

16<sup>30</sup>-18<sup>30</sup> *Registration opens*

## OPENING SESSION

📍 OLYMPIA PLENARY ROOM

Chair: A. Xenidis, G. Stasinis, D. Kaliampakos, E. Tzamos

### 18<sup>30</sup>-19<sup>00</sup> Welcome and brief introduction by the Organizing Committee

**Prof. Anthimos Xenidis**, Conference Chair

**Mr. Georgios Stasinis**, President of the Technical Chamber of Greece

**Prof. Dimitris Kaliampakos**, Dean of the School of Mining and Metallurgical Engineering, NTUA

**Dr. Evangelos Tzamos**, Managing Director of GRawMat Innovation Cluster

### 19<sup>00</sup>-19<sup>30</sup> Welcome speeches

Representative from Minister of Environment and Energy

**Adonis Georgiadis**, Minister for Development and Investment

**Athanasios Kefalas**, President of Greek Mining Enterprises Association

Representative of Hellenic Federation of Enterprises (SEV)

### 19<sup>30</sup>-20<sup>15</sup> Sponsors speeches

**Stéphane Bourg**, Chairman of Prometia Association

Representative from Mytilineos Metallurgy Business Unit

Representative from ElvalHalcor, Hellenic Copper and Aluminium Industry

### 20<sup>15</sup>-20<sup>45</sup> Plenary lecture 1

PL01 **The European mining sector- Contributing to our shared priorities**

**Mark Rachovides**, President Euromines

### 20<sup>45</sup>-21<sup>15</sup> Plenary lecture 2

PL02 **Georgios Kremlis**, Principal Advisor to the Greek Prime Minister on energy, climate, environment and circular economy issues

21<sup>15</sup> *Welcome reception*

*\*Schedule times refer to Eastern European Summer Time*

## PLENARY LECTURES

📍 OLYMPIA PLENARY ROOM

Chair: A. Xenidis, K. Adam

09<sup>00</sup>-09<sup>30</sup> Plenary lecture 3

PL03 The EU's growing awareness of the importance of raw materials for its green and digital transition

Peter Handley, Head of Unit, Energy Intensive Industries and Raw Materials, DG Grow, European Commission

09<sup>30</sup>-09<sup>45</sup> Plenary lecture 4

PL04 ERMA: Sustainable raw materials for the transition to the Green Economy

Krzysztof Kubacki, General Manager of CLC East EIT Raw Materials

09<sup>45</sup>-10<sup>00</sup> Plenary lecture 5

PL05 EIT RawMaterials: Leading global partnership in raw materials

I. Paspaliaris, Director, A. Katsiapi, Project Manager

10<sup>00</sup>-10<sup>30</sup> Plenary lecture 6

PL06 Moving towards a circular and decarbonized aluminum value chain in Europe

Christian Leroy, Head of Innovation Hub, European Aluminium

10<sup>30</sup>-11<sup>00</sup> Coffee Break – Poster session 1

## PARALLEL SESSIONS

### SESSION A1

#### EU Strategy-Circular economy

📍 OLYMPIA PLENARY ROOM

Chair: S. Bourg, A. Kladis

11<sup>00</sup>-11<sup>30</sup> Keynote presentation

SCREEN, the European expert network on critical raw materials

KN01 S. Bourg

11<sup>30</sup>-11<sup>45</sup> ERA-MIN3: Raw materials for the sustainable development and the circular economy

MO01 D. Carrilho, J. Sotelo, J. Marchamalo, B. Gómez

11<sup>45</sup>-12<sup>00</sup> Relating industrial symbiosis and sustainable development goals

MO02 J. Henriques, J. Azevedo, M. Estrela, R. Dias

12<sup>00</sup>-12<sup>15</sup> "Meta-Projects": Maximizing the value of past EU funded projects in Raw Materials (and not only) sector

MO03 A. Kladis, A. Preveniou, K. Papadimitriou, P. Efstathiou

12<sup>15</sup>-12<sup>30</sup> A systematic evaluation of commercially available corrosion protection coatings for NdFeB magnets with respect to performance and eco-design under circular economy aspects

MO04 C. Burkhardt, S. Kobe

12<sup>30</sup>-12<sup>45</sup> How the proper management of the extractive waste can support the circular economy

MO05 P. Maraboutis, N.I. Poulimenou, E. Nikolaou

**12<sup>45</sup>-13<sup>00</sup> Is there a potential for the development of critical raw materials production from primary sources in the European Union?**

MO06 E. Lewicka, K. Galos and K. Guzik

## SESSION A2

### Minerals exploration-Critical Raw Materials

📍 VERGINA

Chair: A. Finch, C. Bauer

**11<sup>00</sup>-11<sup>30</sup> Keynote presentation**

**Prospective exploration potential of lithium battery and neodymium magnet minerals in Europe**

KN02 N. Arvanitidis, M. Sadeghi, B. Guillaume, D. Oliveira

**11<sup>30</sup>-11<sup>45</sup> Critical minerals in the European seas: The project GeoERA-MINDeSEA**

MO07 J. Gonzalez, I. Zanani, T. Medialdea, H. Schiellerup, P. Ferreira, L. Somoza, X. Monteys, T. Kuhn, J. Nyberg, I. Melnyk, V. Magalhaes, R. Lunar, E. Marino, J.R. Hein, G. Cherkashov, Mindesea Team

**11<sup>45</sup>-12<sup>00</sup> The role of Poland in the European Union supply chain of raw materials, including critical raw materials**

MO08 K. Galos, J. Kamyk, A. Kot-Niewiadomska

**12<sup>00</sup>-12<sup>15</sup> Characterization of 3 bauxite residue samples with a focus on Rare Earth Elements distribution**

MO09 P. Angelopoulos, M. Georgiou, P. Oustadakis, M. Taxiarchou, H. Karadag, Y. Eker, G. Dobra, A. Boiangiu, G. Demir, S. Arslan, P. Davris, E. Balomenos

**12<sup>15</sup>-12<sup>30</sup> Revisiting public abandoned mine sites in Greece for the assessment of their CRM content and environmental characterization of mining wastes**

MO10 V. Angelatou, A. Exikis, E. Drosos

**12<sup>30</sup>-12<sup>45</sup> Mineral raw materials' resource efficiency in selected ESEE countries: Strengths and challenges**

MO11 S. Giannakopoulou, K. Adam, F. Halkiopoulou

## SESSION A3

### Novel metallurgical methods I

📍 ILISSOS MEETING ROOM

Chair: C. Van der Eijk, M.L. Grilli

**11<sup>00</sup>-11<sup>30</sup> Keynote presentation**

**A look at future metallurgy**

KN03 D. Panias

**11<sup>30</sup>-11<sup>45</sup> First industrial scale process concept for the reengineered Pedersen process within ENSUREAL**

MO12 D. Konlechner, R. Koenig, A. Preveniou, P. Davris, E. Balomenos

**11<sup>45</sup>-12<sup>00</sup> Exploitation of kaolin as an alternative source in alumina production**

MO13 M. Bagani, E. Balomenos, D. Panias

**12<sup>00</sup>-12<sup>15</sup> Sustainable silicon and high purity alumina production from secondary silicon and aluminium raw materials through the innovative SiSal technology**

MO14 A. Toli, G.M. Tsaousi, E. Balomenos, D. Panias, M. Heuer, J. Safarian, G. Tranell

**12<sup>15</sup>-12<sup>30</sup> High temperature treatment of selected iron rich bauxite ores to produce calcium aluminate slags**

MO15 A. Lazou, C, van der Eijk, M. Vafeias, A. Bempelou, E. Balomenos, L. Kolbeinsen, D. Pantias, J. Safarian

**12<sup>30</sup>-12<sup>45</sup> A mathematical and software tool to estimate the cell voltage distribution and energy consumption in aluminum electrolysis cells**

MO16 V. Vassiliadou, A. Peppas, M. Taxiarchou

**12<sup>45</sup>-13<sup>00</sup> Multiscale modeling of the electric submerged arc furnace**

MO17 K. Karalis, A. Xenidis

**13<sup>00</sup>-14<sup>30</sup> Lunch – Poster Session 1 – Exhibition**

## PARALLEL SESSIONS

### SESSION A4

#### Mine of the future and transition to Industry 4.0

📍 OLYMPIA PLENARY ROOM

Chair: M. Menegaki, A. Benardos

**14<sup>30</sup>-15<sup>00</sup> Keynote presentation**

**Managing and utilizing big data in atmospheric monitoring systems for underground coal mines**

KN04 J. Diaz, Z. Agioutantis, S. Schafrik, D. Hristopulos

**15<sup>00</sup>-15<sup>15</sup> UNEXUP, a robot-based surveying technology for flooded mines and other underwater structures**

MO18 M. Tameirao, N. Zajzon, B. Bodo, L. Lopes, S. Henley, J. Almeida, J. Aaltonen, C. Rossi, G. Zibret

**15<sup>15</sup>-15<sup>30</sup> Planning sustainable deep sea mining**

MO19 K. Vatalis, S. Platias, G. Charalampidis

**15<sup>30</sup>-15<sup>45</sup> A critical review on evaluation of the marine resources mining versus the land-based ones for REE**

MO20 K. Papavasileiou

**15<sup>45</sup>-16<sup>00</sup> Enhancing blockchain traceability with physical tracking technologies: a taxonomy of enabling IoT technologies for supply chains and the circular economy**

MO21 A. Beckh Bacchetta, E. Cullen, V. Krümpel

**16<sup>00</sup>-16<sup>15</sup> Risk Management: An essential “tool” for the extractive sector**

MO22 P. Maraboutis, N.I. Poulimenou, E. Nikolaou

**16<sup>15</sup>-16<sup>30</sup> Assessing behavior similarity of mineral raw material prices through a feature-based clustering approach**

MO23 K. Oikonomou, D. Damigos

## SESSION A5

## Advanced minerals exploration and characterization technologies I

📍 VERGINA

Chair: K. Galos, O. Sykioti

- 14<sup>30</sup>-15<sup>00</sup> Keynote presentation**  
**Discovering the high potential for critical raw materials in submarine Fe-Mn deposits of the European seas: A GIS multi-criteria analysis based on MINDeSEA database**  
 KN05 E. Marino, F.J. González, L. Somoza, T. Medialdea, P. Ferreira, T. Kuhn, A. Lobato, V. Magalhaes, C. Moniz
- 15<sup>00</sup>-15<sup>15</sup> Machine learning based systems application to mineral resource estimation and compliance with reporting codes for mineral resources**  
 MO24 I. Kapageridis, I. Sinatkas, A. Asvesta, A. Patra
- 15<sup>15</sup>-15<sup>30</sup> Mapping of FeNi-laterite outcrops through spectral unmixing on Sentinel-2 multispectral data: the case study of Tsouka excavation (Central Greece)**  
 MO25 A. Anifadi, O. Sykioti, K. Koutroumbas, E. Vassilakis
- 15<sup>30</sup>-15<sup>45</sup> Mapping bauxite mining residues using remote sensing techniques**  
 MO26 S. Kasmaeeyazdi, R. Braga, F. Tinti, E. Mandanici
- 15<sup>45</sup>-16<sup>00</sup> Rock image classification ore/waste – Cut off identification for decision making**  
 MO27 A. Mantela
- 16<sup>00</sup>-16<sup>15</sup> Application of machine learning to resource modelling of a marble quarry with DomainMCF**  
 MO28 I. Kapageridis, C. Albanopoulos, S. Sullivan, G. Buchanan, E. Gialamas
- 16<sup>15</sup>-16<sup>30</sup> Estimation of mineral resources with machine learning techniques**  
 MO29 M. Galetakis, A. Vasileiou, A. Rogdaki, V. Deligiorgis, S. Raka

## SESSION A6

## Novel metallurgical methods II

📍 ILISSOS MEETING ROOM

Chair: W. Vereycken, D. Panias

- 14<sup>30</sup>-15<sup>00</sup> Keynote presentation**  
**The nickel production methods from laterites and the Greek ferronickel production among them**  
 KN06 E. Zevgolis, K. Daskalakis
- 15<sup>00</sup>-15<sup>15</sup> Production of sustainable hydrogen and carbon for the metallurgical industry**  
 MO30 C. van der Eijk, R. Jensen, A. Wærnes
- 15<sup>15</sup>-15<sup>30</sup> Σiderwin- A new route for iron production**  
 MO31 S. Koutsoupa, S. Koutalidi, E. Balomenos, D. Panias
- 15<sup>30</sup>-15<sup>45</sup> Production of metallic titanium by electrowinning in molten salts of titanium oxycarbide anode**  
 MO32 B. Malek, J. Serp, A. Maitre, M. Miguiditchian, F. Doreau, Y. Lepetitcorps, N. Pradeilles
- 15<sup>45</sup>-16<sup>00</sup> Kinetics of magnesia refractories corrosion by iron rich slags**  
 MO33 K. Betsis, A. Kourtis, K. Karalis, A. Xenidis
- 16<sup>00</sup>-16<sup>15</sup> Development of Complex Concentrated Alloys (CCAs) utilizing scrap to preserve critical raw materials**  
 MO34 S. Chaskis, M. Bouzouni, E. Gavalas, V. Loukadakis, S. Papaefthymiou

PARALLEL SESSIONS

SESSION A7

Mine planning, scheduling and optimization

📍 OLYMPIA PLENARY ROOM

Chair: C. Roumpos, I. Kapageridis

17<sup>00</sup>-17<sup>30</sup> Keynote presentation

Mining in front of the 21st century challenges

KN07 D. Kaliampakos

17<sup>30</sup>-17<sup>45</sup> Linking stability conditions and ore dilution in open stope mining

MO35 A. Delentas, A. Benardos, P. Nomikos

17<sup>45</sup>-18<sup>00</sup> Parametric analysis for the sill and rib pillar stability in a longitudinal sublevel open stopping operation at an underground copper mine in southern Africa

MO36 K. Kaklis, Z. Agioutantis, M. Masialeti, J. Yendaw, T. Bineli Betsi

18<sup>00</sup>-18<sup>15</sup> Going underground for ferronickel mining in Greece: Preliminary feasibility and potential benefits

MO37 A. Benardos, I. Vlachogiannis, C. Stenos, S. Pappas, G. Bourmas, S. Koukoumtzis, N. Koronakis

18<sup>15</sup>-18<sup>30</sup> Ventilation design modelling and optimization for an underground bauxite mine

MO38 M. Karagianni, A. Benardos

18<sup>30</sup>-18<sup>45</sup> The role of cutoff grade policy in the financial management of a sedimentary nickel deposit: a case study from Greece

MO39 S. Pappas, M. Menegaki

18<sup>45</sup>-19<sup>00</sup> Possibility of using wind and solar sources for electric power generation on Serbian opencast coal mines

MO40 N. Pavlovic, D. Ignjatovic, T. Subaranovic

SESSION A8

Advanced minerals exploration and characterization technologies II

📍 VERGINA

Chair: F. Tinti, I. Kapageridis

17<sup>00</sup>-17<sup>30</sup> Keynote presentation

Fluid behaviour in the genesis of critical metal deposits

KN08 A. Finch, K. Sokol, A. Borst, N. Horsburgh, W. Hutchison, E. Stueken

17<sup>30</sup>-17<sup>45</sup> X-Mine project: Sensing technologies and 3D ore deposit modelling methods

MO41 J. Paaso, N. Arvanitidis, M. Bergqvist, J. Kolacz, R. Arvidsson, S. Sadbom

17<sup>45</sup>-18<sup>00</sup> Dual and Multi Energy XRT and CT analyses applied to copper-molybdenum mineralizations in porphyry deposits

MO42 C. Bauer, R. Wagner, B. Orberger, M. Firsching, C. Wagner, O. Boudouma, K. Siahcheshm

18<sup>00</sup>-18<sup>15</sup> Nanoscale identification of silver in galena ores from Lavrion and Chalkidiki mines (Greece)

MO43 [M. Samouhos](#), [P. Tsakiridis](#), [M. Taxiarchou](#), [A. Godelitsas](#)

**18<sup>15</sup>-18<sup>30</sup> Increasing resource efficiency of bauxites using LIBS**

MO44 [J. Meima](#), [B. Orberger](#), [D. Rammlmair](#), [C. Garcia Pina](#), [C. Dittrich](#)

**18<sup>30</sup>-18<sup>45</sup> Contact profile analysis of resource estimation domains: A case study on a laterite nickel deposit**

MO45 [I. Kapageridis](#), [A. Apostolikas](#), [G. Kamaris](#)

**18<sup>45</sup>-19<sup>00</sup> Resource identification in asteroid & martian meteorite samples via atom probe tomography and correlative nanoscale analyses (SIMS, TEM, EPMA, SEM)**

MO46 [E. Christou](#), [L. Hallis](#), [L. Daly](#), [I. McCarroll](#), [C. Hayward](#), [L. Yang](#), [M. Garbrecht](#), [M. Lee](#), [J. Cairney](#)

## SESSION A9

### Hydro-, Iono-, Solvometallurgy I

📍 *ILISSOS MEETING ROOM*

*Chair: J. Gamarra, N. Papassiopi*

**17<sup>00</sup>-17<sup>30</sup> Keynote presentation**

**Innovative hydrometallurgical processing for sustainable environmental technologies and advanced green energy materials**

KN09 [G. Demopoulos](#)

**17<sup>30</sup>-17<sup>45</sup> Bioleaching of pyrrhotite tailings for nickel and sulfur recovery: A two stage remediation process**

MO47 [V. Papangelakis](#), [H. Shen](#)

**17<sup>45</sup>-18<sup>00</sup> CO<sub>2</sub> neutral production of magnesia and silica product by HCl based process route out of serpentine achievable**

MO48 [D. Konlechner](#), [G. Kappacher](#)

**18<sup>00</sup>-18<sup>15</sup> Extraction of REE from clay and hard-rock ores: The two extremes**

MO49 [G. Moldoveanu](#), [V.G. Papangelakis](#)

**18<sup>15</sup>-18<sup>30</sup> The effect of the concentration of sodium carbonate on carbonation precipitation of sodium aluminate solutions**

MO50 [D. Marinos](#), [D. Kotsanis](#), [E. Balomenos](#), [D. Panias](#)

**18<sup>30</sup>-18<sup>45</sup> Antimony recovery from galena concentrates**

MO51 [K. Megaloudi](#), [A. Kourtis](#), [E. Tzamos](#), [K. Markogiannis](#), [D. Dimitriadis](#), [A. Xenidis](#)

**18<sup>45</sup>-19<sup>00</sup> Recovery of copper from dilute ammoniacal leachates by ion flotation**

MO52 [P. Xanthopoulos](#), [K. Binnemans](#)

19<sup>00</sup>

*End of sessions*

PARALLEL EVENT

Greece specific issues (in Greek)

📍 OLYMPIA PLENARY ROOM

Chair: A. Xenidis, P. Tzeferis

09<sup>00</sup>-09<sup>30</sup> Προκλήσεις και προβλήματα της εξορυκτικής βιομηχανίας

GS01 Προοπτικές ανάπτυξης της εξορυκτικής βιομηχανίας

A. Κεφάλας, Πρόεδρος του ΣΜΕ/Πρόεδρος των Imerys Greece και Imerys Greece Bauxites

GS02 Τροποποιήσεις περιφερειακών χωροταξικών σχετικών με την αξιοποίηση ορυκτών πρώτων υλών-Περιβαλλοντικές αδειοδοτήσεις εξορυκτικών έργων

N. Ταγαράς, Υφυπουργός Περιβάλλοντος και Ενέργειας (εκκρεμεί επιβεβαίωση)

09<sup>30</sup>-10<sup>30</sup> Συζήτηση στρογγυλής τράπεζας

Συντονιστής: X. Καβαλόπουλος

A. Σδούκου, Γενική Γραμματέας ενέργειας και ορυκτών πρώτων υλών

K. Αραβώσης, Γραμματέας φυσικού περιβάλλοντος και υδάτων

A. Κεφάλας, Πρόεδρος του ΣΜΕ/Πρόεδρος των Imerys Greece και Imerys Greece Bauxites

I. Χαϊδά, Πρόεδρος του Συνδέσμου Επιχειρήσεων Μαρμάρου Μακεδονίας-Θράκης

Π. Μαραμπούτης, Διευθύνων Σύμβουλος Eco-efficiency Consulting and Engineering Ltd.

10<sup>30</sup>-11<sup>00</sup> Coffee Break – Poster session 2

11<sup>00</sup>-13<sup>00</sup> Το μέλλον της εξορυκτικής βιομηχανίας

GS03 Σχέδιο δίκαιης αναπτυξιακής μετάβασης για τη Δ. Μακεδονία και Μεγαλόπολη

M. Χαλκιαδάκης, Μέλος της Συντονιστικής Επιτροπής του Σχεδίου Δίκαιης Αναπτυξιακής Μετάβασης

GS04 Η πρόκληση της απολιγνιτοποίησης (The lignite phase-out challenge)

Δ. Μετρίκης, Γενικός Διευθυντής Λιγνιτικής Παραγωγής, ΔΕΗ Α.Ε.

GS05 Roadmap for exploration and exploitation of mineral resources in Greece (Οδικός χάρτης για την έρευνα και εκμετάλλευση ορυκτών πρώτων υλών στην Ελλάδα)

D. Lamprou, C. Karathanassis, I. Zafiratos, P.G. Tzeferis, Mineral Raw Materials Directorate, Greek Ministry of Environment and Energy

GS06 Regulatory roadmap to the present and future of geothermal energy in Greece (Οδικός χάρτης για το παρόν και το μέλλον της γεωθερμίας στην Ελλάδα)

E. Varvitsioti, G. Tsifoutidis, Mineral Raw Materials Directorate, Greek Ministry of Environment and Energy



## PARALLEL SESSIONS

## SESSION B1

## Education I

📍 VERGINA

Chair: K. Adam, K. Makri

- 09<sup>00</sup>-09<sup>30</sup> Keynote presentation**  
**Innovative teaching and learning pathways for responsible use of resources focusing on the ESEE region**  
 KN10 C. Pacher, M. Murphy
- 09<sup>30</sup>-09<sup>45</sup> Systematic development of generic skills to enhance innovation capacity of Eastern and Southeastern European universities**  
 TU01 P. Grgasovic, S. Borojevic Sostaric
- 09<sup>45</sup>-10<sup>00</sup> "Mineral Resources to Circular Economy": a new transdisciplinary curricular unit for innovative Raw Materials Master's Programmes**  
 TU02 S. Barbosa
- 10<sup>00</sup>-10<sup>15</sup> The significance of SDGs for the Raw Materials sector: A stakeholders' approach in three ESEE countries**  
 TU03 S. Tomazinakis, G. Valakas, A. Gaki, D. Damigos, K. Adam
- 10<sup>15</sup>-10<sup>30</sup> "Geology in everyday life": Designing educational programmes with students of geology in the Science and Technology Museum (STM) of the University of Patras**  
 TU04 P. Theologi-Gouti, I. Iliopoulos, M. Kokkaliari

## SESSION B2

## Base metals recovery from waste

📍 ILISSOS MEETING ROOM

Chair: O. Chernoburova, K. Karalis

- 09<sup>00</sup>-09<sup>15</sup> Aluminum recovery from calcium rich Bauxite Residue slags: Lab and Pilot scale experiments**  
 TU05 M. Vafeias, P. Davris, E. Balomenos, D. Panias
- 09<sup>15</sup>-09<sup>30</sup> Dealkalization process of bauxite residue: from laboratory to industrial implementation**  
 TU06 G. Flesoura, E. Mikeli, P. Davris, E. Balomenos, D. Panias
- 09<sup>30</sup>-09<sup>45</sup> Production of Al-Sc alloy by electrolysis from cryolite melt using secondary feedstock material**  
 TU07 A.M. Martinez, S. Senanu, H. Gudbrandsen, K. Osen, A. Store, Z. Wang, O. Kjos
- 09<sup>45</sup>-10<sup>00</sup> High Temperature Reduction of Bauxite Residue at 1450°C**  
 TU08 T. Hidayat, Z. Zulhan, L. Grahita
- 10<sup>00</sup>-10<sup>15</sup> H<sub>2</sub>-based processes for Fe and Al recovery from bauxite residue (red mud): comparing the options**  
 TU09 S. Kapelari, P. Gamaletsos, Y. Pontikes, B. Blanpain
- 10<sup>15</sup>-10<sup>30</sup> Tailings reprocessing technologies: experiences in Lower Silesian copper district, Poland – FLOT-BUD Project**  
 TU10 K. Witecki, A. Grotowski, A. Potulska-Bazan

PARALLEL SESSIONS

SESSION B3

Education II

📍 VERGINA

Chair: E. Yaneva, M. Menegaki

- 11<sup>00</sup>-11<sup>30</sup> Keynote presentation**  
**The role of Engineering Education in the achievement of SDGs by the raw materials industries**  
KN11 K. Adam
- 11<sup>30</sup>-11<sup>45</sup> The mining history of Greece in school textbooks: The case of lignite**  
TU11 K. Makri, C. Roumpos, A. Antoniadis
- 11<sup>45</sup>-12<sup>00</sup> Women in Stone Sector: Challenges and opportunities from an educational point of view**  
TU12 M. Maniou, M. Perraki, A. Mavrikos, M. Menegaki
- 12<sup>00</sup>-12<sup>15</sup> The culture of Mining Engineering in Italy**  
TU13 R. Bruno, D. Peila, G. Massacci
- 12<sup>15</sup>-12<sup>30</sup> Evolution of health and safety training needs of the mining sector in Greece and EU**  
TU14 K. Tsihla, K. Adam
- 12<sup>30</sup>-12<sup>45</sup> Rethinking education in the raw materials sector through tailor-made teaching methodologies**  
TU15 E. Yaneva, S. Papaefthymiou, L. Daling, S. Borojevic Sostaric, I. Merta
- 12<sup>45</sup>-13<sup>00</sup> Development of lifelong learning course for rising innovativeness of raw materials professionals in Eastern and Southeastern Europe**  
TU16 S. Borojevic Sostaric, V. Bohanek, A. Zrno

SESSION B4

Critical metals recovery from waste

📍 ILISSOS MEETING ROOM

Chair: C. Mori De Oliveira, N. Papassiopi

- 11<sup>00</sup>-11<sup>30</sup> Keynote presentation**  
**Viable Scandium extraction from bauxite residue at pilot scale**  
KN12 E. Balomenos, P. Davris, G. Nazari, S. Patkar, W.-Q. Xu, Y. Karnachoritis
- 11<sup>30</sup>-11<sup>45</sup> The concern of critical raw materials: ITHACA Project and other ongoing EU efforts to face CRMs shortage**  
TU17 M.L. Grilli
- 11<sup>45</sup>-12<sup>00</sup> Sustainable supply of Sc for the EU industries from liquid iron chloride based TiO<sub>2</sub> plants**  
TU18 B. Yagmurulu, B. Orberger, C. Dittrich, G. Croisé, R. Scharfenberg, E. Balomenos, D. Panias, E. Mikeli, C. Maier, R. Schneider, B. Friedrich, P. Dräger, Frank Baumgärtner, M. Schmitz, P. Letmathe, K. Sakkas, C. Georgopoulos, H. van den Laan
- 12<sup>00</sup>-12<sup>15</sup> Recovery of metal values from Ni-Cd cake waste residue of an Iranian Zinc plant by hydrometallurgical route**

TU19 [A. Chagnes](#), S. Kumar Sahu, M. Kargar Razi, M. Beuscher

**12<sup>15</sup>-12<sup>30</sup> Sustainable chelating surfactants: Synthesis, surface activity and potential for application in metal recovery from mining waste**

TU20 [D. Kalebic](#), K. Binnemans, W. Dehaen

**12<sup>30</sup>-12<sup>45</sup> Development of Rare Earth Elements separation processes from Coal Fly Ash**

TU21 [A. Tsachouridis](#), F. Pavloudakis, N. Kiratzis

**12<sup>45</sup>-13<sup>00</sup> The future of scandium recovery from wastes**

TU22 [O. Chernoburova](#), A. Chagnes

**13<sup>00</sup>-14<sup>30</sup> Lunch – Poster Session 2-Exhibition**

## PARALLEL SESSIONS

### SESSION B5

#### Hydro-, Iono-, Solvometallurgy II

📍 OLYMPIA PLENARY ROOM

Chair: D. Konlechner, E. Balomenos

**14<sup>30</sup>-15<sup>00</sup> Keynote presentation**

**Forward Osmosis-Freeze Crystallization: A Novel Concept for Water Recovery from Industrial Streams**

KN13 N. Devaere, R. Yuan, [V.G. Papangelakis](#)

**15<sup>00</sup>-15<sup>15</sup> Separation of rare-earth elements by nonaqueous solvent extraction using the neutral extractant Cyanex 923**

TU23 [B. Dewulf](#), V. Cool, K. Binnemans

**15<sup>15</sup>-15<sup>30</sup> Recovery of tungsten from downstream mineral processing fractions by deep eutectic solvents**

TU24 [L. Yurramendi](#), J. Nieto, A. Siriwardana

**15<sup>30</sup>-15<sup>45</sup> Fe-Mn alloys electroforming process using choline chloride based deep eutectic solvents**

TU25 [V. Sales](#), C. Paternoster, D. Mantovani, G. Kolliopoulos

**15<sup>45</sup>-16<sup>00</sup> Separation of iron, zinc and lead from a choline chloride: ethylene glycol deep eutectic solvent by solvent extraction**

TU26 S. Spathariotis, [N Peeters](#), K.S. Ryder, A.P. Abbott, S. Riaño

**16<sup>00</sup>-16<sup>15</sup> Separation of precious and base metals with undiluted halide ionic liquids: non-equilibrium solvent extraction in milliflow**

TU27 [W. Vereycken](#), J. van Stee, S. Riano Torres, T. van Gerven, K. Binnemans

**16<sup>15</sup>-16<sup>30</sup> Solvometallurgical REE Extraction from Eskisehir Bastnazite Ore**

TU28 S. Samet Kaplan, C. Celik, B. Anadolu, G. Orhan, S. Gurmen, [M. Seref Sonmez](#)

**SESSION B6**

**Fossil fuels in the energy transition era**

📍 VERGINA

Chair: S. Kalaitzidis, N. Pasadakis

- 14<sup>30</sup>-15<sup>00</sup> Keynote presentation**  
**The fossil fuel industry in the energy transition era, a vision for Greece**  
KN14 A. Stefatos
- 15<sup>00</sup>-15<sup>15</sup> Source rock evaluation: Analytical approach, uncertainties and the advantages of organic petrology**  
TU29 S. Kalaitzidis, G. Siavalas, M.-E. Damoulianou, K. Christanis
- 15<sup>15</sup>-15<sup>30</sup> Evaluation of gas generation potential using thermal maturity modelling; The Katakolo case: A probable pathway to energy transition**  
TU30 V.I. Makri, G. Panagopoulos, K. Nikolaou, S. Bellas, N. Pasadakis
- 15<sup>30</sup>-15<sup>45</sup> Assessing natural gas versus CO<sub>2</sub> potential underground storage sites in Greece; a pragmatic approach**  
TU31 S. Bellas, V. Makri, V. Gaganis
- 15<sup>45</sup>-16<sup>00</sup> Physicochemical properties and REE distribution of the Northwest and Central Greece coal deposits**  
TU32 N. Koukouzas, S. Kalaitzidis, P. Koutsovitis, A. Bouzinos, C. Karkalis, P. Tyrologou, D. Karapanos
- 16<sup>00</sup>-16<sup>15</sup> A comparative study of the properties of biomass and coal fuels from Greece**  
TU33 C. Vasilatos, D. Cheimarios, T. Theodorou, C. Stouraiti, M. Andreadi, N. Koukouzas
- 16<sup>15</sup>-16<sup>30</sup> Numerical reservoir modeling of high enthalpy geothermal fields in Greece**  
TU34 V. Gaganis, S. Stamataki

**SESSION B7**

**Waste valorization-Industrial Symbiosis I**

📍 ILISSOS MEETING ROOM

Chair: I. Giannopoulou, P. Tsakiridis

- 14<sup>30</sup>-15<sup>00</sup> Keynote presentation**  
**Can the Greek islands set an example on sustainability and autonomy? A proposal**  
KN15 Y. Pontikes
- 15<sup>00</sup>-15<sup>15</sup> Carbon dioxide: a raw material for cementitious mortar**  
TU35 A.P. Fantilli, R. Calvi, E. Queti, P.L. Radavelli
- 15<sup>15</sup>-15<sup>30</sup> Maghemite addition to serpentized by-products of the "Grecian Magnesite SA" mine at Gerakini (Halkidiki) for the production of refractories**  
TU36 K. Kalaitzidou, E. Pagona, P. Stratigousis, X. Ntampou, E. Tzamos, A. Zouboulis, M. Mitrakas
- 15<sup>30</sup>-15<sup>45</sup> Alternative alkali activating solutions in the synthesis of IP binders**  
TU37 L. Kriskova, E. Tatsis, A. Muhammad, Y. Pontikes
- 15<sup>45</sup>-16<sup>00</sup> Diabase mud based geopolymer paste: formulation and properties**  
TU38 M. Spanou, S. Luhar, P. Savva, S. Ioannou, M.F. Petrou, D. Nicolaides
- 16<sup>00</sup>-16<sup>15</sup> Potential uses of copper wastes in the building sector: inertization and added value solutions**  
TU39 S. Rosado, L. Gullon

**16<sup>15</sup>-16<sup>30</sup> Morphology and properties of glass-ceramics produced from hospital waste incineration ash and different coal fly ashes**

TU40 [A. Kritikaki](#), G. Bartzas, K. Komnitsas

**16<sup>30</sup>-17<sup>00</sup> Coffee Break – Poster session 2**

## PARALLEL SESSIONS

### SESSION B8

#### Advanced metallurgical processes

📍 OLYMPIA PLENARY ROOM

Chair: M. Taxiarchou, P. Oustadakis

**17<sup>00</sup>-17<sup>30</sup> Keynote presentation**

**Heap leaching of Greek low-grade nickel oxide ores by dilute sulphuric acid at a pilot-plant scale**

KN16 [S. Agatzini-Leonardou](#), P. Oustadakis, P. Tsakiridis, J. Zafiratos, D. Dimaki, J. Drougas, E. Frogoudakis

**17<sup>30</sup>-17<sup>45</sup> Measuring and modelling agglomerate performance using X-ray Micro Tomography**

TU41 [L. Salinas-Farran](#), S. Neethling

**17<sup>45</sup>-18<sup>00</sup> Reduction of ferric iron in pregnant leaching solution of laterites using Zero Valent Iron**

TU42 [C. Mystrioti](#), N. Papassiopi, A. Xenidis

**18<sup>00</sup>-18<sup>15</sup> How to design the utilization of larger scrap share in aluminum production**

TU43 [M. Bouzouni](#), S. Papaefthymiou

**18<sup>15</sup>-18<sup>30</sup> Regeneration and synthesis of NMC811 from cathode waste using oxalic acid based deep eutectic solvents**

TU44 [J. Gamarra](#), R. Younesi

**18<sup>30</sup>-18<sup>45</sup> Innovative recovery method for critical elements from metallic end-of-life products**

TU45 [B. Yagmurlu](#), C. Dittrich, G. Dunn

### SESSION B9

#### Minerals exploration-Ophiolites

📍 VERGINA

Chair: E. Tzamos, K. Laskaridis

**17<sup>00</sup>-17<sup>30</sup> Keynote presentation**

**Raw materials provided by ophiolitic complexes: From primary metallic ores to alteration of ultramafic rocks**

KN17 [A. Rassios](#), E. Tzamos, M. Bussolesi

**17<sup>30</sup>-17<sup>45</sup> Economically important basic, strategic, and critical metals of the Evia LARCO laterites**

TU46 [E. Tzamos](#), G. Grieco, P. Marescotti, M. Bussolesi, P. Gamaletsos, T. Georgitsis, A. Zouboulis, A. Xenidis

**17<sup>45</sup>-18<sup>00</sup> Serpentinites: from dimension stones to valuable industrial minerals**

TU47 [A. Cavallo](#), M. Bussolesi, G. Grieco

**18<sup>00</sup>-18<sup>15</sup> Mineralogical and isotopic study of magnesite veins in the Evia and Gerakini ultramafites (Greece)**

## International Conference on Raw Materials and Circular Economy

- TU48 M. Bussolesj, G. Grieco, E. Tzamos, A. Cavallo, P. Marescotti, L. Crispini, A. Kasinos, A. Zouboulis
- 18<sup>15</sup>-18<sup>30</sup>** Investigation of the effects of magnetic separation and thermal treatment combined with additives on the serpentinized peridotites of the Gerakini (Chalkidiki, N. Greece) magnesite mine
- TU49 D. Papargyriou, E. Tzamos, A. Kasinos, P. Papageorgiou, M. Mitrakas, A. Zouboulis
- 18<sup>30</sup>-18<sup>45</sup>** Novel exploration practices in Kassandra mines
- TU50 R. Vagkli
- 18<sup>45</sup>-19<sup>00</sup>** Diagenesis of the sedimentary Fe-Ni deposits of Euboea: Evidence based on phyllosilicate mineralogy
- TU51 S. Cheliotis-Chatzidimitriou, G. Christidis, I. Marantos

### SESSION B10

#### Waste valorization-Industrial Symbiosis II

📍 *ILISSOS MEETING ROOM*

*Chair: K. Tsakalakis, D. Panias*

- 17<sup>00</sup>-17<sup>15</sup>** Effect of fly ash and other supplementary corrosion inhibitor on the tensile performance of 316L stainless steel concrete reinforcement during accelerated saline corrosion test
- TU52 S. Tsouli, A.G. Lekatou, S. Kleftakis, I.K. Tragazikis, T.E. Matikas
- 17<sup>15</sup>-17<sup>30</sup>** Performance of a Fe-rich inorganic polymer in a Na<sub>2</sub>SO<sub>4</sub> solution: role of Mg/(Mg+Ca) in the slag
- TU53 N. Wen, A. Peys, T. Hertel, Y. Pontikes
- 17<sup>30</sup>-17<sup>45</sup>** Formation, characterization and SEM microanalysis of yeelimite
- TU54 M. Kamitsou, I. Kostakopoulos, D. Kanellopoulou, A. Christogerou, G. Angelopoulos
- 17<sup>45</sup>-18<sup>00</sup>** Porous materials from Fe-rich slags: challenges and best practices
- TU55 R. Murillo Alarcon, T. Hertel, H. Rahier, Y. Pontikes
- 18<sup>00</sup>-18<sup>15</sup>** Bogue equations from thermodynamic modelling for low-carbon ferrite-belite clinkers
- TU56 R. Roy, T. Hertel, Y. Pontikes
- 18<sup>15</sup>-18<sup>30</sup>** Phosphogypsum-paraffin composites for low temperature thermal energy storage applications
- TU57 A. Anagnostopoulos, H. Navarro, Y. Ding, G. Gaidajis
- 18<sup>30</sup>-18<sup>45</sup>** The technology of processing of waste slag for cement composite production
- TU58 M. Tazky, R. Hela
- 18<sup>45</sup>-19<sup>00</sup>** Mechanical properties of TiAl6V4 composite material produced from waste chip and space holder
- TU59 M. Ihsan Ozgun, A. Burcin Batıbay, H. Burak Karadag, Y. Ramazan Eker

19<sup>00</sup>

*End of sessions*

21<sup>00</sup>

*Gala dinner*

## PLENARY LECTURES

📍 OLYMPIA PLENARY ROOM

Chair: D. Panias, A. Zouboulis

09<sup>00</sup>-09<sup>30</sup> Plenary lecture 7

**The contribution of the EU cement sector to the circular economy**

PL07 **Nikos Nikolakakos**, Environment and Resources Manager, European Cement Association CEMBUREAU

09<sup>30</sup>-10<sup>00</sup> Plenary lecture 8

**Mitigating the European Dependency of Mineral Raw Materials: The role of the Mineral Resources Expert Group and GeoERA Raw Materials**

PL08 **Daniel Oliveira**, Chair of EuroGeoSurveys Mineral Resources Expert Group, Critical raw materials in Europe

10<sup>00</sup>-10<sup>30</sup> Plenary lecture 9

PL09 **Lena Belsi**, CEO of Geocycle Hellas, member of HERACLES Group

10<sup>30</sup>-11<sup>00</sup> *Coffee Break – Poster session 3*

## PARALLEL SESSIONS

## SESSION C1

## Mineral processing of ores and end-products

📍 OLYMPIA PLENARY ROOM

Chair: D. Masa, G. Anastasakis

11<sup>00</sup>-11<sup>30</sup> Keynote presentation

**Putting the ‘Smart’ into ‘Smart sorting’: Novel methods to identify ore and gangue on run-of-mine**

KN18 N. Horsburgh, [A. Finch](#)

11<sup>30</sup>-11<sup>45</sup> **Development and validation of a dynamic model for flotation predictive control incorporating froth physics**

WE01 [P. Quintanilla](#), S.J. Neethling, P.R. Brito-Parada

11<sup>45</sup>-12<sup>00</sup> **Modeling approaches in ball milling of bauxite ores**

WE02 [E. Petrakis](#), K. Komnitsas

12<sup>00</sup>-12<sup>15</sup> **Retrofit designs for the pulp-froth interface: impacts on froth stability, entrainment, and fine particles’ flotation performance**

WE03 [D. Mesa](#), S. Neethling, P. Brito-Parada

12<sup>15</sup>-12<sup>30</sup> **From mineral processing to recycling; The case of end-of-life printed circuit boards physical processing**

WE04 [K. Syrmakizis](#), K. Tsakalakis, I. Sammas

12<sup>30</sup>-12<sup>45</sup> **Engineering bio-colloids as sustainable reagents in mineral froth flotation**

## International Conference on Raw Materials and Circular Economy

WE05 R. Hartmann, R. Serna-Guerrero

**12<sup>45</sup>-13<sup>00</sup> Assessment of desulfurization process of polymetallic ore based on flotation**

WE06 Y. Botero, L. Cisternas, M. Benzaazoua

### SESSION C2 Sustainability

📍 VERGINA

Chair: K. Adam, G. Gaidajis

**11<sup>00</sup>-11<sup>30</sup> Keynote presentation**

**MinLand-Mineral Resources in Sustainable Land-Use Planning**

KN19 R. Arvidsson, N. Arvanitidis

**11<sup>30</sup>-11<sup>45</sup> The dual paradigm of mine waste: “from ecotoxicological sources to potential polymetallic resources” – an example from Iberian Pyrite Belt (Portugal)**

WE07 S. Barbosa, A. Dias, A. Ferraz, S. Amaro, M. da Graça Brito, J.A. Almeida, S. Pessanha

**11<sup>45</sup>-12<sup>00</sup> Responsible mining: A literature review of voluntary initiatives**

WE08 A. Garidj, G. Gaidajis

**12<sup>00</sup>-12<sup>15</sup> MCDM applied to the evaluation of transitional and post-mining conditions – an innovative perspective developed through the EIT ReviRIS project**

WE09 S. Lourenço Amaro, S. Barbosa, G. Ammerer, A. Bruno, J. Guimera, I. Orfanoudakis, A. Ostrega, E. Mylona, M. Hitch, J. Strydom, J. Sinkovic, M. Kaleta

**12<sup>15</sup>-12<sup>30</sup> Novel techniques for anticipating the focus of visual attention across different mining landscapes**

WE10 L.-M. Misthos, M. Menegaki

**12<sup>30</sup>-12<sup>45</sup> Development of emission factor equations for surface mining activities: the case of a stacker**

WE11 A. Triantafyllou, I. Kapageridis, S. Garas, F. Pavloudakis

**12<sup>45</sup>-13<sup>00</sup> The implementation of recycling philosophy in the Greek fertilizers industry**

WE12 T. Kouloura

### SESSION C3 Batteries and magnets recycling

📍 ILISSOS MEETING ROOM

Chair: B. Orberger, E. Balomenos

**11<sup>00</sup>-11<sup>30</sup> Keynote presentation**

**Upscaling of permanent magnet dismantling and recycling through VALOMAG project**

KN20 F. Coelho, V. Decottignies, Y. Yang, B. Sprecher, B. Saje, C. Rado, N. Menad, S. Abrahami, Z. Li, K. Bru, T. Marcon

**11<sup>30</sup>-11<sup>45</sup> Recovery of metals from NdFeB magnets using trichloride ionic liquid**

WE13 X. Li, K. Binnemans

**11<sup>45</sup>-12<sup>00</sup> Evaluation of graphite separation from metallic oxides by flotation in recycling of Li-ion batteries**

WE14 J. Yang, A. Torppa, K. Kärenlampi

**12<sup>00</sup>-12<sup>15</sup> Resource recovery from lithium-ion batteries-challenges and opportunities for precipitation and crystallization processes**

WE15 Y. Ma, M. Svärd, X. Xiao, S. Ashoka Sahadevan, J.M. Gardner, R.T. Olsson, K. Forsberg



**12<sup>15</sup>-12<sup>30</sup> A sustainable process for the recovery of valuable metals from spent lithium ion batteries by deep eutectic solvents leaching**

WE16 L. Yurramendi, J. Hidalgo, A. Siriwardana

**12<sup>30</sup>-12<sup>45</sup> Microstructure-efficiency relationship in liquid-liquid extraction**

WE17 A. El Maangar, M. Spadina, J. Duhamet, J.-C. Gabriel, T. Zemb

**12<sup>45</sup>-13<sup>00</sup> Sulphuric acid leaching of spent nickel metal hydride car batteries**

WE18 E. Polychronopoulou, P. Oustadakis, P. Tsakiridis, K. Betsis, A. Xenidis

**13<sup>00</sup>-14<sup>30</sup> Lunch – Poster Session 3-Exhibition**

## PARALLEL SESSIONS

### SESSION C4

#### Industrial Minerals-Innovative processes and applications I

📍 OLYMPIA PLENARY ROOM

Chair: M. Taxiarchou, C. Vasilatos

**14<sup>30</sup>-15<sup>00</sup> Keynote presentation**

The 20<sup>th</sup> century world was made of industrial minerals; disruptive and sustainable mineral solutions are required for the 21<sup>st</sup> century world

KN21 A. Karalis

**15<sup>00</sup>-15<sup>15</sup> Comparative study of acid activated nontronite and montmorillonite in oxalic acid of various concentrations**

WE19 D. Tsakiri, I. Douni, M. Taxiarchou

**15<sup>15</sup>-15<sup>30</sup> Physical mechanical properties and producing areas of Greek dimension stones**

WE20 K. Laskaridis, A. Arapakou, M. Patronis, I. Kouseris

**15<sup>30</sup>-15<sup>45</sup> Thermal activation of kaolin: effect of kaolin mineralogy on the activation process**

WE21 D. Kosmidi, C. Panagiotopoulou, P. Angelopoulos, M. Taxiarchou

**15<sup>45</sup>-16<sup>00</sup> CO<sub>2</sub>-mineralised nesquehonite: a new “Green” building material**

WE22 A. Kastrinakis, V. Skliros, P. Tsakiridis, M. Perraki

**16<sup>00</sup>-16<sup>15</sup> MASTERFLOOR: The new application of pumice stone as lightweight floor filling material**

WE23 M. Nomikou, V. Kaloidas, C.T. Galmpenis, G. Tzouvalas

### SESSION C5

#### Mine water/waste management

📍 VERGINA

Chair: G. Grieco, E. Gazea

**14<sup>30</sup>-15<sup>00</sup> Keynote presentation**

The technology of dry-stack tailings and the implementation at the Kassandra mines

KN22 D. Dimitriadis, E. Zachareas, E. Gazea

**15<sup>00</sup>-15<sup>15</sup> Implementation of a procedure for buffering acid mine drainage waters from pyrite-rich tailings at Fushë Arrëz copper enrichment flotation plant**

WE24 G. Cocomazzi, G. Grieco, A. Sinojmeri, A. Cavallo, M. Bussolesi

## International Conference on Raw Materials and Circular Economy

- 15<sup>15</sup>-15<sup>30</sup> Rational and sustainable water resources management in the Ptolemais lignite basin using remotely sensed data**  
WE25 G. Louloudis, C. Roumpos, E. Mertiri, G. Kasfikis, F. Pavloudakis
- 15<sup>30</sup>-15<sup>45</sup> Bathymetry surveys of post mining pit lakes formed after exploitation of lignite**  
WE26 A. Bajcar, J. Szczepiński, B. Rogosz
- 15<sup>45</sup>-16<sup>00</sup> Long-term slope stability of abandoned mine lake – numerical modelling and risk assessment**  
WE27 V. Renaud, M. Al Heib, R. Muller, J. Burda
- 16<sup>00</sup>-16<sup>15</sup> Risk assessment methodology for pit lakes instabilities**  
WE28 M. Galetakis, V. Deligiorgis, E. Steiakakis, S. Raka, M. Al Heib
- 16<sup>15</sup>-16<sup>30</sup> Hydrogeochemical and environmental evaluation of mining water from Chalkidiki area, Northern Greece**  
WE29 K. Sachsamanoglou, E. Tziritis, E. Tzamos, D. Ballas, E. Gazea, A. Xenidis, A. Zouboulis

### SESSION C6

#### Recycling/Metals recovery from end products

📍 *ILISSOS MEETING ROOM*

*Chair: L. Yurramendi, E. Kaklamanos*

- 14<sup>30</sup>-14<sup>45</sup> Study of metal recovery from printed circuit boards by physical-mechanical treatment processes**  
WE30 C. Mori De Oliveira, R. Bellopede, A. Tori, P. Marini
- 14<sup>45</sup>-15<sup>00</sup> Delamination of waste printed circuit boards using microwave-assisted organic swelling**  
WE31 B. Monteiro, L. Martelo, P. Sousa, M. Bastos, H. Soares
- 15<sup>00</sup>-15<sup>15</sup> A hydrometallurgical process for Cu recovery from waste printed circuit boards**  
WE32 D. Vlasopoulos, P. Oustadakis, P. Tsakiridis, E. Remoundaki, S. Agatzini-Leonardou
- 15<sup>15</sup>-15<sup>30</sup> Recovery of gold from waste printed circuit boards using sustainable technologies**  
WE33 P. Sousa, L. Martelo, M. Bastos, A. Marques, H. Soares
- 15<sup>30</sup>-15<sup>45</sup> Green zero-waste metal extraction and recycling from printed circuit boards**  
WE34 H. Askari Sabzkoohj, G. Kolliopoulos
- 15<sup>45</sup>-16<sup>00</sup> Hydrometallurgical treatment for the separation and recovery of Indium and Gallium from end-of-life CIGS photovoltaic panels**  
WE35 M. Theocharis, P. Tsakiridis, P. Kousi, A. Hatzikioseyan, I. Zarkadas, E. Remoundaki, G. Lyberatos
- 16<sup>00</sup>-16<sup>15</sup> DES-based solution for Regenerating the catalyzed-diesel particulate filters of Euro 5/6 diesel vehicles**  
WE36 H. Papadopoulou, S. Papagianni, A.-M. Moschovi, K.M. Sakkas, I. Yakoumis
- 16<sup>15</sup>-16<sup>30</sup> Opportunities of AI and ICME in metals recycling, production and processing**  
WE37 S. Papaefthymiou, M. Bouzouni, V. Loukadakis

**16<sup>30</sup>-17<sup>00</sup> Coffee Break – Poster session 3**

### PARALLEL SESSIONS

### SESSION C7

### Industrial Minerals-Innovative processes and applications II

📍 OLYMPIA PLENARY ROOM

Chair: G. Anastasakis, A. Peppas

- 17<sup>00</sup>-17<sup>15</sup> GUNITECH: An innovative pumice based dry shotcrete application**  
 WE38 M. Nomikou, V. Kaloidas, C.T. Galmpenis, N. Anagnostopoulos, G. Tzouvalas
- 17<sup>15</sup>-17<sup>30</sup> Development of high added values products from industrial minerals for hybrid energy storage**  
 WE39 A. Peppas, C. Politi
- 17<sup>30</sup>-17<sup>45</sup> Modification of the color properties of natural hydraulic and air lime binders using pyroclastic rocks as natural pigments**  
 WE40 G. Triantafyllou, O. Kalagri, G.E. Christidis, I. Marantos
- 17<sup>45</sup>-18<sup>00</sup> Perspectives of lithium mining in Quebec, potential and advantages of integration into a local battery production chain for electric vehicles**  
 WE41 S. Ibarra-Gutiérrez, J. Bouchard, M. Laflamme, K. Fytas
- 18<sup>00</sup>-18<sup>15</sup> Quantitative analysis of Portland cement clinker with Rietveld refinement: Implications of the amorphous matter.**  
 WE42 G. Christidis, M. Dimitriadi, G. Triantafyllou, C. Tsoumeleas
- 18<sup>15</sup>-18<sup>30</sup> The Italian zeolite tuffs used in the construction industry**  
 WE43 M. Stamatakis, C. Vasilatos, I.S. Stamataki
- 18<sup>30</sup>-18<sup>45</sup> Petrographic, mineralogical and geochemical characterization of Greek Triassic gypsum-anhydrite deposits and their industrial applications**  
 WE44 I. Badouna, S. Neokosmidis, M. Stamatakis, C. Karkalis, N. Koukouzas, P. Koutsovitis

### SESSION C8

#### Mine closure/Post mining

📍 VERGINA

Chair: C. Roumpos, A. Antoniadis

- 17<sup>00</sup>-17<sup>15</sup> Introducing the IDEFO methodology in the strategic planning of projects for the surface mine land reclamation and repurposing**  
 WE45 P.-M. Spanidis, F. Pavloudakis, C. Roumpos
- 17<sup>15</sup>-17<sup>30</sup> Restoration of Old Olympias arsenopyrite concentrate storage area (former METBA plot)**  
 WE46 E. Gazea, D. Dimitriadis, A. Galatsianou
- 17<sup>30</sup>-17<sup>45</sup> Lignite deposits in the post-coal era: alternative utilization in the agriculture and horticulture sectors**  
 WE47 K. Christanis, A. Giannouli, S. Kalaitzidis, A.-M. Rizos, K. Perleros
- 17<sup>45</sup>-18<sup>00</sup> Geotechnical engineering perspectives: challenges and solutions in the transition to a post-lignite era**  
 WE48 I. Zevgolis, A. Theocharis, N. Koukouzas
- 18<sup>00</sup>-18<sup>15</sup> Correlation of ambient air quality with the sudden reduction of mining activity in a complex of lignite mines**  
 WE49 C. Sachanidis, F. Pavloudakis, C. Roumpos
- 18<sup>15</sup>-18<sup>30</sup> Planning RES projects in exhausted surface lignite mines. Challenges and solutions**

## International Conference on Raw Materials and Circular Economy

WE50	<u>A. Antoniadis</u> , C. Roumpos, P. Anagnostopoulos, N. Paraskevis
18 <sup>30</sup> -18 <sup>45</sup>	<b>Examination of the potential utilization of phosphogypsum as an alternative material for the reclamation of mines and quarries</b>
WE51	G. Gaidajis
18 <sup>45</sup> -19 <sup>00</sup>	<b>Assessment of advantages and limitations of installing PV on abandoned dumps</b>
WE52	<u>M. Al Heib</u> , A. Cherkaoui

### SESSION C9

#### Pollution abatement/Environmental performance

📍 ILISSOS MEETING ROOM

Chair: M. Menegaki, S. Kalaitzidis

17 <sup>00</sup> -17 <sup>15</sup>	<b>CO2 sequestration using fly-ash from lignite-fired power plants</b>
WE53	<u>K. Karalis</u> , K. Kollias, G. Bartzas, C. Mysterioti, A. Xenidis
17 <sup>15</sup> -17 <sup>30</sup>	<b>Simulating the use of a smelter off-gas in the precipitation stage of the Pedersen process</b>
WE54	<u>A. Manataki</u> , J. Mwase. C. van der Eijk
17 <sup>30</sup> -17 <sup>45</sup>	<b>Valorization of bottom oil sludge in red ceramics – Inertization of the contained heavy metals in the ceramic matrix</b>
WE55	<u>X. Spiliotis</u> , D. Kasiteropoulou, D. Kaffe, D. Chistodoulou, G. Papapolymerou, G. Banias
17 <sup>45</sup> -18 <sup>00</sup>	<b>Investigation of the freezing-thawing effect on the slip resistance of natural stones</b>
WE56	A. Arapakou, <u>K. Laskaridis</u> , M. Patronis, I. Kouseris
18 <sup>00</sup> -18 <sup>15</sup>	<b>Application of TiO<sub>2</sub> nanoparticles in clay roofing tiles as a photocatalytic active material</b>
WE57	<u>M. Kouroutzi</u> , A. Stratidakis, M. Kermenidou, S. Karakitsios, D. Sarigiannis
18 <sup>15</sup> -18 <sup>30</sup>	<b>LCA and LCC of emerging and incumbent technologies on energy harvesters</b>
WE58	<u>A. Malagnino</u> , M. Rostagno, G. Gaspare Amaro, A. Vlysidis, A. Gkika, E. Koumoulos, Y. Qin
18 <sup>30</sup> -18 <sup>45</sup>	<b>Correlation between physical mechanical properties of Greek dimension stones</b>
WE59	<u>A. Arapakou</u> , K. Laskaridis, M. Patronis, I. Kouseris
18 <sup>45</sup> -19 <sup>00</sup>	<b>Project risk management adaptations of infrastructures in the Greek context</b>
WE60	<u>G. Demertzis</u> , K. Vatalis

### PARALLEL EVENT

📍 PELLA-MYCENAE HALL

#### ITHACA industrial workshop

**COST INNOVATORS' GRANT IG15102: Innovative and sustainable Technologies for reducing critical raw materials dependence for Cleaner transportation Applications- ITHACA**

10 <sup>50</sup> -11 <sup>00</sup>	<b>Welcome</b> M.L. Ruello, UnivPM, Ancona, Chair COST Action CRM-Extreme
11 <sup>00</sup> -11 <sup>20</sup>	<b>Intermetallics for automotive engine valves and engine valve sets</b> P. Novak, University of Chemistry and Technology, Prague
11 <sup>20</sup> -11 <sup>40</sup>	<b>3D printed copper based catalytic emission control devices for addressing automotive, marine and industrial applications</b>

I. Yakoumis, Monolithos, Athens

- 11<sup>40</sup>-12<sup>00</sup> Novel materials based on zirconia doped with mixed rare earth oxides for thermal barrier coatings**  
R.R. Piticescu, IMNR, Bucharest
- 12<sup>00</sup>-12<sup>20</sup> Holistic approaches in designing and manufacturing aircraft components under the viewpoint of ecological and economic sustainability**  
S. Pantelakis, Honorary Chairman of EASN- European Aeronautics Science Network
- 12<sup>20</sup>-12<sup>40</sup> Circular economy in the aerospace sector**  
G. Acierno, President of Apulia Aerospace Technological District (DTA)
- 12<sup>40</sup>-13<sup>00</sup> The extreme materials in the future of the automotive sectors: full electric vs hybrid vs Internal combustion powertrains**  
S. Durante, Executive Vice President, D4S Group Durante Space Tech
- 09<sup>10</sup>-09<sup>30</sup> Closing remarks**  
M.L. Grilli, ENEA, Rome

## PARALLEL EVENT

📍 PELLA-MYCENAE HALL

### INCO-Piles round table

**Opportunities for technology transfer to foster the recovery of Critical Raw Materials (CRM) from tailings**

- 14<sup>00</sup>-14<sup>10</sup> Welcome and a glance at the INCO-Piles project**  
F. Tinti, University of Bologna
- 14<sup>10</sup>-14<sup>15</sup> Agenda and general information on the round table**  
G. Sonnemann, University of Bordeaux
- 14<sup>15</sup>-14<sup>30</sup> EIT RawMaterials contributions on mining residues**  
F. Ferri, EIT Raw Materials
- 14<sup>30</sup>-14<sup>40</sup> INCO-Piles project: Characterization and sampling**  
D. Sparis, National Technical University of Athens
- 14<sup>40</sup>-14<sup>50</sup> INCO-Piles project: Laboratory analysis**  
J. Schick, Orano
- 14<sup>50</sup>-15<sup>00</sup> INCO-Piles project: Environmental and economic assessments**  
P. Altamura, ENEA
- 15<sup>00</sup>-15<sup>10</sup> Potential radiological bottlenecks in the valorization of bauxite residue**  
A.H. Tkaczyk, University of Tartu
- 15<sup>10</sup>-16<sup>30</sup> First round of discussions**
- 16<sup>30</sup>-16<sup>45</sup> Coffee Break**
- 16<sup>45</sup>-16<sup>55</sup> Reprocessing of old copper tailings to recover base metals and CRMs at Cobre Las Cruces mine in Andalucia (Spain)**  
C. Frias, Rio Tinto Proyectos
- 16<sup>55</sup>-17<sup>05</sup> CRM recovery from Ti-pigment production**  
B. Yagmurlu, MEAB Chemie Technik GmbH
- 17<sup>05</sup>-17<sup>15</sup> Secondary resources from industrial tailings**  
D. Runciman, Alconex Metrology & Services
- 17<sup>15</sup>-18<sup>25</sup> Second round of discussions**

## International Conference on Raw Materials and Circular Economy

18<sup>25</sup>-18<sup>30</sup> Sum-up and conclusion of the event  
F. Tinti, University of Bologna

19<sup>00</sup> Closing ceremony-Awards

**THURSDAY 9 SEPTEMBER 2021**

### Field Trip

📍 *Lavrion Historical Mine Site*



08<sup>30</sup>-18<sup>15</sup> Visit to Lavrion Technological and Cultural Park (Mineral processing and Metallurgical plants), Archaeological Sites of Thorikos, Souriza and Poseidon Temple

## POSTER SESSION 1

**Mineral exploration and characterization / EU Strategy on Circular economy /  
Mining trends and perspectives / Waste Valorization**

MONDAY 6 SEPTEMBER 2021

FOYER OLYMPIA

- P1-01 Metrology for the recycling of Technology Critical Elements to support Europe's circular economy agenda**  
J. Noireaux, J. Vogl, G. D'Agostino, S. Hill, R. Gendre, O. Cankur, J.-P. Ghestem, C. Haraldson, J. Irrgeher, R. Jacimovic, A. Jotanovic, T. Naykki, D. Proefrock, O. Rienitz, G. Umbricht
- P1-02 Rock image classification ore/waste – Cut off identification for decision making-Related work**  
A. Mantela
- P1-03 Development and study of MgO-C refractories containing magnesia and SiC nanoparticles**  
S. Gkiouzel, K.C. Vasilopoulos, I. Kitsou, E. Roussi, E. Kagiara, M.A. Karakassides, A. Tsetsekou
- P1-04 Self-assessment tool for OSH Management in SMEs extractive enterprises**  
P. Maraboutis, E. Nikolaou, N.I. Poulimenou
- P1-05 Image analysis and microanalysis of sulfobelite clinkers**  
E. Vougioukalakis, M. Kamitsou, D. Kanellopoulou, A. Christogerou, G. Angelopoulos
- P1-06 Challenges in managing waste from extractive industries during the transition to a circular economy model in Poland**  
J. Kulczycka, E. Dziobek
- P1-07 Mineralogical and geochemical investigation of nickeliferous lateritic ore of Mamez region (Albania)**  
A. Stratakis, I. Gkikas, G. Alevizos, A. Apostolikas
- P1-08 Kaoline mapping using ASTER satellite imagery: the case study of Kefalos Peninsula, Kos Island**  
M. Kokkaliari, C. Kanellopoulos, I. Iliopoulos
- P1-09 Comparison of static and dynamic Young's modulus of prasinites**  
D. Kotsanis, P. Nomikos, D. Rozos
- P1-10 Preliminary feasibility assessment and SWOT analysis of a fast pyrolysis pilot furnace for the management of marine and hazardous waste**  
A. Malamakis, M. Batsioura, G. Banias, E. Tzamos, G. Palantzas, K. Triantafyllidis, A. Zoumpoulis, K. Rekos
- P1-11 Green coatings for the protection of concrete sewer pipes**  
G. Fytianos, E. Papastergiadis, P. Samaras
- P1-12 Ornamental stone cutting processing and sludge production evaluation with the goal of ending waste**  
L. Zichella, R. Bellopede, P. Marini

POSTER SESSION 2

Recycling / Waste Valorization / Sustainable Metallurgy / Education

TUESDAY 7 SEPTEMBER 2021

FOYER OLYMPIA

- P2-01** An integrated approach for the recovery of used Tin as water adsorbent  
E. Kaprara, E. Daskalopoulou, K. Simeonidis, M. Mitrakas
- P2-02** Magnesite ore washing facilities wastewater treatment and recovered water reuse  
I. Tsilogeorgis, E. Tzamos, E. Kokkinos, A. Zouboulis
- P2-03** A preliminary study on the potential of the LARCO laterite ore tailings as secondary source of cobalt  
E. Tzamos, G. Grieco, P. Marescotti, K. Simeonidis, A. Zouboulis, A. Xenidis
- P2-04** Components' Characterization of End-of-Life Dishwashers  
E. Evangelou, G. Anastassakis, S.D. Karamoutsos, A. Stergiou
- P2-05** Valorisation of aluminium salt slag washed residue in the production of portland cement clinker  
K. Piperopoulos, A. Kaldellis, P. Oustadakis, M. Perraki, P. Tsakiridis
- P2-06** ReActiv: Industrial Residue Activation for Sustainable Cement Production  
P. Benard, E. Balomenos
- P2-07** Adding value to waste marble powder: Utilization as micro/nano-filler of protective epoxy polymer composites  
D. Gkiliopoulos, K. Simeonidis, D. Efstathiadis, G. Raska, I. Polychroniadis, K. Triantafyllidis
- P2-08** Separation of transition metals and rare earths using ionic liquid-based aqueous biphasic systems  
X. Li, J.J.M.M. van de Ven, K. Binnemans
- P2-09** Development of STEM educational application with easy java simulation in mining & metallurgical engineering educational procedure. case study on mineral processing  
K. Syrmakezis, K. Tsakalakis
- P2-10** Recovery of scandium as  $(\text{NH}_4)_3\text{ScF}_6$  by crystallization  
E.M. Peters, M Svärd, K Forsberg
- P2-11** Bioleaching of mining wastes from Kirki abandoned public mine ((prefecture of Evros, Greece)  
V. Angelatou, E. Drosos
- P2-12** Effect of fly ash on the mechanical performance of 316L and 304L stainless steel concrete reinforcement during accelerated saline corrosion tests  
S. Tsouli, A.G. Lekatou, S. Kleftakis, I.K. Tragazikis, T.E. Matikas
- P2-13** Solar-assisted development of carbonate-derived nanoadsorbents for the hydrogen sulfide capture  
I. Kellartzis, D. Karfaridis, K. Simeonidis, C. Martinez-Boubeta, L. Balcells, P. Kougias
- P2-14** Efficient recovery of solid waste units as substitutes for raw materials to produce different types of ceramics



I. Makrygiannis, A. Tsetsekou

**P2-15 Mechanochemical activation of muscovite mica-rich sulfidic mining waste rock for alkali activation with implication of grinding process simulation**

H. Niu, L. Adrianto, A. Escobar, P. Kinnunen, M. Illikainen

**P2-16 A date seed-based carbons for methane storage and carbon capture and storage (CCS)**

A. Altwala, R. Mokaya

**P2-17 Overview of the ERA MIN2 project "nanoBT: Application of nanobubble technologies to mining industry operations"**

N. Kalogerakis, K. Komnitsas, Q.P. Botha, G. Kolliopoulos

**P2-18 Distribution of radon concentrations in active and inactive underground mines**

K. Asimakou, N. Kallithrakas-Kontos, A. Vafeidis, E. Manoutsoglou

**P2-19 Machine learning-assisted selection of elemental composition for refractory high-entropy alloys**

B. Postolnyi, V. Buranich, J.P. Araujo, A. Pogrebnyak, V. Rogoz

### POSTER SESSION 3

#### Environment, Energy and Sustainability / Industrial Minerals

**WEDNESDAY 8 SEPTEMBER 2021**

📍 FOYER OLYMPIA

**P3-01 Catalytic action of zeolite in micropollutants' ozonation. Application in a continuous flow pre-industrial unit**

E. Kaprara, S. Psaltou, M. Salapasidou, P.-A. Palasantza, P. Diamantopoulos, A. Zouboulis, M. Mitrakas

**P3-02 Synthesis and Characterization of Magnesium Silicide formed by thermochemical diffusion process**

D. Stathokostopoulos, A. Teknetzi, K. Chrissafis, D. Karfaridis, G. Vourlias

**P3-03 Uptake of high-valent heavy metals from water by magnetite nanoparticles**

E. Chioti, K. Kalaitzidou, T. Asimakidou, K. Simeonidis, M. Mitrakas

**P3-04 Retention of Pb using thermally-treated palygorskite under dynamic sorption conditions**

Z. Kyritidou, M.-A. Gatou, A. Argyraki, E. Pavlatou

**P3-05 Determination of the slagging and fouling tendency of the ashes from North Greece lignites, based on their chemical and mineralogical composition**

A. Stratakis, G. Kostakis

**P3-06 Proposed methodology to evaluate innovative Phosphogypsum processing routes through LCA, ESIA Impact Matrix and Global Geoethical Balance**

S. Barbosa, S. Lourenço Amaro, M. Silva, J. Do Rosário, J. Almeida, J. Kullberg

**P3-07 Novel age-estimation model for petroleum middle distillate release in the environment**

K. Selekou, E. Chamilaki, N. Pasadakis

**P3-08 Research and innovation in exploration and mining of raw materials: The ROBOMINERS project**

E. Koutsopoulou, A. Servou, G. Aggelopoulos, K. Laskaridis

**P3-09 Sustainable development goals in mine tailings management: targets and indicators**

N. Araya, O. Mamani Quinonez, A. Kraslawski, L. Cisternas

**P3-10 A review about the sustainability of pit lakes as a rehabilitation factor after mine closure**

C. Sakellari, C. Roumpos, G. Louloudis, E. Vasileiou

**P3-11 Using expanded perlite as additive in ceramic mass of a brick and tile industry to study the reduction of density on the final products**

I. Makrygiannis, A. Tsetsekou

**P3-12 Low -temperature synthesis of SiC worm-like nanoparticles and their catalytic activity for reduction of hexavalent chromium**

S. Gkiouzel, G. Asimakopoulos, I. Kitsou, K.C. Vasilopoulos, E. Roussi, E. Kagiara, A. Tsetsekou, M.A. Karakassides

**P3-13 Comparative life cycle assessment of green sand casting and low pressure die casting for the production of self-cleaning AlMg<sub>3</sub>-TiO<sub>2</sub> metal matrix composite**

M. Santiago-Herrera

**P3-14 Minerals as potential catalysts in heterogeneous catalytic ozonation: A kinetic study of p-CBA degradation in aqueous solutions at pH 7**

S. Psaltou, E. Kaprara, M. Mitrakas, A. Zouboulis

**P3-15 Study of magnesium hydroxide protective coating against corrosion applied on poly(methyl methacrylate) plates, by using the sulfuric acid attack acceleration test**

D. Merachtsaki, E.-C. Tsardaka, E. Anastasiou, A. Zouboulis

**P3-16 The contribution of geological maps and mapping to industrial scale design**

E. Manoutsoglou, N. Papageorgiou, E. Georgiou

**P3-17 Assessment of the suitability of clayey raw materials from the argillic alteration zones from Sappes area, Thrace, Northern Greece in ceramic production**

E. Koutsopoulou, I. Marantos, V. Xanthopoulou, N. Xirokostas, I. Iliopoulos

**P3-18 Natural hydraulic lime masonry mortars: effect of pozzolan addition and aggregate type on their mechanical properties**

G. Triantafyllou, A. Samiotaki, M. Galetakis, G. Alevizos

**P3-19 A palygorskite-smectite specialty clay from Ventzia Basin, Western Macedonia, Greece, showing enhanced metal sorption capacity**

Z. Kypridou, A. Argyraki, G. Chryssikos, M. Stamatakis

**P3-20 Bionanocomposites as a market potential from Greek bentonite resources: Preparation of chitosan-clay bio-nanocomposites**

E. Koutsopoulou, I. Marantos, G. Christidis, N. Xirokostas