

Conference Program
WasteLCA_5: Advances in Sustainability
Assessment of Municipal and Challenging
Waste Management

June 7-12, 2026

Grand Hotel San Michele, Cetraro (Calabria), ITALY

Conference Chairs:

**Professors Umberto Arena, Filomena Ardolino,
Anders Damgaard and Massimiliano Materazzi**

Honorary Chair:

Professor Thomas Christensen



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Conference Chairs

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Professor **Anders Damgaard**

Associate Professor - Denmark Technical University, Denmark

Professor **Massimiliano Materazzi**

Associate Professor - University College London

Professor **Filomena Ardolino**

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Honorary Chair

Professor **Thomas Christensen**

Full Professor - Technical University of Denmark, Denmark

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Professor **Pinjing He** (Tongji University, China)

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IMPORTANT NOTES

- *All contributions have ten minutes for oral presentation (and five minutes for questions and discussion) and more time for further discussion at the poster session in the evening. Each author will also be required to prepare a poster summarizing the contents of his/her contribution. This will allow intensive discussion of the technical materials presented.*
- *Speakers: Please have your presentation loaded onto the conference computer prior to the session start (preferably the day before), and please leave at least five minutes for questions and discussion.*
- *Posters: Please put your posters on the poster boards in the dedicated area in the afternoon of the day of your presentation and remove them at the end of the evening discussion session. **The template for the poster is free, but the size should be 84 cm (width) x 119 cm (height), i.e., the standard A0.** Please, consider that there is no possibility to print posters at the conference.*
- *Audiotaping, videotaping and photography of presentations are prohibited.*
- *Please do not smoke at any conference functions.*
- *Turn your cellular telephones to vibrate or off during technical sessions.*
- *Lunches of Monday, Tuesday, Wednesday and Thursday are organized in the restaurant of the Hotel and in that of the Hotel private beach. Please make your choice at the registration desk during the coffee break.*
- *Coffee breaks are organized on the terrace of the Hotel while the afternoon refreshments in the Hotel lobby.*
- *A visit to the beautiful city of **Diamante** is scheduled for Wednesday afternoon. The cost of the city tour is included in the conference fee. Diamante is a renowned Calabrian seaside resort **famous for its over 200 murals** decorating the historic center, the island of Cirella, **and the production of its signature chili pepper** (Diamante is home to the Italian Chili Pepper Academy). This "pearl of the Tyrrhenian Sea" offers crystal-clear beaches, a quaint fishing village, and a lively waterfront, making it an ideal destination for culture, art, and the sea.*

Sunday, June 7, 2026

16:30 – 18:30	Conference Check-in
17:00 – 18:00	Meeting of Scientific Advisory and Technical Organizing Committees
18:30 – 19:30	<i>Welcome Reception</i>
19:30 – 21:00	<i>Welcome Dinner (Restaurant of the Grand Hotel Michele)</i>

Monday, June 8, 2026

07:30 – 08:30	<i>Breakfast (Terrace of Grand Hotel San Michele)</i>
08:30 – 08:45	Welcome and Conference Overview
08:45 – 09:45	PLENARY LECTURE (Chairman: <u>Prof. Umberto Arena</u>) Davide Tonini (JRC Seville, Spain) Life Cycle Thinking and assessment tools to support Circular Economy and waste policymaking

TOPIC 1: APPLICATION OF QUANTITATIVE TOOLS TO SUPPORT (WASTE AND CIRCULAR ECONOMY) POLICY IMPACT ASSESSMENT

	<u>Chairman: Dr. Davide Tonini, JRC Seville, Spain</u>
09:45 – 10:00	137_ The Role of Waste Management in the Plastics Economy: Lessons from the International Treaty Negotiations Rosalind Malcolm , University of Surrey, UK
10:00 – 10:15	156_ Qualitative assessment of quality of recycling: a new multidimensional indicator Dario Caro , University of Siena, Italy
10:15 – 10:30	125_ Dynamic modelling of municipal solid waste sorting for sustainable process integration Julie Rose Dutoit , Ecole Polytechnique Fédérale de Lausanne, Switzerland
10:30 – 11:15	<i>Coffee Break (Terrace of Grand Hotel Michele)</i>

TOPIC 2: DIGITAL TECHNOLOGIES FOR LCA: INTEGRATING BLOCKCHAIN, IoT, BIGDATA AND AI INTO LCAs

	<u>Chairman: Prof. Hua Zhang, Tongji University, China</u>
11:15 – 11:30	102_ Growing Insights from Data Roots: An Exploratory Decision Tree Approach to Identifying Environmentally Optimal Configurations for Future Waste Management Sarah Schmidt , University of Kassel, Germany
11:30 – 11:45	110_ Integrating Life Cycle Management into Emerging Sensor Technologies for Waste Collection Irmeline de Sadeleer , NORSUS, Norway
11:45 – 12:00	132_ AI-Driven Aerial Mapping for Enhanced Life Cycle Management of Unauthorized Construction and Demolition Waste Adi Mager , Tel Aviv University, Israel
12:00 – 12:15	113_ Handling waste in the cloud, versus handling waste on the ground: an assessment of potential environmental trade-offs in smart waste collection systems Bram van de Glind , NORSUS, Norway
12:30 – 14:00	<i>Lunch (Hotel private beach or restaurant of the Grand Hotel San Michele)</i>
14:00 – 16:30	Free time / <i>ad hoc</i> sessions

16:30 – 17:15	<i>Afternoon Refreshments (Terrace of Grand Hotel Michel or Hotel lobby)</i>
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TOPIC 3: LCM TOOLS AND METHODOLOGIES (LCA, LCC, S-LCA) FOR QUANTITATIVE ASSESSMENT OF MUNICIPAL SOLID WASTE MANAGEMENT (PART I)

	<u>Chairman: Dr. Sarah Schmidt, University of Kassel, Germany</u>
17:15 – 17:30	101_A Life Cycle Approach to Sustainable Municipal Solid Waste Management in Indian Sub-Continent Musharof Khan , Lappeenranta-Lahti University of Technology LUT, Finland
17:30 – 17:45	120_ Roadmap for mitigating greenhouse gas emission from municipal solid waste incineration in China Hua Zhang , Tongji University, China
17:45 – 18:00	154_ Revamping of a small-scale WtE unit: environmental sustainability of alternative solutions Francesco Parrillo , University of Campania, Italy
18:00 – 18:15	116_ Environmental optimization of territorial biowaste management Nomena Ravoahangy , Université de Technologie de Compiègne, France
18:15 – 18:30	151_ DeNOx systems in Waste-to-Energy plants: catalytic or non-catalytic reduction? A comparative life cycle assessment based on European operational data Alessandro Dal Pozzo , University of Bologna, Italy
19:30 – 21:00	<i>Dinner (Restaurant of the Grand Hotel San Michele): Calabrian event</i>
21:00 – 22:30	Poster session with social hour

Tuesday, June 9, 2026

07:30 – 08:45	<i>Breakfast</i>
08:45 – 09:45	PLENARY LECTURE (Chairman: Prof. Mario Grosso, Milan Polytechnic, Italy) Thomas H. Christensen (Denmark Technical University, Denmark) Waste Management in the Green Transition to a Post-fossil Society

TOPIC 4: LCM TOOLS AND METHODOLOGIES FOR THE MANAGEMENT OF SPECIFIC CHALLENGING WASTE STREAMS (E.G., SANITARY WASTE; RADIOACTIVE WASTE; MINERAL WASTE) IN A CIRCULAR ECONOMY PERSPECTIVE

	<u>Chairman: Prof. Mario Grosso, Milan Polytechnic, Italy</u>
09:45 – 10:00	135_ Methodological Challenges in the Life Cycle Assessment of Thermal Treatments for Industrial Hazardous Waste Filomena Ardolino , University of Campania, Italy
10:00 – 10:15	134_ Life Cycle Assessment of End-of-life Options for Thermoplastic Starch Inés Oliver Ramírez , Universidad de Alicante, Spain
10:15 – 10:30	128_ Assessing the sustainability of an innovative circular economy process for managing microfibers from washing machine wastewater Giulia Costa , University of Rome Tor Vergata, Italy
10:30 – 10:45	148_ LCA of mechanically shredded Wind Turbine Blade Waste (WTBW) composite for use as an aggregate in construction industry. David Hysi , RWTH AACHEN University, Germany
10:45 – 11:15	<i>Coffee Break (Terrace of Grand Hotel San Michele)</i>
	<u>Chairman: Professor Pinjing He, Tongji University, China</u>
11:15 – 11:30	118_ Repair over Replacements of Clothing in Denmark – What to Model and How Valentina Rossi , Denmark Technical University, Denmark
11:30 – 11:45	117_ Environmental impacts of Deep Geological Repository design options Andrea Paulillo , University College London, United Kingdom
11:45 – 12:00	115_ Which factors affect environmental burdens and benefits associated with valorisation of fish sludge? Kari-Anne Lyng , NORSUS, Norway
12:00 – 12:15	111_ Circular Economy strategies for first end of life of Photovoltaic Panels Chandan Gopal , Denmark Technical University, Denmark
12:15 – 12:30	123_ Environmental Sustainability of Alternative Management Schemes for Infectious Health Care Waste: Methodological Approach and Case Study Michele Monaco , University of Campania, Italy
12:30 – 14:00	<i>Lunch (Hotel private beach or restaurant of the Grand Hotel San Michele)</i>
14:00 – 16:30	Free time / <i>ad hoc</i> sessions
16:30 – 17:15	<i>Afternoon Refreshments (Terrace of Grand Hotel Michel or Hotel lobby)</i>

TOPIC 5: PROSPECTIVE LCM TOOLS AND METHODOLOGIES FOR EMERGING TECHNOLOGIES FOR WASTE MANAGEMENT AND RESOURCE OPTIMIZATION

	<u>Chairman: Prof. Fan Lu, Tongji University, China</u>
17:15 – 17:30	104_ Evaluating the role of temporal carbon storage and release in PLA end-of-life management following the BBM-LCA approach Nil Gureli , RWTH Aachen, Germany
17:30 – 17:45	122_ Dynamic LCA on climate change impacts of incinerating old waste from landfills Yan Zhao , Beijing Normal University, China
17:45 – 18:00	108_ Integrating Dynamic Material Flow Analysis and Waste LCA to Advance Circularity of Long-Lived Plastics Sarah Schmidt , University of Kassel, Germany
18:00 – 18:15	109_ Cascading Carbon: Addressing Limitations in LCA Methodology for Biogenic Waste Streams in a Circular Economy Hannah Köhler , RWTH Aachen, Germany
19:30 – 21:00	<i>Dinner (Restaurant of the Grand Hotel San Michele)</i>
21:00 – 22:30	Poster session with social hour

Wednesday, June 10, 2026

07:30 – 08:45	<i>Breakfast</i>
08:45 – 09:45	PLENARY LECTURE (Chairman: <u>Prof. Thomas Christensen, DTU, Denmark</u>) Lidia Lombardi (University Cusano, Italy) Advanced Integrated Municipal Solid Waste Management System: LCT supporting toward sustainability

TOPIC 6 LCM TOOLS AND METHODOLOGIES FOR SPECIFIC WASTE TECHNOLOGIES AND THEIR INTEGRATION INTO CONNECTED SYSTEMS (E.G., TRANSPORT; BIOREFINERIES; CARBON CAPTURE STORAGE AND UTILIZATION)

	<u>Chairman: Prof. Thomas Christensen, DTU, Denmark</u>
09:45 – 10:00	106_ Regionalizing wastewater treatment in the Ecoinvent database: enabling AWARE Sebastian Kjærulff Jensen , Ecoinvent, Switzerland
10:00 – 10:15	112_ Assessing the environmental performance of neutral hydrothermal processing of polyethylene terephthalate (PET) with aqueous phase recirculation as a water management strategy Aiman Shabbir , Aalborg University, Denmark
10:15 – 10:30	114_ Parametric LCA of coupled hydrothermal and anaerobic digestion systems for organic waste valorization Kassem Ibrahim Al Houssaini , Polytechnique Montreal, Canada
10:30 – 10:45	126_ Life Cycle Assessment of Low-Carbon Olefin Production from Waste Biomass via Methanol to Olefins with Carbon Capture and Storage Idris Uthman , University College London, United Kingdom
10:45-11:30	<i>Coffee Break (Terrace of Grand Hotel San Michele)</i>
	<u>Chairman: Prof. Massimiliano Materazzi, UCL, United Kingdom</u>
11:30 – 11:45	140_ CO2 reduction effects by using distributed MSW pyro-reforming system Dezhen Chen , Tongji University, China
11:45 – 12:00	146_ Comparative Life Cycle Assessment of thermal treatment pathways for urban sewage sludge Alexander Gomez , Universidad Nacional de Colombia, Colombia
12:00 – 12:15	130_ Life cycle assessment of bio-synthetic natural gas from residual potato biomass in southern Italy Vincenzo Del Duca , Università degli Studi di Napoli Federico II, Italy
12:30 – 14:00	<i>Lunch (Hotel private beach or restaurant of the Grand Hotel San Michele)</i>

14:00 – 18:30	<i>Visit to Diamante</i>
19:30 – 21:00	<i>Dinner - Pizza event</i>
21:00 – 22:00	Poster Session with Social Hour

Thursday, June 11, 2026

07:30 – 08:45	<i>Breakfast</i>
08:45 – 09:30	PLENARY LECTURE (<u>Chairman: Dr. Rose Mankaa, RWTH Aachen Univ., Germany</u>) Andrea Paulillo (University College London, United Kingdom) Planetary Boundaries incorporation in Life Cycle Assessment.

TOPIC 7 ABSOLUTE ENVIRONMENTAL SUSTAINABILITY ASSESSMENT

	Chairman: <u>Doctor Kari-Anne Lyng, Norsus, Norway</u>
09:30 – 09:45	107_ Absolute LCA of multifunctional systems: economic allocation or system expansion in the strict sense? The case of waste-to-energy plants Giulia Cavenago , Politecnico di Milano, Italy
09:45 – 10:00	121_ Absolute Environmental Sustainability Assessment of Waste-to-Energy coupled with carbon capture and utilisation or storage Andrea Paulillo , University College London, United Kingdom
10:00-10:45	<i>Coffee Break (Terrace of Grand Hotel San Michele)</i>

TOPIC 8 ECONOMIC MODELS FOR ASSESSMENT OF WASTE & CIRCULAR ECONOMY

	Chairman: <u>Prof. Giulia Costa, University of Rome Tor Vergata, Italy</u>
10:45 – 11:00	105_ Using integrated LCA modeling to identify optimal global investment pathways for plastic and GHG reduction Malak Anshassi , Florida Polytechnic University, USA
11:00 – 11:15	142_ Households' Habits and Preferences concerning E-waste Delivery: a Behavioral Study Antonio Massarutto , University of Udine, Italy
11:15 – 11:30	138_ ASCANIUS - ASsessing eEconomic And eNvironmental Impacts of cheese making residUes treatments using comparative LCA and LCC methods. Sara Bertolini , Università Telematica UniCusano - Roma, Italy
11:30 – 11:45	149_ Repair over replacement of consumer goods in Denmark Emil Laurberg Pedersen , Technical University of Denmark, Denmark
11:45 – 12:00	144_ Is Reuse Always Better than Recycling? an LCA Case-study about Secondary Packaging in the Household Appliances Sector Antonio Massarutto , University of Udine, Italy
12:00 – 12:15	147_ Analysis of municipal solid waste flow in a higher education institution in Mexico: quantification and characterization. Leslie Cardoza Cedillo , Universidad de Monterrey, Mexico
12:30 – 14:00	<i>Lunch (Hotel private beach or restaurant of the Grand Hotel San Michele)</i>
14:00 – 16:30	<i>Free time /ad hoc sessions</i>
16:30 – 17:15	<i>Afternoon Refreshments (Terrace of Grand Hotel Michel or Hotel lobby)</i>

TOPIC 9 LCM TOOLS AND METHODOLOGIES FOR PLASTICS WASTE STREAMS

	<u>Chairman: Prof. Dezhen Chen, Tongji University, China</u>
17:15 – 17:30	136_ Life Cycle Assessment of post-consumer WEEE plastics: the influence of allocation in recycling systems Federico Iorio Esposito , Politecnico di Milano, Italy
17:30 – 17:45	124_ Innovation in circular packaging: establishing a recycling chain for yogurt cups Catarina Faria , PIEP, Portugal
17:45 – 18:00	P103_ Advancing Circular Construction Materials: LCA of Recycled Polyethylene Electrical Conduits Bruna Machado , PIEP, Portugal
18:00 – 18:15	157_ Self-Modelled EU-Level End-of-Life Scenario for LCA: Harmonised Waste Treatment Modelling in Support of Plastic Removal Technologies Tanja Tajnik , University of Maribor, Slovenia
18:15 – 19:45	Poster Session with Social Hour
20:00 – 22:00	<i>Gala Dinner</i>

Friday, June 12, 2026

07:30 – 09:00	<i>Breakfast on the terrace of Grand Hotel San Michele</i>
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TOPIC 3: LCM TOOLS AND METHODOLOGIES (LCA, LCC, S-LCA) FOR QUANTITATIVE ASSESSMENT OF MUNICIPAL SOLID WASTE MANAGEMENT (PART II)

	<u>Chairman: Prof. Lidia Lombardi, Unicusano, Italy</u>
09:30 – 09:45	119_ Mass Flow of Recyclable Materials in Shanghai’s MSW Fan Lü , Tongji University, China
09:45 – 10:00	150_ Life Cycle Sustainability Assessment of Electricity Generation from Municipal Solid Waste in Nigeria: A Prospective Study Oluwaseun Nubi , Sustainable Solutions Services, United Kingdom
10:00 – 10:15	143_ Do Households Really Prefer Returnable Packaging? a Choice-experiment Study on Italian Consumers Antonio Massarutto , University of Udine, Italy
10:15 – 10:30	145_ Life cycle greenhouse gas emissions from municipal solid waste management scenarios in Brazil Hugo Souza , Central de Custodia, Brazil
10:30 – 10:45	P102_ Integrated municipal solid waste management in the Marche region (Italy): a high-resolution LCA analysis on flows, logistics, and infrastructure Giulia Barchiesi , Polytechnic University of Marche, Italy
10:45 – 11:15	<i>Coffee Break (Terrace of Grand Hotel Michele)</i>
11:15 – 12:15	Poster Session
12:15 – 13:00	OVERALL DISCUSSION, FEEDBACK, WHAT IS NEXT? CONCLUDING REMARKS AND CLOSING OF CONFERENCE
13:00 – 14:00	<i>Lunch at the restaurant of the Hotel and Departure</i>