

# 19th NORDIC FILTRATION SYMPOSIUM

Techno-sustainability and Circular Economy

together with the

**1st Scientific seminar of the  
SCI-MAT-research platform**

» June 13-15, 2023 | Lappeenranta, Finland

**9:00** **VENUE:** LUT University, Lappeenranta campus, Auditorium 1316  
Registration and morning coffee

**10:00-10:20** NoFS19 Opening  
Opening words, *Professor Mika Mänttari, NoFS Symposium Chair*

**10:20-11:00** **KEYNOTE:** TBD

### Session: 1 Dewatering

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**11:00-11:20** How tailings dewatering with decanter centrifuges is outperforming filtration systems, *Ravi Kappel, Alfa Laval Mining, Sweden*

**11:20-11:40** Dewatering of lake sediment – Phosphorus and ecotoxicology, *Peam Cheali, Aalborg University, Denmark*

**11:40-12:00** Ultrasonic treatment and electrically assisted dewatering of P&P mill wastewater sludges, *Teemu Kinnarinen, LUT University, Finland*

**12:00-13:00** Lunch

**13:00-13:20** Methods for the measurement of water permeability for filter media, *Marina Ängeslevä, Porometer, Belgium*

**13:20-13:40** Mechanical compression of lime mud, *Tatu Kärki, LUT University, Finland*

**13:40-14:00** Acidic wastewater treatment plants in mining and metals industry, *Mohammad Golmaei, AFRY, Finland*

**14:00-14:20** Future trends in material handling systems for minerals processing, *Timo Kupsanen, Laitex Oy, Finland*

**14:20-14:50** Afternoon break

### Session 2: Separation of critical metals

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**14:50-15:10** Battery recycle filtration, case Roxia, *Matti Luoma, Roxia Filtration, Finland*

**15:10-15:30** Process development of a continuous ion exchange process in battery metals recycling: From single column experiments towards the simulated moving bed configuration, *Tobias Wesselborg, LUT University, Finland*

**15:30-15:50** Membrane distillation for lithium recovery from brine, *Aamer Ali, Aalborg University, Denmark*

**15:50-16:10** Solvent extraction in metal recycling: Focus on phase separation, *Niklas Jantunen, LUT University, Finland*

**16:15-16:45** Nordic Filtration Society board meeting

**16:15-17:30** Lab tours (optional)

**18:30-19:30** **VISIT:** Metso Dewatering Technology Center, Address: Tukkitie 1,  
*Bus transportation from LUT or hotels to Metso DTC*

**19:30-22:00** **GET TOGETHER EVENT:** Restaurant Lappeenranta Kasino,  
*Address: Aionkatu 10, Bus transportation from Metso DTC to Restaurant Kasino*

### Session 3: Membrane fouling

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- 9:00-9:20** Inorganic scale prevention for the bipolar membrane electrodialysis, *Frederick M.S. Christensen, Aarhus University, Denmark*
- 9:20-9:40** Perspectives of membrane fouling monitoring by  $3\omega$  sensing, *Mads Koustrup Jørgensen, Aalborg University, Denmark*
- 9:40-10:00** Effect of fouling on recovery of recombinant protein by membrane perfusion filtration, *Malene Heilskov Veje, Aalborg University, Denmark*
- 10:00-10:20** Morning break

### Session 4: Membrane prospects in protein shift

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- 10:20-11:00** **KEYNOTE:** Membrane processes in the times of the protein-shift, *Frank Lipnizki, Lund University, Sweden*
- 11:00-11:20** Recovery of food- and feed-grade proteins from fresh grass juice using membrane separation, *Tuве Mattsson and Mads Koustrup Jørgensen, Aalborg University, Denmark*
- 11:20-11:40** The application of ultrafiltration for the extraction of food grade proteins from grass, *A. Kjær Jørgensen, Aalborg University, Denmark*
- 11:40-12:40** Lunch

### Session 5: Novel applications of membranes

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- 12:40-13:00** Development of nanofiltration membranes for offshore recovery of H<sub>2</sub>S scavenger chemicals, *Alaa Khalil, Aalborg University, Denmark*
- 13:00-13:20** Cellulose membranes in treatment of spent deep eutectic solvent used to extract lignin from hardwood, *Vadim Ippolitov, LUT University, Finland*
- 13:20-13:40** Exploring novel universal 2D carbon-based materials for H<sub>2</sub> gas separation from mixtures and further potential applications, *Dániel Gardenö, University of Chemistry and Technology in Prague, Poland*
- 13:40-14:00** NO<sub>3</sub> recovered from an industrial side stream, *Hanna Kyllönen, VTT Technical Research Centre of Finland, Finland*
- 14:00-14:20** Hydrophilic cellulose membranes in the treatment of wool scouring effluents, *Tiina Rissanen, LUT University, Finland*
- 14:20-14:40** Membrane modification strategies for high performance enzymatic membrane reactors, *Ziran Su, Technical University of Denmark, Denmark*
- 14:40-15:00** Sustainable power generation from salinity gradients via pressure retarded osmosis (PRO): Membrane modifications for improved mechanical stability, *Magdalena Malankowska, Technical University of Denmark, Denmark*
- 15:00-15:20** Afternoon break

### Session 6: Techno-sustainability in mining

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- 15:20-16:00** **KEYNOTE:** Sustainable solutions for future mining, *Jani Kiuru, SVP Raw Materials, Finnish Mineral Group*
- 16:15-18:00** **EXCURSION:** Visit to Nordkalk lime stone mine in Lappeenranta
- 19:30-23:00** Conference Dinner & Closing of the 19th Nordic Filtration Symposium. *Restaurant Wanha Makasiini, Address: Satamatie 4*

**Towards sustainable circularity of industrial inorganic side streams:  
collaboration across disciplines and industries**

**9:00** Registration and morning coffee

**9:45** Opening speech, LUT SCI-MAT research platform, *Jarkko Levänen, Assistant Professor of Sustainability Science, Team Leader of SCI-MAT platform, LUT University*

**Session 1: Recovery of valuable metals from industrial side streams**

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- 10:00-12:00**
- Rare-earth elements (REEs) as business opportunity?  
*Erika Rova, Head of P-Competence Center, Yara Europe*
  - The recovery and purification of REEs from secondary source,  
*Santeri Kurkinen, PhD Candidate, LUT University*
  - Supply risks and development of the critical metals market,  
*Jarkko Vesa, Senior Specialist, Ministry of Economic Affairs and Employment*
  - Chair, *Katja Lahikainen, Director of CST, LUT University*
  - Discussion

**12:00-12:30** Networking and refreshments

**Session 2: Treatment and valorization of industrial side streams**

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- 12:30-14:00**
- Introduction, *Sami Virolainen, Director of SCI-MAT platform, Head of Department of Separation Science, LUT University*
  - Panel discussion:
    - *Kaj Jansson, Director Plant Solutions, Metso*
    - *Annica Lindfors, Business Development Director, Circular Economy, Nordkalk*
    - *Saija Luukkanen, Professor of minerals processing, Head of Oulu Mining School, University of Oulu*
    - *Reijo Munther, Head of EU initiatives, Business Finland*
    - *Jarkko Vesa, Senior Specialist, Ministry of Economic Affairs and Employment*
    - *Amir Wafin, Business Development Manager, Betolar*
  - Q & A

**14:00** Lunch and networking

**Nordic Filtration Society brings together  
leading actors of filtration and separation science:**



**AALBORG  
UNIVERSITET**



**CHALMERS**  
UNIVERSITY OF TECHNOLOGY



**LUNDS UNIVERSITET**



**NTNU** | Norwegian University of  
Science and Technology



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The 19th NOFS is organized by LUT Centre for Separation Technology CST,  
SCI-MAT Research Platform and Xplorer network