

# 18<sup>th</sup> Nordic Corrosion Congress

**May 31-June 2, 2022**

**Turku, Finland**



**Tuesday, May 31**

**18:00-19:30**

**Reception, refreshments and registration  
sponsored by city of Turku**

Street address: Aurakatu 2

**Wednesday, June 1**

**8:30-9:30**

**Registration and coffee, Aurum**

Street address: Henrikinkatu 2

**9:30-9:40**

**Welcome in aud. Argentum**

**9:40-10:30**

**Keynote 1, *High-temperature corrosion in combustion processes – reflections*, prof. em. Mikko Hupa, Åbo Akademi University**

## Palladium

## Rhodium

<b>10:40-11:40</b> <b>Advanced analysis techniques-1</b>  Chair: Christofer Leygraf (KTH)	<b>10:40-11:40</b> <b>Energy: Aggressive environments at high temperatures</b> Chair: Juho Lehmusto (ÅAU)
<b>1.1 Surface analytical comparison of microstructure and corrosion mechanisms of Zn (with ~0.2% Al) and Zn-Al (with ~5% Al) coated steels</b> Ville Saarimaa, Top Analytica Oy, Turku, Finland	<b>2.1 Thickness and composition of native oxides on Ni superalloys</b> Alfred Larsson, Lund University, Lund, Sweden
<b>1.2 Advanced analysis techniques revealing corrosion inside copper microstructure</b> Jinshan Pan, KTH Royal Inst. of Techn., Stockholm, Sweden	<b>2.2 High-temperature corrosion challenges in combustion of carbon-neutral fuels</b> Hanna Kinnunen, Valmet Technologies Oy, Tampere, Finland
<b>1.3 Synchrotron X-ray spectroscopic studies of corrosion in metallic materials</b> Konstantin Simonov, Swerim AB, Kista, Sweden	<b>2.3 Alternative oxygen scavenging chemicals for hydrazine in power plant steam-water cycles</b> Konsta Sipilä, VTT, Espoo, Finland

**11:40-13:00 Lunch**

### Palladium

### Rhodium

<b>13:00-14:00</b> <b>Advanced analysis techniques-2</b> <b>Chair: Emil Vainio (ÅAU)</b>	<b>13:00-14:00</b> <b>Energy: Nuclear</b> <b>Chair: Olof Forsén (Aalto Uni.)</b>
<b>3.1 Non-destructive evaluation of coating degradation and rust creep</b> Huichao Bi, CoaST, Technical University of Denmark, Lyngby, Denmark	<b>4.1 The oxidation of copper in air at temperatures up to 100 °C</b> Jari Aromaa, Aalto University, Espoo, Finland
<b>3.2 Corrosion testing of additive manufactured stainless steel for safe implementation in aggressive environments</b> S. Munktel, Swerim AB, Kista, Sweden	<b>4.2 The corrosion of copper in synthetic ground water and bentonite pore water</b> Jari Aromaa, Aalto University, Espoo, Finland
<b>3.3 Direct evidence of corrosion cells. Initial atmospheric corrosion studies of copper from macroscale to nanoscale</b> Christofer Leygraf, KTH Royal Inst. of Techn., Stockholm, Sweden	<b>4.3 Corrosion of OFP-copper in anoxic simulated groundwater with sulphide concentrations of 3.2 and 32 mg/L</b> Elisa Isotahdon, VTT, Espoo, Finland

### 14:00-14:20 Break, refreshments

### Palladium

### Rhodium

<b>14:20-15:20</b> <b>Monitoring and testing-1</b> <b>Chair: Tor Hemmingsen (Uni. Stavanger)</b>	<b>14:20-15:20</b> <b>Energy: Bio-oil and biomass</b> <b>Chair: Torben Skovhus (VIA Uni. College)</b>
<b>5.1 Laboratory simulation of long-term outdoor exposures and zinc release of naturally and pre-patinated zinc sheet at atmospheric conditions</b> Gunilla Herting, KTH Royal Inst. of Techn., Stockholm, Sweden	<b>6.1 Cold-end corrosion caused by calcium chloride in biomass combustion during variations in flue gas humidity</b> Alessandro Ruozzi, Åbo Akademi University, Turku, Finland
<b>5.2 On CO<sub>2</sub> corrosion resistance of low carbon steels in the formation water chemistry: The impact of Cr content as an alloying element</b> Kapil Kumar Gupta, Technical University of Denmark, Lyngby, Denmark	<b>6.2 Corrosion of two boiler steels exposed to hygroscopic salts – an investigation using the linear polarization method</b> Sarah Yah, Åbo Akademi University, Turku, Finland
<b>5.3 Understanding the development of the corrosion products/scale during CO<sub>2</sub> corrosion of steels using in-situ and ex-situ synchrotron X-ray diffraction</b> Saber Haratian, Technical University of Denmark, Lyngby, Denmark	<b>6.3 Amino acids reduce the corrosivity of used cooking oils</b> Nina Bruun Åbo Akademi University, Turku, Finland

**15:30-17:30 Social programme**

**19:00 Dinner at restaurant Grädda. Street address: Piispankatu 15**

**Thursday, June 2**

**9:00-9:40**

**Registration and coffee, Aurum**  
Street address: Henrikinkatu 2

**9:40-10:30**

**Keynote 2, Dr. Claus Weinell, CoaST, Technical University of Denmark, Lyngby, Denmark**  
***Anti-corrosive coating systems – challenges and opportunities exemplified through CoaST research activities (Argentum)***

<b>Palladium</b>	<b>Rhodium</b>
<b>10:40-12:00</b> <b>Monitoring and testing-2</b> <b>Chair: Markus Engblom (ÅAU)</b>	<b>10:40-12:00</b> <b>Aggressive environments at low temperatures</b> <b>Chair: Leena Hupa (ÅAU)</b>
<b>7.1 Exploring the possibilities of machine learning for prediction of alkali salt induced high-temperature corrosion of boiler superheater materials</b> Rasmus Fagerlund, Åbo Akademi University, Turku, Finland	<b>8.1 Sour and sweet corrosion in oil- and gas pipelines</b> Tor Hemmingsen, University of Stavanger, Norway
<b>7.2 Microstructure and intergranular corrosion of Al-Mg-Si alloy under a trace level copper content</b> Emad Hasan Bartawi, Technical University of Denmark, Lyngby, Denmark	<b>8.2 The corrosion rate of the gas shells at the "Paardenmarkt"</b> Geert Potters, Antwerp Maritime Academy, Antwerp, Belgium
<b>7.3 Monitoring corrosion and aquatic environmental markers in a long-term controlled environment</b> Wikke Witteween, Antwerp Maritime Academy, Antwerp, Belgium	<b>8.3 The effect of surface condition on the corrosion and biofouling of EN1.4404 austenitic stainless steel in brackish water</b> Vilma Ratia-Hanby, VTT, Espoo, Finland
<b>7.4 Effect of Mn on filiform corrosion susceptibility of coated rolled AA3005 aluminium alloys</b> Erlind Mysliu, Norwegian University of Science and Technology, Trondheim, Norway	<b>8.4 Failure investigation of microbiologically influenced corrosion (MIC) in the North Sea oil and gas production – the urgent need of bridging our extensive knowledge to the renewable energy sector</b> Torben Lund Skovhus, VIA University College, Horsens, Denmark

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



### **Palladium**

### **Rhodium**

<b>13:00-14:00</b> <b>Environmental and health</b> <b>Chair: Maria Zevenhoven (ÅAU)</b>	<b>13:00-14:00</b> <b>Advanced materials and electronics</b> <b>Chair: Rajan Ambat (DTU)</b>
<b>9.1 European MIC Network: New paths for science, sustainability and standards executed via the new COST Action CA20130</b> Torben Lund Skovhus, VIA University Collage, Horsens, Denmark	<b>10.1 Degradation pathways of amine cured epoxy novolac coatings at HPHT conditions</b> Narayanan Rajagopalan, Technical University of Denmark, Lyngby, Denmark
<b>9.2 The interplay between atmospheric corrosion and antimicrobial functionality of Cu metal and a Cu-based alloy</b> Tingru Chang, KTH Royal Inst. of Techn., Stockholm, Sweden	<b>10.2 Corrosion and tribo-corrosion behavior of cemented carbides in synthetic mine water</b> Jayamani Jayaraj, Dalarna University, Falun, Sweden
<b>9.3 Degradation of glass – a desired and undesired phenomenon</b> Leena Hupa, Åbo Akademi University, Turku, Finland	<b>10.3 Quantification of water film formation under transient condensing condition and related printed circuit board assemblies failures</b> Helene Consell-Gudla, Technical University of Denmark, Lyngby, Denmark

**Closing 14:10-14:20, Argentum**