

## Co-creating Sustainable Solutions for Climate-Resilient Societies

### Pre-conference / Phd students

#### Programme

13:00 – Welcome to the pre-conference (Organisers: **Kerstin Johansen (JU)**, **M. Benedetta Mattei (UNIVAQ)**)

- Background
- Structure of the afternoon
- Expectations

13:10 – Keynote speaker (15 min) **Kateryna Kryzhanivska (LUT)**, “Research for Impact: Empowering Early-Career Researchers to Shape Climate-Resilient Futures”.

13:25 – Question and discussions with the keynote speaker

13:35 – Parallel session introduction

13:40 – Track 1 / Track 2 / Track 3 / Track 4 –themes based on the EULiST Fridays for Research

#### **Track 1. Renewable energy systems: hydrogen, renewable energy sources, storage solutions, societal impacts**

This session covers: hydrogen economy, storage technologies (including underground storage), fuel cells, electrolyzers, hydrogen carriers, renewable energy integration, electricity markets, LCA, and social dimensions of the hydrogen transition.

Moderator: **Andrea Di Carlo (UNIVAQ)**

Speakers:

**Armando Vitale (UNIVAQ)** “Experimental assessment of a 100 kWth dual bubbling fluidized bed biomass gasifier integrated with catalytic hot gas cleaning”

**Alejandro Pérez Domínguez (URJC)** “Green hydrogen production by solar thermochemical water splitting with non stoichiometric oxides”

**Barbara Malsegna (UNIVAQ)** “Hydrotalcite-Based Sorbents for green hydrogen production with simultaneous capture and separation of CO<sub>2</sub> by Sorption-Enhanced Water-Gas Shift”

**Sanni Sipinen (LUT)** “Electrifying stories: The economy, the environment and global change in news media discourse on the developing Finnish battery industry”

**Pantelis Manakas (NTUA)** “Comparability Index among LCA studies”

**Ting Pan (BUT)** “Renewable Heating and Power Systems for Low-Carbon Residential Energy Transition”

#### **Track 2. Innovations in advanced materials and smart manufacturing for Sustainable Industry 4.0**

This session includes: advanced and additive manufacturing, hybrid and micro machining, surface modification processes, green and smart manufacturing, advanced materials, AI-driven product realization, predictive maintenance, supply chain optimization, and Industry 4.0 applications.

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Moderator: (JU, to be confirmed)

Speakers:

**Simon Fetzl (STUBA)** "Robot Imitation Learning from Videos for small scale production"

**Lotfi Makhoulf (IMT)** "Hybrid Additive Manufacturing for Agile and Sustainable Tooling: The AGILITY Project"

**Meysam Norouzi Inallu (LUT)** "Effect of laser powder bed fusion parameters on the functional properties of Ni-Mn-Ga magnetic shape memory alloys"

**Michal Križo (STUBA)** "Mycelium-Based Composites and Digital Fabrication: Exploring New Pathways for Sustainable Architecture"

**Ilias Theodoropoulos (NTUA)** "Developing an Integrated Management and Evaluation Standard for Megaprojects across their Spatial Life Cycle"

### Track 3. Climate change, environmental resilience, and green urban transitions: technologies and strategies for a sustainable future

This session integrates: climate adaptation and mitigation, disaster risk reduction, biodiversity and ecosystem resilience, sustainable urbanization, green cities, deforestation, water management, and the socio-economic impacts of climate change, including health and societal resilience.

Moderator: (UNIVAQ, to be confirmed)

Speakers:

**Angeliki I. Chronopoulou (NTUA)** "Climate Crisis and existing buildings' resilience: The Athenian Polykatoikias of the period 1920 – 1960"

**Raghad Awad (STUBA)** "Green Infrastructure for Climate-Resilient Cities: Pathways Toward Sustainable Urban Futures"

**Vanessa Tomei (UNIVAQ)** "Urban Metabolism and connectivity in polycentric urban systems: A Systems-Engineering approach to analyzing the Urban Energy Footprint within Italy's complex settlement pattern"

**Fernanda Gomez Saenz (LUH)** "Territorial regeneration and settlement patterns in a rapidly growing Chilean urban agglomeration. The case of Puerto Montt and Puerto Varas"

**Ivy Londa (LUT)** "Orchestrating Cross-Sector Collaboration for Regenerative Futures: Success Factors Strategies in Multi-Stakeholder Partnerships"

**Lenka Páležová (BUT)** "Material Flow Analysis as an Approach to Battery Classification for Effective Waste Management: A Case Study in the Czech Republic"

## Track 4. Bioengineering, biotechnology, and smart systems for health, mobility, and sustainable communities

This session brings together: biomedical engineering (biomaterials, tissue engineering, neurotechnology, bioinformatics), biocomputing, wearable devices, bioinspired robotics, smart mobility and transportation, e-governance, digital citizenship, smart energy systems, cybersecurity in healthcare, and AI in sustainability and public well-being.

Moderator: **Ioanna Giouroudi (TUW)**

Speakers:

**Tayyab Rehman (UNIVAQ)** “Adaptive Multi-Agent Anomaly Detection for Smart Mobility and Sustainable Communities”

**Rabia Altunay Kan (LUT)** “Mathematical modeling of biomedical applications and optimization”

**Neziha Akalin (JU)** “Safety, Trust, and Transparency in Socially Assistive Robots”

**Konstantinos Gounaridis (NTUA)** “The Spatial Dimension of Accessibility: Digital and Technological Tools in the Potential Redefinition of the Means of Achieving Accessibility”

**Víctor Díaz Mena (URJC)** “Advanced conductive polymer composites for wearable sensing applications”

13:45 – Each track starts their presentations which are coordinated by one chair (moderator)

Each presenter presents their idea summarized in 2 ppt-slides (according to a template) – in 3 minutes + 1 minute changeover to the next presenter

14:25 – Short break

14:45 – Discussions in each track related to the presentations – moderated by a chair

- Purpose is to summaries 2-4 joint ideas for future collaborations (joint paper writing, mobility activities, research proposal writing, joint educational activities etc)
- Depending on the number of participants – this could be organized by breakout rooms related to each presenter (who in that case will be the moderator)

15:15 – All are welcome to a final summary

- Short summary of each track – chair (moderator) and participants
- Virtual assessment via a virtual tool / questionnaire (ideas of questions are on the conceptual level)

15:55 – Thank you for a nice session – and goodbye.

16:00 – End of session.