

INTERNATIONAL PROCESS METALLURGY SYMPOSIUM

Metallurgy as a tool for challenges in circular economy 2025



27-28 October 2025

**Aalto University School of Chemical Engineering
Department of Chemical and Metallurgical Engineering
Espoo, Finland**

Day 1, 2025, am

Time	Room	Plenary Session / Chair: Prof. Daniel Lindberg Room: Kaleva
08:00	Main Lobby	Registration + Coffee
09:00	Kaleva	Opening words & Introduction of Aalto University, Prof. Daniel Lindberg (Aalto University)
09:15		Kimmo Tiilikainen (GTK) Finnish Mineral Strategy
09:45		Ilina Vaajamo (Metso) Mining Her Way: Milestones from High School to Metso Sales
10:15		Mohammad Khoshkhoo (Boliden) The most annoying element in Hydrometallurgy
10:45		Pär Jönsson (KTH) The opportunity to attract young people to the field of metal refining
11:15	Sief	L U N C H

Day 1, 2025, pm

Time	Session 1 – Refining of Primary Raw Materials and Electrometallurgy Room: Lumituuli Chair: Dr. Benjamin Wilson Co-chair: Diana Arellano	Session 2 – Minerals Processing Room: Kaleva, Chair: Prof. Rodrigo Serna, Co-chair: Luis Gomez
13:00	Session Keynote Christoph Ziegler (Aurubis Germany) The development of Aurubis' new precious metals refining process	Session Keynote Pshem Przemyslaw Kowalczuk (NTNU) Beneath the Surface: Advancing CRM Extraction from Norway’s Onshore and Offshore Deposits
13:30	Stefano Ghiringhelli (Argor-Heraeus) Precious metals refining	Nathalie Kupka (Metso) Floating fine and coarse particles - what innovative technologies can do for future flotation circuits
13:50	Mari Lundström (Aalto University) Electrifying metallurgy	Sanandam Bordoloi (Aalto University) Utility of hydrophobized tailings for onsite application in mines
14:10	Tuomas Vielma (Boliden Kokkola) Impurity management in Zn electrowinning	Franziska Strube (Helmholtz Institute Freiberg) Slag to Value: Froth Flotation of Engineered Artificial Minerals
14:30	Petteri Halli (Elmery) Critical metals recovery by innovative electrometallurgy	Ted Nuorivaara (GTK) Application of inert grinding atmosphere and combined microflotation in the beneficiation of V and Ti - bearing minerals
14:50	COFFEE BREAK	
15:20	Kenneth Ekman (Fortum Batteries) On-site electrochemical production of key chemicals for hydrochemical processing of EoW Li-ion batteries	Benjamin Musuku (Boliden Kevitsa) Metallurgical performance of Concorde Cell™ at Kevitsa
15:40	Tuomas van der Meer (VTT) Bipolar membrane electrodialysis, BPED, as an enabler of circular chemistry for sulfate containing process and waste streams	Saeed Chelgani (Luleå University of Technology) MAGFLO: A retrofit flotation system for raw and secondary material processing
16:00	Henna Liljanko (Aalto University) Copper electrefining with high Ni content	Diego Arteaga Palencia (University of Oulu) Sustainable Beneficiation of Lithium ores: aiming at zero-waste flowsheet development
16:20	Reima Herrala (Aalto University) Pulsed electrowinning – golden opportunity for chloride leachates	Faizan Khaliq (University of Lorraine) Material balance reconciliation for the validation pilot plant campaign on Li and by-products (Sn, Ta, Nb) recovery from Beauvoir deposit
16:40	Aleksandrs Rešetilovs, (Ū-Tec SIA) Advanced mixing and filtration equipment for hydrometallurgical applications	Wildanil Fathoni (Aalto University) Improving flotation performance with renewable frothers based on cellulose-alcohol mixtures

Day 2, 2025, am

Time	Session 3 – Circular Economy of Metals Room: Lumituuli, Chair: Dr. Anna Klemettinen, Co-chair: Dr. Hanna Sahivirta	Session 4 – Carbon Neutral Metallurgy Room: Kaleva, Chair: Dr. Lassi Klemettinen, Co-chair: Fabiola Lasar
09:00	Session Keynote Mårten Eriksson (Umicore Kokkola) Closing the loop: Systemic innovations in sustainable precursor production	Session Keynote Mari Lindgren (Metso) Metso’s solution for green steel
09:30	Gulsah Tas (Aalto University) Measuring the circularity of battery materials with statistical entropy combined with LCA	Justin Salminen (Hycamite) Feasible Decarbonizing of Industry Through TCD Methane Splitting Process’
09:50	Kerstin Forsberg (KTH) Recovery of vanadium and Scandium from red mud	Alexandros Charitos (Freiberg University) Development of a process for permanent magnet recycling and REE-metal recovery: From slag extraction to CO ₂ -free molten salt electrolysis
10:10	Eero Jokinen (Kuusakoski) What’s on the horizon for the recycling industry?	Aris Wicaksono (Oulu university) The Reduction Behaviour of Single Chromite Pellet using Hydrogen Gas
10:30		
11:00	Brecht Dewulf (KU Leuven) Upgrading of ferronickel to battery grade nickel	Claudio Acuña (Universidad Federico Santa Maria) Turning Unavoidable CO ₂ into Value: A Modified Solvay Approach for Carbon Neutral Metallurgy
11:20	Annikka Santasalo-Aarnio (Aalto University) Circular economy of Metals in renewable energy systems	Min Chen (Swerim) Copper Slag Cleaning with the Utilization of Hydrogen
11:40	Jyri Talja (Betolar) Method to multiply the slag value	Pasquale Cavaliere (University of Oulu) Effect of agglomeration on hydrogen direct reduction and meeting of high grade iron ores
12:00	L U N C H	

Day 2, 2025, pm

Time	Session 5 – BATCircle3.0 / Energy Materials and Recycling Room: Lumituuli, Chair: Prof. Mari Lundström, Co-Chair: Jere Vänskä	Session 6 – Modeling and Digitalization Room: Kaleva, Chair:, Prof. Daniel Lindberg, Co-chair: Iida Pankka
13:00	<u>Session Keynote</u> Koen Binnemans (KU Leuven) Challenges in industrial solvent extraction processes for energy transition metals	<u>Session Keynote</u> Eugene Jak (University of Queensland) Integrated Experimental and Thermodynamic Modelling Research Program for Ferrous and Non-Ferrous Pyrometallurgical Smelting and Recycling System
13:30	Martina Petranikova (Chalmers University) Solvent extraction processes for LFP batteries	Areej Javed (University of Oulu) Modleing of the Hydrogen Plasma Reduction Smelting
13:50	Sami Virolainen (LUT University) SX of Lithium	Peter Samuelsson (KTH) Applied machine learning in metallurgical production processes - some examples from recent research at KTH
14:10	Sonja Nurmi (Aalto University) BATCircle 3.0	TBA TBC
14:30	Ulla Lassi (University of Oulu) Sodium-ion battery chemicals – Challenges and possibilities	Pieter-Jan Boeykens (University of Ghent) Understanding slag properties: from experiment to model
14:50	COFFEE BREAK	
15:20	Kerli Liivand (National Institute of Chemical Physics and Biophysics) Upcycling leach residue into zinc-air battery cathode active materials	Diana Arellano (Aalto University) Process modelling and LCA of hydrometallurgical battery recycling
15:40	Rodrigo Serna (Aalto University) Direct recycling of battery active materials	Hannu Sippola (Aalto University) Thermodynamic Modeling of the CuSO ₄ -H ₂ SO ₄ -H ₂ O system
16:00	Jere Vänskä (Aalto University) Characterization of LFP black mass	Tran Hau (Aalto University) COMSOL modeling of Stainless steel pickling