

# MatER & Final Sinks Meeting 2023 | 5<sup>th</sup>-6<sup>th</sup>-7<sup>th</sup> June 2023

## Recovery & Final Sinks for a Sustainable Ecological Transition

Politecnico di Milano, Piacenza Campus "Caserma Neve"

### Monday, June 5<sup>th</sup> 2023

#### MORNING | PLENARY SESSION

09:00	Welcoming Addresses	Stefano Consonni - MatER/Politecnico di Milano
09:15	KEYNOTE LECTURE: The Final Sink concept in the light of Statistical Entropy	Helmut Rechberger - TU Wien
09:45	KEYNOTE LECTURE: Residues remaining after all recycling: post-recycling MSW	Nickolas J. Themelis, Columbia University/GWC
10:15	Panel Discussion - Technical & Strategical <i>Simone Malvezzi (A2A Ambiente S.p.A.), Enrico Pochettino (IREN S.p.A.), Roberto Sancinelli (Montello S.p.A.)</i>	Moderator: Giovanni De Feo, Università di Salerno
11:15	Coffee Break & Poster Session	
11:35	Panel Discussion - Political & Institutional <i>Paola Molina (Regione Piemonte), Giuseppe Rossi (AURI Umbria), Alessandro Battaglini (Utilitalia), Elisabetta Perrotta (Assoambiente), Paolo Massarini (ATIA ISWA Italia), Fabio Poretti (CEWEP)</i>	Moderator: Monica Tommasi, Amici della Terra
12:35	Lunch Break	

#### AFTERNOON | PLENARY SESSION

### Session 1: Regulatory framework and Waste management

14:00	KEYNOTE LECTURE: End-of-Waste and Circular Economy: regulations, targets and critical issues	Chairman: Stefano Consonni (MatER/Politecnico di Milano)
14:30	Circular economy and sediment management	Stefano Maglia, TuttoAmbiente
14:50	UN-ECE guidelines for PPPs in WtE	Federico Peres, B&P Avvocati
15:10	Sustainability and sanitary waste: initial reflections on a little-explored combination	Christoff Cord'Homme, WasteTT SAS
15:30	Coffee Break & Poster Session	
15:50	Optimizing logistics for "on demand" waste services: an analytics-based two-stages operations planning process	Federica Tommasi, Istituto Superiore della Sanità
16:10	Pathways for waste with a focus on resource recovery and beneficial use	Claudio Caremi, Optit S.r.l.
16:30	Waste foundry sands: situation and perspective in Lombardy Region	Lauren Creadore, The City College of New York
16:50	A symbiosis approach in the waste-wastewater-energy nexus: a LCA assessment	Flavio Cioli, Università degli Studi di Brescia
17:10	Modelling the EU plastic flows towards a circular plastic value chain: approaches, data sources and hotspots	Giuseppe Mancini, Università di Catania
17:30	Final Discussion & Day Closing	

### POSTER Session, June 5<sup>th</sup> - 6<sup>th</sup> 2023

#1	Toxicological assessment of textile waste in the Czech	Anastasia Shtukaturova, Czech Academy of Sciences
#2	Municipal solid waste thermal treatment: analysis of the environmental aspects	Deborah Panepinto, Politecnico di Torino
#3	Governments task and duties in preventing and compensating marine pollution resulting from oil transport	Parisa Azik, Università di Catania
#4	BBCircle – Biorefinery process proposal and preliminary evaluation	Lidia Lombardi, Università Niccolò Cusano
#5	A bibliometric analysis on rare earth elements from urban mining	Marinella Favot, Area Science Park
#6	Development of a database containing data of the waste streams for the evaluation of their applicability in a biorefinery in the Lazio Region in Italy	Angela Marrapodi, ISPRA
#7	Impact of Additives to MSW for Pre-Combustion Enhancement of Syngas and Solid Residue Improvement	Janhvi Trivedi, The City College of New York
#8	Nitrogen oxide mitigation via a waste-derived heterogeneous mixed metal oxide	Kaitlyn Lawrence/Marco J Castaldi, The City College of New York
#9	Oil and grease recovery from catering and canteen water discharges	Piervincenzo Benvenuti, HYDRO BEN

#### EVENING | SOCIAL EVENT

19:00	Guided Tour (Pinacoteca and Museo delle Carrozze)	Musei Civici di Palazzo Farnese - Piazza Cittadella, Piacenza
20:00	Cocktail & GALA DINNER	Palazzo Farnese - Piazza Cittadella, Piacenza

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### Recovery & Final Sinks for a Sustainable Ecological Transition

Politecnico di Milano, Piacenza Campus "Caserma Neve"

**Tuesday, June 6<sup>th</sup> 2023**

**MORNING | PARALLEL SESSIONS**

#### Session 2.A: Bio-waste and Material recovery

Chairmen: Mario Grosso, Lucia Rigamonti (MatER/Politecnico di Milano)

##### 09:00 KEYNOTE LECTURE: Reshaping global policies for circular economy

Xianlai Zeng, Tsinghua University

09:30 Scenario analysis of biodegradable PHBH products for households

Junya Yano, Kyoto University

09:50 Treatment and valorisation of bioplastic waste

Giovanni Dolci, Politecnico di Milano

10:10 Continuous anaerobic co-digestion of food waste and bioplastics: an experimental approach

Giovanni Gadaleta, Politecnico di Bari

10:30 Experimental analysis on the degradation of paper-based boxes for food delivery under aerobic and anaerobic conditions

Floriana Fava, Politecnico di Milano

##### 10:50 Coffee Break & Poster Session

11:10 Investigation of interactions between different biodegradable plastics by thermal pyrolysis to obtain precursors and high-value chemical

Davide Sorino, Università di Roma Tor Vergata

11:30 Biochemical methane potential of biostabilised organic fraction from residual municipal waste: thermophilic versus mesophilic conditions

Fabio Tatano, Università degli Studi di Urbino "Carlo Bo"

11:50 Recycled aggregate characteristics in relation to Italian End-of-Waste regulations: critical aspects

Andrea Piccinalli, Università degli Studi di Brescia

12:10 The future is in the sun: metal intensity and potential recycling of solar panels towards 2060

Moisés Gómez Soto/Xianlai Zeng, Tsinghua University

#### Session 2.B: Energy recovery and Environmental aspects

Chairmen: Stefano Cernuschi (MatER/Politecnico di Milano)

##### 09:00 KEYNOTE LECTURE: Carbon-free energy recovery from waste

Maurizio Spinelli, LEAP s.c.a r.l.

09:30 Application of CCUS to a Waste-to-Energy Italian plant

Laura A. Pellegrini, Politecnico di Milano/Adriano Carrara, A2A S.p.A.

09:50 Dry absorption technologies for acid flue gas emissions treatment

Marco Ravina, Politecnico di Torino

10:10 Determining biogenic CO<sub>2</sub> emissions by long-term sampling

Gilles Campagnola, ENVEA S.p.A.

10:30 The processing of incinerator bottom ash from Waste-to-Energy facilities and CO<sub>2</sub> capture

Greta Mosconi, RMB S.p.A.

##### 10:50 Coffee Break & Poster Session

11:10 Use of bottom ash from municipal solid waste incineration for the development of green concrete with reduced carbon footprint

Beatrice Belletti, Università di Parma

11:30 Possibilities of fly ash/APCr treatment in Waste-to-Energy plant

Michal Šyc, Czech Academy of Sciences

11:50 Zinc recovery from fly ashes of Waste-to-Energy plants

Antonio Castorini, TBF+Partner AG

12:10 High-Temperature Corrosion Evaluation of Heat-Exchanger Alloys at Waste-to-Energy Flue Gas Conditions

Janhvi Trivedi, The City College of New York

##### 12:30 Lunch Break

**AFTERNOON | PLENARY SESSION**

#### Session 3: Innovative technologies and Optimization strategies

Chairman: Federico Viganò (MatER/Politecnico di Milano)

##### 14:00 KEYNOTE LECTURE: Innovation on plastic waste chemical recycling: LyondellBasell MoReTec development

Nicolò Arich de Finetti, LyondellBasell

14:30 Residual municipal solid waste: what kind of thermal treatment?

Lidia Lombardi, Università Niccolò Cusano

14:50 A life cycle assessment of alternative options for resource recovery from mixed plastics waste

Umberto Arena, Università della Campania "Luigi Vanvitelli"

15:10 Torrefaction experiments for a viable production of solid biofuels from hazelnut industry residues

Michele Miccio, Università degli Studi di Salerno

15:30 Steam reforming of tars in hot syngas cleaning: removal efficiency of different waste-derived catalysts

Francesco Parrillo, Università della Campania "Luigi Vanvitelli"

##### 15:50 Coffee Break & Poster Session

16:10 Combustion optimisation on forward moving reciprocating grates: theoretical backgrounds and practical results

Matthias Lukic, Technikgruppe GmbH

16:30 Data-driven digital twin for the treatment of hydrochloric acid in the flue gases of a Waste-to-Energy plant

Miguel Andres Leon Baez, LEAP s.c.a r.l.

16:50 Application of statistical entropy for evaluation and improvement of technologies: the FLUWA case study

Ekaterina Korotenko, Czech Academy of Sciences

17:10 The importance of the configuration of the working parameters of the wet shaker table for the recovery of metals from municipal solid waste incineration bottom ash fine fraction

Héctor Muñoz Sierra, Czech Academy of Sciences

##### 17:30 Final Discussion & Day Closing

**Wednesday, June 7<sup>th</sup> 2023**

**MORNING | Technical visit**

##### 08:30 Bus departure from Meeting Point

Palazzo Farnese - Piazza Cittadella, Piacenza

09:30 Group A: Biowaste-to-biomethane plant visit

IREN Gavassa, Reggio Emilia

Group B: Plastic sorting plant visit

I.Blu Cadelbosco di sopra, Reggio Emilia

11:00 Bus transfer

Group A: Plastic sorting plant visit

I.Blu Cadelbosco di sopra, Reggio Emilia

Group B: Biowaste-to-biomethane plant visit

IREN Gavassa, Reggio Emilia

13:00 Bus departure to Arrival Point

Palazzo Farnese - Piazza Cittadella, Piacenza

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