



Waste-Energy-Water Nexus: Materials & Processes 2025

Italy
China
South Africa
2025

15 July 2025

10:00 - 17:30 (CET)

Campus di Rimini / Complesso Alberti, Aula 8
Via Carlo Cattaneo 17, 47921 Rimini, Italy

<https://maps.app.goo.gl/6VEyNZgRuJN7ITE29>

10:00 - Registration

10:30-11:10 - Authorities

- Francesca Soavi and Daniele Fabbri - UNIBO
Scientific coordinators of WEW 2025
- Alessandra Guidi, Scientific Expert from the Italian
Embassy in China
- Catia Arbizzani, Delegate for International
Relationships, Department of Chemistry "G.
Ciamician" - UNIBO
- Massimiliano De Agostinis, Director of CIRI MAM -
UNIBO
- Anna Montini, Delegate for the Municipality of
Rimini
- Katia Ferrari, Cluster Manager at Clust-ER
Greentech

**11:10-13:20 - Scientific session I - Chaired by
Daniele Fabbri**

11:10 - Key Note - Shurong Wang, Zhejiang University
"Valorizing biomass waste into multifunctional
aerogels for solar energy harvesting and water
remediation"

11:40-12:10 - Coffee break

12:10 - Invited lecture - Osvalda Senneca, CNR-
STEMS "Thermochemical reactions of iron and
biomass within the H₂, energy, water nexus"

12:30 - Invited lecture - Paola Giudicianni, CNR-
STEMS "Influence of heating rate and residence time
on biochar properties across pyrolysis"

12:50 - Regular oral - Luca Bottoni, University of
Camerino "A sustainable anode for Na-ion batteries
based on holm oak waste-derived hard carbon and
lignin binder"

13:05 - Regular oral - Davide Gramigni, University of
Bologna "Understanding pH effects on nickel-
graphene catalysts to optimize the oxygen evolution"

13:20-15:00 - Lunch buffet

**15:00-17:00 - Scientific session II - Chaired
by Shurong Wang**

15:00 - Key Note - Haiping Yang, Huazhong
University of Science and Technology "Renewable
energy driven biomass conversion for H₂ and
biochar"

15:30 - Regular oral - Corinna Maria Grottola, CNR -
STEMS "Influence of temperature and atmospheric
conditions on heavy metal behaviour during biomass
pyrolysis"

15:45 - Regular oral - Davide Amato, CNR-STEMS
"Insights on the effects of Pb speciation and
contamination type on lignocellulosic biomass
pyrolysis"

16:00 - Regular oral - Edoardo Tito, Politecnico di
Torino "Hydrothermal liquefaction as a valorization
pathway for biomass and plastic wastes"

16:15 - Regular oral - Serena Monaco, Sapienza
University of Rome "Hydrothermal liquefaction of
mixed plastic waste: Conversion and resource
recovery"

16:30 - Regular oral - Erica Ribechini, Sapienza
University of Rome "Pyrolysis of polyolefins: Kinetic
and experimental study"

16:45 - Regular oral - Mirko Magni, University of
Milan "Electrochemistry as a polyvalent tool in the
design of an industrially relevant process for
recycling of spent lithium-ion batteries"

17:00-17:30 - Closing tea

Organizing secretariat: wew.ics25@unibo.it



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16 July 2025

9:30 - 17:30 (CET)

Centro di Ricerca Ambiente Energia, Ambiente e Mare
Viale Ciro Menotti, 48, 48122 Marina di Ravenna

<https://maps.app.goo.gl/S7ETRjg3HueHkqw39>

09:30 Registration & poster show up

10:00 Welcome coffee

10:30-11:15 Authorities

- Francesca Soavi and Daniele Fabbri - UNIBO
Scientific coordinators of WEW 2025
- Alessandro Martinini, Municipality of Ravenna
- Maria Letizia Focarete, Director of the
Department of Chemistry "G. Ciamician" -
UNIBO
- Francesco Basile, Director of CIRI-FRAME -
UNIBO
- Luca Tiano, Scientific Attaché Italian Embassy
in Pretoria
- Luca Cipriani, Director of Ravenna campus -
UNIBO
- Andrea Contin, FIP-WE@UNIBO

**11:15-12:30 - Scientific session I - Chaired
by Francesca Soavi**

11:15 - Key Note - Ncholu Manyala, University of
Pretoria "Chemical and electrochemical extraction
of transition metals from LiB leachates for MOF-
based Supercapacitor Electrodes"

11:45 - Invited lecture - Camilla Zanoni, University
of Pavia "How long-term research is supporting
battery recycling: the Horizon Europe REMOVATE
project"

12:05 - Invited lecture - Antonio Conversano,
Polytechnic of Milan "Integrated valorization of
meat residues for biomethane and hydrochar
production"

**12:30-13:30 - Visit of EnerCUBE Lab & FIP-
WE@UNIBO Lab**

13:30-15:00 - Lunch buffet

14:00-15:00 - Poster session

**15:00-16:45 - Scientific session II - Chaired
by Ncholu Manyala**

15:00 - Regular oral - Cléo Pires, University of
Bologna "Quasi-solid electrolytes/membranes based
on zeolite A for safer batteries"

15:15 - Regular oral - Leonardo Sparascio, University
of Bologna "Selective recovery and valorization of
permanent magnet content from end-of-life electric
motors"

15:30 - Regular oral - Luca Vignali, University of
Bologna "Improve renewable energy integration
through pumped hydro storage: STORE2HYDRO
Project"

15:45 - Regular oral - Federica Mancini, CNR-ISSMC,
"From waste to bioimaging: Fluorescent carbon dots
derived from food industry residues"

16:00 - Regular oral - Anna Liguori, University of
Bologna "Bio-based molecules and dynamic covalent
bonds for the development of recyclable and self-
healing thermosets and coatings"

16:15 - Regular oral - Jun Li, Huazhong University Of
Science And Technology "Molten salt assisted algae
pyrolysis for H₂ and capacitive carbon production"

16:30 - Regular oral - Cristian Torri, University of
Bologna "Preliminary investigation on pyrolysis-
anaerobic digestion integration for the safe
exploitation of digestate"

**16:45-17:30 - Closing remarks, awards
assignment & final toast**

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Poster presentation

P01 - Amato D. (Institute of Sciences and Technologies for Sustainable Energy and Mobility - STEMS-CNR, 80125, Napoli, Italy), Giudicianni P., Grottola C.M., Fabozzi G., Ragucci G. *"Biomass pyrolysis for MILD combustion and dry reforming feedstocks production"*

P02 - Blancato F. (National Research Council of Italy), Trifoglio A., Favaretto L., Khaliha S., Zambianchi M., Rossin A., Melucci M. *"Oligothiophene and oligoselenophene based Zirconium MIXMOFs for water quality control"*

P03 - El Halimi M.S. (Laboratory of Chemical Engineering and Resources Valorization, Faculty of Sciences and Techniques, Abdelmalek Essaadi University, Ancienne Route de l'Aéroport, Km 10, Ziaten. BP: 416, 90000, Tangier - Morocco), Souikny A., Achak O., Zanelli A., Soavi F., Chafik T. *"Transformation of argan shell bio-waste into high-performance carbon materials for supercapacitor applications"*

P04 - Filomena M. (Department of Chemistry and Industrial Chemistry, Via Giuseppe Moruzzi 13, 56124, Pisa, Italy), Mattonai M., Nardella F., Ribechini E. *"Eutectic solvents and microwave heating for a sustainable lignin extraction and fractionation from biomass"*

P05 - Khaliha S. (Institute for Organic Synthesis and Photoreactivity (ISOF), National Research Council of Italy (CNR), Bologna, Italy), Trifoglio A., Pintus A., Blancato F., Bocchi L., Melucci M. *"Upcycling of plastic scraps from biomedical membrane production and their reuse in water treatment technologies"*

P06 - Lambiase B. (Department of Industrial Chemistry "Toso Montanari", University of Bologna, via Piero Gobetti 85, 40129, Bologna, Italy), Luzzati G., Scurti S., Barlocco I., Villa A., Caretti D., Dimitratos N. *"Urea hydrolysis in batch reactors: preliminary optimisation of reaction setup and process conditions"*

P07 - Lezza A. (Department of Chemical and Geological Sciences, University of Modena and Reggio Emilia), D'Eusanio D., Burello M., Rivi M., Roncaglia F. *"Biochars as conductive filler in bipolar plate"*

P08 - Marzorati A.L. (Dipartimento di Chimica "Giacomo Ciamician", Università di Bologna, Via Piero Gobetti 85, 40129 Bologna), Samorì C., Galletti P., Soavi F., Petri E. *"Deep Eutectic Solvents (DESS) as sustainable alternative electrolytes for Vanadium Redox Flow Batteries (VRFBs)"*

P09 - Mascetti F. (Department of Chemistry "Giacomo Ciamician", Alma Mater Studiorum University of Bologna), Xierzati S., Mojtahedi S., Vitale A., D'Agostino S., Samorì C., Rombolà A.G., Sparascio L., Zentile C., Cespi D., Passarini F., Staffolani A., Manyala N., Soavi F. *"An environmentally sustainable approach for metal recovery from battery cathode production scraps"*

P10 - Mutshaeni F.B. (Department of Physics, Institute of Applied Materials, SARCHI in Carbon Technology and Materials, University of Pretoria 0028, South Africa), Rutavi G., Kirui J.K., Soavi F., Manyala N. *"Selective separation of lithium and transition metals from spent Li-ion battery leachate using p-tert-octylphenoxyacetic acid via extraction-precipitation"*

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Poster presentation

P11 - Pontiroli D. (Università di Parma, Dipartimento di Scienze Matematiche, Fisiche e Informatiche), Rinaldi A., Ahmad N., Magnani G., Sidoli M., Milanese C., Riccò M. *"Tailoring porosity of activated biochar for energy storage applications"*

P12 - Rajagopalan K. (VisioNing srl), Falletta E., Magni M., Marzorati S., Meroni D., Adani F., Bianchi C.L. *"VisioNing: valorization of agro-industrial wastewater. From research bench to business"*

P13 - Rutavi G. (Department of Physics, SARCHI in Nano Materials for Energy storage and Water purification applications), Mutshaeni F.B., Kirui J.K., Soavi F., Manyala N. *"Controlled Electrodeposition of Co/Ni-MOF from NMC-333 leach solution from Lithium-Ion Battery Materials for Supercapacitor electrode application"*

P14 - Squillantini L. (Consiglio Nazionale delle Ricerche, Istituto per lo Studio dei Materiali Nanostrutturati (CNR-ISMN)), Tocco D., Natali M., Gnoli L., Mezzi A., Dionigi C., Lunedei E., Liscio F., Parisini A., Serì M., Fratini E., Ruani G., De Giorgio F. *"Sustainable carbon nanoparticles as additives in inverted hybrid perovskite solar cells"*

15 - Vitale A. (Department of Chemistry "Giacomo Ciamician", Alma Mater Studiorum University of Bologna), Xierzati S., Mojtahedi S., Mascetti F., D'Agostino S., Samorì C., Rombolà A.G., Sparascio L., Zentile C., Cespi D., Passarini F., Staffolani A., Manyala N., Soavi F. *"Sustainable recovery of cobalt from spent cathodes into functional 1D/2D coordination polymers"*

P16 - Xiong Z. (Department of Chemistry Giacomo Ciamician, University of Bologna, Tecnopolo di Rimini, via Dario Campana 71, 47922, Rimini), Ahmadi E., Fabbri D., Facchin A., Rombolà A.G., Torri C., Soavi F., Marcaccio M., Yang H.P., Wang S.R. *"Development of LaFeO₃ perovskite and molten salt activated sewage sludge biochar modified screen-printed electrode for the determination of methylparaben in seawater samples"*

P17 - Zanoni C. (Department of Chemistry University of Pavia, Via Tramelli 12, 27100, Pavia, Italy), Callegari D., Merli D., Quartarone E. *"Solvometallurgical approach for the recovery of valuable metals from EoL batteries"*

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