

**Session Program**

**13-17 Sept 2021**

**EUROPEAN CONGRESS AND EXHIBITION ON  
ADVANCED MATERIALS AND PROCESSES -  
EUROMAT 2021**

***H2\_Inorganic and critical raw materials for  
the circular, low-carbon, and digital economy***

Virtual

## Tuesday 14 September

09:50

### H2\_Inorganic and critical raw materials for the circular, low-carbon, and digital economy: H2\_1\_Recovery of materials I

Session | Location: Room 16

09:50–10:30

#### Zeolites from waste materials: Sources, processes and environmental applications (Keynote)

##### Speaker

Claudia Belviso

10:30–10:50

#### High added-value materials from spent batteries

##### Speaker

Lorena Alcaraz Romo

10:50–11:10

#### Understanding Selectivity of Mesoporous Silica-Grafted Diglycolamide-Type Ligands in the Solid-Phase Extraction of Rare Earths

##### Speaker

Dr Justyna Florek

11:10

11:50

### H2\_Inorganic and critical raw materials for the circular, low-carbon, and digital economy: H2\_2\_New materials for energy generation

Session | Location: Room 16

11:50–12:10

#### Investigation of the thermoelectric properties of p-type nanostructured half-Heusler (Hf,Zr,Ti)Co(Sb,Sn) solid solutions fabricated by mechanical alloying

##### Speaker

Ms Ioanna Ioannou

12:10–12:30

#### Scalable synthesis of n-type (Zr,Ti)NiSn Half Heusler alloys via Mechanical Alloying

##### Speaker

Mr Mesaritis Georgios

12:30–12:50

#### h-MoO<sub>3</sub>@CNT/Urea/Al: a high-performance and low cost rechargeable Al-ion battery

##### Speaker

Dr Carlos Díaz-Guerra

12:50–13:10

#### Low cost seasonal thermochemical heat storage based on salt-cement systems

##### Speaker

Matteo Pavese

13:10–13:30

**Micro- and nanostructures of Ni-based ternary compounds with applications in sensors and batteries****Speaker**

Mr Javier García-Alonso

13:30

15:20

**H2\_Inorganic and critical raw materials for the circular, low-carbon, and digital economy: H2\_3\_Processes for a greener economy I****Session** | **Location:** Room 16

15:20–15:40

**Analysis of fracture generation due to a conventional Heating pre-treatment for the process of comminution****Speaker**

Mr Javier Núñez

15:40–16:00

**Reduction performance of pre-oxidized magnetite iron ore ultra-fines with hydrogen****Speaker**

Mr Thomas Wolfinger

16:00–16:20

**Upcycling of waste glasses in new cementitious materials****Speaker**

Prof. Enrico Bernardo

16:20–16:40

**Portland cement clinker from reduced basic oxygen furnace slag****Speaker**

Mrs Katharina Schraut

16:40

17:20

**H2\_Inorganic and critical raw materials for the circular, low-carbon, and digital economy: H2\_4\_Processes for a greener economy II****Session** | **Location:** Room 16

17:20–17:40

**Recovery of zinc from steel mill dusts in the rotary kiln by joint treatment with chloride-containing residues****Speaker**

Patrick Piehl

17:40–18:00

**Green synthesis of carbon nanomaterials from plastic waste: A potential solution to plastic waste management****Speaker**

Syie Luing Wong

18:00–18:20

**Recovered cellulose fibre-reinforced poly (lactic acid) composites****Speaker**

Dr Koon-Yang Lee

18:20

## Wednesday 15 September

09:50

### H2\_Inorganic and critical raw materials for the circular, low-carbon, and digital economy: H2\_5\_Recovery of materials II

Session | Location: Room 16

09:50–10:10

#### Thermophysical properties of synthesised recycled metallic phase change materials for thermal storage applications

##### Speaker

Dr Carolina Villada Vargas

10:10–10:30

#### Structural Characterization of Carbons Derived from Methane Pyrolysis

##### Speaker

Mr Florian Knabl

10:30–10:50

#### Hydrogen as carbon free reducing agent in non-ferrous slag cleaning

##### Speaker

Desmond Attah-Kyei

10:50–11:10

#### Recycling of REE containing magnets and Li-ion batteries by sustainable processes

##### Speaker

Dr Virginie Nachbaur

11:10–11:30

#### Characteristic Properties and Recyclability of the Aluminium Fraction of MSWI Bottom Ash

##### Speaker

Alicia Vallejo-Olivares

11:30

11:50

### H2\_Inorganic and critical raw materials for the circular, low-carbon, and digital economy: H2\_6\_Materials for environmental applications

Session | Location: Room 16

11:50–12:10

#### Effect on structural, morphological and photocatalytic properties of Li-RE-codoped ZnO system (RE: Nd&Gd)

##### Speaker

Mrs Adalyz Ferreira

12:10–12:30

#### Electrodeposited metal foams for CO2 electroreduction

##### Speaker

Pablo Arévalo-Cid

12:30–12:50

#### Modification of electrical and optical properties of niobium oxides by laser irradiation

13:10

**Speaker**

Dr Belén Sotillo

12:50–13:10

**Fluorescent pH-Sensitive Wood Membranes****Speaker**

Mr Maximilian Ritter

15:30

**H2\_Inorganic and critical raw materials for the circular, low-carbon, and digital economy: H2\_7\_Critical raw materials in a data-driven world****Session** | **Location:** Room 16

15:30–16:10

**Smart Factory and Data-Driven Business in POSCO (Keynote)****Speaker**

Prof. Seong Jin Park

16:10–16:30

**How to Implement Sustainable Circular Economy in the Data Centre Industry****Speaker**

Dr Carolina Szablewski

16:30–16:50

**Development and Application of Criticality Based Indicators for Analysis of Material Consumption Impacts****Speaker**

Dr Alexandra Pehlken

16:50

17:30

**H2\_Inorganic and critical raw materials for the circular, low-carbon, and digital economy: H2\_8\_Critical raw materials related with energy****Session** | **Location:** Room 16

17:30–17:50

**Integration of Raw Material Criticality Assessment into Life Cycle Sustainability Assessment: A Case Study for the Supply Chain of Cobalt used in Battery Electric Vehicles****Speaker**

Mr Marcus Berr

17:50–18:10

**Search for New Magnetic Materials without Critical Materials for Junction Applications****Speaker**

Atsufumi Hirohata

18:10

## Thursday 16 September

09:50

### **H2\_Inorganic and critical raw materials for the circular, low-carbon, and digital economy: H2\_9\_Numerical understanding of critical raw materials application**

**Session** | **Location:** Room 16

09:50–10:10

#### **Data Driven Analysis of the Brittle-to-Ductile Transition in Metallic Glasses (Highlight)**

**Speaker**

Jürgen Eckert

10:10–10:30

#### **Combined data-driven design model for predicting thermal properties in Ni-based amorphous alloys**

**Speaker**

Mr Junhyub Jeon

10:30–10:50

#### **Data driven understanding geometrical constraint effect on the plasticity of Hf-based bulk metallic glass**

**Speaker**

Dr Min-Ha Lee

10:50–11:10

#### **Testing of biochar as reducing agent in an efficient and sustainable metallurgical process to valorise metallic wastes**

**Speaker**

Mikel Merchan Zubieta

11:10