



31 October - 1 November 2024

University of Eastern Finland | Metria-building, Yliopistokatu 7 | Joensuu, Finland

4th International Conference for Sustainable Resource Society

Environmental monitoring and impact assessment

Conference booklet



**Co-funded by
the European Union**



CONFERENCE PROGRAMME

(for any updates, please visit: [ICS24 website](#))

CONFERENCE DAY 1: Thursday, October 31

| TIME (Finnish time, GMT+2) | ACTIVITY | PROGRAMME | BUILDING AND ROOM |
|----------------------------------|--|---|--|
| 8:00-15:00 | Registration Poster display | Badge, lunch ticket and general information Posters will be available for viewing | Metria, Lobby, Yliopistokatu 7, Joensuu |
| 10:00-11:30 | Plenary I | Welcome to the conference Keynote | Metria, M100 Auditorium |
| 11:30-12:30 | Lunch break | | Campus restaurants |
| 12:30-14:15 | Parallel sessions I | Session 1. Circular Economy Ecosystems Session 2. Data and policy value chains interface in water management Session 3. Soils and water bodies in changing climate Forest & Photonics session I: Environmental monitoring and sustainability impact assessment | Metria, M103 Metria, M102 Metria, M303 Metria, M101 |
| 14:15-16:00 | Parallel sessions II | Session 4. Sustainable Policies and Society Session 5. Energy Transition in Circular Economy Session 6. Societal and Social Perspectives on Sustainability Session 7. Organizational Perspectives on Sustainable Circular Economy | Metria, M103 Metria, M108 Metria, M109 Metria, M301 |

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| | | <p>Session 8. Sustainability, Ecosystem Services, and Social Dynamics in Tourism, Recreation, and Resource Management</p> <p>Session 9. Carbon capture, storage, and utilization – CCU & CCU-NET MOBILITY NETWORK</p> <p>Forest & Photonics session II. Designing forested environments for economic, social and ecological sustainability</p> | <p>Metria, M102</p> <p>Metria, M303</p> <p>Metria, M101</p> |
| 16:00-18:00 | Campus Tour | <p>SenseLab, Computational Spectral Imaging Lab, XR Lab, Drone Lab, Sphagnum moss research</p> <p>Posters available for viewing</p> <p>Forest & Photonics Joensuu Lounge</p> | <p>Start point for tours, Metria, Lobby</p> <p>Metria, Lobby</p> <p>Metria, Lobby</p> |
| 19:00-22:00 | Conference dinner for registered participants | | Sokos Hotel Kimmel, Itäranta 1, Joensuu |

CONFERENCE DAY 2: Friday, November 1

| TIME (Finnish time, GMT+2) | ACTIVITY | PROGRAMME | BUILDING AND ROOM |
|---|--|---|---|
| 8:00-10:00 | Registration Poster display | Badge and general information Posters will be available for viewing | Metria, Lobby , Yliopistokatu 7, Joensuu |
| 8:00-10:30 | Forest and Photonics | Industry presentation and networking event | Temple of Challenge, Joensuu Science Park, 3A-building, 4. floor Länsikatu 15, Joensuu |
| 8:30-10:45 | Parallel sessions III | Session 10. Perspectives on Circular Economy Entrepreneurship. Session 11. Sustainable Innovations Session 12. Environmental modelling, monitoring and optimisation in ecosystem research Session 13. Anthropogenic aerosols, pollution and climate change Session 14. Carbon capture, storage, and utilization – CCU & CCU-NET MOBILITY NETWORK | Metria, M101 Metria, M103 Metria, M102 Metria, M303 Metria, M109 |
| 10:45-11:30 | Plenary II | Closing words | Metria, M100 Auditorium |

KEYNOTES AND PRESENTERS

CONFERENCE DAY 1: THURSDAY, OCTOBER 31, 2024

Plenary I, 10:00-11:30

Welcome to the conference: Professor Jouni Pykäläinen, Head of FOBI RC

Greetings: Professor Jussi Kukkonen, Head of WATER RC, Professor Jyrki Saarinen, Head of PHOTONICS RC, Professor Hanna Lehtimäki, Vice-head of RESOURCE RC, Professor Eeva-Stiina Tuittila, Vice-head of CLEHE RC

Keynote: Eeva Hellström (Sitra) **What if tomorrow's resource economy was regenerative?**

Keynote: Jo Van Brusselen (European Forest Institute) **Forest Monitoring in Europe**

MEET OUR KEYNOTE SPEAKERS

Eeva Hellström

Eeva Hellström is a Senior Lead in Foresight at the Finnish Innovation Fund Sitra, an independent, future-oriented public think-and-do tank.

At Sitra, Eeva focuses particularly on foresight activities related to the economy of tomorrow. Her work aims to identify potential development trends and transformative opportunities that can contribute to a genuinely fair, sustainable, and competitive economy. A key goal is to challenge prevailing assumptions about the future of the economy and to initiate constructive, multisectoral, and multidisciplinary discourse on the topic. Currently, she has a special interest in regenerative economics.



Jo Van Brusselen



Jo Van Brusselen is Senior researcher at the European Forest Institute (EFI), Climate-Smart Forestry Team in the Bioeconomy Unit, with over 20 years' research experience. His recent project involvement relating to forest monitoring and policy support include: the Horizon Europe MoniFun project on the development of a blueprint for a harmonized European Forest Multifunctionality Monitoring System (EFMMS) (2025-2027), ESA Forest Carbon Monitoring project (FCM-2: 2024-2025), support to EU DG Environment for the impact assessment on the legislative proposal for forest monitoring and strategic plans (2022-2023); and the development of guidance for the renewable energy directive (REDII) implementing act with sustainable harvesting and LULUCF criteria, for EU DG Energy (2020-2021).

Parallel sessions I, 12:30-14:15

SESSION 1. Circular Economy Ecosystems. (Chair: Nuppu Mielonen | Metria, M103)

1. *Ville-Veikko Piispanen*, Hanna Lehtimäki, Kristina Leppälä, (University of Eastern Finland), **Building a strategic ecosystem for circular plastics – stakeholder alignment in value creation.**
 2. *Mikko Lampinen*, Hanna Lehtimäki, Nuppu Mielonen (University of Eastern Finland), **Socio-cultural and spatial trajectories of the circular economy: Catalyzing circular solutions in industrial ecosystems.**
 3. Angelina Korsunova (University of Helsinki), *Marileena Mäkelä* (University of Jyväskylä), Noora Viholainen (Oulu University of Applied Sciences), Tiina Onkila (University of Jyväskylä), **The potential of circular ecosystems for promoting positive social change: insights from Finland.**
 4. *Nuppu Mielonen*, Hanna Lehtimäki (University of Eastern Finland), **Circular economy value creation in circular industrial ecosystems – Case study of Kokkola Industrial Park.**
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SESSION 2. Data and policy value chains interface in water management (Chair: Antti Belinskij | Metria, M102)

1. *Antti Iho* (University of Eastern Finland), **Internalizing agricultural externalities – Possibilities and limitations of using new instruments based on models.**
 2. *Elina Oksanen*, Chen Liang, Jaakko Pohjoismäki, Jiri Vihavainen (University of Eastern Finland), Tiina Leiviskä, Johanna Laukkanen, Hanna Virpiranta, (University of Oulu), **REWET (REstoration of WETlands to minimise emissions and maximise carbon uptake – a strategy for long term climate mitigation).**
 3. *Sukeerti Kendapady* Ganesh (University of Eastern Finland), **Effective management of fisheries in Areas Beyond National Jurisdiction to aid in carbon sequestration.**
 4. *Mohammad Mozumder* (NOVIA, University of Applied Science), Laura Uusitalo (Luke), Stefan Heinänen (NOVIA, University of Applied Science), Petra Schneider (University of Applied Sciences Magdeburg-Stendal), Dibash Deb (University of Chittagong), **Navigating Towards Sustainability: Governance in Finnish Small-Scale Fisheries.**
 5. *Jagbir Singh* (University of Delhi), **Climate change and water management in India: Some challenges.**
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SESSION 3. Soils and Water Bodies in Changing Climate – The Impact of the Changing Climate on Northern Soils, Especially on Carbon and Nitrogen Cycles and Greenhouse Gas Emissions (Chair: Victor Carrasco Navarro | Metria, M303)

1. *Suraj Kumar*, Alok Kumar, Vivek Dalvi, Anushree Malik (Indian Institute of Technology Delhi), **Investigating the PHB induction in *Spirulina platensis* under nitrate and salt stress**
 2. *John Alexander Pulgarin Díaz* (University of Eastern Finland), Markus Melin (Natural Resources Institute Finland), Päivi Lyytikäinen Saarenmaa, Heli Peltola, Olli-Pekka Tikkanen (University of Eastern Finland), **Effects of forest stand and landscape variables on *Ips typographus* damages in Finland´s nationwide**
 3. Parvez Rana, *Priscillia Christiani*, Anssi Ahtikoski, Soili Haikarainen, Leena Stenberg, Artti Juutinen, Anne Tolvanen (Natural Resources Institute Finland), **Cost-efficient management of peatland to enhance biodiversity in Finland**
 4. *Manojit Chowdhury*, Tapan Kumar Khura (ICAR- Indian Agricultural Research Institute) **Vegetation Indices Integrated Portable Device for Precise Nitrogen Management in Rice Crop**
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Parallel sessions II, 14:15-16:00

SESSION 4. Sustainable Policies and Society. (Chair: Tuija Mononen | Metria, M103)

1. *Yu Li*, Natalia Yakovleva (Kedge business school), Xiangyun Gao (China University of Geosciences), **Review of mineral resource recycling management: Past, present, and future.**
 2. *Shahzaib Ali* (University of Central Punjab), **Reducing plastic pollution through extended producer responsibility (epr) & circular economy.**
 3. *Christof Middeke* (ResilienceHub), **Scalable perspectives and questions from five years of subarctic offgrid living or is "being nature" our common link from the knowing to the doing?**
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SESSION 5. Energy Transition in Circular Economy. (Chair: Markus Sairanen | Metria, M108)

1. *Olubunmi Afinowi* (University of South Africa), **Legal perspectives on energy transitions and sustainable development in Nigeria.**
 2. Felix N. Igbeghe, Orima Kingsley and AkueLeka, (University of Port Harcourt, Rivers State, Nigeria), **Assessment of the Impact of Energy Efficiency Measures on Greenhouse Gas Emissions Reduction in Niger Delta Regions of Nigeria.**
 3. *Lubendik Lubendik* (University of Antwerp), **Examining Indonesia's Government Policies and Strategies for Energy Transition: A Climate Justice Perspective.**
 4. *Isaline Réguer* (AgroParisTech), **What kind of 'energy transition' for sustainable agriculture? The example of agricultural anaerobic digestion in Brittany.**
 5. *Saeid Mohammadian* (Institut Teknologi Bandung), **Mutual Effects of Sustainability and Water Gas Shift Reaction (WGSR) in an Integrated Membrane Reactor.**
 6. *Kseniia Makhortova, Antti Silvast, Per Dannemand Andersen* (LUT University), **Sustainable and inclusive stakeholder engagement in long-term energy planning.**
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SESSION 6. Societal and Social Perspectives on Sustainability. (Chair: Juha Kinnunen | Metria, M109)

1. Sue Langford, Hanne Knight and Paul Warwick (University of Plymouth), **Investigating the effective pedagogy for Net Zero Education.**
 2. *Antti Haapala*, Ville Nivalainen (University of Eastern Finland), **Sustainability in UEF technology education.**
 3. *Elina Oksanen*, Oskari Ylikoski, Tiina Ynnilä (University of Eastern Finland), **ENABLS (Enabling society to bend the curve for biodiversity).**
 4. *Jonas Sjöblom*, Pekka Valkama (City of Helsinki), **Drivers and barriers of public-private knowledge brokering in a circular economy: collaborative advantages and inertia in the Helsinki cluster programme.**
 5. *Juha Kinnunen*, Sanna Saastamoinen, Hanna Lehtimäki (University of Eastern Finland), **Examining future sustainable leadership from a psychological perspective - the viewpoint of employed university students.**
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SESSION 7. Organizational Perspectives on Sustainable Circular Economy. (Chair: Ida Parkkinen | Metria, M301)

1. *Krista Leppänen*, Hanna Lehtimäki, Tuomas Honkamäki (University of Eastern Finland), **Sustainability reporting as a practice in organization – involvement of different parts of the organization.**
 2. *Pasi Hirvonen*, Hanna Lehtimäki (University of Eastern Finland), **Scoping the sustainability transition research – a moral orders perspective.**
 3. *Maija Halonen* (University of Eastern Finland), **Sustainability management complexities and trade-offs of forest manufacturing enterprises in Finnish peripheries.**
 4. *Misharch Kwadwo Osei* (Umeå University), **Evaluating the outputs of collaborative REDD+ governance design: a case study of the Ghana cocoa forest REDD+ programme.**
 5. *Kang Li*, Riikka Holopainen, Esa Hiltunen (University of Eastern Finland), **Navigating Sustainability: The Impact of Gender Diversity in Leadership on Corporate Sustainability Performance.**
 6. *Ida Parkkinen*, Kristina Leppälä, Hanna Lehtimäki (University of Eastern Finland), **Stories about sustainability leadership: Reframing as an emerging leadership practice.**
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SESSION 8. Sustainability, Ecosystem Services, and Social Dynamics in Tourism, Recreation, and Resource Management (Chair: Henna Konu & Jarno Suni | Metria, M102)

1. *Alexander Osipov* (University of Eastern Finland), **Royal Hunting in Kazakhstan: A Path to Sustainability or Social Injustice?**
 2. *Timo Haapasalo* (University of Eastern Finland), **Detecting hidden values and answering to systemic challenges in recreational fishing in Finland.**
 3. *Pinja Leino*, Henna Konu (University of Eastern Finland), Esko Sorakunnas (University of Turku), **The role of biodiversity and cultural ecosystem services in the nature-based tourism business: exploring practices of pioneering sustainable tourism companies within Finnish biosphere reserves.**
 4. *Pema Choden Bhutia* (VIT-AP University, India), **Tourists Preferences: A Roadmap for Future Tourism Facility Development.**
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SESSION 9. Carbon Capture, Storage, and Utilization – CCU & CCU-NET MOBILITY NETWORK (Chair: Anna Lähde | Metria, M303)

1. *Andreas Kaiser* (Technical University of Denmark), **CCU-NET Mobility network.**
2. *Ladawan Pukdeejorhor*, Xiaoxiong Fan, Andreas Kaiser (Technical University of Denmark), **Selection and characterization of solid sorbents for application in post-combustion carbon dioxide capture.**
3. *Yujie Zhao*, Ashwin Nambi, Jonathan Albo, Ivan Merino-Garcia, Andreas Kaiser (Technical University of Denmark), **Gas phase photo-electrocatalytic CO₂ reduction on Metal-Organic Frameworks (MOFs).**
4. *Xiaoxiong Fan*, Ladawan Pukdeejorhor, Andreas Kaiser (Technical University of Denmark), Farid Akhtar (Lulea University of Technology) **Carbon Capture from Heavy-Duty Vehicles Using Zeolite Y Composites.**

5. Praveen Wilson, Farid Akhtar (Lulea University of Technology), **Granulation and Activation of Spent Coffee Grounds: A Sustainable Pathway for CO₂ Adsorption**
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FOREST AND PHOTONICS SESSIONS (Metria, M101)

(for any updates, please visit: [Forest & Photonics 2024](#))

Session I: Environmental Monitoring and Sustainability Impact Assessment (Moderator: Juha Purmonen)

12:30-13:00 Keynote: Olli Leino (Metsä Group), **Regenerative forestry for more vibrant, diverse and climate-resilient forests - extending requirements for forest data**

13:00-13:20 Markku Keinänen (University of Eastern Finland), **Applications of proximal imaging spectroscopy in forestry and wood science**

13:20-13:40 Mauricio Acuna (Natural Resources Institute Finland), **Making forest operations more sustainable with Lidar sensors on harvesting equipment**

13:40-14:00 Jari Vauhkonen (University of Eastern Finland), **Benefits of models based on causal understanding vs. data-driven artificial intelligence for forest inventory and planning**

14:00-14:30 Coffee/Networking break / Poster session

Session II: Designing Forested Environments for Economic, Social and Ecological Sustainability (Moderator: Sari Koivula)

14:30-14:45 John Alexander Pulgarin Díaz (University of Eastern Finland), **Impacts of stand and landscape attributes on *Ips typographus* damage hotspots in Finland**

14:45-15:00 Katsuhiko Takata (Institute of Wood Technology, Akita Prefectural University), **Automobile made from forests**

15:00-15:15 Tuomo Kauranne (Arbonaut): **How to gauge ecological sustainability of forest operations?**

15:15-15:30 Antti Kaartinen, Senior Manager, Stora Enso Forest Division: **How to make the most of digitalization in forest management – a global forest company perspective**

15:30-16:00 Panel discussion

Olli Leino, Director Digitalization, Metsä Group

Tuomo Kauranne, President, Arbonaut

Antti Kaartinen, Senior Manager, Stora Enso Forest Division

CONFERENCE DAY 2: FRIDAY, NOVEMBER 1, 2024

Parallel sessions III, 8:30-10:30

SESSION 10. Perspectives on Circular Economy Entrepreneurship. (Chair: Subhanjan Sengupta | Metria, M101)

1. *Kaisa Henttonen* (University of Eastern Finland), **Institutional entrepreneurship in circular economy - a business model perspective.**
 2. *Kristina Leppälä*, *Juha Kinnunen*, *Ida Parkkinen*, *Hanna Lehtimäki* (University of Eastern Finland), **Finnish peat industry entrepreneur perceptions of their industry's gradual termination.**
 3. *Mirkka Rovamo*, *Anu Laakkonen*, *Katri Rusanen*, *Jani Holopainen* (University of Eastern Finland), **Dimensions of strong sustainability: A systematic literature review.**
 4. *Subhanjan Sengupta* and *Hanna Lehtimäki* (University of Eastern Finland), **Entrepreneurship for empowering the marginalized through creative circular economy.**
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SESSION 11. Sustainable Innovations. (Chair: Katri Rusanen | Metria, M103)

1. *Venla Wallius* (University of Jyväskylä and European Forest Institute), **Wood-based innovations in the sustainability transition – stakeholder perspectives.**
 2. *Charles Nickson*, *Noireaux Virginie* (Clermont Auvergne University, CLERMA), *Huet Sylvie* (INRAE, LISC), **Proximity and sustainable innovation in school catering services.**
 3. *Muhammad Zeshan Razzaq*, *Kaisa Henttonen*, *Ville-Veikko Piispanen* (University of Eastern Finland), **Smart circular economy – review of digital technologies and circular economy in manufacturing.**
 4. *Katri Rusanen*, *Teppo Hujala*, *Jouni Pykäläinen* (University of Eastern Finland), **Company's external and internal factors steer sustainable value creation: experiences from innovative forest-based SMEs.**
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SESSION 12. Environmental modelling, monitoring and optimisation in ecosystem research (Chair: Franziska Wolff & Miguel Villoslada | Metria, M102)

1. Keynote presentation, *Matthieu Roussey* (University of Eastern Finland), **Microplastics and environmental sensing – Applications for big challenges**
2. *Franziska Wolff* (University of Eastern Finland), *Eliisa Lotsari* (Aalto University), *Mariana Verdonen*, (Agricultural University of Iceland), **Spatial modelling of flow networks in palsa mire complexes using Unoccupied Aerial Vehicles.**
3. *Augustine-Moses Gaavwase Gbagir*, *Alfred Colpaert* (University of Eastern Finland), **A multi-remote sensing approach to synthesize the trend in the eutrophication of Lake Rokuanjärvi in North Ostrobothnia Finland.**
4. *Ayushi Jha*, *Sunil Garg*, *Sanjay Satpute*, *JP Singh* (Punjab Agricultural University), **Enhancing Sewage Water Treatment for Irrigation: Optimization and Validation of Rice Husk Ash and Ferric Oxide-Coated Sand Adsorbents Using Artificial Intelligence**
5. *Alok Kumar*, *Vivek Dalvi*, *Suraj Kumar*, *Anushree Malik* (Indian Institute of Technology, New Delhi), **Stress-mediated PHB induction in *Synechococcus elongatus*.**

6. *Abhishek Sahu*, Anushree Malik, Jatindra K. Sahu (Indian Institute of Technology, New Delhi), **Enhancing Biomass and PHB Production in *Synechocystis pevaleikii* through Growth Media Optimization.**
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SESSION 13. Anthropogenic Aerosols, Pollution and Climate Change (Chair: Oksana Skaldina | Metria, M303

1. *Muhammad Tanveer*, Tommi Karhunen, Sara Mesceriakove, Arunas Mesceriakovas, Olli Sippula, Anna Lähde (University of Eastern Finland), **Aerosol synthesis of flame formed carbon dots: Insights of size, morphology and optical properties.**
 2. *Aapo Tikka*, Anni Hartikainen, Olli Sippula, Antti Kilpeläinen (University of Eastern Finland), **Aerosol emissions from forest biomass use.**
 3. *Isma Maqbool*, Oksana Skaldina (University of Eastern Finland), **Effects of traffic-related metal pollutants on volatiles and associated insect communities in wild angelica.**
 4. *Babita Babita* (Ramesh Chand Institute of Management), **Climate Change and Sustainable Development: A Community Approach in India.**
 5. *Kirsi Silvennoinen*, Vesa Lampi, Eeva Lehtonen, Xing Liu (Natural Resources Institute Finland), **Creating a food waste data collection and decreasing method for urban area food services**
 6. *Luca Esposito* (Department of economics and statistics, University of Salerno, Fisciano, Italy and University of Eastern Finland, Karelian Institute, Finland), **Biogas enterprise for the development of rural areas: current status and future prospects in Italy.**
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SESSION 14. Carbon capture, storage, and utilization – CCU & CCU-NET MOBILITY NETWORK (Chair: Anna Lähde | Metria, M109

1. Anna Lähde (University of Eastern Finland), **CCU-NET mobility.**
 2. *Christophe Coudercy* (University of Oslo), Mathieu Prevot, Pavel Afanasiev, Stephane Loridant (Université Claude Bernard Lyon), **Ox-Zeo process: reaction intermediate and intimacy study for MnO+SAPO-34 system.**
 3. *Nasir Shezad* (Lulea University of Technology), Muddasar Safdar, Harvey Arellano-García (Brandenburgische Technische Universität Cottbus-Senftenberg), Farid Akhtar (Lulea University of Technology) **Catalytic conversion of carbon dioxide into methane using hierarchical zeolite 13X supported Ni catalysts.**
 4. *Pauliina Nevalainen*, Niko Kinnunen, Miika Kortelainen, Anna Lähde, Olli Sippula (University of Eastern Finland), **Biogenic CO₂ into materials and fuels.**
 5. Nabin Subedi, Anna Lähde (University of Eastern Finland), **ZIF-8 derived carbon nanocages as catalyst host for electrocatalytic CO₂ reduction.**
 6. Anna Lähde (University of Eastern Finland), **CCU-NET Closing words.**
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FOREST AND PHOTONICS. Industry presentation and networking event (Moderator: Seppo Tossavainen, Joensuu Science Park, Länsikatu 15, Temple of Challenge, 3A-building, 4th floor), 8:00-10:30

(for any updates, please visit: [Forest & Photonics 2024](#))

8:00-8:30 Coffee & networking

8.30-8.40 **Sitowise**, Teemu Saramäki, Sales Manager

8.40-8.50 **Arbonaut**, Jeremias Jeskanen, Case: Identification of old trees using LiDAR data

9:00-9:30 **Kuva Space**, Jarkko Anttila, CEO

9:30-10:30 Industry presentations

- **Entangly Optics and Photonics**, Anni Lehmuskero, Senior Optics Specialist
- **Winse Power**, Arto Aho, CTO
- **Seetrue Technologies**, Piotr Bartczak, Co-Founder
- **Dispelix**, Petri Stenberg, VP of Manufacturing & Site Manager
- **Arestech**, Arto Parikka, CEO

Plenary II, 10:45-11:30, METRIA, M100

Concluding remarks: Session chairs

Closing words: Professor Tapio Määttä, Academic Rector

MULTIDISCIPLINARY POSTER SESSION (Metria, Lobby)

Posters will be available for viewing throughout the conference. Attendees are encouraged to explore the posters during breaks, lunch sessions, or at their convenience.

1. Sanna Tyni, Henna Honkanen, Marja-Liisa Järvelä, Eeva Suonperä (Oulu University of Applied Sciences), **Biochar – potential to enhance carbon dioxide removal and gain financial benefit at carbon markets?** [POSTER](#).
2. Sidra Iftekhhar, Ondřej Haluska, Arezoo Rahmani, Rinez Thapaa, Joakim Riikonen, Vesa-Pekka Lehto (University of Eastern Finland), **Sustainable Metal Recovery: Bisphosphonate-Functionalized Biogenic Nanostructured Silicon Carbide for Uranium and Scandium Extraction.** [POSTER](#).
3. Kennedy Adamson (University of Eastern Finland), **Perceptions of artisanal and small-scale miners towards forest landscape restoration within mining sites in Lilongwe District, Central Malawi.** [POSTER](#).
4. Hanna Haapala, Petri Varvia, Lauri Korhonen (University of Eastern Finland), **Estimation of tree cover extent using ICESat-2 spaceborne lidar data.** [POSTER](#).
5. Mikko T. Niemi (University of Eastern Finland), Marjo Palviainen, Annamari Laurén (University of Helsinki), **Towards multi-objective decision support in peatland forestry – How does ditch depth affect tree growth, carbon sequestration and water quality?** [POSTER](#).

6. Ghasem Ronoud, Maryam Poorazimy, Tuomas Yrttimaa (University of Eastern Finland), Antero Kukko, Juha Hyypä (Finnis Geospatial Research Institute), Ninni Saarinen (University of Eastern Finland), Ville Kankare (University of Turku), Mikko Vastaranta (University of Eastern Finland), **Characterizing the Competitive Stress of Individual Trees Using Airborne Laser Scanning.** [POSTER.](#)
7. Mikko Vastaranta, Tuomas Yrttimaa, Lauri Liikonen, Aapo Erkkilä, Johanna Paakkari (University of Eastern Finland), Eetu Kotivuori (Finnish Forest Centre), Timo P. Pitkänen (Natural Resources Institute Finland), **Alternative Methods for Collecting Forest Inventory Data from Field Plots: First Field Experiences.** [POSTER.](#)
8. Shammi Keya (Karelia University of Applied Sciences), Jouni Pykäläinen (University of Eastern Finland), Rohinton Emmanuel (Glasgow Caledonia University), Antti Haapala (University of Eastern Finland), **Assessing Urban Greenness for Climate Resilience: A Spatial Framework for Evaluating Cooling Needs and Vulnerability in Cold Climate Cities.** [POSTER.](#)
9. Jan Kunnas, Aliisa Pöllänen (University of Eastern Finland), **Bark Beetle in the National Landscapes of Koli and Puijo.** [POSTER.](#)
10. Anniina Korhonen, Oksana Skaldina (University of Eastern Finland), **Environmental management and societal perception of green spaces in cities: case study of urban islands in Kuopio.** [POSTER.](#)
11. Victor Carrasco-Navarro (University of Eastern Finland), Anna Kukkola (University of Birmingham), Jussi Kukkonen (University of Eastern Finland), **Long term exposure of *Lumbriculus variegatus* (Oligochaeta) to nylon-6 microfibers.** [POSTER.](#)
12. Tiina Haatainen (Savonia University of Applied Sciences), **Kuopio Water Cluster ecosystem.** [POSTER.](#)
13. Bailey Lähdesmäki, Tiina Haatainen (Savonia University of Applied Sciences), **Water Smart Connect - European Innovation Ecosystems Horizon Europe project.** [POSTER.](#)
14. Elisha Yari Dangiwa (Kaduna State University), **Deforestation and Climate Change in Kaduna State, Nigeria: Implications on Households Livelihood Options and Increased Poverty.** [POSTER.](#)
15. *Jarno Suni*, Henna Konu (University of Eastern Finland), Roy Brouwer (University of Waterloo), Raija Komppula, Raine Kortet (University of Eastern Finland), **The economic value of fishing competitions in Finland – Insights from an online survey.** [POSTER.](#)
16. Aakanksha Verma (Government Nagarjuna P.G. College of Science Raipur CG), **Impact of Climate Change of the Water Resource of Kharun , Chhattisgarh, INDIA.** [POSTER.](#)
17. Shovana Khaitu, Puja Thapa, Lukas Kohl, Jenie Gil (University of Eastern Finland), Jari Mäkinen (Geological Survey of Finland), *Hannu Nykänen*, Carlos Palacin-Lizarbe (University of Eastern Finland), **Nitrogen and carbon content and stable isotope stratigraphy in sediment cores of two large boreal lakes in Finland.** [POSTER.](#)
18. Tasmia Kaniz Ahmed, Pranto Paul, Arafat Mallick (Shahjalal University of Science and Technology), **Formulating Environmental Policy: Hill Cutting, Environmental Movements, and Community Adaptation in Sylhet, Bangladesh.** [POSTER.](#)
19. Taija Saarela, Wasi Hashmi, Lukas Kohl, Maija E. Marushchak, Carlos Palacin-Lizarbe, Henri M.P. Siljanen, Xudan Zhu, Frank Berninger, Jukka Pumpanen (University of Eastern Finland), **Land cover and hydrology regulate riverine CH₄ and CO₂ emissions from subarctic catchments.** [POSTER.](#)
20. Ken L. Abel (University of Oslo), **Towards CO₂ Hydrogenation to Ethanol using Cu-Exchanged Defective UiO-66 Metal-Organic Frameworks.** [POSTER.](#)
21. *Nicola Kokkonen*, Mathilde Rebiffé, Kajar Köster (University of Eastern Finland), **Greenhouse gas emissions from boreal forest soils after burning.** [POSTER.](#)

22. Wendy Moya (University of Eastern Finland), Lena Korkea-aho (LYKKAN), Oksana Skaldina (University of Eastern Finland), **Benefits of flower enhancements in Finnish farms.** [POSTER.](#)
 23. *Veenasakshi Lahre* (Government Nagarjuna P.G. College of Science), **Future of Carbon Captures: From Mitigation to Utilization.** [POSTER.](#)
 24. Mathilde Rebiffé, Lukas Kohl, Markku Keinänen, Frank Berninger, Egle Köster, Kajar Köster (University of Eastern Finland), **Short-term effects of low-intensity surface fires on dissolved organic matter from boreal forest soils.** [POSTER.](#)
 25. Joshua Izegaegbe (University of Eastern Finland), **Developing onsite sampling and analysis methods for metal contamination in sediments using portable X-ray fluorescence.** [POSTER.](#)
 26. *Tuomas Yrttimaa*, Samuli Junttila (University of Eastern Finland), Juha Hyypä (Finnish Geospatial Research Institute), Markus Holopainen (University of Helsinki), Michael A. Wulder (Natural Resources Canada), Mikko Vastaranta (University of Eastern Finland), **Quantifying architectural uniqueness of Scots pine trees using terrestrial laser scanning: Towards individual tree fingerprinting.** [POSTER.](#)
 27. *Zsolt Kazai* (University of Eastern Finland), **Knowledge management in micro, small, and medium-sized nature-based tourism firms – Role of customer insight in business activities.** [POSTER.](#)
 28. *Yuxi Zhao* (Concordia University), **Forestland Parcelization and Fragmentation: Entrepreneur's Role in the Amenity Transition**
 29. *Yuxi Zhao* (Concordia University), **Ecological Fix: Can Environmental and Financial Crisis Be Solved Simultaneously? Entrepreneur's Privatization and Commodification of Ecosystem Services**
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CAMPUS TOUR

Conference day 1: Thursday, October 31, at 16:00-18:00; starts from Metria lobby

The Campus Tour highlights several key research facilities at the University of Eastern Finland, Joensuu campus. Due to space restrictions, we can take **60 participants to the Campus Tour on a first-come, first-served basis**. See the instructions how to register to the Campus Tour in the email.

- **SenseLab** is a versatile research space located in the Educa building, designed for multi-sensory studies in real-world and virtual (VR/XR) environments. It can be transformed into various settings, like a restaurant or nature attraction, for consumer behavior research.
- **Computational Spectral Imaging Lab:** A state-of-the-art lab equipped with over a million euros worth of spectral measurement tools, used for advanced colour research. Funded partly by the EU, it features devices like spectral cameras, spectroradiometers, and thermal cameras.
- **Drone Lab:** Specializes in remote sensing of ecosystems using drones equipped with advanced sensors like LiDAR and thermal cameras, and tools for environmental monitoring, such as ADCP for water flow and GPR for permafrost analysis.
- **Sphagnum Moss Research:** Focuses on sustainable cultivation of Sphagnum moss, promoting biodiversity and eco-friendly production. The project explores the potential of combining land uses, such as solar energy production, with moss cultivation, aiming to create peat-free growing media alternatives.
- **XR Lab:** Laboratory specializing in immersive technologies, featuring a wide variety of VR and AR headsets, advanced body and hand tracking systems, and 3D digitization tools. The lab enables the research and development of immersive XR simulations and the scanning of real-world objects and environments into digital assets.
- **Poster display:** During the campus tour, there will be an opportunity to explore the posters independently.
- **KARELIA:** Karelia presents the marteloscope, a practical learning environment designed to assist in forest management decisions. This tool enables the consideration of forest biodiversity and provides resources for evaluating tree selection.

FOREST & PHOTONICS JOENSUU LOUNGE

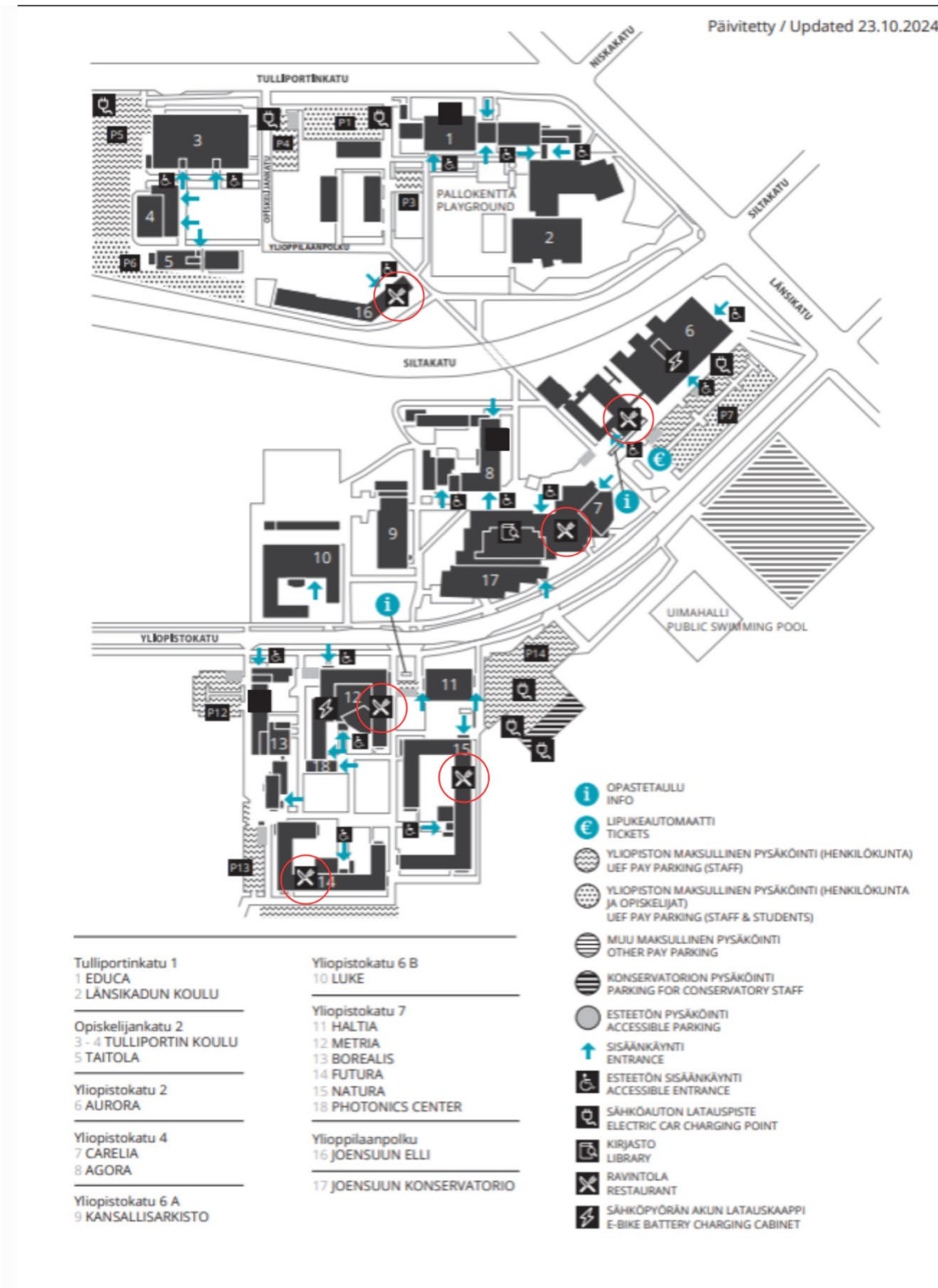
Metria lobby

Throughout the conference, we invite you to relax and recharge at the Forest & Photonics Joensuu Lounge, your go-to spot for networking, informal conversations, or simply taking a break. Open all day, the lounge will offer **non-stop coffee service**, ensuring you stay energized as you move between sessions.

LUNCH

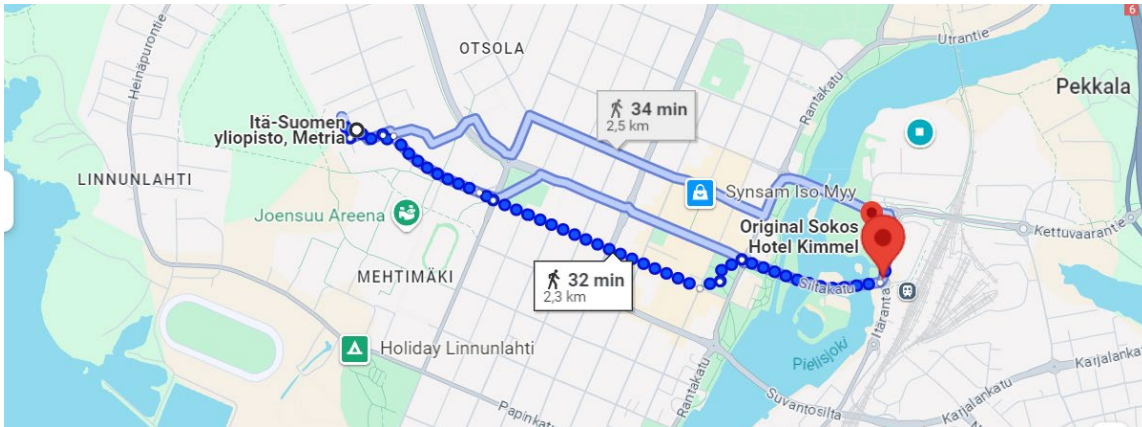
For registered participants.

When you check in at the registration desk, you will receive your conference badge and lunch ticket. The lunch ticket is valid in any campus restaurant on **October 31, 2024**, allowing you to enjoy lunch at your convenience. Below is the campus maps, highlighting the lunch spots marked in red circles.



CONFERENCE DINNER

If you have pre-registered for the conference dinner, please ensure you collect your dinner ticket when checking in at the registration desk. The dinner will take place on Thursday, October 31st from 7pm - 10pm at the **Sokos hotel Kimmel, Itäranta 1, 80100 Joensuu** in about 32 minutes by walking from the Metria building.

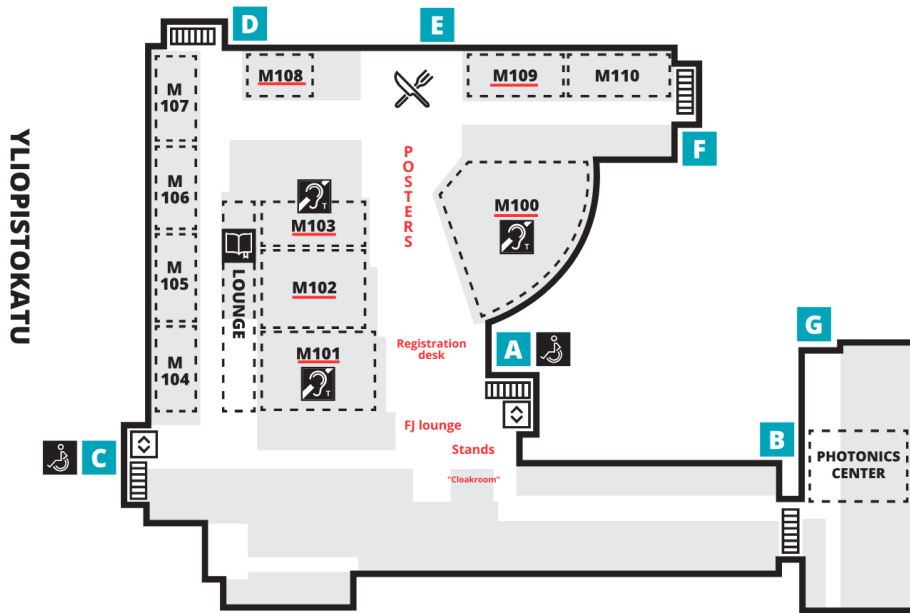


CONTACT INFORMATION

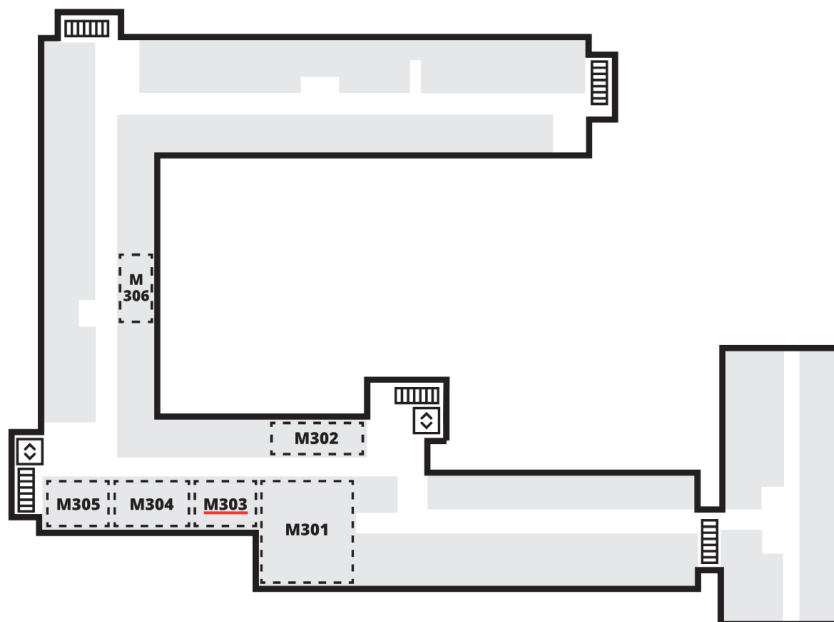
If you have any questions regarding the event, you can first seek assistance at the registration desk located in the Metria lobby. You can also contact Helen Reijonen or Jarno Suni at ics@uef.fi. For emergencies, instructions can be found at the end of the booklet.

MAP OF METRIA

Metria 1. kerros / 1st floor

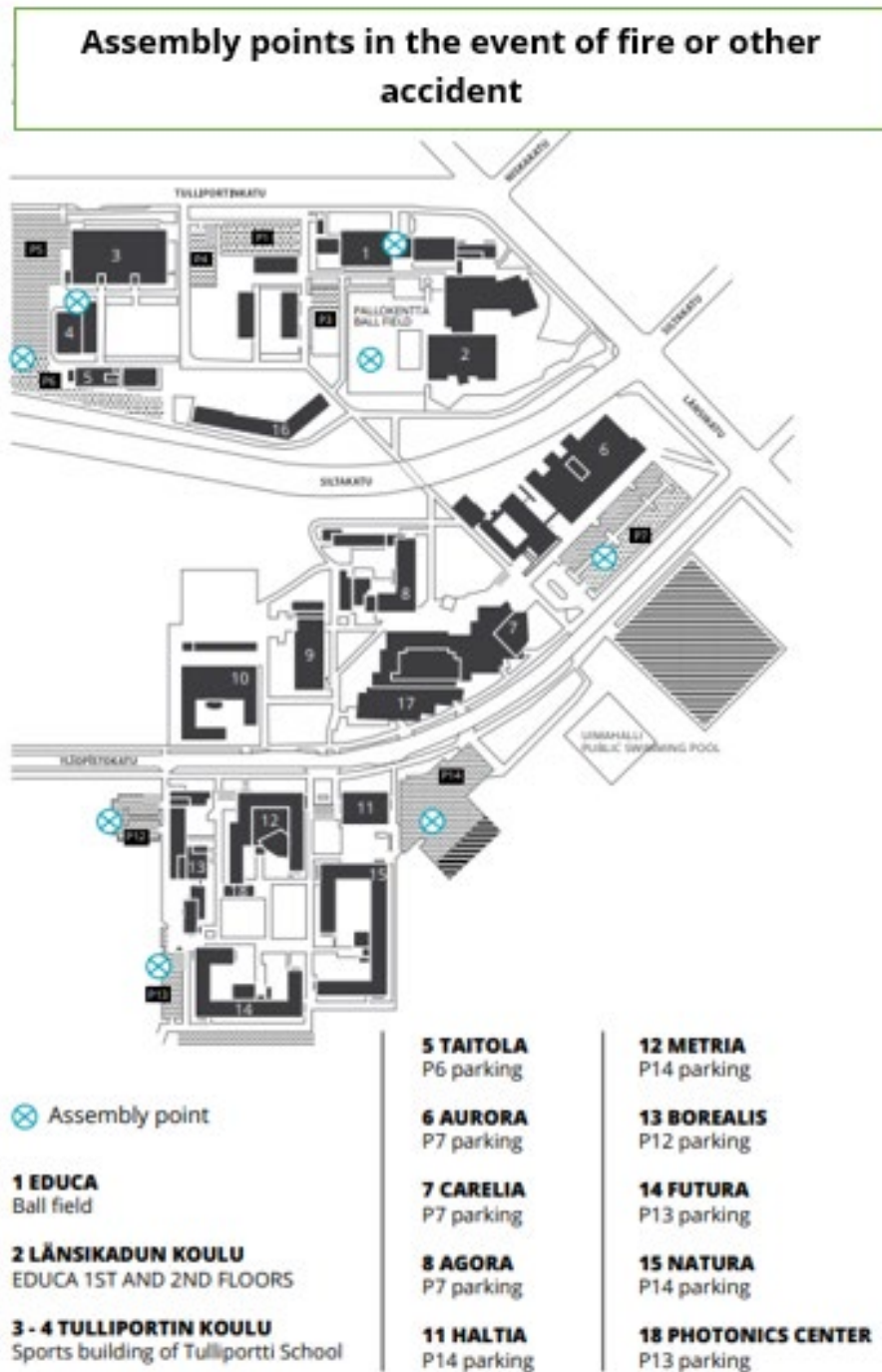


Metria 3. kerros / 3rd floor



IN CASE OF EMERGENCY

In case of an emergency, please call the general emergency number 112. Metria building is located in Yliopistokatu 7. Below is a map of the assembly points in the event of a fire or other accident.





ICS24

INTERNATIONAL CONFERENCE ^{FOR}
SUSTAINABLE RESOURCE SOCIETY

LOOKING FORWARD TO SEEING YOU IN ICS24!



University of Eastern Finland, Joensuu campus, Metria building