



SIDISA 2024

XII International Symposium on Environmental Engineering

PALERMO

October 1st - 4th

Scientific Program



**Università
degli Studi
di Palermo**



GITISA
Gruppo Italiano di
Ingegneria Sanitaria Ambientale

ANIS ASSOCIAZIONE
NAZIONALE DI INGEGNERIA
SANITARIA AMBIENTALE

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PRESIDENZA



ORDINE DEGLI INGEGNERI
DELLA PROVINCIA DI PALERMO



MINISTERO DELL'AMBIENTE
E DELLA SICUREZZA ENERGETICA



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STRAORDINARIO UNICO
PER LA DEPURAZIONE



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ORGANIZING COMMITTEE



PALERMO

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XII

International
Symposium on
Environmental
Engineering

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Alice Sorrenti

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Fabrizio Puleo

SUPPORT TO ORGANIZING COMMITTEE



- 2:00 - 3:00 PM Participants registration
Groundfloor
Building 19
- 3:00 - 3:15 PM Opening Ceremony and Symposium Program presentation
Prof. Michele Torregrossa *University of Palermo*
Plenary Hall – Engineering Department Bld. 7
- 3:15 - 3:30 PM Greetings from the Authorities
Prof. Massimo Midiri *Magnificent Rector, Università di Palermo*
On. Renato Schifani *President of Sicilian Region*
Prof. Roberto Lagalla *Mayor of Palermo*
- 3:30 - 3:45 PM Other Greetings
Prof. Antonino Valenza *Director of Engineering Department, Università di Palermo*
Prof. Mariachiara Zanetti *President of GITISA, Politecnico di Torino*
Prof. Vincenzo Belgiorno *President of ANDIS, Università di Salerno*
- 3:45 - 4:10 PM Greetings from the European Water Association (EWA)
"Digital tools in water and wastewater process surveillance and control"
Prof. Harsha Ratnaweera *(Vice President of EWA)*
- 4:10 - 4:30 PM "Harmony of contrasts", a taste of Sicily
Elisabetta Calandrino
- 04:30-05:15 PM KEYNOTE
Prof. Glen Daigger *University of Michigan (USA)*
"Urban water and wastewater management:
new challenges in a continuous transforming sector"
Plenary Hall – Engineering Department Bld. 7



09:00-09:45 AM KEYNOTE

Prof. Raffaello Cossu - *Univeristy of Padova*

"Perspectives and developments of Circular Economy in Municipal waste management"

Plenary Hall – Engineering Department Bld. 7

09:45-09:50 AM Communications about the journal "Ingegneria dell'Ambiente"

Prof. Roberto Canziani - *Politecnico di Milano*

Plenary Hall – Engineering Department Bld. 7

PARALLEL PLATFORM SESSIONS - BUILDING 19

SESSION A1 ROOM 9

Wastewater treatment - *Anaerobic digestion*

Chairs **Vincenzo Naddeo (IT)** - **Maria Cristina Lavagnolo (IT)**

10:00-10:15 AM Comparison between poly aluminum chloride and aluminum sulfate in sludge anaerobic digestion: impacts and drawbacks of Al-based inorganic coagulants in a circular economy perspective

F., Pasciucco, E. Pasciucco, A. Castagnoli, R. Iannelli, I. Pecorini

Università di Pisa

10:15-10:30 AM Optimizing the Ultrasound Treatment of Anaerobic Digestate for its wider valorization: Impact of a Flow-Through Configuration with a Rod-Shaped Transducer

E., Ciotola, A., Cesaro, G., Esposito, F., Pirozzi

Università di Napoli Federico II

10:30-10:45 AM Production of Volatile Fatty Acids from the Source Separated Organic Fraction of Municipal Solid Waste and Wastewater Sludge: Semi-continuous Tests Results

D., Pangallo, M. Ferreri, A., Pedullà, D., Zema, P.S., Calabria

Università Mediterranea di Reggio Calabria

10:45-11:00 AM Valorization of secondary sludge through hydrothermal carbonization and acidogenic fermentation: influence of reactors configurations and process parameters

M., Pesenti, M., Grana, A., Kiwan, D., Pirini, M. J., Hernandez Sanchez, E., Ficara, A., Turolla

Politecnico di Milano

SESSION B1 ROOM 10

Drinking water - *Removal and control of emerging contaminants*

Chairs Margherita Ferrante (IT) - Tiziano Zarra (IT)

- 10:00-10:15 AM Sampling devices for MPs analysis in sources of water for human consumption, with focus on the Tiber river
M., Barchiesi, F., Mangiagli, C., Di Marcantonio, A., Chiavola, M. R., Boni
Università di Roma La Sapienza
- 10:15-10:30 AM Spectroscopic indexes developed for controlling DBPs precursors in drinking water processes
A., Di Bella, S., Martí, P., Emiliano, F., Valero, M.J., Farré, P., Roccaro
Università di Catania
- 10:30-10:45 AM Research into determining and removing microplastics from tap water: the AQUApLAST project.
G., Oliveri Conti, E., Pulvirenti, P., Rapisarda, G., Deiana, G., Mancini, M. A. Coniglio, P., Castiglia, A., Azara, M., Ferrante, M., Dettori
Università di Catania
- 10:45-11:00 AM Innovative regeneration based on microwave irradiation for PFAS-loaded GAC
E., Gagliano, P.P., Falciglia, N.C., Birben, Y., Zaker, T., Karanfil, P., Roccaro
Università di Genova

SESSION C1 ROOM 11

Climate change - *Climate change and water quality*

Chairs Giorgio Bertanza (IT) - Massimiliano Lega (IT)

- 10:00-10:15 AM Analysing changes in precipitation trends across northern Italy's climatic divide
S., Costanzini, M., Boccolari, F., Despini, L., Lombroso, S. V., Parra, S., Teggi
Università di Modena e Reggio Emilia
- 10:15-10:30 AM Water Safety Plan as a tool for climate resilient water supply: a case study in Nepal
M., Pezzato, S., Sorlini
Università di Brescia



10:30-10:45 AM Impacts of Climate Change on Italian Drinking Water Supply Systems:
Experiences and Adaptation Strategies of Water Utilities
S., Sorlini, H.T.K., Tran, S., Mujahid
Università di Brescia

10:45-11:00 AM Carbon dioxide removal strategies and ocean alkalinity enhancement:
a review of a developing and promising field of research
S., Caserini
Università di Parma

SESSION D1 ROOM 12

Municipal and industrial waste - Energy recovery and production
Chairs **Marco Race (IT) - Mario Grosso (IT)**

10:00-10:15 AM Bioenergy potential from green waste through lab-scale anaerobic digestion:
Thermophilic versus mesophilic conditions
A., Folino, A., Randazzo, F., Tassi, **F., Tatàno**, S., De Rosa, A., Gambioli
Università di Urbino

10:15-10:30 AM Dual-Purpose Valorization of Olive Pomace:
Energy Production and Agricultural Application via Hydrothermal Carbonization
G., Farru, D., Cabras, M., Ghaslani, A., Orsini, G., Cappai
Università di Cagliari

10:30-10:45 AM Biohydrogen production from organic waste using wine lees as inoculum
for the dark fermentation process
F., Bianco, M., Race
Università di Cassino e del Lazio Meridionale

10:45-11:00 AM Biohydrogen production from Municipal Solid Waste (MSW): paving the way
for a sustainable future according to the circular economy and energetic transition
F., Romano, V., Naddeo, V., Belgiorno, O., García-Depraect, R., Muñoz, T., Zarra
Università di Salerno

11:00-11:30 AM **COFFEE BREAK**

SESSION A2 ROOM 9

Wastewater treatment - Wastewater reuse

Chairs **Francesco Di Capua (IT) - Alessandra Cesaro (IT)**

- 11:30-11:45 AM Interdisciplinary assessment for crops irrigation with reclaimed wastewater
F., Mangiagli, C., Di Marcantonio, M., Barchiesi, A., Martelli, F., Altobelli, E., Di Marcantonio, M., Marchiesi, L., Dallai, S., Bongirolami, J., Bartolucci, R., Romano, A., Chiavola, M. R., Boni
Università di Roma La Sapienza
- 11:45-12:00 PM Development of innovative multifunctional filters for pre- and post- irrigation water treatment.
S., Filice, V., Scuderi, E.L., Sciuto, R., Farina, S., Libertino, M.A., Coniglio, S., Scalese
CNR Catania
- 12:00-12:15 PM Risk assessment in the case of reuse of reclaimed water – A proposed methodology
P., Verlicchi, V., Grillini, V., Vilar, M. P., Castro, C., Sáez, M. A., R. P., Krzeminski
Università di Ferrara
- 12:15-12:30 PM Water Re-use after treatment of industrial water resulting from the Peroxide and Peracetic Acid production
M.G., Chieti, A., Cherubini, N., Ciuccoli, D., Caterino, M., Sgroi, F., Ulivari, A.L., Eusebi, F., Fatone
Università Politecnica delle Marche
- 12:30-12:45 PM Water reuse opportunities and challenges for Galdieria sulphuraria cultivation
M., Malaguti, M., Carone, M.C., Zanetti, A., Tiraferri, V., Riggio
Politecnico di Torino
- 12:45-1:00 PM Membrane Bioreactor as a cost-effective solution for water reuse and bacteria, viruses, and micro pollutants removal
A., Fischer, **M., Werner**, D., Schreier
Mann + Hummel Water & Fluids Solution spa



SESSION B2 ROOM 10

Drinking water - Emerging challenges in operation
Chairs Paolo Roccaro (IT) - Danilo Spasiano (IT)

- 11:30-11:45 AM Hydrogenotrophic denitrification of nitrate-contaminated supply water using anaerobic granular sludge in up-flow bioreactors
E., Marino, A., Oliva, S., Papirio, G., Esposito, F., Pirozzi
Università di Napoli Federico II
- 11:45-12:00 PM Management of the drinking water supply chain under climate change: new threats require new strategies
B., Cantoni, M., Matracchi, M., Stefanoni, B., Bastante, I., Epifani, M., Antonelli
Politecnico di Milano
- 12:00-12:15 PM A validated and upgraded turbidity robustness index aligned with the new drinking water EU Directive 2020/2184
F., De Marines, S.F., Corsino, A., Cosenza, M., Capodici, M., Torregrossa, G., Viviani
Università di Palermo
- 12:15-12:30 PM Effect of applied current on simultaneous bioelectrochemical denitrification and desalination of groundwater
S., Hosseini, A., Carucci, C., Armas, N., Pous, S., Puig, S., Milia
Università di Cagliari
- 12:30-12:45 PM Application of potassium ferrate to address emerging challenges in drinking water treatment plant
F., De Marines, **M., Castiglione**, M., Capodici, S.F., Corsino, M., Torregrossa
Università di Palermo
- 12:45-1:00 PM Application of flow cytometry for groundwater quality monitoring within the Water Safety Plans
M., Menghini, S., Vezzoli, B., Lovisetto, R., Pedrazzani
Università di Brescia

SESSION C2 ROOM 11

Climate change - *Climate change effects preventing and control*
Chairs **Sabrina Sorlini (IT) - Antonio Panico (IT)**

- 11:30-11:45 AM Algal photobioreactors: advanced CO₂ valorisation biotechnology in an ecological transition perspective to control climate change
F., Pasquarelli, G., Oliva, V., Belgiorno, V., Naddeo, T., Zarra
Università di Salerno
- 11:45-12:00 PM An innovative wireless tool (LESSDRONE) for multipurpose investigations aimed at optimizing water resource recovery facilities (WRRFs) aeration process
R. Gori, I. Ducci, S. Dugheri, C. Caretti
Università di Firenze
- 12:00-12:15 PM Garden streets in urban areas - pilot project in the city of Antwerp
G., Luyckx, L., De Waele
Aquafin nv
- 12:15-12:30 PM Normalized measurement proposal for carbon footprint quantification in combined sewer system
L., Tombolini, D., Caterino, L., De Simoni, J., Domizi, M., Camerini, C., Cecchetto, M., Sgroi, G., Darvini, A. L., Eusebi, F., Fatone
Università Politecnica delle Marche
- 12:30-12:45 PM Modelling spatial changes of Soil Organic Carbon in Flanders, Belgium
S., Spotorno, A., Gobin, F., Vanongeval, A., Del Borghi, M., Gallo
Università di Genova
- 12:45-1:00 PM Energy efficiency in wastewater treatment plant: benchmark analysis on more than 50 plants in Sicily
D., Di Trapani, M., Carciola, S.F., Corsino, A., Cosenza, G., Di Bella, G., Gravina, L., Gurreri, A., Luciano, G., Mancini, M., Langone, D., Mattioli, **L., Petta, G.,** Sabia, G., Sciortino, M., Torregrossa, G., Viviani
Enea



SESSION D2 ROOM 12

Municipal and industrial waste - *Material recovery*Chairs **Paolo Viotti (IT)** - **Deborah Panepinto (IT)**

- 11:30-11:45 AM Vermicomposting applied to OFMSW: study with laboratory-scale vermicomposters
E., Licitra, G., Di Bella
Università di Enna Kore
- 11:45-12:00 PM Evaluation of the leaching behaviour of different types of recycled aggregates from Construction and Demolition (C&D) waste for potential utilization
L., Acampora, G., Costa, F., Lombardi, A., Paina, N., Tonolo, I., Verginelli
Università di Roma Tor Vergata
- 12:00-12:15 PM Fish discard valorisation into low carbon biochar-compost composite
S., Nisar, J., González-Camejo, A. L., Eusebi, F., Fatone
Università Politecnica delle Marche
- 12:15-12:30 PM Biocoal production and phosphorous recovery from stabilized sewage sludge and aerobic granular sludge by the integration of slow pyrolysis, hydrothermal carbonization, and chemical leaching
M., Di Bianca, A., Salimbeni, T., Lotti, R., Campo, H. D., Cedeno, G., Haarlemmer
Università di Firenze
- 12:30-12:45 PM Pilot scale slow pyrolysis with vapours condensation for textile waste valorisation into coal and petrochemicals
A., Salimbeni, L., Rosi, **N., Pezzati**, B., Ciuffi, E., De Vita
RE-CORD
- 12:45-1:00 PM Mg(OH)₂ recovery from Mg²⁺-rich brines
G., Battaglia, M., Cardella, F., Vassallo, A., Tamburini, A., Cipollina, G., Micale
Università di Palermo
- 1:00 - 2:00 PM **LUNCH**

SESSION A3 ROOM 9

Wastewater treatment

Innovative approaches for monitoring and operating plants towards sustainability

Chairs **Marta Pazos Currás (ES) - Stefano Papirio (IT)**

- 2:00-2:15 PM Development of an innovative Laser Direct InfraRed (LDIR)-based methodology for monitoring microplastics in wastewater treatment plants
B., Pagliaccia, M., Ascolese, E., Vannini, D., Fibbi, E., Carretti, C., Lubello, R., Gori
Università di Firenze
- 2:15-2:30 PM Glucose Production from Cellulosic Sludge: Innovating Wastewater Recovery
F., Micolucci, N., Frison
Università di Verona
- 2:30-2:45 PM VIT Safeguard - Establishment of a Microbiological and Process Engineering Monitoring System for Biological Wastewater Treatment Plants
J., Snaidr, C., Beimfohr
Vermicon AG
- Towards sustainable municipal wastewater treatment:
an analysis of energy and greenhouse gases in Apulia
S., Gregorio, G., D'Onghia, L., Lopopolo, E., Ranieri
Università di Bari
- 2:45-3:00 PM A model-based approach for estimating PAO activity in aerobic granular sludge
G., Rizzardi, A., Catenacci, R., Canziani, A., Turolla
Politecnico di Milano

SESSION B3 ROOM 10

Biorefineries - Biopolymers recovery

Chairs **Anuska Mosquera Corral (ES) - Vincenzo Riggio (IT)**

- 2:00-2:15 PM Microbial protein from volatile fatty acids obtained through acidogenic co-fermentation of hemp and cheese whey
C., Moscariello, S., Matassa, G., Esposito, F., Pirozzi, S., Papirio
Università di Napoli Federico II



- 2:15-2:30 PM Assessing the microbial and enzymatic degradation of bioplastic products
M., Falzarano, A., Poletini, R., Pomi, A., Rossi, T., Zonfa
Università di Roma La Sapienza
- 2:30-2:45 PM Enhancing lactic acid generation from mixed food waste as an electron donor in lactic acid-mediated chain elongation for medium-chain fatty acids synthesis
S. G., Arhin, A., Cesaro, F., Di Capua, G., Esposito
Università di Napoli Federico II
- 2:45-3:00 PM Recovery of structural extracellular polymeric substances (sEPS) from aerobic granular sludge as valuable biomaterials for the treatment of heavy metal-contaminated wastewaters
B., Pagliaccia, R., Campo, M., Severi, C., Lubello, **T., Lotti**
Università di Firenze
- 3:00-3:15 PM Potential of the lactate-driven polyhydroxyalkanoates (PHA) production via mixed microbial culture
F., Asunis, L., Attene, G., De Gioannis, A., Muntoni
Università di Cagliari

SESSION C3 ROOM 11

Flash - *Advanced treatment technologies in water and wastewater sectors*
Chair **Agostina Chiavola (IT)**

- 2:00-2:05 PM Sludge Treatment & Advanced Recycling (STAR): complete synergy between mesophilic and thermophilic processes
M. C., Collivignarelli, **A., Abbà**, S., Bellazzi, G., Guido, R., Pedrazzani, G., Bertanza
Università di Brescia
- 2:05-2:10 PM Enhancing the adsorption potential of multi-layered graphene obtained from thermo-plasma expanded graphite for the removal of volatile organic compounds and dyes from water
F., Di Capua, M., Cuccarese, A., Faraji, I. M., Mancini, D., Caniani, S., Masi
Università della Basilicata
- 2:10-2:15 PM Removal of recalcitrant COD from secondary tannery effluent at neutral pH by electrochemical peroxidation technology
E., Pasciucco, F., Pasciucco, R., Iannelli, I., Pecorini
Università di Pisa

- 2:15-2:20 PM Unveiling the suitability of fluorescence indexes as surrogates for the in situ monitoring of contaminants of emerging concern removal through advanced oxidation processes designed for wastewater reuse
F., Fazzino, P., Roccaro
Università di Catania
- 2:20-2:25 PM Treatment of real pharmaceutical effluents through the homogeneous Fenton process
C., Limonti, T., Andreoli, **G.M., Curcio**, E.G., Aucancela Riveira, A., Siciliano
Università della Calabria
- 2:25-2:30 PM Assessment of the removal of micrometer-scale plastics in the stages of wastewater treatment plants using flow cytometry
P., Foladori, **A., Torboli**, L., Bruni
Università di Trento
- 2:30-2:35 PM Evaluation of natural and industrial rejection streams on the performance of chloralkaline electrolyzers
I., Requena, M.M., Goma, R., Granados, C.M., Fernández, J., Lobato, M.A., Rodrigo
Universidad de Castilla-La Mancha
- 2:35-2:40 PM From Aerobic Granular Sludge (AGS) to Partial Nitrification Granular Sludge (PN-GS)
J.P., Czelnik, J., Pérez, T., Lotti
Università di Firenze
- 2:40-2:45 PM An overview of the available strategies for the start-up process of a MABR
N., Hernandez-Alcayaga, G., Campo, A., Cerutti, M., Zanetti, B., Ruffino
Politecnico di Torino
- 2:45-2:50 PM Removal of BTEX from water using KOH activated hydrochar produced by hydrothermal carbonization of municipal solid waste
C., Caretti, I., Ducci, R., Campo, B., Charnok, M., Puccini, F., Barontini, S., Dugheri, R., Gori
Università di Firenze
- 2:50-3:15 PM Discussion



SESSION D3 ROOM 12

Flash - Waste treatment and valorization

Chair **Renato Iannelli (IT)**

- 2:00-2:05 PM Full-scale anaerobic digestion of source-separated blackwater in UASB at RecoLab, Helsingborg, Sweden
S., Abuzir, M., Domini, G., Bertanz, Å., Davidsson, H., Kjerstadius
Università di Brescia
- 2:05-2:10 PM Minimizing Sludge Production in Wastewater Treatment Plants: S4WAT solutions and new strategies for digestion improvement
N., Di Costanzo, S., Masi, D., Caniani, A., Cesaro, G., Esposito, F., Di Capua
Università degli Studi della Basilicata
- 2:10-2:15 PM LarWaR Process – BSF LARVAE FOR WASTEWATER TREATMENT AND RESOURCE RECOVERY: state of art and recent developments
V., Grossule, R., Cossu
Università di Padova
- 2:15-2:20 PM Influence of carbon to nitrogen ratio and dilution rate on microbial protein production from cheese whey
A., Scotto di Uccio, S., Matassa, A., Cesaro, G., Esposito, S., Papirio
Università di Napoli Federico II
- 2:20-2:25 PM Valorization of organic-rich waste through membrane-based technologies for volatile fatty acids recovery within the circular economy and sustainability goals
S., Cairone, A., Mahboubi, T., Zarra, V., Belgiorno, M. J., Taherzadeh, V., Naddeo
Università di Salerno
- 2:25-2:30 PM Review of the perspectives for the valorization of orange peel wastes
I., Orlandella, S., Fiore
Politecnico di Torino

- 2:30-2:35 PM Hydrometallurgical recycling of cobalt, manganese, and nickel from lithium-ion batteries: effects of microwave carbothermal reduction on the leaching efficiency
M., Bruno, A., Zanoletti, E., Bontempi, S., Fiore
Politecnico di Torino
- 2:35-2:40 PM Modelling the EU plastic value chain and assessing its environmental impacts: approaches, data sources and hotspots towards a circular plastic value chain
A. M., Amadei, L., Rigamonti, S., Sala
Politecnico di Milano
- 2:40-2:45 PM Valorisation of alkaline industrial residues through accelerated carbonation-based treatments
A., Masi, G., Costa, F., Lombardi
Università di Roma Tor Vergata
- 2:45-2:50 PM the characteristics of recycled aggregates from c&d waste: results of a monitoring activity following the end-of-waste regulation requirements
A., Abbà, S., Sorlini, A., Piccinali, G., Plizzari
Università di Brescia
- 2:50-2:55 PM Polyolefins chemical recycling: experimental investigation of product yields in a semi-continuous pyrolysis of composting plant waste
D., Sorino, L., Bartolucci, S., Cordiner, F., Lombardi, V., Mulone
Università di Roma Tor Vergata
- 2:55-3:00 PM Co-digestion of agri-food and livestock wastes for boosting biomethane potential
D., Ipsale, B., Pecorino, S.F., Corsino, G., Viviani, M., Torregrossa
Università di Palermo
- 3:00-3:05 PM Potential Bio Hydrogen production: Co-digestion of mixed agricultural residues
F., Illuminati, R., Savio, M. C., Lavagnolo
Università di Padova
- 3:05-3:15 PM Discussion
- 3:15-3:30 PM **POSTER SESSION**
- 3:30 - 4:00 PM **COFFEE BREAK**



SESSION A4 ROOM 9**Wastewater treatment** - *Emerging challenges in operation*Chairs **Renato Baciocchi (IT)** - **Raffaella Pomi (IT)**

- 4:00-4:15 PM Improvement of Biomethane Production from Waste Activated Sludge through sonication pretreatment
C., Limonti, T., Andreoli, **G.M., Curcio**, E.G., Aucancela Riveira, A., Le Pera, A., Siciliano
Università della Calabria
- 4:15-4:30 PM Energy efficiency and class performance of WWTPs
D., Malluta, E., Gagliano, M., Gallo, A., Del Borghi
Università di Genova
- 4:30-4:45 PM Effective Sorbents from Waste Biomass for Emerging Pollutant Removal
M., Dlaskova, M., Spacilova, O., Solcova
Institute of Chemical Process Fundamentals CAS, v.v.i
- 4:45-5:00 PM What the flocs can still tell us: microfauna and filamentous bacteria examinations as invaluable tools in activated sludge operation
R., Pedrazzani
Università di Brescia
- 5:00-5:15 PM Experimental tests for acid flue gas emissions treatment in industrial applications.
M., Ravina, **E., Marotta**, G., Piccirillo, A., Cerutti, G., Zanetti, C., Mori de Oliveira, B., Ruffino, D., Panepinto, P., Marini, M., Zanetti
Politecnico di Torino
- 5:15-5:30 PM Integration of electrochemical processes with the algae-activated sludge living membrane bioreactor for wastewater treatment
M. Vermi Aizza Corpuz, V., Belgiorio, K., Choo, V., Naddeo
Università di Salerno

SESSION B4 ROOM 10

Wastewater treatment - Removal and control of emerging contaminants
Chairs Roberto Canziani (IT) - Najla Sadfi-Zouaoui (TN)

- 4:00-4:15 PM Fluorescence sensor enabled real-time monitoring of Contaminants of Emerging Concern (CEC) in reclaimed wastewater during Advanced Oxidation Processes (AOPs)
L., Marino, E., Gagliano, D., Santoro, P., Roccaro
Università di Catania
- 4:15-4:30 PM Spent Coffee Ground Biochar for enhanced removal of very small microplastics (1-5 µm) from polluted water: a quaternary treatment approach
A., Torboli, P., Foladori
Università di Trento
- 4:30-4:45 PM Lagoons: Quaternary Treatment of Micropollutants in WWTPs - Case Study of UWWTD Compliance of Cabezo Beaza WWTP
L., Díaz-Gamboa, S., Martínez-López, L. M., Ayuso-García, A., Lahora, **I., Martínez-Alcalá**
Universidad Católica de Murcia
- 4:45-5:00 PM Landfill leachate treatment by NF/RO pilot plant for PFAS removal
A., Hydar, E., Blumenthal, M., Sgroi, M., Lazzazzara, A., Frugis, G., Cecchini, P., Crocetti, M. G., Asci, A. L., Eusebi, F., Fatone
Università Politecnica delle Marche
- 5:00-5:15 PM Microplastics in municipal wastewaters: Efficiency of different purification processes, main removal mechanisms, and emission factors into the environment
S., Cavazzoli, F., Murari, M., Donegà, W., Tirler, K., Mair, G., Andreottola
Università di Trento
- 5:15-5:30 PM Endocrine and metabolic disruptor effects of wastewater treatment plant effluents from conventional and membrane biological reactor systems: first results
F., Cimino, A.N., Virga, M.S., Molonia, M., Torregrossa
Università di Messina



SESSION C4 ROOM 11

Biorefineries - *Biorefinery advanced methods and processes*Chairs **Massimiliano Fabbricino (IT)** - **Lorenzo Bertin (IT)**

- 4:00-4:15 PM Selection of a mixed microbial culture for PHA production through phosphate limitation: insight into the selection process and the main kinetic parameters
A., Castagnoli, S., Malibo, G., Petroni, P., Kongjan, R., Iannelli, I., Pecorini
Università di Pisa
- 4:15-4:30 PM Life cycle assessment of passenger cars fed with a blend of LPG, bio-LGP, and renewable DME, and comparison with conventional and electric passenger cars
S., Puricelli, M., Eid, S., Casadei, M., Grosso, G., Lonati, L., Rigamonti, S., Cernuschi
Politecnico di Milano
- 4:30-4:45 PM Sulfide-rich biogas conversion into microbial protein and S-amino acids through a mixed culture-based fermentation process
M., Areniello, S., Matassa, G., Esposito, P. N.L., Lens
University of Galway
- 4:45-5:00 PM Recovery of carboxylic acids by employing sequential cation and anion exchange resins: studies using an actual effluent at semi pilot scale
G. A., Martinez, A., Negroni, M., Mancini, F., Fava, L., Bertin
Università di Bologna
- 5:00-5:15 PM Electrocatalytic acid reduction of carboxylic acids by using Cu electrode.
R.A., de Sousa, S., da Silva Mendonça de Paiva, C.A., Martínez-Huitle, E.V., dos Santos, J., Lobato, M.A., Rodrigo-Rodrigo, R., García-Cervilla
Federal University of Rio Grande do Norte
- 5:15-5:30 PM Innovative design and analysis of a flat panel photobioreactor featuring a customizable LED lighting system.
M., Carone, G., Frungieri, M., Zanetti, M., Vanni, **V. A., Riggio**
Politecnico di Torino

SESSION D4 ROOM 12

Contaminated sites - *Advanced sustainable remediation processes*

Chairs Sergio Teggi (IT) - Maria Rosaria Boni (IT)

- 4:00-4:15 PM Lab tests for in situ bioelectrochemical remediation of Cr(VI) plumes in groundwater
G., Beretta, E., Sezenna, S., Saponaro
Politecnico di Milano
- 4:15-4:30 PM Enhanced Environmental Situational Awareness: exploiting advanced multispectral techniques for characterizing, monitoring, and modelling contaminated soil and water to describe pollution phenomena and support Environmental Impact Assessment (EIA)
M., Lega
Università di Napoli Parthenope
- 4:30-4:45 PM Application of Low Temperature Thermal Desorption of marine sediments: operational and management assessment
E., Licitra, M.G., Giustra, M., Volpe, D., Di Trapani, A., Messineo, G., Di Bella
Università di Enna Kore
- 4:45-5:00 PM Facing the challenge of copper polluted olive groves by electrokinetic remediation
C., Navas-Higuero, I.F., Mena, E., Lacasa, A., Manzaneda, M.A., Rodrigo, C., Sáez
Universidad de Castilla-La Mancha
- 5:00-5:15 PM Advanced nanoremediation processes for the effective removal of complex mixtures of persistent pollutants from groundwater
C., Bianco, S., Barbero, R., Sethi
Politecnico di Torino
- 5:15-5:30 PM The role of the duration of remediation procedures in reducing land consumption and brownfield regeneration
F., Pinzin, S., Sbaffoni, E., Demarco, F., Araneo, E., Bartolucci, F., Pascarella, M., Vaccari
Università di Brescia
- 5:30 - 6:30 PM **ANDIS Meeting Group - Aula Capitò, Building 7**
- 5:30 - 6:30 PM **Young Water Professional Meeting group -Seminary room C, Building 19**



09:00-09:45 AM **KEYNOTE**

Prof. Frederic Coulon - *University of Cranfield (UK)*

"Key Innovations and Challenges in Soil Remediation for a Sustainable Future"

Plenary Hall – Engineering Department Bld. 7

PARALLEL PLATFORM SESSIONS - BUILDING 19

SESSION A5 ROOM 9

Wastewater treatment - *Advanced biological wastewater treatments*

Chairs **Giorgio Mannina (IT)** - **Paolo Calabrò (IT)**

10:00-10:15 AM

Salinity effects on the Purple non-sulfur bacteria biomass production

A., Mosquera-Corral, M., Bouzas, J. R., Lorenzo-Llarena, Á., Val, A., Pedrouso

Universidade de Santiago de Compostela

10:15-10:30 AM

Autochthonous microalgae for the treatment of urban wastewaters

S., Lima, A., Cosenza, F., Grisafi, G., Caputo, F., Scargiali

Università di Palermo

10:30-10:45 AM

Development of aerobic granular sludge from activated sludge in a pilot scale sequencing batch reactor treating municipal wastewater

C., Senesi, R., Campo, S., Caffaz, C., Lubello, T., Lotti

Università di Firenze

10:45-11:00 AM

Effect of Membrane on Chromium Removal Efficiency in photobioreactor (PBR) containing chlorella vulgaris

H., Saeedikia, S., Helchi, M.M., Emamshoushtari, O., Tavakoli, G., Lesage, M., Heran,

F., Pajoum Shariati

University of Montpellier

SESSION B5 ROOM 10

Air quality and treatment - *Air quality monitoring and impacts*

Chairs **Grazia Ghermandi (IT) - Ezio Ranieri (IT)**

- 10:00-10:15 AM Long term air quality monitoring of trace toxic pollutants in the area surrounding a WtE plant
G., Lonati, **S., Cernuschi**, E., Sezenna
Politecnico di Milano
- 10:15-10:30 AM Gaseous ethanol removal by homemade dielectric barrier discharge plasma reactor
N., Belkessa, A., Bouzaza, A.A., Assadi, A. Amrane
Ecole Nationale Supérieure de Chimie de Rennes
- 10:30-10:45 AM The importance of reducing PM2.5 in the prevention of neuro-degenerative diseases.
An in vitro study
A., Cristaldi, R., Pellitteri, P., Dell'Albani, V., La Cognata, M., Fiore, E., Pulvirenti, G., Oliveri Conti, M., Ferrante
Università di Catania
- 10:45-11:00 AM Impact assessment of mercury emissions from a waste-to-energy plant on local air quality
S., Cernuschi, M., Sansone, **G., Lonati**
Politecnico di Milano

SESSION C5 ROOM 11

One health and environmental safety - *Emerging contaminants*

Chairs **Francesca Malpei (IT) - Carmelo Maida (IT)**

- 10:00-10:15 AM Effects of Natural Organic Matter interaction with Bisphenol-A on toxicity in the seawater
G., Paolella, M., Fabbri, A., Locascio, L., Pontoni, M., Sirakov
Università di Napoli Federico II
- 10:15-10:30 AM Monitoring contaminants of emerging concern and bacterial communities in surface water impacted by wastewater discharge
F., Fazzino, M., Sgroi, A., Franzetti, F., Vagliasindi, G., Korshin, P., Roccaro
Università di Catania
- 10:30-10:45 AM An integrated comparison among organic matrices intended for agricultural reuse: final results of the SLURP project
G., Bertanza, A., Abbà, C., Alias, A., Amatucci, A., Binelli, S., Castiglioni, M., Fossati,



C., Cruzeiro, C., Della Torre, M., Domini, D., Feretti, G., Gilioli, S., Magni, G., Mazzoleni, M., Menghini, R., Pedrazzani, P., Schroeder, A., Simonetto, N., Steimberg, V., Ventura, S., Vezzoli, I., Zerbini
Università di Brescia

10:45-11:00 AM How to deal with PFAS in urban water systems? A combination of removal strategies, fate modelling and risk assessment
J., Ianes, M., Stefanoni, **B., Cantoni**, M., Antonelli
Politecnico di Milano

SESSION D5 ROOM 12

Biorefineries - *Bioproducts obtained from microalgae cultivation*

Chairs **Alessandra Poletti (IT) - Gaetano Di Bella (IT)**

10:00-10:15 AM Single cell protein production from carbon dioxide through a consortium of microalgae and hydrogen-oxidizing bacteria
R., Manzo, S., Papirio, G., Esposito, S., Matassa
Università di Napoli Federico II

10:15-10:30 AM Microalgae CO2 capture a new pathway to electro-refinery
S., Maldonado, G., Roa-Morales, R., Natividad, J., Lobato, M.A., Rodrigo-Rodrigo, R., García-Cervilla
Universidad de Castilla-La Mancha

10:30-10:45 AM Harnessing the Power of Microalgae: Phenolic Compounds for Health, Sustainability, and Biorefinery Applications
C., Sica, C., Copat, C., Favara, M. D., Torres Perez, S., Inoubli, L., Falqui, G., Oliveri Conti, H., Gonzalez Dominguez, M., Ferrante
Università di Catania

10:45-11:00 AM Microalgae to Biodiesel:
A Leap Forward in Optimized Biomass Valorisation with Biorefinery Perspectives
G., Oliva, A., Buonerba, V., Belgiorno, T., Zarra, V., Naddeo
Università di Salerno

11:00 -11:30 AM **COFFEE BREAK**



SESSION A6 ROOM 9

Wastewater treatment - Physical-chemical treatments

Chairs Geoffroy Lesage (FR) - Massimiliano Sgroi (IT)

- 11:30-11:45 AM Continuous bioelectrochemical treatment of nitrate-containing wastewater in a double-chamber bioelectrochemical system
A., Lanzetta, R., Hajdu-Rahkama, F., Di Capua, M., Kokko, G., Esposito, F., Pirozzi, S., Papirio
Università di Napoli Federico II
- 11:45-12:00 PM Treatment of hospital effluents polluted with the cytotoxic carboplatin by electrochemical oxidation
A., Hayat, J., Ortiz-Montes, J., L. da Silva Duarte, C. M., Domínguez, A., Santos, S., Cotillas
Complutense University of Madrid
- 12:00-12:15 PM Treatment of winery wastewater with Hydrodynamic cavitation combined with Fenton process
K., Ayedi, N. M., Ippolito, V., Innocenzi, G., Mazziotti di Celso, M., Prisciandaro
Università di l'Aquila
- 12:15-12:30 PM Advanced oxidation of organic contaminants in water by persulfate and peroxymonosulfate with ZVI bimetals
G., Scaggiante, A., Checa-Fernández, D., Zingaretti, C.M., Dominguez, A., Santos, R., Baciocchi
Università di Roma Tor Vergata
- 12:30-12:45 PM Effect of pH on electrodialysis for selective separation and purification of carboxylic acids from wastewater
M., Richa, J., Lobato, M.A., Rodrigo-Rodrigo, R., García-Cervilla
Universidad de Castilla-La Mancha
- 12:45-1:00 PM Pilot-scale monitoring of AOP processes by Fluorescence and UV Absorbance on-line Sensors
D., Caterino, M., Sgroi, J., Gonzalez Camejo, N., Ciuccoli, C., Giansanti, C., Palermo, A.L., Eusebi, F., Fatone
Università Politecnica delle Marche



SESSION B6 ROOM 10

Green Economy and Smart Cities - *Green Economy and Smart Cities*

Chairs: Adriana Del Borghi (IT) - Monia Niero (IT)

- 11:30 - 11:45 AM CO2 emissions and primary energy used in thermoplastic with flame retardant process production: a Life Cycle Assessment comparison between three compounds
A. P. D., Baltrocchi, D., Lotti, M. C., Miino, L., Maggi, C., Morosini, F., Conti, E. C., Rada, V., Torretta
Università dell'Insubria
- 11:45-12:00 PM Life Cycle Assessment as a decision support tool for the implementation of circular economy and decarbonization strategies in the steel industry
M., Niero, F., Rossi, F., Albano, F., Iraldo, M., Frey
Scuola Sant'Anna di Pisa
- 12:00-12:15 PM Preliminary Results of Laboratory Tests on Hydrogen Production from Slag and Surplus Heat in Steel Plants
G., Campo, G., Zanetti, M.C., Zanetti
Politecnico di Torino
- 12:15-12:30 PM RESILISTORM - Resilience Framework and Tool for Urban Stormwater Services
J., Barreiro, **F., Ferreira**, J., Saldanha Matos
Universidade de Lisboa
- 12:30 -12:45 PM Product Environmental Footprint assessment of smart technical clothing
M., Menghini, I., Cavallotti, M., Ferreri, E., Bollati, R., Pedrazzani, C., Di Iaconi, G., Mascolo
Università di Brescia
- 12:45-1:00 PM Economic valuation of ecosystem services in the waste management framework"
M.C., Lavagnolo, G., Felici
Università di Padova

SESSION C6 ROOM 11

Contaminated sites - Modelling, monitoring tools and risk assessment

Chairs Rajandrea Sethi (IT) - Anna Laura Eusebi (IT)

- 11:30-11:45 AM Helianthus annuus assessment for nickel phytoremediation
L., Lopopolo, G., D'Onghia, S., Gregorio, E., Ranieri
Università di Bari
- 11:45-12:00 PM Risk assessment approach for heavy metals contaminated sites of mining waste storage
R., Lupu, I.A., Istrate, F., Nenciu, D.M., Cocârță
University of Science and Technology Politehnica of Bucharest
- 12:00-12:15 PM Development of screening tools for the risk assessment applied to contaminated sites
I. Verginelli
Università di Roma Tor Vergata
- 12:15-12:30 PM Python-QGIS-based Model for Assessing and Mapping Subsurface Volatile Organic Compound (VOC) Emissions
M., Pitardi, S., Costanzini, N., Tonolo, A., Cecconi, S., Teggi, I., Verginelli, S., Berardi
Università di Modena e Reggio Emilia
- 12:30-12:45 PM Radon Gas Monitoring in the Headspace of Groundwater Wells for the Evaluation of Residual LNAPL Contamination
A., Cecconi, I., Verginelli, R., Baciocchi, C., Lanari, F., Villani, G., Bonfedi
Università di Roma Tor Vergata
- 12:45-1:00 PM Numerical modeling of in situ thermal desorption for soil remediation: preliminary results
F., Fazzino, A., Gagliano, F., Vagliasindi, P.P., Falciglia
Università di Catania



SESSION D6 ROOM 12**Biorefineries - Bioproducts from mixed civil and industrial wastewater****Chairs Francesco Lombardi (IT) - Abdeltif Amrane (FR)**

- 11:30-11:45 AM An innovative biorefinery approach for selective hexanoic acid production from wine lees
P., Dessì, M., Romans-Casas, E., Perona-Vico, M., Tedesco, H. V. M., Hamelers, I., Bañeras, M. D., Balaguer, S., Puig
Università di Napoli Federico II
- 11:45-12:00 PM Dark fermentation of winery by-products using indigenous microbial cultures
G., Policastro, M., Race, M., Fabbicino
Università Pegaso
- 12:00-12:15 PM Investigation of low temperature thermal pretreatment on VFA production from the dark fermentation of organic waste
I., Pecorini, F., Pasciucco, E., Pasciucco, A., Castagnoli, R., Palmieri, A., Panico, R., Iannelli
Università di Pisa
- 12:15-12:30 PM Enhancing material and energy recovery through WtE industrial symbiosis in South Europe regions
A., Luciano, **G., Mancini, L.,** Lombardi, P., Viotti, D., Fino
Università degli Studi di Catania
- 12:30-12:45 PM Hydrogenotrophic methanogens activity batch tests: insights from an experimental and modelling approach
A., Santus, I., Bonato, A., Catenacci, F., Malpei
Politecnico di Milano
- 12:45-1:00 PM Upcycling AD by-products to single-cell proteins: laboratory validation of two bioprocesses based on digestate and waste off-gas utilization
F., Di Benedetto, S., Cantera, R., Muñoz, A., Turolla, E., Ficara
Politecnico di Milano
- 1:00 - 2:00 PM **LUNCH**

SESSION A7 ROOM 9

Flash - Process optimization and sustainability

Chair **Vincenzo Torretta (IT)**

- 2:00-2:05 PM Life cycle assessment of a new approach for micro-PET recovery from domestic laundry wastewater and subsequent valorisation into amino acids
M. Carnevale Miino, A. P. D., Baltocchi, F., Conti, E. C., Rada, V., Torretta
Università dell'Insubria
- 2:05-2:10 PM From dissipative to assimilative wastewater treatment: the potential of hydrogen-oxidizing bacteria to upcycle nitrogen and mitigate greenhouse gas emissions from wastewater
M., Kumar, S., Matassa, C., Belloni, F., Pirozzi, G., Esposito, S., Papirio
Università di Napoli Federico II
- 2:10-2:15 PM Sustainable Electrochemical Reduction of contaminants of emerging concern and Pathogens in WWTP effluent for Irrigation of Crops (SERPIC)
M. P., Castro, I. F., Mena, Á., Moratalla Tolosa, **P., Verlicchi**, C. S., Santos, A. I., Gomes, V. J.P., Vilar, A., Wolf, P., Krzeminski, M., Botes, J., Gäbler, C., Sáez, M. A., Rodrigo
Università di Ferrara
- 2:15-2:20 PM Application of diverse types of hydrogels as separators in microbial fuel cells
I., Torrejón Guerrero, C., Martín, R., Granados, A., Rodríguez, M.A., Rodrigo, E., Vázquez, C.M., Fernández
Universidad de Castilla-La Mancha
- 2:20-2:25 PM Testing low-cost materials for nutrients adsorption in wastewater
M., Ravina, E., Marotta, M.C., Zanetti
Politecnico di Torino
- 2:25-2:30 PM A chain for the treatment of oilfield produced waters: case study and experimental analysis
G., Campisi, A., Sorrenti, A., Cosenza, S., Randazzo, S.F., Corsino, M., Capodici, A., Tamburini, G., Micale
Università di Palermo
- 2:30-2:35 PM Remanufacturing of off-road vehicles spare parts: process analysis and environmental assessment
L., Nastasi, S., Fiore
Politecnico di Torino



- 2:35-2:40 PM Combining material flow analysis and life cycle assessment to support decision-making of municipal solid waste management: a case study in Catalonia
S., Fiaschi, C., Lubello, L., Talens Peiró
Università di Firenze
- 2:40-2:45 PM Indicators and parameters for the Life Cycle Sustainability Inventory of Municipal Solid Waste Management Systems
A., Ceraso, A., Cesaro
Università di Napoli Federico II
- 2:45-2:50 PM Life cycle-based assessment of graphite recovery from spent Li-ion batteries
D. S., Premathilake, W.A.M.A.N., Illankoon, A. B., Botelho Junior, D., Croce Romano Espinosa, M., Vaccari
Università di Brescia
- 2:50-2:55 PM Carbon Lifecycle Management Through Innovative Forest Land Management and Regulatory Frameworks
I., Martínez-Alcalá, J.L., Durán-Sánchez, R., Martínez-Alpañez, **V., Mesguer-Sánchez**
Universidad Católica de Murcia
- 2:55-3:00 PM Removal of pesticides from olive orchards through electrochemical generation of ozone and hydrogen peroxide
I. F., Mena, **C., Navas-Higuero, E.**, Lacasa, A.J., Manzaneda, M. A., Rodrigo, C., Sáez
Universidad de Castilla-La Mancha
- 3:00-3:05 PM Resource recovery hub for net zero carbon and climate change mitigation
D., Di Trapani, V., Alduina, L., Badalucco, M., Carnesi, **A., Cosenza, Y.**, Di Leto, P., Bulacio Fisher, G., Gallo, A., Laudicina, A., Mineo, P. M., Bosco Mofatto, S. M., Muscarella, G., Mannina
Università di Palermo
- 3:05-3:15 PM Discussion



SESSION B7 ROOM 10

Flash - Emerging environmental risk and control
Chair Giovanni Esposito (IT)

- 2:00-2:05 PM Characterization and control of particulate matter in ambient air: instruments, techniques and interferences
L., Raso, V., Marino, M.R., Della Rocca, V., Belgiorno, V., Naddeo, T., Zarra
Università di Salerno
- 2:05-2:10 PM Pollutant concentrations around Vegetative Environmental Buffers for livestock facilities: onsite surveys for two sites
L., Baccini, E., Cortus, F. G. A., Vagliasindi
Università di Catania
- 2:10-2:15 PM Continuous removal of VOCs and bacteria in a LED planar reactor: effect of operating parameters and kinetics modeling.
M.A., Hajjaji, A., Bouzaza, A., Amrane, A., Hajjaji, A., Assadi
Ecole Nationale Supérieure de Chimie de Rennes
- 2:15-2:20 PM Remediation of sediments contaminated by microplastics: a first approach
D., Spasiano, M., Soufizadeh, R., Morello, A., Ferraro, U., Fratino
Politecnico di Bari
- 2:20-2:25 PM Towards integrated plant-surface-subsurface hydrological modelling of bioreactive solute transport
D., La Cecilia, C., Lauvernet, C., Paniconi, M., Camporese
Università di Padova
- 2:25-2:30 PM Surfactant enhanced remediation of marine sediments using anionic, non-ionic and mixed surfactants: role of operational conditions
M., Russo Tiesi, G., Di Bella, E., Licitra, G., Vinti, G., Viviani, D., Di Trapani
Università di Palermo



- 2:30-2:35 PM Assessing the Impact of Climate Change on Water Quality Parameters in the Brescia Water Supply System
T. K. Hoan Tran, A., Silvia, S., Sorlini
Università di Brescia
- 2:35-2:40 PM Vulnerability Scenario Characterization using a Natech Indicator and a Territorial Multi-hazard Approach
M., Castiglione, S.F., Corsino, M., Torregrossa
Università di Palermo
- 2:40-2:45 PM Water reuse from wastewater: comparison between MBR and tertiary filtration processes
M., Carnesi, P. M., Bosco Mofatto, A., Mineo, A., Cosenza, D., Di Trapani, G., Mannina
Università di Palermo
- 2:45-2:50 PM Transition to circular economy: the case study of Corleone wastewater treatment plant
A., Cosenza, M., Carnesi, D., Di Trapani, H., Gülhan, A., Mineo,
P. M., Bosco Mofatto, G., Mannina
Università di Palermo
- 2:50-2:55 PM Nutrients removal in intermittently aerated IFAS systems: effects of operating conditions
S.F., Corsino, E., Licitra, M., Torregrossa, G., Di Bella
Università di Palermo
- 2:55-3:00 PM Full-scale Application in Italy of a Combined ISCR and ERD Technology for the treatment of an Aerobic Aquifer Impacted with Tetrachloromethane and Chloroform
A., Leombruni, M., Mueller
Evonik Operation GmbH
- 3:00-3:15 PM Discussion



SESSION C7 ROOM 11

Contaminated sites - *Contaminated soil and water: remediation*
Chairs **Federico Vagliasindi (IT) - Aurora Santos (ES)**

- 2:00-2:15 PM Application of an All-In-One ISCO Technology for the treatment of Monochlorobenzene, BTEX and Chloroform in groundwater at a Former Pharmaceutical Facility in Italy
A., Leombruni, B., Smith, M., Mueller
Evonik Operation GmbH
- 2:15-2:30 PM Advances in marine sediments remediation: performance comparison between activated carbon and single cell proteins as adsorbents in active capping for heavy metals removal in seawater
C., Maraviglia, S., Matassa, A., Cesaro, F., Pirozzi
Università di Napoli Federico II
- 2:30-2:45 PM Effective Degradation of PAHs in Polluted Emulsions and Surfactant Recovery by Fenton and Solar Photo-Fenton Technologies
Y., Moreno de la Fuente, K., Ayedi, M., Herraiz-Carboné, M., Prisciandaro, S., Cotillas, C., M., Domínguez, A., Santos
Complutense University of Madrid
- 2:45-3:00 PM Electrochemically assisted remediation of a highly chlorinated organic polluted sludge: a full-scale case study
J., Fernandez-Cascan, J., Isidro, A., Tiban-Anrango, **C., Saez, J., Guadaño, M. A., Rodrigo**
Universidad de Castilla-La Mancha
- 3:00-3:15 PM Effect of Electric Field Intensity and Polarity Reversibility on the Transport of Hexachlorocyclohexanes in Contaminated Real Silt by Electrokinetic Techniques
Á., Moratalla, J., Isidro, J., Fernández-Cascán, J., Guadaño, M. A., Rodrigo, C., Sáez
Universidad de Castilla-La Mancha



SESSION D7 ROOM 12

Municipal and industrial waste - Anaerobic digestion

Chairs: **Barbara Ruffino (IT)** - **Fabio Tatano (IT)**

- 2:00-2:15 PM Pre-treatment strategy for polylactic acid biodegradability enhancement in anaerobic digestion process
A., Ferraro, D., Giandomenico, R., Morello, D., Spasiano, U., Fratio
Politecnico di Bari
- 2:15-2:30 PM Application of an anaerobic sequencing batch reactor to control cheese whey fermentation towards bio-H₂ production
T., Zonfa, M., Falzarano, A., Poletti, R., Pomi, A., Rossi
Università di Roma La Sapienza
- 2:30-2:45 PM Mater-Bi degradation during the semi-continuous anaerobic digestion of excess sludge and organic fraction of municipal solid waste
M., Ferreri, A., Pedullà, P. S., Calabrò
Università Mediterranea di Reggio Calabria
- 2:45-3:00 PM Opportunities and challenges of combining sewage sludge thermal hydrolysis with thermophilic anaerobic digestion
P., Jenicek, A., Magrova, L., Appels
University of Chemistry and Technology of Prague
- 3:00-3:15 PM Strategic Enhancement of Lactic Acid Yields through Cavitation Pre-treatment in Food Waste Digestion
A.K., Khanzada, J., Makinia
Gdansk University of Technology
- 3:15-3:30 PM **POSTER SESSION**
- 3:30 - 4:00 PM **COFFEE BREAK**

SESSION A8 ROOM 9

Wastewater treatment - *Sludge management optimization strategies*

Chairs **Alessandra Carucci (IT)** - **Francesco Pirozzi (IT)**

- 4:00-4:15 PM Minimization of sewage sludge production through the application of the OSA process
R., Morello, **F., Di Capua**, D., Spasiano, G., Esposito, F., Pirozzi, U., Fratino
Università della Basilicata
- 4:15-4:30 PM Life Cycle Assessment applied to sludges from wastewater treatment plant
L., Croce, P., Viotti, F., Tatti
Università di Roma La Sapienza
- 4:30-4:45 PM Unravelling the impact of thermo-alkaline pre-treatment of sewage sludge
on the microplastics contained
A., Zoccali, A., Vianello, F., Malpei, J., Vollertsen
Politecnico di Milano
- 4:45-5:00 PM Biological vs. thermo-alkali pre-treatments: which is the best option
for the valorization of WAS? Experimental tests and techno-economic analysis
B., Ruffino, G., Campo, A., Cerutti, M., Zanetti
Politecnico di Torino
- 5:00-5:15 PM Exploring alternate aeration strategies for improved sewage sludge stabilization
M., Domini, G., Bertanza
Università di Brescia



SESSION B8 ROOM 10

Air quality and treatment - Emissions dispersion model
Chairs Stefano Cernuschi (IT) - Giovanni Lonati (IT)

- 4:00-4:15 PM Variability of equivalent Black Carbon aerosol in urban Barcelona by pedestrian mapping
A., Bigi, G., Veratti, A., Buruah, L., Renzi, M., Mazzini, L., Di Liberto, A., Marinoni, M., Pandolfi, G., Ghermandi
Università di Modena e Reggio Emilia
- 4:15-4:30 PM Influence of density-driven advection on vapor intrusion of chlorinated volatile organic compounds
C., Settmi, I., Verginelli, D., Zingaretti, R., Baciocchi
Università di Roma Tor Vergata
- 4:30-4:45 PM Micro-aethalometers and dispersion modeling for the identification of sources and levels of black carbon in a city of the central Po valley
G., Veratti, A., Bigi, M., Stortini, S., Teggi, G., Ghermandi
Università di Modena e Reggio Emilia
- 4:45-5:00 PM Consequences and risk modeling of natech in industrial environments
D., Panepinto, M., Ravina, M.C., Zanetti
Politecnico di Torino
- 5:00-5:15 PM Modelling of Vegetative Environmental Buffer (VEB) effects on gas concentrations through AERMOD-View: comparison between observed and modelled data
L., Baccini, E., Cortus, F. G. A., Vagliasindi
Università di Catania
- 5:15-5:30 PM

SESSION C8 ROOM 11

Contaminated sites - *Contaminated soil and water: remediation*
Chairs **Mariachiara Zanetti (IT)** - **Pietro Paolo Falciglia (IT)**

- 4:00-4:15 PM Metal uptake and transport within Sorghum sp. from mining waste contaminated sites
A. M., Lăcureanu, M. F., Ioniță, E., Dunca, L. D., Robescu, D. M., Cocârță
University of Science and Technology Politehnica of Bucharest
- 4:15-4:30 PM Treatment of hydrocarbon-contaminated soil with biosurfactants obtained from agricultural waste
T., Ambaye, A., Franzetti, A., Bava, M., Vaccari
Università di Brescia
- 4:30-4:45 PM Chemical enhanced oxidation with surfactants: a comparison of the effectiveness of two oxidants for the remediation of hydrocarbon-contaminated soils
F., De Marines, M., Capodici, G., Di Bella, E., Licitra, G., Viviani, D., Di Trapani
Università di Palermo
- 4:45-5:00 PM Degradation of chlorinated solvents vapors in the unsaturated zone through horizontal permeable reactive barriers
D., Zingaretti, C., Settimi, I., Verginelli, R., Baciocch
Università di Roma Tor Vergata
- 5:00-5:15 PM The use of Liquid Activated Carbon (LAC) in microwave thermal treatment of PAH-contaminated soils: laboratory decontamination and columns leaching tests
P.P., Falciglia, G., De Guidi, M., Granetto, T., Tosco, R., Sethi, F.G.A., Vagliasindi
Università di Catania
- 5:15-5:30 PM Degradation of 1,2-dichloroethane in real polluted groundwater under aerobic and anaerobic laboratory-scale conditions
M., Carabillò, M., Capodici, V., Catania, G., Di Bella, D., Di Trapani, M.G., Giustra, P., Quatrini, R., Scaffaro, L., Scirè Calabrisotto, G., Viviani
Università di Palermo



SESSION D8 ROOM 12**Municipal and industrial waste** - *Advanced waste processes and management**Chairs Aldo Muntoni (IT) - Marco Ragazzi (IT)*

- 4:00-4:15 PM Modelling material flow networks for industrial symbiosis in the metallurgical context
R., Vahidzadeh, G., Bertanza, M., Domini
Università di Brescia
- 4:15-4:30 PM Environmental and economic analyses of an innovative automatic system for sorting waste in public areas: case study of an airport
G., Dolci, A., Manea, G., Cavenago, C., Tua, M., Grosso
Politecnico di Milano
- 4:30-4:45 PM Perspectives of residual municipal solid waste management from an italian case study
M., Ragazzi, M., Tubino, L., Adami, **M., Schiavon**
Università di Trento
- 4:45-5:00 PM Risk assessment applied to a quarry backfilling: comparison between the use of different filling materials
F., Cioli, S., Sorlini, M., Vaccari
Università di Brescia
- 5:00-5:15 PM Assessing Uncertainty in Waste Characterization: Experimental Analysis of Variability in Plastic Waste Sampling and Analysis
G., Beggio, M.C., Lavagnolo
Università di Padova
- 5:15-5:30 PM A Combined Approach to Microalgae Cultivation: Efficiency and Carbon Capture in South Sardinia, a case study.
V. A. Riggio, D., Panepinto, M., Zanetti
Politecnico di Torino
- 5:30 - 6:30 PM **GITISA Meeting Group - Aula Capitò, Building 7**
- 8:30 - 12:00 PM **GALA DINNER**

PARALLEL PLATFORM SESSIONS - Plenary Hall – Engineering Department Bld. 7

SESSION S9 Aula magna

One health and environmental safety - *Advanced monitoring and risk assessment*
Chairs **Francesco Fatone (IT)** - **Paola Verlicchi (IT)**

- 9:30-9:45 AM **Advanced Monitoring of Urban Rivers: an integrated perspective**
C., Di Marcontonio, M., Barchiesi, F., Mangiagli, M. R., Boni, R., Magini, G., Sappa, P., Viotti, M., Seminara, S., De Bonis, E., Di Marcontonio, M., Marchiesi, L., Dallai, A., Chiavola
Università di Roma La Sapienza
- 9:45-10:00 AM **A risk-based methodology based on the results of leaching and ecotoxicological tests for assessing the environmental compatibility of the use of products from bottom ash treatment**
L., Acampora, **G., Costa**, F., Lombardi, L., Maggi, C., Mensi, S., Messinetti, E., Tediosi, I., Verginelli
Università di Roma Tor Vergata
- 10:00-10:15 AM **One Health: air pollution and human health under the environmental perspective**
L., D'Elia, G., Oliva, T., Zarra, V., Belgiorno, V., Naddeo
Università di Salerno
- 10:15-10:30 AM **The fate of micropollutants in the water environment from sources to humans: planning removal treatments and assessing the risk in a one-health approach**
J., Ianes, L., Penserini, E., Sezenna, S., Saponaro, B., Cantoni, **M., Antonelli**
Politecnico di Milano
- 10:30-10:45 AM **Remote sensing mapping of protected agriculture in Italian agricultural soils using a Sentinel-2 Imagery-based workflow**
D., La Cecilia, **F., Despini**, S., Teggi
Università di Modena e Reggio Emilia
- 10:45-11:00 AM **Innovative system for the well-being and protection of fish and consumers**
E., Pulvirenti, G., Oliveri Conti, P., Rapisarda, M., Castrogiovanni, C., Favara, A., Cristaldi, M., Ferrante
Università di Catania



11:00-11:15 AM The use of vegetation indices and proximity models in the study of population exposure to green spaces

N., Martini, S., Costanzini, F., Despini, S., Teggi, T., Filippini, M., Vinceti
Università di Modena e Reggio Emilia

11:15-11:30 AM Selection of fungi for the biofertilisation of phosphorus (Ca₃(PO₄)₂) in arid soils

R., Werheni Ammeri, S., El Bouali, R., Hammami, **N., Sadfi-Zouaoui**
University of Tunis El Manar

11:30-12:15 PM **KEYNOTE**

Dr. Valentina Fuscoletti - *Italian National Institute of Health*

"Environmental prevention and care interventions from the perspective of One Health"

Plenary Hall – Engineering Department Bld. 7

12:15-12:30 PM **CLOSING CERIMONY**

Prof. Michele Torregrossa *University of Palermo*

Plenary Hall – Engineering Department Bld. 7

12:30-1:30 PM

LIGHT LUNCH

POSTER SESSION

October 2 - 3:15 - 3:30 PM

Building 19

- 1
Study of the Adsorption Process of Methyl Violet Dye in Sugar Cane Bagasse
M. F. Pereira Fonseca, **P. Procópio Pontes**
Centro Federal de Educação Tecnológica de Minas
- 2
Evolution of wastewater purification: a historical perspective on innovation, regulation and knowledge transfer
B., Cosenza, **A. Siragusa**, G., Mappa
Independent Researcher
- 3
Analysis of textile waste streams for regional planning: the Lombardy region case study
S., Abagnato, M., Grosso, L., Rigamonti
Politecnico di Milano
- 4
Enhancing the adsorption potential of multi-layered graphene obtained from thermo-plasma expanded graphite for the removal of volatile organic compounds and dyes from water
F., Di Capua, M., Cuccarese, A., Faraji, I. M., Mancini, D., Caniani, S., Masi
Università della Basilicata
- 5
Removal of recalcitrant COD from secondary tannery effluent at neutral pH by electrochemical peroxidation technology
E., Pasciucco, F., Pasciucco, R., Iannelli, I., Pecorini
Università di Pisa
- 6
Sludge Treatment & Advanced Recycling (STAR): complete synergy between mesophilic and thermophilic processes
M. C., Collivignarelli, A., Abbà, **S., Bellazzi**, G., Guido, R., Pedrazzani, G., Bertanza
Università di Pavia



7
Bimetallic Metal-Organic Frameworks: Efficient Catalysts for Water Disinfection via Advanced Oxidation Processes

A., Fdez-Sanroman, D., Terron, B., Lomba-Fernández, E., Rosales, M.A., Sanromán, **M., Pazos Currás**
Universidade de Vigo

8
Enhancing pollutant adsorption and adsorbent regeneration via Electro- or Photochemical integration

A., Fdez-Sanroman, N., Bermudez, B., Lomba-Fernández, A., Díez, E., Rosales, M.A., Sanromán, **M., Pazos Currás**
Universidade de Vigo

9
Assessing Environmental Performance and Sustainability in Industrial Sectors: A Methodological Approach

S., Castelluccio, C., Comoglio, S., Fiore
Politecnico di Torino

10
Unveiling the suitability of fluorescence indexes as surrogates for the in situ monitoring of contaminants of emerging concern removal through advanced oxidation processes designed for wastewater reuse

F., Fazzino, P., Roccaro
Università di Catania

11
Design and development of nanostructured systems based on mesoporous silica for the capture of environmental contaminants

A., Grisolia
Università della Calabria

12
A model-based approach for estimating PAO activity in aerobic granular sludge

G., Rizzardi, A., Catenacci, R., Canziani, A., Turolla
Politecnico di Milano

13
Treatment of real pharmaceutical effluents through the homogeneous Fenton process

C., Limonti, T., Andreoli, **G.M., Curcio**, E.G., Aucancela Riveira, A., Siciliano
Università della Calabria



14

Treatment of NAPL-contaminated emulsions by temperature-intensified alkaline persulphate

A., Santos, A., Sánchez-Yepes, A., Romero, D., Lorenzo

Complutense University of Madrid

15

Assessment of the removal of micrometer-scale plastics in the stages of wastewater treatment plants using flow cytometry

P., Foladori, **A., Torboli**, L., Bruni

Università di Trento

16

Utilize HTC products for sustainable Biogas production through Anaerobic Digestion of Sewage Sludge

A., Capone, A., Panico, L., Zaccariello, B., Morrone

Università della Campania Luigi Vanvitelli

17

Environmental impact assessment involving advanced multispectral techniques to characterize pollution phenomena and improve situational awareness: a case study on the Avernus Lake

M., Ajaoud, C., Ciccarelli, M., Lega

Università di Napoli Partenope

18

Circular economy in the treatment of aluminium scrap metal

D., Adejunmobi, S., Sorlini, A., Abbà

Università di Brescia

19

Removal of BTEX from water using KOH activated hydrochar produced by hydrothermal carbonization of municipal solid waste

C., Caretti, I., Ducci, R., Campo, B., Charnok, M., Puccini, F., Barontini, S., Dugheri, R., Gori

Università di Firenze

20

Removal of emerging pollutants using biochar recovered from sewage sludge

M. C., Collivignarelli, M., Baldi, S., Bellazzi, S., Sorlini, A., Papetti, C., Milanese

Università di Pavia



21

Complex water treatment – from pharmaceuticals to microplastics

M., Spacilova, P., Dytrych, M., Dlaskova, O., Solcova
Institute of Chemical Process Fundamentals CAS, v.v.i

22

Fluidized bed co-combustion of used toner cartridges with sewage and paper mill sludge

H., Snajdaufova, M., Carsky, M., Jadlovec, S., Honus, O., Solcova
Institute of Chemical Process Fundamentals CAS, v.v.i

23

Farmland from brownfields by animal waste hydrolysate

L., Moravkova, M., Dlaskova, F., Kastanek, O., Solcova
Institute of Chemical Process Fundamentals CAS, v.v.i

24

Evaluation of natural and industrial rejection streams on the performance of chloralkaline electrolyzers

I., Requena, M.M., Gomaa, R., Granados, C.M., Fernández, J., Lobato, M.A., Rodrigo
Universidad de Castilla-La Mancha

25

From Aerobic Granular Sludge (AGS) to Partial Nitrification Granular Sludge (PN-GS)

J.P., Czellnik, J., Pérez, T., Lotti
Università di Firenze

26

Exploring the role of wastewater treatment plants in microplastics management: a scoping review on fate and occurrence.

A., Zoccali, F., Malpei
Politecnico di Milano

27

An overview of the available strategies for the start-up process of a MABR

N., Hernandez-Alcayaga, G., Campo, A., Cerutti, M., Zanetti, B., Ruffino
Politecnico di Torino



28

Influence of carbon to nitrogen ratio and dilution rate on microbial protein production from cheese whey

A., Scotto di Uccio, S., Matassa, A., Cesaro, G., Esposito, S., Papirio

Università di Napoli Federico II

29

Valorization of organic-rich waste through membrane-based technologies for volatile fatty acids recovery within the circular economy and sustainability goals

S., Cairone, A., Mahboubi, T., Zarra, V., Belgiorno, M. J., Taherzadeh, V., Naddeo

Università di Salerno

30

Hydrometallurgical recycling of cobalt, manganese, and nickel from lithium-ion batteries: effects of microwave carbothermal reduction on the leaching efficiency

M., Bruno, A., Zanoletti, E., Bontempi, S., Fiore

Politecnico di Torino

31

Modelling the EU plastic value chain and assessing its environmental impacts: approaches, data sources and hotspots towards a circular plastic value chain

A. M., Amadei, L., Rigamonti, S., Sala

Politecnico di Milano

32

Valorisation of alkaline industrial residues through accelerated carbonation-based treatments

A., Masi, G., Costa, F., Lombardi

Università di Roma Tor Vergata

33

Full-scale anaerobic digestion of source-separated blackwater in UASB at RecoLab, Helsingborg, Sweden

S., Abuzir, M., Domini, G., Bertanz, Å., Davidsson, H., Kjerstadius

Università di Brescia

34

Enhancing anaerobic digestion of sewage sludge through medium-intensity magnetic field pretreatment: an evaluation of process efficiency and biomethane production

N., Di Costanzo, A., Cesaro, F., Di Capua, G., Esposito

Università di Napoli Federico II

DAY 2 - OCTOBER 2ND

48



- 35
Review of the perspectives for the valorization of orange peel wastes
I., Orlandella, S., Fiore
Politecnico di Torino
- 36
The characteristics of recycled aggregates from c&d waste: results of a monitoring activity following the end-of-waste regulation requirements
A., Abbà, S., Sorlini, A., Piccinali, G., Plizzari
Università di Brescia
- 37
Polyolefins chemical recycling: experimental investigation of product yields in a semi-continuous pyrolysis of composting plant waste
D., Sorino, L., Bartolucci, S., Cordiner, F., Lombardi, V., Mulone
Università di Roma Tor Vergata
- 38
LarWaR Process – BSF LARVAE FOR WASTEWATER TREATMENT AND RESOURCE RECOVERY: state of art and recent developments
V., Grossule, R., Cossu
Università di Padova
- 39
Co-digestion of agri-food and livestock wastes for boosting biomethane potential
D., Ipsale, B., Pecorino, S.F., Corsino, G., Viviani, M., Torregrossa
Università di Palermo
- 40
Potential Bio Hydrogen production: Co-digestion of mixed agricultural residues
F., Illuminati, R., Savio, M. C., Lavagnolo
Università di Padova

POSTER SESSION

October 3 - 3:15 - 3:30 PM

Building 19

1
Full-scale Application in Italy of a Combined ISCR and ERD Technology for the treatment of an Aerobic Aquifer Impacted with Tetrachloromethane and Chloroform

A., Leombruni, M., Mueller
Evonik Operation GmbH

2
Remediation of sediments contaminated by microplastics: a first approach

D., Spasiano, M., Soufizadeh, R., Morello, A., Ferraro, U., Fratino
Politecnico di Bari

3
Towards integrated plant-surface-subsurface hydrological modelling of bioreactive solute transport

D., la Cecilia, C., Lauvernet, C., Paniconi, M., Camporese
Università di Padova

4
Characterization and control of particulate matter in ambient air: instruments, techniques and interferences

L., Raso, V., Marino, M.R., Della Rocca, V., Belgiorno, V., Naddeo, T., Zarra
Università di Salerno

5
Assessing the Impact of Climate Change on Water Quality Parameters in the Brescia Water Supply System

T. K., Hoan Tran, A., Silvia, S., Sorlini
Università di Brescia

6
Behavior of membrane distillation in the treatment of a diverse range of real and industrial water streams: challenges and future perspectives

L., Craveri, E., Bertozzi, M., Malaguti, M., Frappa, F., Macedonio, A., Figoli, A., Tiraferri
Politecnico di Torino



- 7
Exploring the effect of citrus industry by-products as nitrogen fertilizer for wheat growth
C., Lucia, C., Conigliaro, F., Macina, S.M., Muscarella, V.A., Laudicina
Università di Palermo
- 8
Combined sewer overflows as a critical source of microplastics input to the aquatic environment
G., Beringheli, S. F., Corsino, M., Carciola, M., Torregrossa
Università di Palermo
- 9
Advance in SODIS through the addition of a photosensitive agent
E., Gover, C., Comuzzi, M., Marino, D., Goi
Università di Udine
- 10
An innovative solar greenhouse for enhanced sewage sludge drying: a case study
A., Sorrenti, S. F., Corsino, M., Torregrossa
Università di Palermo
- 11
Pollutant concentrations around Vegetative Environmental Buffers for livestock facilities:
onsite surveys for two sites
L., Baccini, E., Cortus, F. G. A., Vagliasindi
Università di Catania
- 12
Utilizing Agro-food Waste as Soil Amendment to Mitigate Pesticide Leaching into Subsoil
M., Granetto, C., Bianco, R., Sethi, **T., Tosco**
Politecnico di Torino
- 13
Comparison between continuous stirred tank reactor (CSTR) and plug-flow reactor (PFR) for excess sludge
minimization in CAS-ASSR-based process
S., Mulone, M., Capodici, S.F., Corsino, M., Torregrossa
Università di Palermo

14

Assessment of early warning capacity of wastewater-based epidemiology for SARS-CoV-2 and Influenza virus: a synthesis of a 4-year experience in Sicily, Italy

W., Priano, R., Palermo, F., Tramuto, W., Mazzucco, G., Andolina, F.R., Iaia, A., Russo, V., Giangreco, G., Graziano, F., Vitale, **C.M., Maida**
Università di Palermo

15

Analysis of the pfas treatment and regulation

D., Panepinto, B., Ruffino, S., Frisario, M., Zanetti
Politecnico di Torino

16

Surfactant enhanced remediation of marine sediments using anionic, non-ionic and mixed surfactants: role of operational conditions

M., Russo Tiesi, G., Di Bella, E., Licitra, G., Vinti, G., Viviani, D., Di Trapani
Università di Palermo

17

Preliminary results of Sequencing Batch Reactor (SBR) and Integrated Fixed Activated Sludge Reactor (IFAS) inoculated with solar saltern sediments in the treatment of hypersaline wastewater

A., Ricoveri, **R., Campo**, D., Bacchi, D., Gabriel, G., Munz
Università di Firenze

18

Microbial Quality Control on Soil irrigated by treated secondary wastewater: case tomato plant

R., Werheni Ammeri, S., El Bouali, M., Oueslati, N., Sadfi-Zouaoui
Faculty of Sciences of Tunis

19

Diversity and Toxicological Potential of Fungal Contaminants in Tunisian Citrus Fruits: Implications for Food Safety and Public Health

D., Souei, S., Abidi, R., Hammami, I., Hamdene, C., Lus, G., Meca De Caro, **N., Sadfi-Zouaoui**
Faculty of Sciences of Tunis

20

Continuous removal of VOCs and bacteria in a LED planar reactor: effect of operating parameters and kinetics modeling.

M.A., Hajjaji, A., Bouzaza, A., Amrane, A., Hajjaji, A., Assadi
Ecole Nationale Supérieure de Chimie de Rennes



21
Vulnerability Scenario Characterization using a Natech Indicator and a Territorial Multi-hazard Approach.

M., Castiglione, S.F., Corsino, M., Torregrossa
Università di Palermo

22
Gamifying Training to Enhance Sustainable Occupational Health and Safety in Waste Treatment Plants: the SOHS project

B.R., Barricelli, R.B., Reshtehroudi, F., Caffaro, R., Cioffi, G., De Palma, D., Fogli, M., Gremo, N., Leonardi, M., Micheletti, N., Pampuro, E., Sala, M., Vaccari
Università di Brescia

23
Removal of aluminium from a low - mineral content groundwater: a case study

S., Nicosia, G., Viviani
Università di Palermo

24
Water reuse from wastewater: comparison between MBR and tertiary filtration processes

M., Carnesi, P. M., Bosco Mofatto, A., Mineo, A., Cosenza, D., Di Trapani, G., Mannina
Università di Palermo

25
Transition to circular economy: the case study of Corleone wastewater treatment plant
A., Cosenza, M., Carnesi, D., Di Trapani, H., Gülhan, A., Mineo, **P. M., Bosco Mofatto**, G., Mannina
Università di Palermo

26
Nutrients removal in intermittently aerated IFAS systems: effects of operating conditions

S.F., Corsino, E., Licita, M., Torregrossa, G., Di Bella
Università di Palermo

27
Advanced oxidation processes applied to microplastics degradation: a preliminary experimental study

F., Cecchini, V., Innocenzi, M., Prisciandaro
Università di L'Aquila

28

Indicators and parameters for the Life Cycle Sustainability Inventory of Municipal Solid Waste Management Systems

A., Ceraso, A., Cesaro
Università di Napoli Federico II

29

Life cycle assessment of a new approach for micro-PET recovery from domestic laundry wastewater and subsequent valorisation into amino acids

M. Carnevale Miino, A. P. D., Baltrochi, F., Conti, E. C., Rada, V., Torretta
Università dell'Insubria

30

Life cycle-based assessment of graphite recovery from spent Li-ion batteries

D. S., Premathilake, W.A.M.A.N., Illankoon, A. B., Botelho Junior, D., Croce Romano Espinosa, M., Vaccari
Università di Brescia

31

Remanufacturing of off-road vehicles spare parts: process analysis and environmental assessment

L., Nastasi, S., Fiore
Politecnico di Torino

32

Carbon Lifecycle Management Through Innovative Forest Land Management and Regulatory Frameworks

I., Martínez-Alcalá, J.L., Durán-Sánchez, R., Martínez-Alpañez, V., Meseguer-Sánchez
Universidad Católica de Murcia

33

From dissipative to assimilative wastewater treatment: the potential of hydrogen-oxidizing bacteria to upcycle nitrogen and mitigate greenhouse gas emissions from wastewater

M., Kumar, S., Matassa, C., Belloni, F., Pirozzi, G., Esposito, S., Papirio
Università di Napoli Federico II

34

Sustainable Electrochemical Reduction of contaminants of emerging concern and Pathogens in WWTP effluent for Irrigation of Crops (SERPIC)

M. P., Castro, I. F., Mena, Á., Moratalla Tolosa, **P., Verlicchi, C. S.**, Santos, A. I., Gomes, V. J.P., Vilar, A., Wolf, P., Krzeminski, M., Botes, J., Gäbler, C., Sáez, M. A., Rodrigo
Universidad de Castilla-La Mancha



- 35
Application of diverse types of hydrogels as separators in microbial fuel cells
I., Torrejón Guerrero, C., Martín, R., Granados, A., Rodríguez, M.A., Rodrigo, E., Vázquez, C.M., Fernández
Universidad de Castilla-La Mancha27
- 36
Testing low-cost materials for nutrients adsorption in wastewater
M., Ravina, E., Marotta, M.C., Zanetti
Politecnico di Torino
- 37
Combining material flow analysis and life cycle assessment to support decision-making of municipal solid waste management: a case study in Catalonia
S., Fiaschi, C., Lubello, L., Talens Peiró
Università di Firenze
- 38
A chain for the treatment of oilfield produced waters: case study and experimental analysis
G., Campisi, A., Sorrenti, A., Cosenza, S., Randazzo, S.F., Corsino, M., Capodici, A., Tamburini, G., Micale
Università di Palermo
- 39
Resource recovery hub for net zero carbon and climate change mitigation
D., Di Trapani, V., Alduina, L., Badalucco, M., Carnesi, **A., Cosenza**, Y., Di Leto, P., Bulacio Fisher, G., Gallo, A., Laudicina, A., Mineo, P. M., Bosco Mofatto, S. M., Muscarella, G., Mannina
Università di Palermo
- 40
Early warning system and decision support system for catchment
M., Di Vincenzo
Xylem Water Solutions
- 41
Removal of pesticides from olive orchards through electrochemical generation of ozone and hydrogen peroxide
I. F., Mena, **C., Navas-Higuero**, E., Lacasa, A.J., Manzaneda, M. A., Rodrigo, C., Sáez
Universidad de Castilla-La Mancha

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