una gestione sostenibile dei rifiuti che valorizzi risorse materiali ed energetiche. Nonostante numerosi studi scientifici sull'impatto dei rifiuti sulla salute, spesso settoriali o influenzati da interessi di parte, è essenziale promuovere un dialogo interdisciplinare e coinvolgere tutti gli attori, comprese le comunità locali, per affrontare la percezione del rischio e combattere la disinformazione.

In questo contesto, il Tavolo di Roma ha promosso la nascita del Comitato Interdisciplinare su Rifiuti e Salute (CIRS), un gruppo spontaneo e non istituzionale formato da esperti, associazioni e rappresentanti civici, in collaborazione con enti istituzionali come Ministeri, ISPRA, CNR. L'obiettivo è contribuire a una strategia sostenibile per la gestione dei rifiuti, rispettosa della salute e dell'ambiente, basata sulla condivisione gratuita di competenze e confronto interdisciplinare. Dal 2019, il CIRS ha coinvolto oltre 200 esperti di vari settori (agronomi, biologi, ingegneri, medici, giuristi) con una partecipazione attiva stabile di circa 70 persone, rappresentando tutte le regioni italiane e con un buon equilibrio di genere e prevalenza del settore pubblico e accademico.

Coordinato da Raffaello Cossu e Margherita Ferrante, il Comitato ha prodotto un Rapporto finale che sintetizza le conoscenze scientifiche su rifiuti e salute, evidenziandone punti di forza e criticità, e propone linee guida neutrali basate su dati tecnici per supportare decisioni consapevoli e tutelare la salute pubblica e l'ambiente.

Il documento, frutto di quattro anni di lavoro, è stato elaborato attraverso gruppi tematici e un gruppo di editing che ha ridotto e affinato il testo. Il Rapporto si pone come riferimento tecnico-scientifico per cittadini, operatori e decisori politici senza esprimere preferenze sulle modalità di gestione dei rifiuti.

MONDAY OCTOBER 13

15:30 - 17:00

DAY 1

SESSION G01 / PINETA HALL

WORKSHOP - RETHINKING WASTE COLLECTION AND TRANSPORT: FUTURE PATHS

Chair: Peter Beigl (AT)

Introductory lectures:

G. De Feo, A. Bove, A. Grosso (IT)

Defining the maximum reliable threshold for separate waste collection: a multi-dimensional analysis and empirical validation in Campania, Italy

H. Zhang (CN)

Intelligent collection of recyclables, AI for medical waste collection and incineration

ACTIVE LAB 01 / FOYER CONGRESS CENTER

BSF LARVAE FOR BIOWASTE TREATMENT - PART 1: REACTORS SET UP AND STARTING OPERATION

Organised by: Valentina Grossule, University of Padova (IT)

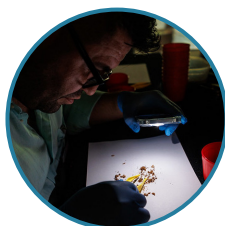
Jeffery K. Tomberlin, Texas A&M University (US)

In the context of the Circular Economy, the use of Black Soldiers Fly (BSF) for biowaste treatment represents a promising alternative to conventional biological processes, for either managing the waste and providing high value resources in term of materials and energy. Indeed, in the larval stage BSF are capable of metabolising and stabilising huge amounts of putrescible waste, transforming it into valuable biomass rich of proteins and fats, suitable for the direct use as animal food or for production of biorefinery products, such as proteins and, biodiesel, lubricants, chitin and chitosan, antimicrobial peptides. The active lab aims at providing basics knowledge of the BSF larvae and on their use for biowaste treatment, including designing, feed quality, control parameters etc. Practical activity will be divided into two parts:

Part 1: set up of small-scale reactors for treatment of different biowaste, at the beginning of the conference (Monday, 13 October, 15:30 - 19:00).

This first part of the lab will continue in the next session.

LAB



 **COFFEE BREAK / 17:00 - 17:30**

MONDAY OCTOBER 13

17:30 - 19:00

SESSION A02 / CENTRAL HALL

CIRCULAR ECONOMY STRATEGIES FOR THE INDUSTRIAL WASTE

Chair: Giulia Costa (IT)

B. Kopacek (AT)

Circular Economy business models and their practical application in different industrial sectors

M. Sandberg, M. Zywałewska, K. Granström (SE)

Circular nutrient recovery from pulp and paper residues for sustainable forest growth and climate mitigation

D. Panepinto, M. Ravina, M. Brignone, M. Zanetti (IT)

Consequences and risk modelling of Natech in industrial environments

M. Patel, M. Peces, D. Villa-Gomez, I. Pikaar, J. Vaughan, W.P. Clarke (AU)

MSW as a carbon source in mineral processing and in acid mine drainage treatment

J. Zhang (CN)

How to incentive carbon capture and storage technology application in waste-to-energy industry: A facility-level integrated assessment of China

SESSION B02 / CENTRAL HALL 2

FACTORS INFLUENCING FOOD WASTE GENERATION

Chair: Silvia Schütz (AT)

K. Hofer, G. Obersteiner (AT)

Food value: reduction of avoidable food waste and losses in the Austrian primary production

E.G. Sigala, C. Chroni, K. Abeliotis, K. Lasaridi (GR)

Exploring the impact of behavioral factors, habitual routines, and sociodemographic characteristics as predictors of household food waste generation

K. Watanabe, T. Okayama, H. Yamakawa, M. Nonomura, Y. Seta (JP)

Are Best Before Dates the date for disposal? - Date distribution of discarded food in sorting analysis of household waste

E.G. Sigala, C. Chroni, K. Abeliotis, K. Lasaridi (GR)

Sociodemographic determinants of household food waste underreporting as assessed utilizing questionnaires

MONDAY OCTOBER 13

17:30 - 19:00

DAY 1

SESSION C02 / PANORAMA HALL

OPTIMIZATION OF LANDFILL GAS CAPTURE

Chair: Nicolas Proietti (IS)

M. Giovannetti, G. Cordaro, A. Carnasciali, G. Barina, A. Baldini (IT)

Large-scale automation for optimized biogas recovery and greenhouse gas emission reduction at Scapigliato landfill

D. Risk, R.I. Hossian, P. Buntov, Y. Dudak, K. El Hachem, C. Hall, T. Abichou (CA)

Full-scale controlled release experiments for investigating methane measurement performance at landfills

A. Lair, R. Lestienne, A.M. Fredenslund, F. Innocenti, N. Proietti, C. Scheutz (DK)

Towards a measurement protocol to assess landfill gas extraction efficiency

SESSION D02 / PANORAMA HALL 2

VALORIZATION OF SEWAGE SLUDGE

Chair: Jurate Kumpiene (SE)

L. Lombardi (IT)

Thermochemical valorisation of sewage sludge: perspectives on pyrolysis, gasification, and nutrient recovery in the European context

C. Richmond, C. McGregor, C. Trois (ZA)

Valorisation of sewage sludge and co-digestion with slaughter-house waste for renewable natural gas injection into the Lilly pipeline: a feasibility assessment in eThekweni Municipality

P. Gerl, C. Zafiu, M. Huber-Humer (AT)

Recovery of phosphorus from sewage sludge ash by carbonation and subsequent bioleaching

Y. Feng, Z. Tang, Q. Zhang, D. Chen (CN)

Study on the clean and hydrogen-rich synthesis gas production via reforming of volatile matter from sewage sludge by its pyrolysis char

X. Zheng, Q. Niu, Q. Dong, Y. Wu (CN)

Fate and impact mechanisms of halogenated emerging contaminants during anaerobic valorization of organic waste

MONDAY OCTOBER 13

17:30 - 19:00

SESSION E02 / EX CHIESA HALL

EDUCATION: ENGAGING STUDENTS IN CIRCULAR ECONOMY

Chair: Giovanni De Feo (IT)

J. Gutberlet, F. Rodriguez Torres, C. Carvalho (CA)

From awareness to action: engaging students in zero waste initiatives

M.C. Lavagnolo, E. Rubaltelli (IT)

Ambasciatori di Sostenibilità: a course for involving citizens and students and communicate sustainability

V. Cavalletto, G. Rossetto (IT)

PioveGO project of the students of the University of Padova

I. Grinfelde, J. Burlakovs, K. Siltumens, J. Pilecka-Ulcugaceva (LV)

Transforming educational models to foster eco-innovation by engaging students in sustainable waste management through a triple helix approach

G. De Feo (IT)

The Greenopoli method: engaging environmental education for sustainable waste management

SESSION F02 / BALDACCHINO HALL

WORKSHOP - ZERO-WASTE ROADMAP GAME

Chair: Jagdeep Singh (SE)

This workshop will introduce the Zero-Waste Roadmap Game. The game is developed to operationalize the concept of circular economy, design, and participatory backcasting when addressing the systemic, institutional, and behavioral barriers to sustainable waste management. This game is aimed at engaging stakeholders throughout the organic waste value chain. In this game, the stakeholders collaboratively develop solutions to challenges in organic waste management through a participatory process of mutual engagement, consultation and consensus. This is done to recognize the needs of the stakeholders across the value chain to optimally address them. The game incorporates the elements of gamification, such as information, reflection, exposition, choice, play, and engagement.

The game will inspire the participants who work with stakeholders to address waste management issues. It can help them reflect on their methods and approaches in their respective research fields. This game is being developed within an Indo-Swedish consortium research project BioCircularR - Towards Zero-Waste through Bio-based Circular Recovery Model – Lessons for Managing Organic Fraction of Municipal Solid Waste from Sweden and India (BioCircularR).

Full appetizer available on the website and symposium app.

MONDAY OCTOBER 13

17:30 - 19:00

DAY 1

SESSION G02 / ITALIAN SESSION / PINETA HALL

WORKSHOP - PRESENTAZIONE DEL PROGETTO REA: RASSEGNA DELL'ENERGIA E DELL'AMBIENTE

Chair: Andrea Fantappiè (IT)

REA (Rassegna dell'Energia e dell'Ambiente) è una nuova pubblicazione scientifica online che ha alla sua base l'idea di approfondire le relazioni tra energia ed ambiente, nella consapevolezza che queste relazioni rappresentano, oggi, uno dei nodi cruciali per il futuro della nostra società.

REA nasce con l'obiettivo di diventare un punto di riferimento per lo studio e l'analisi delle complesse questioni legate all'energia e alla tutela ambientale.

La Rassegna si propone come piattaforma di dialogo interdisciplinare, accogliendo contributi di natura giuridica, economica, ingegneristica, e anche filosofica, nella convinzione che solo attraverso un approccio integrato sia possibile affrontare le sfide globali che ci attendono.

REA intende quindi proporsi come:

- un laboratorio di idee per l'elaborazione di soluzioni innovative e sostenibili- un forum di discussione aperto al confronto tra diverse prospettive disciplinari un canale di diffusione di ricerche accademiche di alto profilo scientifico
- uno strumento di aggiornamento sul quadro normativo e sulle politiche pubbliche europee e nazionali in dette materie
- un sito che formi una comune base conoscitiva e metodologica, tale da garantire una costante correlazione tra i differenti settori culturali che attingono alle scienze dell'energia, dell'ambiente e delle politiche di sviluppo.

Le pubblicazioni saranno esaminate da un Comitato scientifico di cui faranno parte esperti nei settori:

- del diritto amministrativo e in particolare del diritto ambientale e dell'energia- dell'economia politica e aziendale e dei settori regolati
- dell'ingegneria ambientale - delle relazioni d'impresa

ACTIVE LAB 02 / FOYER CONGRESS CENTER

BSF LARVAE FOR BIOWASTE TREATMENT - PART 1: REACTORS SET UP AND STARTING OPERATION

Organised by: Valentina Grossule, University of Padova (IT)

Jeffery K. Tomberlin, Texas A&M University (US)

Continue from the previous session.

LAB

MONDAY OCTOBER 13

SOCIAL EVENT

LATIN-AMERICAN PARTY / SERATA LATINO AMERICANA

Terrazza San Domenico, Giardino Acquatica, h. 21:30 - 00:30

Get ready for a night full of rhythm and fun!

Join us for a vibrant Latin-themed evening with lively music, group dances, and professional dancers who will light up the floor and get everyone moving.

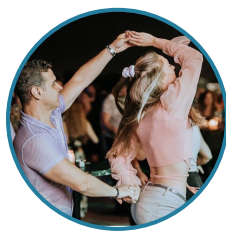
No experience needed – just bring your energy and let the rhythm guide you!

Free event for symposium delegates and accompanying persons

Una notte all'insegna del ritmo e dell'allegria! Ti aspettiamo per una serata latina con musica travolgente, balli di gruppo e l'energia di ballerini professionisti che animeranno la pista e coinvolgeranno tutti i partecipanti.

Non serve essere esperti: basta la voglia di divertirsi e lasciarsi trasportare dal ritmo!

Evento gratuito per gli iscritti al simposio ed eventuali accompagnatori



DAY 2 / TUESDAY
OCTOBER 14

TUESDAY OCTOBER 14

9:00 - 10:30

SESSION A03 / CENTRAL HALL

MATERIAL AND ENERGY RECOVERY FROM THERMAL PROCESSES

Chair: Umberto Arena (IT)

É. Machado da Silva Guerreiro, E. de Santis Braga (BR)

Waste-to-Energy: reuse of oil spilled on the Brazilian coast in 2019 through co-processing

S. Li, B. Yuan, Z. Duan, M. Zhang, J. Du, Y. Wen (CN)

Polycyclic aromatic hydrocarbon derivatives during pyrolysis of textile dyeing sludge

A. Amiza, C. Torri (IT)

Development of Gas Fermentation system by using HTB approaches for the obtainment of sustainable biomaterials

G. Lisak, W.P. Chan, Y.Z. Boon, SAMB Yusoff, Y.H. Hua, L. Liang, V.M.P. Chin, P.W.

Du, H.T, Bui, Z.Y. Zhang, X.F. Lin, K.H. Tan (SG)

Resource recovery from sewage sludge through the deployment of a demonstration scale high temperature slagging gasifier

K. Ziegler-Rodriguez, I. Josa, L. Castro, H. Escalante, J. Jaimes-Estévez, M. Garfí (ES)

Environmental and economic Life Cycle Assessment of low-tech digester and gasification technologies in small-scale farms

SESSION B03 / CENTRAL HALL 2

FOOD WASTE REDUCTION / REDISTRIBUTION PROGRAMMES

Chair: Jagdeep Singh (SE)

G. Obersteiner, K. Hofer, S. Luck, R. Ottner (AT)

Analysis of the waste prevention potential of the mobile application Too Good To Go

E. Schmied, S. Schütz (AT)

Business-oriented solutions for surplus food redistribution

S. Scherhauser, N. Brunnhuber, G. Obersteiner (AT)

Environmental footprint of innovations against food waste

S. Luck, G. Obersteiner (AT)

Rethinking fruit and vegetable storage: can retail interventions reduce household food waste?

T. Yang (CN)

Organic solid waste directed resource utilization and carbon pollution reduction in synergy



COFFEE BREAK / 10:30 - 11:00

TUESDAY OCTOBER 14

9:00 - 10:30

DAY 2

SESSION C03 / PANORAMA HALL

LANDFILL METHANE OXIDATION BY BIOSYSTEMS

Chair: Giulia Gebert (NL)

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

Long-term efficiency of methane oxidizing biowindows

J.C.M. Souza, M.D.O. Neto, Y. Dulac, J.J.N. Santos, F. Galli, A.R. Cabral (CA)

Continuous monitoring approach for estimating methane oxidation efficiency in biosystems

J.J.N. Santos, M.D.O. Neto, Y. Dulac, J.C.M. de Souza, F. Galli, A.R. Cabral (CA)

Effects of boundary conditions on the methane oxidation efficiency in pilot-scale biofilters

M. Kriipsalu, J. Burlakovs, K. Orupold (EE)

Full-scale biofilters for landfill methane mitigation: case study from Tallinn, Estonia

SESSION D03 / PANORAMA HALL 2

RECYCLING OF INDUSTRIAL INORGANIC WASTE

Chair: Francesco Ferella (IT)

F. Feucht, A. Klöckl, S. Neuhold, K.P. Sedlazeck (AT)

Optimising automated refractory sorting: how a segmentation model will help evaluate and optimise singularisation of a spent refractory sorting plant

Y. Xu, F. Wang (CN)

Upcycling of end-of-life wind turbine blades: enhanced phenolic compounds production through catalytic co-pyrolysis of epoxy resin and polyvinylchloride with balsa activated carbon

R.E. Sliwa, M. Zwolak, B. Pawlowska, L. Bak, D. Kolodziejczyk, A. Wedrychowicz (PL)

KOBO extrusion as a new process for recycling metal chips

 **COFFEE BREAK / 10:30 - 11:00**

TUESDAY OCTOBER 14

9:00 - 10:30

SESSION E03 / EX CHIESA HALL

AI AND DIGITAL SOLUTIONS IN WASTE MANAGEMENT

Chair: Giuseppe Bonifazi (IT)

A.-M. Tuomala (FI)

Leveraging digital technologies for smart waste management: a literature review

T. Bright, S. Adali, C. Trois (ZA)

YOLO-transformer hybrid model using multispectral drone imagery for municipal waste categorisation

O. Baron, M. Rosenstiehl, C. Bloquet (FR)

Analytical process of AI in bounding boxing for waste characterization: optimising AI performance measurement

S. Cota, V. Corbellini, M. Calabresi, F. Lazzari (IT)

Leveraging digital tools for circular electronics: AI-driven PCB reuse and waste management solutions

S. Schmuck, M. Simon, T. Mietzel, T. Ricken, R. Widmann (DE)

depSIM meets AI - Potentials of combining dynamic simulations with AI for landfills

C. Qian, Y. Xu, S. Li (CN)

Digital twin simulation and intelligent operation regulation technology for solid waste disposal: taking hazardous waste landfill facilities as an example

SESSION F03 / BALDACCHINO HALL

WORKSHOP - UNLOCKING THE BLACK BOX: SOLUTIONS FOR SUSTAINABLE MANAGEMENT OF OLD LANDFILLS

Chair: Julia van der Heide (NL)

This engaging workshop is dedicated to exploring the complexities and challenges associated with old landfills through a case study from the Netherlands. With approximately 30,000 hectares of land occupied by these sites, they form an interesting component in current spatial issues, such as energy transition, housing construction, and green spaces. Thereby, they also are a potential risk for pollution of soil and groundwater.

In this workshop, participants will delve into a compelling case study that highlights the inherent uncertainties surrounding old landfills, often referred to as "black boxes".



COFFEE BREAK / 10:30 - 11:00

TUESDAY OCTOBER 14

9:00 - 10:30

DAY 2

SESSION G03 / ITALIAN SESSION / PINETA HALL

METODI INNOVATIVI NELLA GESTIONE DEI RIFIUTI IN ITALIA

Chair: Luisa Chiasserini (IT)

G. De Feo (IT)

Il Metodo Greenopoli: educazione ambientale coinvolgente per una gestione sostenibile dei rifiuti

G. Tassielli, L. Cananà, M. Spalatro (IT)

Monitoraggio avanzato delle discariche: rilevamento e quantificazione delle perdite di biogas tramite droni equipaggiati con sensori di metano

G. De Feo, A. Bove, A. Grosso (IT)

Definizione della percentuale massima realistica di raccolta differenziata: analisi multidimensionale e validazione empirica in Campania

M. Giovannetti, G. Cordaro, A. Carnasciali (IT)

Automazione su larga scala per l'ottimizzazione del recupero del biogas e riduzione delle emissioni di gas serra nell'impianto di discarica di Scapigliato

O. Santoro, K. Nasr Esfahani, S. Mancini, T. Masi, F. Ugolini, D. Santoro (CA)

Trattamento quaternario per la rimozione di microinquinanti nelle acque reflue municipali: approcci con analisi non-targeted per il riutilizzo sicuro in acquaponica

ACTIVE LAB 03 / FOYER CONGRESS CENTER

BIODEGRADABLE JUTE CELLULOSE-BASED SANITARY PADS FOR SUSTAINABLE MENSTRUAL HYGIENE MANAGEMENT - PART 1

Organised by: Mubarak Ahmad Khan

Echocells Research Lab, Echotex Limited (BD)

This interactive session explores a groundbreaking innovation in menstrual hygiene management that merges material science with environmental responsibility. This active lab is structured in 2 parts.

Part 1 will delve into the conceptual and technical foundation—addressing the environmental impact of conventional products and introducing a sustainable alternative based on jute-derived cellulose.

Participants will engage with presentations on the transformation of natural fibers into viscose, biopolymer films, and superabsorbent components, followed by a live demonstration of the multi-layered sanitary pad prototype—surface layer, core, and backing. Environmental considerations such as biodegradability, flushability, and sterilization techniques will be highlighted.

The second part of the lab will continue in the next session.

 **COFFEE BREAK / 10:30 - 11:00**

LAB

TUESDAY OCTOBER 14

11:00 - 12:30

SESSION A04 / CENTRAL HALL

BIOCHAR PRODUCTION BY DIFFERENT THERMAL TREATMENTS

Chair: Hamad Gohar (IT)

H. Gohar, G. Beggio, M. Schiavon, M.C. Lavagnolo (IT)

Characterization of agro-industrial wastes for on-site pyrolysis to produce energy and biochar: a path to circular bioeconomy

M. Ghaslani, G. Cappai, G. Farru, N. Marzban (IT)

Circular valorization of olive pomace via hydrothermal carbonization and humification

N. Binti Abdullah, T. Ida (JP)

Densification of buckwheat husk into bio-coke after torrefaction pre-treatment and its properties

F. Khodaparastan, T. Rashwan, J. Bowen, C. Switzer, G.P. Grant, J.K. Brown, M.A.B. Zaroni (GB)

Understanding gas emissions from biochar production via smouldering combustion

H.K. Westrum (NO)

Thermal remediation of contaminated soil using SoilSteam technology: a sustainable approach to soil recovery

SESSION B04 / CENTRAL HALL 2

FOOD WASTE MONITORING AND CONTROL IN SCHOOLS AND HOUSEHOLDS

Chair: Kohei Watanabe (JP)

E. den Boer, M. Lech, J. den Boer (PL)

Food waste characteristics and its recycling potential to valuable products

G. Hafner, D. Drissner (DE)

Large-scale monitoring of food waste in private households and childcare centers - comparative comparison of different methodological approaches

R. Soloha, M. Muižniece, E. Dace (LV)

Food waste measurements in Latvian households: lessons from a diary study aligned with the EU framework

J. den Boer, K. Sobieraj, E. Syguła, T. Noszczyk, B. Romankiewicz, E. den Boer (PL)

Food waste and its prevention in Polish schools and kindergartens

S. Luck, G. Obersteiner (AT)

From knowledge to action: how a travelling exhibition on food waste empowers students in Austrian schools



LUNCH BREAK / 12:30 - 15:30

TUESDAY OCTOBER 14

11:00 - 12:30

DAY 2

SESSION C04/ PANORAMA HALL

LANDFILL METHANE OXIDATION AND EMISSIONS CONTROL

Chair: Marion Huber-Humer (AT)

Z. Duan, S. Chen, S. Li (CN)

Enhanced mitigation of methane and BTEX from landfill gas using sludge bio-char-amended compost via adsorption-oxidation synergy

C. Schöpke (NO)

Isotopic evidence for microbial assimilation of carbon from landfill gas in cover soils

E. Navette, C. Deleu, C. Collart, P. D'Artois, M. D'Artois, Q. Courier, G. Hérin, H. Guyot (BE)

Optimizing the quantification of diffuse biogas emissions from landfills using sniffer dogs

Y. Dulac, M. Duarte, V. Di Battista, A.R. Cabral (CA)

Pilot-scale implementation of biowindows for methane mitigation at decommissioned landfills

SESSION D04 / PANORAMA HALL 2

RECYCLING OF INDUSTRIAL INORGANIC WASTE

Chair: Michael Nelles (DE)

X. Fei, Y. Wang (SG)

Bridging the waste data gap: a unified framework for quantifying and mitigating industrial and agricultural streams

R. Titos-Guillen, E. Licon, T. Alvariño, A. Taboada, S. Sentellas, M. Reig (ES)

LIFE CYCLOPS: Upcycling polyphenols from industrial olive oil waste

V. Žepić Bogataj, C. Martínez-García, M.T. Cotes-Palomino, A.B. López, B. Mezek, S. Kotnik (SI)

Recycled sisal fiber-reinforced polypropylene derived from industrial waste stream

L. Attene, F. Asunis, A. Muntoni, G. De Gioannis (IT)

Lactic acid from cheese whey fermentation: a building block for new biopolymer products



LUNCH BREAK / 12:30 - 15:30

TUESDAY OCTOBER 14

11:00 - 12:30

SESSION E04 / EX CHIESA HALL

REUSE OF CONSUMER PRODUCTS

Chair: Maria Pettersson (SE)

E. Schmied, G. Obersteiner (AT)

Status quo and potential of re-use in the Austrian furniture sector

J. S. Rolver, B. Hauge (DK)

Consumer behaviour: a Danish study on barriers behind reuse of discarded mattresses towards a more circular society

V. Rossi, H. Logan, A. Damgaard (DK)

Viability of recycling for separately collected post-consumer footwear in Denmark

B. Silva, M.C. Paiva, C. Basto-Silva, H. Nunes, F. Pinho, V. Gama, J. Pires, G. Gonçalves, A. Marques, C. Gonçalves (PT)

Circular strategies for sustainable innovation: tackling coffee capsule waste

SESSION F04 / BALDACCHINO HALL

WORKSHOP - CIRCULAR PLASTICS & ADVANCED COMPOSITES

Chair: Florian Part (IT)

The use of circular plastics is vital in enhancing the recyclability of plastics and reducing reliance on primary and fossil-based materials. To ensure the success of the circular economy in the future, it is essential to develop advanced plastics and polymer composites that can be kept in circulation, in addition to implementing more efficient waste collection and recycling systems for commodity plastics. Plastic products with minimal mechanical requirements, such as single-use packaging, already have established collection and recycling pathways in place to minimise material loss. **Full appetizer available on the website.**

The research presented in this workshop originates from the projects REPOXYBLE (www.repoxyble.eu) and RETURN (www.fondazione{return}.it/en).

Introductory lectures:

Florian Part, Christian Zafiu (AT)

Developing circular plastics and advanced polymer composites based on the safe and sustainable by design principle

Alessandra Poletti (IT)

Assessment of bioplastics biodegradability in different environmental conditions

Christoph Olscher (AT)

Circular business concepts for advanced polymer composites – “REPOXYBLE” design approach

Discussion on similar studies, practical implementation and circular business concepts by using the “fishbowl” method moderated by Florian Part.

 **LUNCH BREAK / 12:30 - 15:30**

TUESDAY OCTOBER 14

11:00 - 12:30

DAY 2

SESSION G04 / ITALIAN SESSION / PINETA HALL

WORKSHOP - GESTIONE SOSTENIBILE DEI RIFIUTI CONTENENTI AMIANTO: STATO DELL'ARTE E PROSPETTIVE

Chair: Raffaello Cossu (IT)

L'Istituto Superiore di Sanità stima che circa 16.000 persone siano morte in Italia, tra il 2010 e il 2020, per esposizione a manufatti contenenti amianto mai rimossi – presenti ancora oggi in abitazioni, scuole, ospedali e altri edifici. Ma come gestire i rifiuti che la rimozione inevitabilmente crea? Molte regioni italiane sono in grande ritardo nell'affrontare il problema, trasferendo i rifiuti contenenti amianto (RCA) presso altre regioni o all'estero. E questo anche per forti resistenze locali a realizzare impianti di interrimento.

Il workshop affronta le principali criticità legate a questa problematica e vuole fornire un aggiornamento sullo stato dell'arte delle tecnologie disponibili, sui rischi ambientali ad esse collegati, sulle pratiche di gestione più efficaci e sulle prospettive di innovazione, anche in ottica di economia circolare.

ACTIVE LAB 04 / FOYER CONGRESS CENTER

BIODEGRADABLE JUTE CELLULOSE-BASED SANITARY PADS FOR SUSTAINABLE MENSTRUAL HYGIENE MANAGEMENT - PART 2

Organised by: Mubarak Ahmad Khan, Echocells Research Lab, Echotex Limited (BD)

Continue from the previous session

Part 2 will present clinical evaluation results from trials led by Icdrr,b, assessing comfort, safety, and user acceptability. An overview of the manufacturing process will highlight the scalable, cost-effective techniques for mass production using existing textile infrastructure. In the hands-on Interactive Design Lab, participants will examine materials, co-develop application models, and explore use-case adaptations.

The session concludes with an open discussion on user feedback, challenges in adoption, policy implications, and global replication potential.

This lab fosters interdisciplinary collaboration among environmental scientists, material engineers, healthcare professionals, and policymakers—paving the way for impactful deployment in under-resourced communities globally.

LAB



LUNCH BREAK / 12:30 - 15:30

TUESDAY OCTOBER 14

15:30 - 17:00

FOCUS SESSION I / CENTRAL HALL

AI IN WASTE MANAGEMENT: CURSE OR BLESSING?

Moderator: Hua Zhang, Tongji University (CN)

Panelists:

- Rainer Stegmann, *Hamburg University of Technology (DE)*
- Dezhen Chen, *Tongji University (CN)*
- Giuseppe Bonifazi, *Sapienza University of Rome (IT)*
- Shivank Rai, *Amazon (US)*
- Mr. AI Robot

Artificial Intelligence holds transformative potential across various sectors, and waste management is no exception. By leveraging machine learning, computer vision, and data analytics, AI can optimize operations, enhance recycling efficiency, and reduce environmental impact.

However, its successful implementation depends on key pre-conditions: robust data infrastructure, stakeholder collaboration, and regulatory support. While AI offers promising solutions—from smart collection routes to automated sorting and pollution monitoring—it also faces limits, including high initial costs, algorithmic biases, and technical scalability.

This session will explore whether AI is a curse or a blessing for waste management, featuring insights on its general principles, practical applications, and ethical considerations.



Hua Zhang is a professor of College of Environmental Science and Engineering at Tongji University. She got her PhD degree in Environmental Engineering from Tongji University and worked as Post-doc for one year in North Carolina State University, United States.

Her research mainly focuses on intelligent identification, thermal treatment and beneficial utilization of solid waste. As a PI, she has been responsible for several R&D projects supported by central government. She has published more than 200 papers in peer reviewed journals such as "Environmental Science & Technology", "Water Research" and "Journal of Hazardous Materials", etc.

She is an associate editor of "Journal of the Air & Waste Management Association", managing editor of "Waste Management" and guest editor of its special issue "Artificial Intelligence/Machine Learning in Waste Management", and member of Youth editorial board for "Carbon Research" and "Biochar".

TUESDAY OCTOBER 14

17:30 - 19:00

SESSION A05 / CENTRAL HALL

CIRCULAR ECONOMY STRATEGIES FOR MUNICIPAL WASTE

Chair: Thomas H. Christensen (DK)

R. Kakatkar, M. Soliman, R. Fiorio, K. Ragaert (NL)

From recyclates to products: a holistic cost perspective for circular product development

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

Temporary Material Hubs - An innovative concept to foster Circular Economy

J. Singh (SE)

Implications of transitioning to a sustainable circular (bio)economy for managing municipal solid organic waste in the contexts of the West and the East

P. Beigl, R. Ottner (AT)

How much is (still) in it? Realistically recoverable materials from municipal solid waste in Austria

Z. Li, C. Dang, D. Liu (CN)

Innovation in the path of cleaner production audit mechanism from the perspective of circular economy

M. Di Trani (IT)

Circular Economy and Sustainable Finance: ESG Funds as a tool of policy & transition

SESSION B05 / CENTRAL HALL 2

PFAS IN WASTEWATER AND SLUDGE

Chair: Jurate Kumpiene (SE)

M. Johansson (SE)

Legal approaches to forever chemicals: comparing PFAS frameworks in the EU & US

J. Kumpiene, S. Hazrati, J.N. Uwayezu, I. Carabante (SE)

PFAS in society: opportunities for a safer circulation of nutrient-rich sludge in Luleå, Sweden

T. Rashwan, F. Khodaparastan, D. Payne, S. Barthaud-Newman, G. Howell, F. Fredriksson, L. Yeung, I. Travar, A. Kihl, J. Brown, L. Kinsman, D. Liefel, G. Grant (GB)

Applied smouldering to destroy PFAS and recover phosphorous from sewage sludge

K. Löfstrand, J. Berg (SE)

Advanced removal of PFAS from complex water streams using the SELPAXT SAMF-based technology

G.S. Soomro, E. Conterposito, E. Longo, M. Lo Scalzo, M. Ferretti, A. Zenone, E. Boccaleri, S. Aprile, V. Gianotti (IT)

Tackling PFAS in landfill leachate: electrocoagulation as an innovative and sustainable treatment solution

K. Altuntas, T. Akca, A.D. Altinay, S. Korkut, A. Uzunoğlu, M.E. Pasaoglu, V. Vatanpour, I. Koyuncu (TR)

Innovative functionalized PAN-derived carbon nanofiber membranes for PFAS removal from aqueous solutions

TUESDAY OCTOBER 14

17:30 - 19:00

DAY 2

SESSION C05/ PANORAMA HALL

THERMAL TREATMENT OF PLASTIC WASTE

Chair:

V.E. Messerle, A.B. Ustimenko, O.A. Lavrichshev (KZ)

Thermal plasma treatment of plastic waste: thermodynamic analysis and experiment

G. Calì, A. Pettinau, D. Battaglia, V. Arconati, C. Boccia, E. Parrillo, F. Ardolino, U. Arena (IT)

Design and operating criteria of a large-scale steam-oxygen fluidized bed gasifier for mixed plastic waste

K. Santin, J. Alvarez, M. Artetxe, M. Amutio, G. Lopez, M. Olazar (ES)

Conversion of waste plastics into value products by fast pyrolysis and in-line catalytic cracking

H. Tang, D. Chen, Y. Feng (CN)

Producing Sustainable Aviation Fuel (SAF) from Waste Polyolefin Plastics through catalytic pyrolysis

SESSION D05 / PANORAMA HALL 2

SORTING PROCESSES

Chair:

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

Plastic sorting strategies for a sustainable recycling

C. Maurer, S. Sasse, E. Bronner, D. Vollprecht (DE)

Investigations on different separation processes for a material-specific recycling of resin-bonded grinding tool

M. Bredács, J. Geier, C. Barretta, M. Messiha, G. Oreski, G. Koinig, Sz. Gergely (AT)

Employing chemometrics and data science in mechanical waste sorting to facilitate circular use of polymer materials

M. Garczynska, C. Ciotti (IT)

Detection and separation of End-of-Waste PVC cables containing lead, MCCPs and DEHP

J. Geier, C. Barretta, M. Messiha, M. Bredács, F. Arbeiter, E. Helfer, L. Meinhart, G. Koinig, G. Oreski (AT)

Detection of degraded polyethylene using near-infrared hyperspectral imaging

TUESDAY OCTOBER 14

17:30 - 19:00

SESSION E05 / EX CHIESA HALL

AI AND DIGITAL SOLUTIONS FOR OPTIMIZING FOOD WASTE MANAGEMENT

Chair: Hua Zhang (CN)

E.G. Sigala, P. Gerwin, C. Chroni, K. Abeliotis, C. Strotmann, K. Lasaridi (GR)

AI-based waste-tracking interventions for reducing food waste in the HORECA sector: evidence from a large-scale implementation study

M.T. Yu, C. Cicatiello, C. Comis, L. Principato, L. Secondi (IT)

AI and food sharing: revolutionizing food waste tracking and mitigation

E.G. Sigala, S. Fortatos, K. Boikou, K. Synani, C. Chroni, K. Abeliotis, K. Lasaridi (GR)

From granular to country-level food waste data: the use of the electronic food waste registry in Greece

D. Leverenz (DK)

How smart are digital waste management solutions? Understanding measurement biases in food waste tracking systems and their implications for waste reduction strategies

SESSION F05 / BALDACCHINO HALL

WORKSHOP - WASTE TO HYDROGEN: STATE OF ART AND PERSPECTIVES

Chair: Isabella Pecorini (IT)

Introductory lectures:

R. Kingsley Padi, V. González-Mallén, Á. Martínez, K. Maran, M. Brandão, E. Sánchez, M. Junginger (AT)

From biowaste to hydrogen and hydrogen-based fuels: European case studies and environmental impact assessment

M. Materazzi (GB)

Waste gasification for hydrogen and chemicals production: barriers and research needs identified from real plants operation in UK

L. Zou, L. Ma, G. Wei, R. Guo (CN)

Hydrogen production performance and reaction kinetics of biomass gasification enhanced by waste carbide slag

TUESDAY OCTOBER 14

17:30 - 19:00

DAY 2

SESSION G05 / PINETA HALL

WORKSHOP - BEST PRACTICES FOR OPTIMIZING LANDFILL BIOGAS MANAGEMENT

Chair: David Agudelo-Romero (FR)

The session will focus on best-in-class landfill gas (LFG) management practices, innovative monitoring and mitigation technologies, and policy frameworks to support landfill biomethane as a key contributor to the energy transition.

While the EU pushes for a 10% cap on landfilling municipal waste by 2035, remaining landfills still pose a significant methane risk. By adopting high-efficiency gas capture and valorization strategies, emissions could be halved while increasing biomethane production by up to 26%—a critical contribution to the RepowerEU target of 35 bcm of biomethane by 2030.

The session will focus on three themes:

- Best-in-class landfill gas valorization techniques and case studies from industry leaders.
- Advanced emissions mitigation via oxidation layers and capture optimization.
- Policy & regulatory tools enabling integration of landfill-derived biomethane into national energy strategies.

AGENDA

Introduction & Framing

Contextual overview of landfill methane, EU policy, and role in the energy transition

Expert Presentations

Antoine Lair - Veolia Environment (FR), Odile Oberti - SUEZ (FR), Giulia Barina - Waga Energy (FR)

Joint Industry Findings: Best practices for optimized gas collection and valorization

Alexander Cabral - University of Sherbrooke (CA)

Scientific Innovation: Methane oxidation layers and emissions mitigation

Policy & Planning: Regulatory frameworks to scale landfill biomethane integration

Roundtable Discussion

Speakers share experience-driven lessons, challenges, and opportunities. Audience participation encouraged.

Q&A + Closing

TUESDAY OCTOBER 14

SOCIAL EVENT

SARDINIAN DINNER & FOLK GROUP / CENA SARDA & GRUPPO FOLK

Corte Noa Restaurant, h. 20:30

An authentic experience in the heart of Sardinia: taste, tradition, and folklore come together for an unforgettable evening at Corte Noa, a charming traditional "casa campidanese" surrounded by nature, just a few minutes from the Forte Village Resort.

The evening will begin with an aperitif served in the olive grove, followed by dinner in the courtyard on natural wooden tables, set in a rustic and welcoming style. A truly unique setting to experience Sardinian culture and hospitality, enriched by the performance of a traditional folk group featuring music and dance.

Menu:

- Aperitif buffet in the olive grove: Alcoholic and non-alcoholic cocktails / Vermentino di Gallura, soft drinks / Civraxu crostini with Mediterranean sauce and Fonni lard / Spianata del Campidano / Freshly carved local cured ham
- Starters served at the table: Bresaola with goat cheese / Selection of local cold cuts / Platter of Sardinian cheeses / Pane guttiau (crispy flatbread) / Olives from Dolianova / Pecorino with olive oil / Shepherd's rustic pastry / Hand-cut local prosciutto / Fried seasonal vegetables in a light batter
- First Courses: Culurgiones from Ogliastra with tomato and pecorino sauce / Sardinian fregola with a vegetarian sauce made of fresh basil, walnuts, and smoked ricotta (ricotta mustia)
- Main Courses: Traditional Sardinian mixed grill, cooked live / Lamb stew in Campidanese style / Rustic roasted potatoes
- Dessert: Amaretto semifreddo
- Beverages: Mineral water / House red wine (1/3 L per person) / Mirto di Sardegna and Filu 'e Ferru / Coffee

Bus transportation included, organized by the Symposium Secretariat.

Limited availability! Reservation is mandatory by Monday, October 13.

Cost: €95 + VAT (22%) per person, including dinner and transportation.

Departure from the entrance of the Forte Village Resort!

Please check the bulletin board



DAY 3 / WEDNESDAY
OCTOBER 15

WEDNESDAY OCTOBER 15

9:00 - 10:30

SESSION A06 / CENTRAL HALL

WEEE MANAGEMENT STRATEGIES

Chair: Cristina Trois (ZA)

S. Salhofer, S. Soudachanh (AT)

What is state-of-the art in reuse und repair of electronics? An analysis of the sector in Austria and Europe

S. Christaller, S.I. Olsen, R. Gabbay de Souza (DK)

Sustainable pathways for reducing electronic waste: ecodesign, design for repair, and repair strategies for extended product lifecycles

G.D. Pivari, A. Giacomelli, L. Mascheretti, V. Corbellini (IT)

Overcoming systemic barriers in WEEE end-of-life management for the recovery of REE permanent magnets

L. Natale, S. Rovetta, F. Masulli, M. Mohsin (IT)

The VALOR Project - VALORization of the reuse and treatment of waste electrical and electronic equipment

SESSION B06 / CENTRAL HALL 2

COMPOSTING: ENHANCEMENT OF PROCESS AND COMPOST QUALITY

Chair: Katia Lasaridi (GR)

B. Ceh, A. Karnicnik Klancnik (SI)

The influence of on-farm composting practices on the quality of the final product

F. Paillet, E. Crestey, A. Bejani, L. Bourdie, P. Camacho (FR)

Impact of composted substrate types on composting dynamics (sludge and food waste) and the effect of biochar addition on associated greenhouse gas emissions

Y. He, J. Maqinia, D. Sobotka, L. Xie (CN)

Redox-mediated organic matter transformation and microbial mechanisms in ZVI-amended aerobic composting under different aeration strategies

C. Zafiu, E. Binner (AT)

Impact of different screening technologies on the separation of plastic, metal and glass impurities from composts

L. Marchand, F. Baptist, A. Bonin, E. Bellemain, M. Louzon, E. Oppeneau (FR)

Estimating urban degraded soil health basing on chemistry, ecotoxicology and ecology indicators - An alternative to the TRIADE approach

 **COFFEE BREAK / 10:30 - 11:00**

WEDNESDAY OCTOBER 15

9:00 - 10:30

DAY 3

SESSION C06 / PANORAMA HALL

FATE OF BIOPLASTICS IN BIOTREATMENT OF WASTE

Chair: Raffaello Cossu (IT)

A.N. Srivastava, M.K. Manu, J.W.C. Wong (IN)

Validating bioplastic paradox: inhibitor or promoter in food waste anaerobic digestion?

R. Chu, C.M. Chan, W.P. Clarke, P.D. Jensen (AU)

Evaluating how blend ratios impact the degradation behaviour of bioplastics and the implications for treatment using typical anaerobic digestion infrastructure

K. Iwamoto, K. Ishii, G. Ham, S. Ochiai, J. Al-Mallahi (JP)

Estimation of environmental impacts of increased bioplastic packaging considering waste management options in the world

SESSION D06 / PANORAMA HALL 2

AFTERCARE LANDFILL BEHAVIOUR

Chair: Rainer Stegmann (DE)

C.R. Cruz Osorio, S. Buima-Yi, H. Lammen (NL)

Towards sustainable landfill aftercare: leachate quality trends after 7.5 years of aeration at Wieringermeer Landfill, The Netherlands

P. Bonilla, P. Kjeldsen, L. Fjelsted, J.E. Larsen, A.G. Christensen, R.R. Møller, C. Scheutz (DK)

Landfill aeration for reducing the aftercare period at AV Miljø Landfill, Denmark – Results of two years of aeration

J. Gebert, N. Meza, S. Yi, T. Kanen, H. Lammen (NL)

Highlighting mechanisms that delay meeting aftercare completion criteria for nitrogen

 COFFEE BREAK / 10:30 - 11:00

WEDNESDAY OCTOBER 15

9:00 - 10:30

SESSION E06 / EX CHIESA HALL

CIRCULAR ECONOMY STRATEGIES: CASE STUDIES

Chair: Walid Saad (LB)

E. Carpio-Vallejo, J. Barbir, M. Fedoruk, F. Jose, A. Dobri (DE)

The BioRADAR's Implementation Scorecard: empowering small and medium enterprises into a sustainable and circular bioeconomy transition

A. Comolatti, T. Trentinella (BR)

Barcodes for Recycling! How Brazilian e-tax invoice system may boost EPR implementation

Z. Peng, W. Lu, L. Yuan, J. Ma (HK)

Social networks and small alliances in the construction waste hauling sector: empirical evidence from Hong Kong

L. Demarré, C. Masselis, K. Vanderwee, V. Duprez, S. Malfait, J. Dewulf, P. De Waegemaeker, N. Fraeyman, S. Huysveld (BE)

Rethinking medical Waste: the environmental potential of reusable pill cups based on a comparative Life Cycle Assessment in a Belgian hospital

K. Vanderwee, L. Demarré, V. Duprez, E. Kieckens, S. Malfait, N. Fraeyman (BE)

Beyond the bin: weaving a circular economy into healthcare with reusable medical materials

SESSION F06 / BALDACCHINO HALL

WORKSHOP - WASTE MANAGEMENT ISSUES IN DEVELOPING COUNTRIES

Chair: Jutta Gutberlet (CA)

M. Patel (ZA)

Neglect around the management of Naturally Occurring Radioactive Material (NORM) residues in South Africa

A.F. Muhamad, R. Tajima (JP)

Spatiotemporal analysis of river waste accumulation in Jakarta, Indonesia: insights from time series mapping of river waste traps

E. Sembiring, M. Munthali (ID)

Cost of no action and in action, examining the relationship between waste management and flood event

E. Sembiring, T. Adiono, A.D. Sakti, A.H. Ramadan, M.F. Maulana, F. Alfi, A.R. Dangku, T.A. Husein (ID)

Multi-scale monitoring of riverine plastic pollution in Indonesia using UAVs, AI, and satellite remote sensing

 **COFFEE BREAK / 10:30 - 11:00**

WEDNESDAY OCTOBER 15

9:00 - 10:30

DAY 3

SESSION G06 / PINETA HALL

WORKSHOP - LOW TEMPERATURE THERMAL TECHNOLOGIES - STATE OF ART AND PERSPECTIVES

Chair: Lidia Lombardi (IT)

F. Rizkianto, F. Mulya Iresha, T. Ishigaki, M. Yamada (JP)

Optimizing the torrefaction of organic residues from municipal solid waste streams in Indonesia

R. Gorji, R. Bhowmick, K. Kirtania, L. Carvalho (SE)

Using hydrothermal carbonization from horse manure to improve soil fertility: findings from pot experiments

ACTIVE LAB 06 / FOYER CONGRESS CENTER

AI FOR FOOD WASTE MONITORING SYSTEMS

Organised by: Mengting Yu, Luca Secondi, University of Tuscia (IT)

This active lab is designed as an extension to the oral presentation "AI and Food Sharing: Revolutionizing Food Waste Tracking and Mitigation" (Session E05), which leverages AI and computer vision technologies to automate the precise quantification and identification of food waste in real-life cases. The lab will demonstrate the application of AI-powered food waste identification and quantification. Moreover, each participant can expect to gain practical knowledge about how to build a simple food waste tracking and monitoring system. We will provide a few hardware sets for testing, open-source AI models, and programming codes. Through this active lab, we expect participants to become more familiar with AI and computer vision technologies that can be used to identify and quantify food waste at the consumer level.

The activities that will be carried out in this active lab are:

- **Pre-lab:** All confirmed participants will be requested to contribute to the data collection of this lab. We will communicate with each participant to submit some food (leftover) images and the respective measured weight by email. Those images will be merged with the existing database and will be used for AI applications and data analysis during the lab.
- **Presentation:** A short presentation will cover the topics of consumer food waste, food waste quantification and composition, and digital innovations for food waste monitoring (e.g. AI technologies).
- **Training:** We will deliver a full training on how to build a food waste tracking and monitoring system with AI and computer vision technologies. Participants will work in small groups and be provided with a set of hardware, and they will learn how to use Python to program the automatic monitoring system.
- **Analysis:** All participants will use Excel, Python, or R Studio to carry out statistical analysis on the data elaborated during the workshop, evaluating the accuracy of the automatic monitoring system. Furthermore, there will be an open discussion on the potential to train or fine-tune an AI system on collected data to improve the weight estimation accuracy.

LAB

WEDNESDAY OCTOBER 15

11:00 - 12:30

SESSION A07 / CENTRAL HALL

TREATMENT OF WEEE

Chair:

J.K. Jayaraj, R. Jamai, J. De Tommaso, J. Bouffard, F. Galli (CA)

Hydrothermal treatment of electronic waste as an alternative to oxidative elimination of plastics

R.K. Benmammar, Z. Boubarka, C. Malas, V. Mundlapati, A. Barrera, J.-N. Staelens, Y. Carpentier, M. Ziskind, C. Focsa, P. Supiot, C. Foissac, U. Maschke (FR)

Transforming contaminated plastics from WEEE: innovative irradiation approaches

M. Peer, T. Fehn, A. Hofmann, B. Berninger (DE)

Chemical recycling of PVC-containing plastic waste for LED recycling

L. Wang, B. Zhang (CN)

One-step Gallium extraction from waste GaN via mechanochemically induced oxidation

SESSION B07 / CENTRAL HALL 2

GHG EMISSIONS FROM COMPOSTING

Chair: Florian Paillet (FR)

D. Dankwa, G. Clark, M. Boh (CA)

A modified smart chamber for measuring greenhouse gas emissions from composting

A.M. Fredenslund, P.H. Petersen, G.G. Lemaire, L.A. Klotz, C. Scheutz (DK)

Testing operational parameters' effect on greenhouse gas emissions from composting of garden waste

K. Sobieraj (PL)

Mesophilic vs. thermophilic food waste composting: a carbon monoxide production potential

L.A. Klotz, A.M. Fredenslund, C. Scheutz (DK)

Garden waste composting in Denmark: methane and nitrous oxide emission processes

A.M. Fredenslund, L.A. Klotz, M.E Edjabou, C. Scheutz (DK)

Methane and nitrous oxide emission factors from ten garden waste composting facilities in Denmark

 LUNCH BREAK / 12:30 - 15:30

WEDNESDAY OCTOBER 15

11:00 - 12:30

DAY 3

SESSION C07 / PANORAMA HALL

SINGLE-USE PLASTICS CONTROL

Chair: Bettina Hauge (DK)

K. Houssini, J. Li, Q. Tan (CN)

A harmonized footprint benchmark to enhance sustainability of plastics along the supply chain

H. Yamakawa (JP)

Bulk food purchasing in Japan: changes in consumer behavior over the past decade and current policy impacts

A. Dobri, E. Carpio-Vallejo, J. Gäbken, B. Lopez, P. Lyshtva, Y. Kobets, V. Voronova, J. Barbir (DE)

The BALTIPLAST inventory tool: evaluating effective methods for reducing single-use plastic consumption and carbon footprint in companies across the Baltic Sea region

L. Kanarbik, H. Moora (EE)

How local policies can accelerate the shift to a reuse economy – The case of Tallinn City

G. Obersteiner, M. Kraml, S. Lenz, A. Noichl, R. Ottner, E. Schmied (AT)

Plastic Pirates Austria – Citizen science for the analysis of plastic littering

SESSION D07 / PANORAMA HALL 2

CO₂ EMISSIONS ACCOUNTING AND REDUCTION IN INCINERATION PLANTS

Chair: Marco Schiavon (IT)

L. Acampora, G. Costa, S. Malvezzi, B. Papa, C. Mensi (IT)

Estimating the CO₂ emission factors for a Waste-to-Energy plant based on flue gas data and waste stream composition

H. Zhang, Y.F. Ma, P.J. He, F. Lü (CN)

Improving carbon emission accounting for waste incineration

T.H. Christensen (DK)

The future role of waste incineration in providing CO₂ for Power-to-X

D. Joshi, R.M. Sebastian, B.J. Alappat (IN)

A composite index for predicting performance of municipal solid waste incineration systems

 LUNCH BREAK / 12:30 - 15:30

WEDNESDAY OCTOBER 15

11:00 - 12:30

SESSION E07 / EX CHIESA HALL

MANAGEMENT AND FATE OF EXISTING LANDFILLS

Chair: Raffaello Cossu (IT)

M. Ritzkowski, K.-U. Heyer, P. Benkus (DE)

State of the art of waste disposal in landfills in Germany and its contribution to climate protection

N. Proietti, G. Tasse (IS)

A journey into landfill digitalization and prospects for the future

R. Gregory, S. Davies, M. Holden, M. Moran (GB)

40 years after Loscoe, landfills have changed. Can we still predict their behaviour?

P.P. Virtanen, E. Immonen, R. Lautkankare (FI)

ScaTES - Scalable Thermal Energy Storage at landfill constructed from mineral waste materials

T. Sperling, L. Novy, I. Wiebenga (CA)

Hartland landfill lateral expansion - Providing capacity to 2100

SESSION F07 / BALDACCHINO HALL

WORKSHOP - BIOGENIC WASTE IN THE CIRCULAR BIOECONOMY - POTENTIALS AND BARRIERS

Chair: Christian Zafiu (AT)

Biogenic waste represents the largest fraction of municipal solid waste that should be separately collected and used to produce biogas or compost. Composts can be used as a sustainable fertilizer and soil conditioner respectively. However, impurities reduce the quality of composts and must be avoided as much as possible to avoid meet quality criteria of composts and to avoid the contamination in agriculture. [Full appetizer available on the website and app.](#)

Introductory lectures:

Stefan Salhofer (AT)

Introduction: Biogenic waste in the circular bioeconomy – Potentials and Barriers

Peter Beigl (AT)

Impurities content and composition in biogenic waste – influencing factors based on extensive, standardized biowaste sorting campaigns in Austria

Victor Gonzalez Mallen (AT)

Composting technologies for biowaste recycling: advantages and disadvantages in the context of (micro)plastic pollution

Christian Zafiu (AT)

Contaminants in biowaste and composts

Discussion on Potentials to increase valorisation, improve quality and reduce emissions from biowaste

LUNCH BREAK / 12:30 - 15:30

WEDNESDAY OCTOBER 15

11:00 - 12:30

DAY 3

SESSION G07 / PINETA HALL

WORKSHOP - EFFICIENCY OF WM POLICIES IN UNIVERSITIES

Chair: Eleonora Perotto, Maria Cristina Lavagnolo, Giovanni De Feo (IT)

Promoted by RUS, the Network of Universities for Sustainable Development, the workshop aims to provide a forum for discussion on university policies for the efficient management of waste, including strategies for preventing its generation, with particular emphasis on student engagement.

We invite colleagues from both Italian and international universities to join the discussion, in order to assess the effectiveness of the policies implemented in our institutions and to gain valuable insights from the contributions of the students participating in the session. Anyone who would like to contribute by presenting the initiatives carried out at their university regarding waste separation is welcome to contact mariacristina.lavagnolo@unipd.it

The Italian Network of Universities for Sustainable Development (RUS) mark the first experience of information sharing and coordination among all Italian Universities committed to the topic of environmental sustainability and social responsibility. The main goal of RUS is to spread the culture of sustainability, both within and outside Universities, by sharing skills and experiences. The aim is to increase the positive impact in terms of environmental, ethical, social and economic actions, which are currently implemented by each university, in order to contribute to the achievement of the SDGs and to strengthen the value of the Italian experience on an International level.



ACTIVE LAB 07 / FOYER CONGRESS CENTER

AI FOR FOOD WASTE MONITORING SYSTEMS (PART 2)

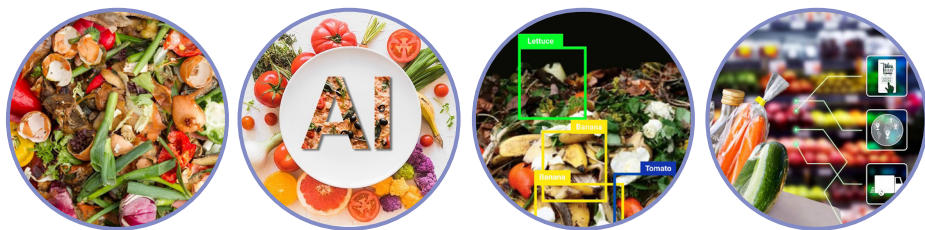
Organised by:

Mengting Yu, University of Tuscia (IT)

Luca Secondi, University of Tuscia (IT)

Continue from the previous session

LAB



 LUNCH BREAK / 12:30 - 15:30

WEDNESDAY OCTOBER 15

15:30 - 17:00

FOCUS SESSION II / CENTRAL HALL

THE FUTURE OF LANDFILLS: SUSTAINABLE STRATEGIES, EU DIRECTIVES, AND LONG-TERM ROLES

Moderator: Raffaello Cossu (IT)

Panelists:

- Marion Huber-Humer, *University of Natural Resources and Life Sciences, BOKU-University (AT)*
- Robert Gregory, *Gregory Environmental Consulting Ltd (GR)*
- Marco Ritzkowski, *Technical University of Hamburg (DE)*

In recent years, the role of landfills has undergone a profound reassessment, driven by an increasingly stringent European regulatory framework, the need to mitigate environmental impacts, and the transition towards circular economy models.

Once considered merely a residual solution within waste management systems, landfills are now at the center of a technical and scientific debate that is redefining their function, configuration, and future role.

In particular, three strategic directions are emerging:

- The integration of sustainable approaches, aimed at minimizing leachate production, promoting energy recovery, and stabilizing waste;
- Alignment with EU directives, which call for a progressive reduction in landfill disposal and a greater emphasis on material recovery;
- The definition of a long-term role for engineered landfills, including perspectives such as landfill mining, advanced environmental monitoring, and post-operational management.

Alongside these aspects, a new vision is taking shape: the landfill as a sink, a stable geological deposit, designed to safely and permanently contain residual waste streams that are no longer recoverable. In this sense, the landfill becomes a technical component essential to closing the material loop, contributing to environmental stability and to the overall sustainability of the waste management system.

This focus session aims to provide an updated and interdisciplinary overview of the topic, bringing together scientific research, project-based experiences, and regulatory reflections.

The goal is to discuss tools, methodologies, and scenarios for an evolved governance of landfills, aligned with European environmental policies and the principles of technical, economic, and environmental sustainability.

WEDNESDAY OCTOBER 15

15:30 - 17:00

DAY 3



Raffaello Cossu is acknowledged worldwide as a pioneer in the field of waste management

He is Emeritus Professor of Environmental Engineering at the University of Padova (IT). He is Chairman of "Sardinia" International Symposia on Waste Management and Sustainable Landfilling, and "Venice" International Symposium on Biomass and Waste to Energy. He carried out intensive scientific research on landfilling and designed more than 20 landfills in Italy and abroad. President of IWWG (International Waste Working Group) from 2004 to 2009. From 2009 to 2017 he was Editor in Chief of Waste Management, the international scientific journal published by Elsevier. Since 2018 he is Editor in Chief of DETRITUS, the new IWWG multidisciplinary journal for Waste Resources and Residues.

In 2017 he was recipient of the IWWG "A Life for Waste" Award. He has given a series of talks and presentations in conferences on Waste Management and Landfilling throughout the world. He has authored more than 200 articles and conference papers and co-edited five international books on waste management and landfilling technology, published by Academic Press, Elsevier, EF and Spon.

FOCUS

WEDNESDAY OCTOBER 15

17:30 - 19:00

SESSION A08 / CENTRAL HALL

RECYCLING OF LITHIUM BATTERIES

Chair: Ricardo Gabbay De Souza (DK)

A. Barrera, C. Binet, I. Benabela, P. Supiot, C. Foissac, U. Maschke (FR)

Development of gel polymer electrolytes using ultraviolet radiation for the eco-friendly design of Li-ion batteries

B. Zhang, L. Wang, C. Zeng (CN)

An Eco-Efficient Sulfidation Shock Strategy for Sustainable Recycling of Spent Lithium-Ion Batteries

C. Zeng, L. Wang, B. Zhang, J. Li (CN)

Synergistic recycling of spent LiFePO_4 batteries using chromium-plating wastewater: a self-driven approach for selective leaching and dual waste valorization

C. Rutkowski, T. Nigl, R. Pomberger (AT)

Revealing inconsistencies: does the lithium-ion battery recycling require unified analytical approaches?

SESSION B08 / CENTRAL HALL 2

ANAEROBIC DIGESTION: ADDITIVES FOR PROCESS ENHANCEMENT

Chair: Jonathan Wong (CN)

A. Montusiewicz, M. Bis, M. Zdeb, R. Panek, S. Pasieczna-Patkowska (PL)

Synthetic zeolites as additives enhancing the thermophilic co-digestion efficiency of sewage sludge and acid whey

M. Bis, M. Zdeb, A. Montusiewicz, E. Wołejko, U. Wydro (PL)

Influence of synthetic zeolites on variability of micro-/macro-elements and enzymatic activity in thermophilic co-digestion of sewage sludge and acid whey

A. Siedlecka, H. Khalid, M. Kozłowski, K. Kosiorowska, T. Strzała, K. Marycz, A. Białowiec (PL)

Impact of hydrochar and activated carbon on methane yield and microbial dynamics during anaerobic digestion - Preliminary results

H. Khalid, M. Kozłowski, A. Siedlecka, K. Kosiorowski, K. Swiechowski, K. Sobieraj, A. Białowiec, T. Strzała, K. Marycz (PL)

Effect of biochar pyrolysis temperature and residence time on anaerobic digestion performance: evidence from gene expression analysis

WEDNESDAY OCTOBER 15

17:30 - 19:00

DAY 3

SESSION C08 / PANORAMA HALL

CONTAMINATION AND ENVIRONMENTAL RISKS IN LANDFILL-ING

Chair: *Stuart Dever (AU)*

G. Thrupp, J. Lottig (US)

air injection barrier to mitigate migration of soil vapor with volatile organic compounds at an industrial waste landfill

R. Hawley (US)

Reducing large H₂S emissions from construction and demolition waste landfills

R. Beaven, T. Rees-White, A Stringfellow, L. Duarte Campos, H Lammen, J. Gebert (GB)

Preliminary results of a large-scale tracer test to determine contaminant transport properties through landfill

L. Strachan, H. Robinson (NZ)

On-site treatment of landfill leachate in New Zealand: a BPO adapted to regulation and public requirements

X. Fei, X. Pi, Y. Wang (SG)

Modeling long-term environmental risks of coastal dumpsites and offshore landfills under climate change

L. Ferraz Aquino, C. Ferreira Mannarino, E. Mendes Saggioro, E. Ritter (BR)

Environmental assessment of closed dump site in the rural area of Rio de Janeiro: case study and analysis of groundwater and surface water

SESSION D08 / PANORAMA HALL 2

COST-EFFECTIVE TECHNOLOGIES FOR WASTEWATER TREATMENT

Chair: *Valentina Grossule (IT)*

H. Velten, F. Brück, U. Theilen (DE)

Impact of a novel mixing system on the biogas yield of a lab-scale anaerobic pond

M. Henjak, V. Grossule (IT)

Design framework of LarWaR process for treatment of WW using BSF larvae

V. Grossule, M. Henjak, R. Cossu (IT)

Innovative treatment and resource recovery from food processing wastewaters: the LarWaR process

S. Kilian, K. Paweska (PL)

Efficiency of floating treatment wetlands planted with *Iris pseudacorus* and *Glyceria maxima*

WEDNESDAY OCTOBER 15

17:30 - 19:00

SESSION E08 / EX CHIESA HALL

CIRCULAR ECONOMY STRATEGIES IN DEVELOPING COUNTRIES

Chair: Maria Cristina Lavagnolo (IT)

J. Gutberlet (CA)

Advancing climate action and social change through the University for and with waste pickers

B. Rahardyan, E.R. Anggraini (ID)

Material flow analysis of used beverages cartons (UBC) - A case study from Bekasi City, West Java

A. Elnaas, A. Nassour, R. Shahrabi (DE)

Enhancing financial sustainability of solid waste management systems in the MENA region with a focus on mechanical biological treatment facilities

S. Soudachanh, S. Salhofer (AT)

Circular strategies for smartphones: a case study from Vientiane Capital, Laos

SESSION F08 / BALDACCHINO HALL

WORKSHOP - HOW TO ACHIEVE CLIMATE NEUTRALITY IN LANDFILLING

Chair: Marco Ritzkowski (DE)

Landfills are major contributors of greenhouse gas (GHG) emissions. Diffuse emissions of methane gases are making a contribution to climate change. Moreover, waste handling (collection, transport, placement and compaction) and operation of the equipment for gas and leachate collection and treatment are causing further GHG emissions, whereas further indirect emissions are caused by the transport of construction materials.

Full appetizer available on the website and symposium app.

Introductory lectures:

M. Ritzkowski (DE)

Demonstration of possibilities for GHG emissions reduction in connection with landfills

R. Stegmann (DE)

Examples of specific GHG emission reductions, both direct and indirect, during the landfill lifetime

Discussion (main topics):

- Climate neutrality in landfilling: What are the main requirements and what are the biggest challenges?
- Could a new IWWG TG on "Climate neutrality in landfilling" come up with a substantial contribution and eventually contribute towards the ongoing regulatory process on European level?

WEDNESDAY OCTOBER 15

17:30 - 19:00

DAY 3

SESSION G08 / PINETA HALL

WORKSHOP - COMMUNICATION

Chair: Giovanni De Feo (IT)

Introductory lectures:

M. Struk (CZ)

Communication strategies and municipal waste management performance

D. Gamble, S. Mason-Jones, R. Cavallo, L. Xuereb (AU)

Navigating the social media maze: overcoming challenges to waste infrastructure approvals in the online world

ACTIVE LAB 08 / ITALIAN SESSION / FOYER CONGRESS CENTER

(DIS)FARE IMPRESA: PRESENTAZIONE DEL LIBRO E OMAGGIO COPIA

Organizzato da: Alessia Bertolotto, Marcopolo Environmental Group

"(Dis)Fare Impresa" è il nuovo libro di Alessia Bertolotto, figlia di Antonio Bertolotto e Noris Bodino, fondatori di Marcopolo Environmental Group. Il libro narra la storia della Marcopolo Environmental Group, una solida e innovativa impresa italiana che ha saputo eccellere nel settore della messa in sicurezza delle discariche mediante la captazione, depurazione e distruzione del biogas nocivo ivi prodotto e nella produzione di energia elettrica verde anche dal ciclo chiuso della trasformazione delle zoo-agro-biomasse. Un viaggio che esplora le difficoltà, le ingiustizie e i momenti di grande resilienza, ma anche le sorprese e la provvidenza che, spesso, intervengono nei momenti di difficoltà e crisi. Il percorso della Marcopolo è costellato da alti e bassi, da azioni nobili e da persone che hanno messo alla prova l'impresa e la loro famiglia.

Viene inoltre trattata in maniera lucida e analitica anche la lotta contro le difficoltà legali e burocratiche, con uno sguardo critico e una riflessione sulle leggi che, talvolta, ostacolano lo sviluppo delle imprese e il progresso economico. Un invito rivolto ai legislatori a rivedere alcune normative che penalizzano il lavoro, soprattutto quello che si impegna nel rispetto dell'ambiente e della sostenibilità. In questo senso, (Dis)Fare impresa non è solo testimonianza di una storia familiare e imprenditoriale, ma un vademecum esistenziale, utile a chiunque si trovi ad affrontare prove in cui integrità e perseveranza fanno la differenza.

Tutti i partecipanti alla presentazione riceveranno una **copia omaggio**.

Il libro, edito da Libreria Santelli, è inoltre disponibile per l'acquisto sul sito ufficiale dell'editore.

LAB

DAY 4 / THURSDAY
OCTOBER 16

THURSDAY OCTOBER 16

9:00 - 10:30

SESSION A09 / CENTRAL HALL

TEXTILE WASTE MANAGEMENT STRATEGIES

Chair: *Andreas Bartl (AT)*

P. Caldarelli, V. Bresci, G. Lucifora (IT): Traccia-TO: a scalable model for improving textile waste collection and citizen engagement in European cities

F.S. Rahaman, M.S. Jahan, Md.L. Rahman, Md.S. Rahaman, M.A. Khan (BD)

Circular Economy for textile industry: a sustainable model for waste reduction

M.S. Rahaman, M.S. Hossen, M.M.R. Khan, S. Arefin, M.A. Khan (BD): Introducing jute caddies and virgin cotton blended yarn in apparel industry: turning waste into valuable product

R. Ronca (IT): Keeping waste close: design and social tailoring labs as agents of relational re-signification in the textile waste sector

MD.A. Rahman, F. Khan, Mst.F. Rahman Zuthi, S.M. Farzin Hasan, E. Kraft, T. Das, N. Das, A. Hoque, S. Kumar Pal (BD): Assessing sustainable waste management strategies for jute as a plastic alternative in Bangladesh: a life cycle assessment perspective on end-of-life scenarios

V. Rossi, H. Logan, A. Damgaard (DK): Recycling potential of separately collected post-consumer textile waste in Denmark

SESSION B09 / CENTRAL HALL 2

ANAEROBIC DIGESTION: STRATEGIES FOR PROCESS OPTIMIZATION

Chair: *Habiba Khalid (PL)*

Z. Zheng, M. Bao, W. Huo, Y. Shao, W. Lu (CN): Quick start of dry anaerobic digestion of kitchen waste using semi-continues horizontal plug-flow system

X. Yan, J.W.C. Wong (CN): Enhanced acidogenic metabolism by the exogenous *Acetivibrio thermocellus* inoculum for biogas production from food waste in two-phase anaerobic system

J.E. Sempijira, E. Van Rensburg, S. Mamphweli, J. Görgens (ZA)

Emerging alternative pre-treatment techniques for anaerobic digestion of lignocellulosic biomass: a review

K. Swiechowski, M.T. Valentin, J. Nowak (PL): The Efficiency of Mono Methane Fermentation Process of Excess Sewage Sludge From Dairies

A. Dell'Orto, C. Trois (ZA): Environmental and techno-economic assessment of combined biohydrogen and biomethane production from municipal organic waste management in South Africa

D. Krahe, K. Stuhler, F. Brück, U. Theilen, H. Weigand (DE): Exploring the effects of rheology and differential pressure on the vacuum extraction of high-viscosity digestates

 **COFFEE BREAK / 10:30 - 11:00**

THURSDAY OCTOBER 16

9:00 - 10:30

DAY 4

SESSION C09 / PANORAMA HALL

AERATED LANDFILLS

Chair: Justin Lottig (US)

J. Huang, Y. Wu, F. Xu, H. Wang (CN)

Impact of landfill site parameters and operational conditions on in-situ aeration of landfills: a numerical modelling study

Y. Wu, F. Xu, H. Wang (CN)

Landfill microbial community and metabolic pathways under different oxygen concentrations

L. Duarte Campos, A. Stringfellow, T. Rees-White, P. Imhoff, J. Gebert, R. Beaven (NL)

Gas tracer tests to identify spatial distribution of air flow throughout a landfill under in situ aeration

J.M. Lampaya (ES)

Autonomous eolic powered aerobic stabilization of ageing landfills - Amoroto full site experience

J. Gebert, C. Andrade, N. Meza, V. Chen, N. Janatian, H. Lammen, H. Kramer, L. Wang, A.-C. Dieudonné, T.J. Heimovaara (NL)

Field evidence of effective waste aeration

SESSION D09 / PANORAMA HALL 2

FLY + BOTTOM ASHES QUALITY TREATMENT

Chair: Hua Zhang (CN)

K.T. Sin, S. Yu, F. Lü, H. Zhang, P. He (CN)

Optimization on the extraction and separation of soluble salts and heavy metals from MSWI fly ash

E. Gorjatsšova, H.M.V. Rui, K.G.V. Sigfridsson Clauss, N. Skoglund, J. Rissler (SE)

Speciation of zinc in fresh and stabilised municipal solid waste incineration fly ash

J. Jegy, K. Sigfridsson Clauss, J. Rissler, A. Strandberg, N. Skoglund (SE)

Chemical and morphological studies of bottom ash particles from co-combustion of barley straw and municipal sewage sludge

S. Heberlein, W.P. Chan, G. Lisak (SG)

Versatility of the high temperature slagging gasification process for treatment of diverse waste streams in a demonstration-scale facility

X. Liu, L. Ma (CN)

Characterization of alkali-inspired fly ash composite colloids to inhibit spontaneous combustion of coal

 **COFFEE BREAK / 10:30 - 11:00**

THURSDAY OCTOBER 16

9:00 - 10:30

SESSION E09 / EX CHIESA HALL

LANDFILLING IN DEVELOPING COUNTRIES: STATE OF ART AND OPPORTUNITIES

Chair: Lindsay Strachan (NZ)

E. Trottini, G. Barina, O. Oberti, I. Chayat, A. Mobhid (FR)

Feasibility study of biomethane production at the Meknes Green Landfill site

J.J. Velasco, M. Alarcón, J.C. Castañeda, A. Conrado, C. Nieto, D. Solarte (HN)

Biogas production optimization in landfills of Developing Countries: application of the RCM methodology in Quito, Ecuador

D. Agudelo-Romero, G. Barina, E. Trottini (FR)

Feasibility study for the deployment of a biogas-to-biomethane conversion solution at the La Esmeralda landfill, Manizales, Colombia

SESSION F09 / BALDACCHINO HALL

WORKSHOP - SOLID AND LIQUID WASTE AND WATER MANAGEMENT IN NEW CITY QUARTERS

Chair: Rainer Stegmann (DE)

The continued development of Eco-Cities and Eco-Quarters is crucial for saving resources and mitigating climate change. This workshop will explore strategies for water conservation through wastewater reuse and the collection and use of rainwater. We will examine how organic household waste and black water (faeces) can be converted into reusable compost on-site. Where feasible, separately collected urine may also be utilized for the removal of Xenobiotics and the recovery of Phosphorus and Nitrogen. Water transportation methods, including gravity and vacuum systems, will be considered. In rural contexts, the use of phytotreatment systems will be discussed as a viable wastewater treatment option. Additionally, innovative approaches to the separate collection of plastics, paper, glass, and other waste types will be addressed—key components of sustainable waste management in Eco-Cities.

Full appetizer available on the [website](#) and [symposium app](#).

Introductory lectures:

R. Stegmann (DE)

Combined decentral waste and sewage treatment options

S. Schmuck, C. Meyer, V. Preyl, H. Stichnothe (DE)

Rural Urban Nutrient Partnership - Results from the continuous operation of a large-scale pilot plant for the recovery of recyclable materials from biowaste and domestic wastewater

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

Separate collection of domestic wastewater fractions and resource recovery from sustainable treatment: story of the Aquanova project



COFFEE BREAK / 10:30 - 11:00

THURSDAY OCTOBER 16

9:00 - 10:30

DAY 4

SESSION G09 / PINETA HALL

WORKSHOP - SUSTAINABLE MANAGEMENT OF WASTE CONTAINING ASBESTOS: STATE OF ART AND FUTURE PERSPECTIVES

Chair: Raffaello Cossu (IT)

The sustainable management of hazardous asbestos-containing materials remains a critical challenge at the intersection of environmental protection and public health. With vast quantities of asbestos still present in buildings, industrial sites, and landfills worldwide, there is a pressing need for integrated strategies that ensure safety while embracing technological innovation.

This session will delve into advanced solutions for the containment, stabilization, and inertization of asbestos, while also addressing land use implications and long-term health and environmental safeguards.

Introductory lectures:

R. Cossu (IT)

State of the art of ACW management in Europe. Constraints and perspectives

M. Ritzkowski (DE)

Landfilling of ACW. Practice and environmental monitoring

I. Travar (SE)

State of ACW management and disposal in Sweden

R. Gregory (GB)

State of ACW management in United Kingdom



COFFEE BREAK / 10:30 - 11:00

THURSDAY OCTOBER 16

11:00 - 12:30

SESSION A10 / CENTRAL HALL

TEXTILE RECYCLING

Chair: Anders Damgaard (DK)

S. Rosenbusch, A. Bartl (AT)

Green chemistry in textile recycling

N. Depope, W. Ipsmiller, A. Bartl (AT)

Recycled polyester from polyester/cotton textile waste – A combined green solvent and thermal analysis approach

F. Fraboni (IT)

LIFE RE-TIGHTS - Provide an innovative circular and sustainable solution or worn-out tights management

I. Lange, E. Kraft (DE)

Life cycle assessment of chemical recycling technologies for blended textiles: a scoping study

A. Bartl, W. Ipsmiller, N. Depope, S. Rosenbusch (AT)

Textile recycling: essential, but not enough!

SESSION B10 / CENTRAL HALL 2

DIGESTATE MANAGEMENT FOR RESOURCE RECOVERY

Chair: William Clarke (AU)

A. Khadir, D. Santoro, A. Al-Omari, C. Muller, G. Nakhla (CA)

Intensifying anaerobic digestion with side-stream vacuum evaporation: a breakthrough in biosolids treatment

G.J. Gaogane, P. Sekoai, C. Trois (ZA)

Digestate recirculation for resource efficiency: impact on hydrogen yield and process inhibition

H. Velten, R.-A. Düring, U. Theilen (DE)

Influence of anaerobic digestion of microalgae biomass under mesophilic and thermophilic conditions on the solubility of phosphorus in the digestate

M. Suchowska-Kisielewicz, S. Myszograj, W. Winiwarter, B. Amon, J. Mazurkiewicz (PL)

Advanced methods of agricultural waste treatment: from waste to resource in a circular economy

 **LUNCH BREAK / 12:30 - 15:30**

THURSDAY OCTOBER 16

11:00 - 12:30

DAY 4

SESSION C10/ PANORAMA HALL

SATELLITE AND OTHER INNOVATIVE LANDFILL GAS EMISSIONS MONITORING

Chair: Alessandro Sarno (SE)

J. Chamat, V. Fakra, T. Kanungo, S. Scholz (IT)

Closing the gap: satellite-based observations to improve methane emission estimates - A case study on European landfills

K. Kataria, A. Lair, M. Lampaya (CA)

Addressing emission variability in landfills: a multi-site, multi-tier methane monitoring approach

K. Kataria, D. Wicks, J. Hendry (CA)

SMART-LANDFILL: sustainable monitoring and analytics for resilient technologies in landfills

T. Depelchin, M. Trombetti, A. Shah, P. Kumar, V. David, E. Launay, M. Mezzasalma, M. Nibart, G. Broquet, O. Laurent, P. Ciais, C. Romand, O. Oberti (FR)

Biogas emission landfill continuous monitoring and quantification thanks to atmospheric modeling and new generation of CH₄ sensor network

SESSION D10 / PANORAMA HALL 2

FLY ASHES UTILIZATION

Chair: Xunchang Fei (SG)

S. Yu, R. Wang, P. He, F. Lü, H. Zhang (CN)

Investigation on the property of fly ash washing eluate and marine discharge considerations

E. Bergman, E. Gorjatšova, M. Strand, S. Janhäll, H.M. Vatten Rui, K. Karlfeldt Fedje, L. Hartman, S. Sala, J. Rissler (SE)

Zinc elemental environment in WtE fly ash studied by synchrotron-based methods

K. Yamada, T. Yasukochi, N. Sughihashi, Y. Tojo, K. Endo (JP)

Cement solidification of MSW incineration fly ash containing cement hydration inhibitors and leaching characteristics of Pb

M. Li, X. Wang (CN)

Rheological and Stability Performance of XG/Ca(OH)₂ Stabilized Coal Gangue Slurries

 LUNCH BREAK / 12:30 - 15:30

THURSDAY OCTOBER 16

11:00 - 12:30

SESSION E10 / EX CHIESA HALL

SUSTAINABLE BIOLOGICAL WASTE VALORISATION IN DEVELOPING COUNTRIES

Chair: Stefan Salhofer (AT)

S. Morison, B. Bekker, C. Trois (ZA)

Investigating waste-derived biomethane as a low-utilisation fuel source for firm-dispatchable power production in South Africa

G. Mazzà, A. Mhanna, R. Berkashy (IT)

Assessing bio waste flows, reuse practices and valorisation opportunities in Bidibidi Refugee Settlement and its Host Community in the Yumbe District, Uganda

M. Tripathi, S. Gebrezgabher (IN)

Integrating circular economy principles into rural waste management: feasibility of decentralized waste valorization models in India

N. Kohler, K. Mokoena, D. Sehaswana, M. Van Niekerk (ZA)

The changing face of waste in South Africa

SESSION F10 / BALDACCHINO HALL

WORKSHOP - GHG EMISSIONS AND CLIMATE CHANGE IN WM

Chair: Robert Gregory (UK)

Introductory lectures:

Y. Abera, C. Trois (ZA)

Waste to energy technologies assessment regarding GHG emissions and energy consumption/recovery in South Africa

M. Hejna, A. Bialowiec (PL)

The hidden hazard in refuse-derived fuel use: a volatile organic compounds perspective

F. Ardolino, F. Parrillo, U. Arena, L. Privitera, S. Malvezzi (IT)

A waste-to-hydrogen strategy for a sustainable railway transportation

M. Xu, B. Yu, Y. Chen, P. Zhou, X. Xu, W. Qi, Y. Jia, J. Liu (CN)

Mitigating greenhouse gas emission and enhancing fermentation by phosphorus slag addition during sewage sludge composting

 LUNCH BREAK / 12:30 - 15:30

THURSDAY OCTOBER 16

11:00 - 12:30

DAY 4

SESSION G10 / PINETA HALL

WORKSHOP - BATTERIES IN THE ELECTROMOBILITY SECTOR - STATE OF ART, PERSPECTIVES AND SUSTAINABILITY

Chair: Florian Part (AT)

Introductory lectures:

N. Wieczorek, G. Chryssos (DE)

Challenges and strategies for sustainable recycling of Lithium-Iron-Phosphate Batteries

A. Spindlegger, L. Slotyuk, A. Jandric, R. Gabbay De Souza, S. Prenner, F. Part (DK)

Environmental performance of second-life lithium-ion batteries repurposed from electric vehicles for household storage systems

 LUNCH BREAK / 12:30 - 15:30

THURSDAY OCTOBER 16

15:30 - 17:00

FOCUS SESSION III / CENTRAL HALL

HOW TO ACHIEVE EU TEXTILE RECYCLING TARGETS

Moderator: Andreas Bartl, TU Wien (AT)

Panelists:

- Sebastian Rosenbusch, *TU Wien (AT)*
- Valentina Rossi, *Technical University of Denmark (DK)*
- Paulina Caldarelli, *Erion (IT)*

The textile sector is at a turning point.

Textiles have become a high-priority area for EU policymakers, and momentum is growing fast. Since the 2018 revision of the Waste Framework Directive—mandating separate collection of textile waste by 2025—a wave of legislative initiatives has followed: from the EU Strategy for Sustainable and Circular Textiles to the Ecodesign for Sustainable Products Regulation. Together, these efforts are reshaping the future of textiles in Europe.

But regulation alone won't solve the problem.

Fast fashion still dominates the market, global fiber production continues to rise, and less than 1% of materials are recycled back into new textiles. To truly close the loop, we need a coordinated transformation of the entire textile value chain—from design to disposal.

Join us for this engaging and timely Focus Session, where we will explore the practical, political, and technological pathways to meeting EU targets.

Together, we'll address key questions such as:

- How can collection systems be organized and financed across Member States?
- What must Extended Producer Responsibility (EPR) for textiles look like to ensure unfit, non-recyclable products are kept off the market?
- How do we promote longer-lasting, repairable, and more sustainable textile products?
- What role does sorting play—and what are the limits of automated technologies in identifying materials and contaminants?
- What intermediate steps are needed to boost recycling yields, and how can recovered materials be reintroduced into the value chain—as fibers, polymers, or monomers?

This Focus Session is designed for professionals across textile, waste management, policy, and research communities. Whether you're deeply involved or just beginning to explore the topic, this is a unique opportunity to exchange ideas, learn from leading experts, and help shape a circular future for textiles in Europe.

Let's rethink textiles—together.

 **COFFEE BREAK / 17:00 - 17:30**

THURSDAY OCTOBER 16

15:30 - 17:00

DAY 4



*Andreas Bartl is a senior scientist at TU Wien in the Institute of Chemical, Environmental, and Bioscience Engineering. In 2012, he was awarded the *venia docendi* (Conferment of the Right to Lecture) and the academic title of Privatdozent.*

He earned his degree in technical chemistry from TU Wien. After completing his PhD, he spent several years in the industry, working in research & development and production. Since 2002, he has been working at TU Wien, where he has been engaged in recycling fibers from end-of-life products such as apparel and tires. Currently, he is involved in national and EU-funded research projects aimed at transitioning the textile industry toward a circular economy. His research focuses primarily on the enzymatic hydrolysis of cellulosic fibers and green solvents, particularly in upscaling processes and the removal of elastane from textile blends.

Andreas also teaches courses in various master's programs, specializing in mechanical process engineering, with a focus on comminution, fiber technology, recycling, and resource management.

FOCUS



COFFEE BREAK / 17:00 - 17:30

THURSDAY OCTOBER 16

17:30 - 19:00

SESSION A11 / CENTRAL HALL

QUALITY AND COSTS IN PLASTIC RECYCLING CHAIN

Chair: Pinjing He (CN)

C. Barretta, M. Messiha, L. Meinhart, B. Lechner, J. Geier, M. Bredács, E. Helfer, G. Oreski (AT)

Degradation of high-density polyethylene (HDPE) and its influence on properties of recyclates

M. Molenbuur, M.C.P. van Eijk, J. Harm Urbanus, H. Diepenmaat, K. Ragaert (NL)
Perceptions and alignment on quality along the circular plastics packaging material chain

B. Hauge (DK)

New skills required for circular transitions: organizational learnings in five Danish companies from introducing recycled plastic in a range of products

N. Van Camp, S. Hoozée, K. Ragaert (BE)

Uncertainty in reported cost (prediction), the context of plastics recycling

SESSION B11 / CENTRAL HALL 2

RESOURCE RECOVERY FROM INSECTS

Chair: Jeffery Tomberlin (US)

J.K. Tomberlin (US)

Navigating regulations to allow the use of black soldier fly to recycle waste: opportunities for product diversification

L.M.D.R.S. Martins, A.P.C. Ribeiro, A. Figueiras (PT)

Transforming Black Soldier Fly (BSF) waste into high-value cosmetic ingredients

V. Grossule, R. Cossu (IT)

Larvae for WW treatment & resource recovery: LarWaR process - State of art

A.P.C. Ribeiro, A.O. Figueiras, A. Har, R. Oliveira Silva, L.M.R.D.S. Martins (PT)

Production of biochar from Black Soldier Fly, *Tenebrio molitor* and Cricket biomass under normal atmospheric conditions

A.P.C. Ribeiro, A.O. Figueiras, L.M.R.D.S. Martins (PT)

Tenebrio molitor biomass and its applications

THURSDAY OCTOBER 16

17:30 - 19:00

DAY 4

SESSION C11/ PANORAMA HALL

CIRCULAR ECONOMY IN CONSTRUCTION SECTOR

Chair:

G. Hafner, B. Kohler, L. Blandini (DE)

Preservation of existing buildings through resource-efficient and circular renovation and refurbishment - Example of facades

S. Pishgahi, R. Horne, B. Middha (AU)

Uncovering material circulation dynamics: Actor-Network Theory in circular digital procurement for residential construction

L. Hasselsteen, A. Damgaard, A. Otovic, H. Birgisdottir, K. Kanafania (DK)

Quantifying resource flows and reducing environmental impacts during building construction

F. Dizaye, S. Yevu, K. Ayinla, C. Goodier, M. Osmani (GB)

Towards continuous improvement: A Critical Review of Circular Economy Assessment Measures in Construction

SESSION D11 / PANORAMA HALL 2

DRONE BASED MONITORING OF LANDFILL SURFACE EMISSIONS

Chair: Jacobo Moreno Lampaya (ES)

T. Depelchin, M. Trombetti, C. Romand, V. David, M. Nibart, O. Oberti (FR)

Intercomparison of biogas emission landfill measurement method to assess their reliability and operability at scale

A. Sarno, L. Blom, K. Krahn, A. Hassel, G. Thune (SE)

Drone-based mapping and site-level quantification in regular monitoring of landfill surface emissions

G. Tassielli, L. Cananà, M. Spalatro (IT)

A new method for quantifying methane emitted from a landfill using a drone-mounted TDLAS sensor

N. Proietti (IS)

Comparative study of regular drone emission quantification and IPCC modelling for an Icelandic landfill

THURSDAY OCTOBER 16

17:30 - 19:00

SESSION E11 / EX CHIESA HALL

CO₂ EMISSIONS REDUCTION IN CIRCULAR ECONOMY

Chair: Anders Fredenslund (DK)

R. Gabbay De Souza, S. Kæm Berggreen, C. Scheutz (DK)

Global warming and carbon capture and sequestration potentials of scenarios for compost and biochar applications in soil

G. Lin, F. Wei, J. Li, L. Liang, H. Thi Thu Ngo, Z. Zhang, Q. Tan (CN)

Carbon reduction potential of international secondary resource circulation: a case study among six major trading economies

M. Niero, F. Albano, M. Frey (IT)

Life Cycle Assessment to support the definition of decarbonization strategies in the steelmaking industry: challenges and lessons learnt from the GreenHeatEAF project

A. Gómez-Sanabria, A. Dell'Orto, C. Trois, G. Okello, K. Nyamurungi, D. Kiguli, F. Onyai, I. Chekwot (ZA)

Developing a national strategy for organic waste management in Uganda: emissions, scenarios and opportunities

SESSION F11 / BALDACCHINO HALL

WORKSHOP - IWWG TG PFAS: PFAS REMOVAL FROM CONTAMINATED MATRICES

Chair: Ivan Carabante (SE)



Despite the efforts to ban or restrict the use of per- and polyfluoroalkyl substances (PFAS), they are still found in products, wastewater, waste and landfill leachate. Due to their persistence, PFAS circulation in the environment is expected to last for many decades even after their cessation. **Full appetizer available on the website or mobile app**

Introductory lectures:

I. Carabante (SE)

Introduction to the IWWG PFAS Task Group

I. Travar, A. Kihl (SE)

The treatment of Per- and Polyfluorinated Alkyl Substances (PFAS) at landfills - A challenge and perspective of a landfill operator

I. Carabante, J.N. Uwayezu, A.L. Tasca, S. Hazrati, P. Kazakou, J. Kumpiene (SE)

Development of treatments for the management of PFAS contaminated waste materials

T. Rashwan (GB)

Applied smouldering for PFAS treatment: process fundamentals

I. Carabante (SE)

Floor discussion: the need of advancements regarding PFAS needed in the Waste Management sector

THURSDAY OCTOBER 16

17:30 - 19:00

DAY 4

SESSION G11 / PINETA HALL

WORKSHOP - FROM WASTE TO VALUABLE BATTERY: SUCCESS FACTORS FOR AN EFFICIENT BATTERY TAKE-BACK SYSTEM

Chair: Nils Wieczorek, André Rückert (DE)

This interactive workshop focuses on the success factors of efficient battery collection systems in an international context. Together with the participants, we will examine proven models from across Europe, analyze challenges faced in different countries, and collaboratively develop ideal take-back system designs. An innovation session on forward-looking topics such as digitalization, design for recycling, and closed-loop systems will round off the workshop.

Full appetizer available on the website or mobile app

Introductory lecture:

N. Wieczorek, A. Rückert (DE)

From Waste to Valuable Battery - Success factors for an efficient battery take-back system

ACTIVE LAB 11 / FOYER CONGRESS CENTER

VIN4FUTURE: SARDINIA/SOUTH AFRICA WINE DIALOGUE. PROJECT PRESENTATION & WINE TASTING

Organised by: Raffaello Cossu, University of Padova (IT) /

Isabella Soi, University of Cagliari (IT) / Cristina Trois, Stellenbosch University (ZA)

Climate change presents the Cape wine industry with an existential threat. The challenge is to simultaneously achieve economic sustainability, sustain rural livelihoods and reduce wine's environmental footprint. The project seeks to map and evaluate the adaptations that producers are making through selection of drought-resistant varieties, the selective preservation of old vines that require less water and innovations in vineyard management practices. It evaluates initiatives to reconcile wine and biodiversity within the UNESCO-listed Cape Floral Kingdom in a manner that also includes adjacent communities.

The project seeks to test a model for wine waste management through bio-refineries designed to valorise organic residues and to meet government targets. It will pilot old vine training for vineyard workers and monitor the effect on employment prospects.

LAB



SOUTH AFRICAN-SARDINIAN WINE TASTING / 18:45 - 19:30

THURSDAY OCTOBER 16

SOCIAL EVENT

SARDINIA'S GOT TALENT & BACK TO 80-90'S PARTY

Piazza Maria Luisa, h. 21:30

Following the huge success of the 2023 edition, "Sardinia's Got Talent" returns: an entertaining evening during which Symposium delegates can go on stage to show their talents. An unmissable opportunity to have fun and become an artist... at least for one night!

If you can sing, play an instrument, dance or have any other talent and would like to take part in the show, please contact us at info@sardiniasymposium.it or at the Registration desk by Thursday morning.

A band of professional musicians will be ready to support your performance!

REHEARSALS will be held on Thursday afternoon!

The audience in the Piazza will vote for the best performance on their smartphones using an official symposium app.

And to celebrate the 20th edition of the Sardinia Symposium, the evening will continue with a lively **80s and 90s themed party**, featuring our live band performing the greatest hits from those unforgettable decades — the very years in which the symposium was born!

Get ready to dance, sing along and relive the iconic atmosphere of the '80s and '90s.

DRESS CODE: Dressing up in vintage style is highly encouraged! Bring your neon colors, denim jackets, scrunchies, leather, or whatever captures the spirit of the era — and join us for a fun-filled night of music, memories, and celebration!

Free event for symposium delegates and accompanying persons.



DAY 5 / FRIDAY
OCTOBER 17

FRIDAY OCTOBER 17

9:00 - 10:30

SESSION A12 / CENTRAL HALL

ENVIRONMENTAL MICROPLASTIC CONTAMINATION

Chair: George Varghese (IN)

R. Ottner, S. Lenz, G. Obersteiner (AT)

Microplastic analysis from different sampling methods in Danube water

C.A. Cossu, V. Poli, L. Litti, M.C. Lavagnolo (IT)

Presence and characterisation of microplastics in wildlife organs across diverse South African ecosystems

S. Kanwal, V. Poli, L. Litti, M.C. Lavagnolo (IT)

Advancing microplastic detection: a review of portable Raman spectroscopy for environmental monitoring

SESSION B12 / CENTRAL HALL 2

PHOTOVOLTAIC RECYCLING

Chair: Philippe Supiot (FR)

D. Fitzgerald, A. Rix, C. Trois (ZA)

The Circular Economy of solar PV in South Africa: a literature review and research roadmap focusing on longevity optimisation and forecasting

A.A. Nabi, A. Kumar Nema (IN)

Perspectives on photovoltaic waste management regulations: a comparison of practices in five leading countries

S. Feldbacher, D. Schwabl, F. Azizi, G.C. Eder, A. Gassner, T. Nigl, G. Oreski (AT)

Use of liquid-based separation technologies to enhance the recycling efficiency of End-of-Life PV modules

F. Azizi, U. Spitzer, A. Walch, E. Perndorfer, T. Nigl (AT)

Water jet cutting for layer-by-layer delamination of Si-based photovoltaic modules



COFFEE BREAK / 10:30 - 11:00

FRIDAY OCTOBER 17

9:00 - 10:30

DAY 5

SESSION C12 / PANORAMA HALL

EMISSION POTENTIAL OF CONSTRUCTION MATERIALS

Chair:

J. Aguilar-Herrera, N. Briceño, A. López-Uceda, A. Barbudo, A.P. Galvín (ES)

Environmental leaching thresholds for recycled aggregates from C&DW: a proposal for End-of-Waste criteria in Spain

M. van Praagh, J. Jennerheim, J. Kaur (SE)

Emerging versus classic contaminants in construction and demolition waste – challenges for circular use, end-of-waste criteria and landfilling

F. Mattersberger, F. Part, R. Weber, H. Rechberger (AT)

Qualitative and quantitative analysis of various brominated flame retardants in plastics of the building and construction sector

N. Zang, P. He, H. Zhang, X. Zhang, F. Lü (CN)

Emission of PAHs from the recycling process of construction and demolition waste

SESSION D12 / PANORAMA HALL 2

MANAGEMENT OF SEWAGE SLUDGE AND DREDGED MATERIALS

Chair: Mariachiara Zanetti (IT)

G. Campo, D. Panepinto, M. Zanetti (IT)

Assessment of the interaction between sludge pre-treatments, anaerobic digestion and mono-incineration processes

J. Rosik, S. Stegenta-Dabrowska, K. Paweska (PL)

The effect of reapplying dairy sewage sludge on composting process parameters

Y. Dong, B. Yu, Y. Jia, X. Xu, P. Zhou, M. Yu, J. Liu (CN)

Influence of sewage sludge compost on heavy metals in abandoned mine land reclamation: a large-scale field study for three years

I. Pecorini, F. Pasciucco, S. Di Gregorio, F. Pilato, R. Iannelli (IT)

The GRRInPort2 project: new perspectives for the sustainable management of contaminated marine sediments through combined bio-electrochemical processes

 **COFFEE BREAK / 10:30 - 11:00**

FRIDAY OCTOBER 17

9:00 - 10:30

SESSION E12 / EX CHIESA HALL

WORKSHOP - IWWG TG CLEAR: METHANE OXIDATION SYSTEMS IN LANDFILLS

Chair: Julia Gebert (NL), Marion Huber-Humer (AT)



In the last years, microbial methane oxidation systems have transitioned from state of research to state of the art, being implemented on large scale to mitigate residual landfill methane emissions. How to assess the oxidation potential of candidate materials in a time- and cost-effective way is still under discussion. Also, regulators permitting these gas treatment systems stipulate different methodological approaches and frequencies for monitoring system performance in the field. Sometimes, scientific research and with intensified monitoring accompanies system operation. The aim of this workshop is to discuss approaches assessing material performance before field implementation and approaches assessing system performance after implementation, thereby also providing an update of current insights into system performance and limiting factors.

SESSION F12 / BALDACCHINO HALL

IRACE WORKSHOP - CIRCULAR ECONOMY PERFORMANCE INDICES

Chair: Marco Frey (IT)



Introductory lectures:

M. Firoz A., M. Shajan, N. Nandini, G.K. Varghese, S. Thiyyakkandi (IN)

A scoring system to evaluate the performance of entities at various levels of an MSW management system

H. Cai, Z. Duan, J. Lv (CN)

The Zero-Waste Index as an urban governance tool for solid waste management: empirical evidence from Chongqing

 **COFFEE BREAK / 10:30 - 11:00**

FRIDAY OCTOBER 17

9:00 - 10:30

DAY 5

SESSION G12 / PINETA HALL

EU WORKSHOP - CLOSING KNOWLEDGE GAPS ON PFAS DEGRADATION IN THERMAL WASTE AND REMEDIATION SYSTEMS

Chair: Tarek Rashwan (UK)

This roundtable workshop will provide an opportunity to present a new EU project idea, discuss it with colleagues from all around the world, and find potential collaborations and partners from industry and academia.

Interested delegates may freely join the discussion.

Relevant EU Programme and Call, if already identified: Ideally targeting the development of a COST Action first, to facilitate collaboration to build a Horizon EU consortium.

Project Idea: Per- and polyfluoroalkyl substances (PFAS) have been central compounds used in a range of modern materials – everything from fire-fighting foams to cosmetics. Altogether, there are thousands of synthetic compounds within the PFAS classification. It is now widely understood that PFAS contamination poses severe environmental risks. Due to PFAS' toxic and persistent properties, small concentrations can bioaccumulate in the food chain, affecting human and environmental health. Activated carbon or ion exchange resin have been used to remove PFAS from drinking water... **Full presentation available on the website and symposium app.**

Academic partners: Open University, University of Strathclyde, University College London (UK) / Örebro University (SE) / Queens University (CA) /

Industry partners: Ragn Sells (SE) / Savron (CA) / Encapsulate (UK)

Requirement of potential partners:

Academic, industry, and public body collaborations would be highly welcomed. The organizers are interested in EU collaborators with interest in understanding PFAS degradation in thermal remediation and waste treatment systems, e.g., incineration, gasification, pyrolysis, hydrothermal carbonisation. Ideally, those interested will have access or ambitions to understand these questions laboratory and commercial settings. Experts with PFAS degradation modelling would also be highly welcomed.

ACTIVE LAB 12 / FOYER CONGRESS CENTER

BSF LARVAE FOR BIOWASTE TREATMENT - PART 2: LARVAE SEPARATION AND PERFORMANCE ASSESSMENT

Organised by: Valentina Grossule, University of Padova (IT)

Jeffery K. Tomberlin, Texas A&M University (US)

Conclusion of the test that started on Monday with larvae separation and performance assessment.

This second part of the lab will continue in the next session.



COFFEE BREAK / 10:30 - 11:00

LAB

FRIDAY OCTOBER 17

11:00 - 12:30

SESSION A13 / CENTRAL HALL

IRACE SESSION - HEALTH RELATED ISSUES

Chair: *Norbert Fraeyman (BE)*



IRACE is a newly established International Research Association on Circular Economy. Its aim is to bring together individuals - academics, industry professionals, entrepreneurs, institutions, and associations - from diverse disciplines to advance the Circular Economy in a constructive and integrated manner.

Introductory lectures:

P. Lauriola (IT)

The role of EPHA - European Public Health Alliance - in protecting public health and promoting sustainable waste governance

P. Rapisarda, M. Ferrante, R. Cossu (IT): Overview on impacts on health by different waste management technologies (CIRS Report)

M. Horvat, J. Snoj Tratnik, D. Mazej, A. Alilović, M. Jagodic Hudobivnik, I. Falnoga, D. Kocman (SI): Participatory research on human biomonitoring and environmental impact of co-combustion of waste in cement plants

S. Ahmed, T.L. Gladding, C. Boardman (GB): Prevalence of antimicrobial-resistance in food waste and its potential for public health transmission as a bioaerosol

W. Saad, J. Zeiater, L. Halawy, D. Batlouni, C. Massoud, G. Saad, A. Milane (LB): Innovative strategies for pharmaceutical waste management: pyrolysis, immobilization, and behavioral interventions

SESSION B13 / CENTRAL HALL 2

BIOMASS VALORIZATION: ENERGY AND PRODUCTS

Chair: *Barbara Čeh (SI)*

B.A. Simmons (US): Conversion of mixed waste feedstocks in the North San Joaquin Valley into advanced biofuels and bioproducts

F. Illuminati, M. Schiavon, M.C. Lavagnolo (IT): Thermocomposting of agri-food waste: optimization of energy recovery

S. Bertran Llorens, T. Geiger, Y. Dudnyk, B. Forsthuber, G. Tofani, B. Likozar, A. van Zomeren (NL): Development of bio-based and recyclable components from sustainable feedstocks for printed electronics

M. Quagliardi, A. Roncarati, E. Frapiccini, M. Marini, M. Panfili, A. Campanelli, P. Penna, S. Vittori, G. Borsetta (IT): Circular economy in an inland aquaculture farm in Marche Region (Italy): new sustainable by-products feeds tested in brown trout (*Salmo trutta fario*)

Z. Asim, H. Muhammad A. Shahzad, F. Almomani, K. Rasool (QA): Bioprocess optimization of yeast co-culture for single-cell protein production from agro-food waste

S. Sahota, C. Geoghegan, C. O' Donoghue (IE): Biomethane for a circular economy: a comprehensive techno-economic and uncertainty analysis of large-scale anaerobic digestion systems

FRIDAY OCTOBER 17

11:00 - 12:30

DAY 5

SESSION C13 / PANORAMA HALL

LIGHT WEIGHT PLASTIC - PACKAGING

Chair: Liina Kanarbik (EE)

T. Okayama (JP)

Research on the extent of plastic packaging of vegetables and fruits in super-markets in Tokyo

V.H. Gabriel, E. Jahn, K. Detter, M. Novak, R. Reinbacher, M. Pfitzner, S. Apprich (AT)

Characteristics of polyolefin and polystyrene packaging waste in separate waste collection: a three-year case study in Austria

A.M. Spies, K. Greiff, K. Raulf, N. Mayer, J. Juretschke, B. Küppers, X. Chen (DE)
Assessing lightweight packaging waste sorting processes to evaluate the potential for catalytic recycling processes

SESSION D13 / PANORAMA HALL 2

LANDFILL MONITORING BY USING DIFFERENT TECHNIQUES

Chair: Charlotte Scheutz (DK)

X. Liu, J. Liang, Y. Zhang, T. Long, H. Bai, D. Yue (CN)

Identification of leachate leakage zones of a landfill using fluorescence fingerprinting technology: a case study

D. Vernola, V. Villa, E. Zanni, G. Viscardi, R. Dellaca, L. Capelli, M. Roveri (IT)

Preliminary evaluation of a portable electronic nose for landfill odours classification and quantification

V. Villa, D. Vernola, E. Zanni, M. Ardito, G. Viscardi, F. Martini, G. Foddis, Y. Ponza, R. Dellaca, M. Roveri, L. Capelli (IT)

Low-cost portable sensors toolbox for methane emissions quantification in landfills

O. Brovkina, M. Píkl, L. Fajmon (CZ)

The potential of airborne laser scanning in monitoring and assessing landfill stability

 LUNCH BREAK / 12:30 - 15:30

FRIDAY OCTOBER 17

11:00 - 12:30

SESSION E13 / EX CHIESA HALL

PHOSPHOROUS RECOVERY FROM SEWAGE SLUDGE

Chair: Kubra Ulucan-Altuntas (TR)

T.T. Lim, S.B. Tiwari, A. Veksha, W.P. Chan, G. Lisak (SG)

Phosphorus recovery from sewage sludge through synergistic thermal and acid-base integrated treatment strategies

T.P. Vo (FI)

High-purity phosphorus recovery from sewage sludge using acid-assisted hydrothermal processing with chemical extraction

L. Liang, W. Chan, Y. Hua, Y. Zhao, S. Al Munawarah Binte Yusoff, V. Chin, Y. Boon, G. Lisak (SG)

From waste to harvest: phosphorus recovery from sewage sludge gasification by-products for hydroponic lettuce cultivation

C. Chen, F. Wang, L. Wang (CN)

Phosphorus recovery in sewage sludge incineration ash to produce hydroxyapatite

SESSION F13 / BALDACCHINO HALL

WORKSHOP - USE OF C&D WASTE IN CEMENT INDUSTRY

Chair:

Introductory lectures:

M. Bohác, M. Krejčí Kotlánová, D. Kubátová, M. Nguyen, J. Holub, J. Švec (CZ)

Calcined waste materials as SCMs for lower GWP of masonry and plastering mortars

D. Over, E. Ayas (TR)

Utilization of high alumina and high magnesia refractory brick waste mix in cement mortar



LUNCH BREAK / 12:30 - 15:30

FRIDAY OCTOBER 17

11:00 - 12:30

DAY 5

SESSION G13/ PINETA HALL

FATE OF MICROPLASTICS IN WASTE AND WASTEWATER MANAGEMENT

Chair: Maria Cristina Lavagnolo (IT)

V. Paramá-Pérez, C. Lores-Fernández, E. Roldán-Álvarez, S. Santorio, A. Taboada-Santos, C.M. Castro-Barros, L. Rodríguez-Hernández (ES)

Assessment of the fate of microplastics in wastewater treatment plants

L. Selleck, S. Wagland, F. Coulon, D. Beriro (GB)

Presence of microplastics in UK landfills and their role in the mobility of metals

D. Cazzuffi, S. De Meyer, F. Fontana, N. Guarena (IT)

A case study in Europe referred to the potential release of microplastics from geosynthetic applications

D. Sánchez-Mata, J.A. Villamil, J. Romero, E. Tomás-Pejó (ES)

Influence of different microplastic concentrations on methane production from the organic fraction of municipal solid waste

ACTIVE LAB 13 / FOYER CONGRESS CENTER

BSF LARVAE FOR BIOWASTE TREATMENT: PART 2

Larvae separation and performance assessment

Organised by: Valentina Grossule, University of Padova (IT)

Jeffery K. Tomberlin, Texas A&M University (US)

Continue from the previous session

Conclusion of the test that started on Monday with larvae separation and performance assessment.

LAB

 **LUNCH BREAK / 12:30 - 15:30**

FRIDAY OCTOBER 17

15:30 - 17:00

FOCUS SESSION IV / CENTRAL HALL

ADVANCING THE CIRCULAR ECONOMY - WHAT STILL NEEDS TO BE DONE?

Moderator: Marion Huber-Humer, BOKU University Vienna (AT)

Panelists:

- Marco Frey, *Sant'Anna School of Advanced Studies, Pisa (IT)*
- Miguel Filipe da Costa Nogueira, *University of Lisbon (PT)* - Winner of the IWWG "Waste Vision 2100" Award for young scientists
- **XX** Sustainability Manager of Forte Village Resort (IT)
- Debra Reinhart, *University Central Florida (US)*
- Hans-Christian Eberl, *European Commission (BE)*
- Jinhui Li, *Tsinghua University (CN)*

As we face mounting environmental challenges, from resource depletion to waste management crises, the concept of a circular economy has emerged as a beacon of hope. For example, 10 years ago in December 2015, the European Union introduced the first Circular Economy Package. This package aimed to accelerate the transition to a circular economy by setting ambitious recycling targets, reducing waste, and promoting sustainable production and consumption practices across member states. Within the waste management community "circularity of waste materials", meaning technical recycling of diverse wastes streams, is an intended goal already since the 1970s.

However, the circular economy is more than just recycling; it is about rethinking entire systems. It challenges us to design products for longevity, reuse materials at the end of their life cycle, and minimize waste at every stage. While some progress has been made in recent years, there is still much work to be done to fully realize its potential. From policy frameworks and technological advancements to consumer behavior and corporate responsibility, the journey toward a truly circular economy requires collaboration across all stakeholders and sectors of society.

We are delighted to welcome high-ranking experts on the panel who will provide us with insights into the latest political developments regarding the circular economy at the EU level, present the situation in China and the US, reflect the economic perspectives and the view of the business sector, and offer a visionary outlook on the future. Additionally, the audience will be actively involved in the discussion and questions through interactive participation. Together, we will explore the barriers that remain, the opportunities that lie ahead, and the concrete steps we can take to accelerate the CE transition.

FRIDAY OCTOBER 17

15:30 - 17:00

DAY 5



Marion Huber-Humer is Full Professor for Global Waste Management at BOKU University Vienna, and Head of the Institute of Waste Management and Circularity. She is member of the Managing Board of the IWWG (International Waste Working Group), board member of the ÖVA (Austrian Association for Management of Contaminated Sites) and of the ÖWAV (Austrian Water and Waste Management Association), vice-president of ISWA Austria and member of the DGAW "Academy of Circular Economy". Her current research focuses on the investigation of sustainable global waste management concepts and circular economy approaches, biological waste processing, compost quality, sustainable landfill technologies, process and emission monitoring.

FOCUS

POSTER SESSIONS
SESSIONI POSTER

POSTER SESSIONS

SESSIONI POSTER

Posters will be accessible in the main foyer at all times throughout the conference week. Poster discussion may take place in the presence of authors from Monday to Thursday afternoon, from 17:00 to 17:30.

We recommend authors to be present at their posters in the indicated time slot, to give delegates the opportunity for questions and discussion.

Le presentazioni poster saranno sempre accessibili ai partecipanti al Simposio. La discussione dei poster potrà avvenire alla presenza degli autori dal lunedì al giovedì pomeriggio, dalle 17:00 alle 17:30.

Si raccomanda agli autori di essere presenti accanto ai propri poster nella fascia oraria indicata, per offrire ai partecipanti l'opportunità di porre domande e avviare una discussione.

A. DECISION TOOLS FOR CIRCULAR ECONOMY

A01 / G. Tassielli, L. Cananà, M. Spalatro (IT)

Life cycle assessment of waste management: comparison of biogas emissions using drone quantification methods and other data sources

A02 / P. Lyshtva, Y. Kobets, V. Voronova, L. Kliučininkas, A. Torkelis, E. Carpio-Vallejo, A. Dobri, J. Barbir (EE)

Evaluating the carbon footprint of MSW plastic waste management across three cities in the Baltic States

A03 / S. Fakhrona, A.A. Vinton, A. Francis, C. Angelika, A.Q. Mairizal, J. Wu (SE)

Material flow analysis of waste bank systems in Depok, West Java, Indonesia

A04 / L. Granheim, U.S. Minke (DK)

Development of end-of-waste criteria for enhanced waste valorization and circularity: a case study on aggregate sludges

A05 / R.S. Anand, T.K. Sudheesh, G.K. Varghese (IN)

Evaluating and ranking chemical grouting techniques for sustainable ground improvement: a multi-criteria decision-making approach

A06 / B. Amante, P. D'Abzac, E. Tapia (ES)

Bolivia's integrated waste management: a regulatory approach for sustainability and public health

B. SOCIAL AND ENVIRONMENTAL ASPECTS IN CIRCULAR ECONOMY

B01 / B. Rahardyan, E.R. Anggraini (ID)

Factors affecting recyclers to collect the UBC material - A case study from Bekasi City, West Java

B02 / D. Troast, N. Canova, I. Schoen, P. Tan (SE)

An evaluation of the social welfare impacts of informal silicon solar panel recycling in developing countries using the DPSIR Framework

B03 / S.A. Alfara (SA)

The role of sea cucumbers in marine waste management and environmental protection: a natural solution for mitigating pollution

B04 / J. Pilecka-Ulcugaceva, M. Bertins, K. Siltumens, I. Grinfelde (LV)

Potential indicators of household waste burning in urban air: a trace element analysis from Jelgava

C. WASTE PREVENTION, CHARACTERISATION AND SORTING

C01 / J. Barbir, A. Dobri, E. Carpio-Vallejo, J. Gäbken, L. Wuestenberg (DE)

Single-use plastic waste reduction in households across the Baltic Sea Region

C02 / A. Dupas, V. Decottignies, R. Moscoviz, M. Rouez, M.-C. Magnié (FR)

Sampling and characterization approach for plastic packaging waste composition at recycling plants

C03 / A.M. Spies, G. Koinig, N. Kuhn, B. Küppers, R. Pomberger (DE)

Evaluating parameters influencing color detection in PET bottle sorting

C04 / V.C. Andrade de Medeiros, F.J. Moura, F. de Miranda Gonçalves (BR)

Thermal characterization of malt bagasse biomass and biochar produced via hydrothermal liquefaction

D. RECYCLING AND RESOURCE RECOVERY

D01 / M. Gabidzashvili, N. Guleishvili, T. Mumladze, I. Bochoidze, T. Turkadze, G. Gorgodze (GE)

Sustainable potential of wild rosaceae: from natural resource to waste-free extract

D02 / P. Romano, S. Rahmati, R. Adavodi, I. Birloaga, F. Vegliò (IT)

Hydrometallurgical process scale-up for rare earths recovery from End-of-Life NdFeB magnets

D03 / M. Nogueira (PT)

Tyre4REEcycle - Recovery of rare earth elements from NdFeB magnets using porous carbons produced from rubber of spent tyres

D04 / R.J. Adavodi, S. Rahmati, L. Taglieri, F. Vegliò, F. Ferella (IT)

Selective recovery of vanadium, tungsten, and titanium from end-of-life SCR catalysts via a two-stage leaching approach

D05 / P. Ares-Elejoste, J. Ballestero, G. Creonti, S. Bassi, C. Valli, C. Mingazzini (IT)

Closed-loop recyclable and fire-resistant composites for electrical car battery boxes

D06 / B. Tomaszewska, M. Mukti, M. Tyszer, M. Kaczmarczyk (PL)

Circular economy in the field of waste geothermal water management

D07 / A. López-Uceda, J. Aguilar-Herrera, A. Barbudo, R. Linares, A.P. Galvín (ES)

PLASOS Project: optimization of sustainable concrete reinforced with recycled plastic fibres for low impact construction

POSTER SESSIONS

SESSIONI POSTER

D08 / *N. Suresh, E. Ivanauskas, A. Augonis, L. Steponavičius, J. Mockienė (LT)*
An environmentally friendly artificial aggregate for concrete made from municipal solid waste incinerator bottom ash by using CO₂ curing

D09 / *J. Reichelt, S. Chattopadhyay, J. Kolb, E. Eiche, J. Wagner (DE)*
Influence of different biogenic fuels on the quality of grate ashes and its reuse from biomass heat and power plants

D10 / *M. Statkauskas, V. Vaičiukynas, G. Balevičius, D. Vaičiukynienė, A. Kantautas, D. Nizevičienė, D. Žūrinškas, R. Bistrickaitė, G. Stelmokaitis (LT)*
Environmentally friendly binding materials based on Ordinary Portland cement, clinoptilolite and silica gel by-product

D11 / *L. Vitola, D. Vaiciukyniene (LT)*
Transforming industrial by-products and wastes into raw materials in sustainable cement applications

D12 / *C. Subacchi, S. Sina Mojabi, S. Bassi, C. Valli, F. Babaei, M. Scafè, A. Coglitore, C. Mingazzini (IT)*
Unlocking 100% RCA use, in steel-free structural modules, for adaptable constructions

E. BIOREFINERY AND BIOLOGICAL TREATMENTS

E01 / *J. Rosik, K. Świechowski, S. Stegenta-Dąbrowska (PL)*
Biological neutralization of *Heracleum sosnowskyi* through composting: evaluation of Furanocoumarin degradation

E02 / *I. Moukazis, E. Gidarakos (GR)*
Evaluation of the biochemical methane potential of animal-derived waste

E03 / *P. Wojnarová, M.F. Edelmannová (CZ)*
Optimization of lignocellulosic biomass pretreatment for enhanced methane yield in anaerobic digestion

E04 / *F. Illuminati, M.C. Valerin, L. Francescato, L. Treu, S. Campanaro, M.C. Lavagnolo (IT)*
MICRO-BIOfuels project: development of specialized microbial consortia for the conversion of biowaste into hydrogen and methane

E05 / *K. Pakzad, A. Volikov, M. Antonietti (DE)*
Artificial humic substances: a sustainable solution for antibiotics and herbicide removal

E06 / *I. Troppova, L. Matějová (CZ)*
Sustainable refining of amino acids and bone grafts by using extraction with supercritical CO₂ with/without modifier and pressurized hot water

E07 / *A. Messineo, A. Picone, C. Corrado, D. Ticali, M. Volpe (IT)*
Waste to energy: hydrothermal carbonization of agro-waste for the production of high valuable solid biofuel

E08 / *M. Binti Mat Rajab, T. Ida (JP)*
A study on wood powder as a solid biomass for bio-coke fabrication

F. THERMAL TREATMENT AND LANDFILLING

F01 / *L. Olazar, J. Alvarez, M. Artetxe, G. Lopez, M. Olazar (ES)*

Influence of process parameters on the pyrolysis and in-line dry reforming of HDPE

F02 / *Y. Kandabashi, G. Nakagwa, S. Hashimoto (JP)*

Quantification of consolidation priority for incineration facilities aiming at industrial utilization of incineration heat

F03 / *R.H. Kim, S.I. Yun, S.H. Song, S.M. Kim, J.H. Ko, J.E. Kim, J.K. Park, N.H. Lee (KR)*

Optimization of landfill aeration systems for methane mitigation: a case study

F04 / *J.K. Park, R.H. Kim, S. Yun, S.H. Song, T.J. Kim, S.M. Kim, N.H. Kim (KR)*

Estimation of biodegradability changes using age-defined waste in municipal solid waste landfills: a case study

F05 / *S.A. Alharbi (SA)*

Prevalence and functional role of bacteria in waste treatment processes: implications for sustainable landfilling and resource recovery

G. WASTEWATER TREATMENT AND SOIL REMEDIATION

G01 / *V. López-Grimau, G. Benveniste, B. Amante (ES)*

Life cycle assessment of wastewater treatment in a textile printing facility

G02 / *E. Korzeniewska, M. Harnisz, K. Stefaniak, M. Męcik, P. Kruszewska, E. Felis, S. Bajkacz (PL)*

Beta-lactams resistant *Klebsiella pneumoniae* in Polish hospital wastewater - A preliminary study

G03 / *K. Pawęska, Sz. Kilian, E. Burszta-Adamiak (PL)*

Sustainable using of greywater in single-family buildings

G04 / *S. Dias, A. Cubas (BR)*

Circular management of sewage sludge in Brazil: implementation of PLANEC to mitigate climate change and promote the circular economy in sanitation

G05 / *A. Mitzia, M. Jovičević-Klug, D. Raabe, P. Jovičević-Klug (DE)*

Red mud residue after plasma reduction for soil remediation: a full circle of reuse combining two environmental goals in one go