



“Gheorghe Asachi” Technical University of Iasi, Romania



Session 2
**ORGANIC WASTE MULTIPURPOSE BIOREFINERIES FOR
THE CONVERSION OF HIGH ENVIRONMENTALLY IMPACTING MATRICES AND
EFFLUENTS INTO BIO-BASED CHEMICALS, MATERIALS AND FUELS**

Keynote lecture

**ZEROWASTEWATER: SHORT-CYCLING OF WASTEWATER
RESOURCES FOR SUSTAINABLE FACTORIES
AND CITIES OF THE FUTURE**

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Abstract

We currently deal with water in a non-sustainable way. We load it up with heat, chemical energy, nutrients and discharge it to a treatment plant. Up to now, we rarely invest to recover effectively the energy, the nutrients, the water. This is mainly due to the low exergy of wastewater. The key strategy is to avoid dilution but rather to up-concentrate the discharged water as much as possible upfront. In the latter case, a wastewater treatment plant can be upgraded to become a “bio-refinery”. Clearly, a variety of biotech processes qualify to be integrated in such new zero waste water approach. Moreover, these processes are already at such stage that they can compete with conventional “dissipative” technology in terms of costs and reliability.
