CRITMET 2025

CRITICAL METALS CONGRESS

CRITMET 2025

6th to 8th November 2025

Organized Jointly By

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Program Schedule

16:00h onwards

POSTER SESSION-1 (with Tea Break)

1. Recent Developments for recovery of Niobium and Tantalum from primary resources: A review
2. Critical Metal Potential of Apatite and Phosphogypsum: Insights from the Beldih, Eastern India
3. Quantitative Polarized Energy Dispersive X-Ray Fluorescence (ED-XRF) analysis of critical mineral nickel (Ni) in Ultramafic Rocks : addressing spectral interference using secondary targets
4. Reassessing Phosphogypsum: Strategic Opportunities for Rare Earth and Critical Element Recovery in India
5. Reclamation of Tungsten from Industrial Scrap
6. Machine Learning-Driven Optimization of Gold and Silver Recovery from Waste Printed Circuit Boards
7. Metallothermic Process for the Extraction of Tantalum from the Metallic Salts
8. Techno-Economical Analysis of Materials Recycling from Waste Printed Circuit Boards (WPCBs): Exploring Hydrometallurgical Process.
9. CALPHAD modeling of KCl-NaCl-$PrCl_3$-$DyCl_3$ system for electrochemical recovery of rare-earth elements from magnet scraps
10. Recovery of Critical Metals from Solid Waste and Secondary Resources Via Bio-Metallurgical Route: A Review
11. Recovery of Critical Elements from Bauxite Residue via Hydrometallurgy: A Review
12. Development of Ulvan-Based 3D Bioprinted Scaffolds as Tunable Biosorbents for Rare Earth Metal Recovery
13. Recovery of lithium from waste lithium-ion batteries through carbothermal reduction with organic waste
14. Extraction of Lithium from Zinnwaldite ores, Degana, Rajasthan
15. Platinum-Based Nano-Intermetallic Catalysts for Sustainable Energy Solutions
16. Solvent extraction of metal values from simulated Lithium ion battery waste using L-Proline-Carboxylic Acid-Based Hydrophobic DESs
17. Material flow analysis to understand barriers in closed loop life cycle of lithium

17:00-18:30

Presentation from Industries & Sponsors & Exhibitors (CEOs, MDs, COOs, Directors)

19:30 onwards

Cultural Program followed by Conference Dinner

9:00H onwards

Keynote & Plenary Presentations

- Keynote-2: Crystallization and Precipitation Challenges and Opportunities in Critical Raw Materials Processing (Kerstin Forsberg, KYH, Sweden)
- Plenary-2: Supported liquid membranes combined with electrodialysis for separation of critical metals (Amilton Barbosa Botelho Junior, MIT, USA)
- Q&A

1st Tech Session (Critical Mineral Distribution-1) [10:30-12:00]

- IL-1: Status and Vision for Exploration and Exploitation of Critical Minerals In Gujarat- Deepak Kumar Sinha (GMDC)
- ORAL-1: Unlocking Cobalt Resources in the Dharwar Craton: A Case Study from the Kalyadi Cu-Co Deposit- Pratyush Kar, IITB
- ORAL-2: Critical minerals and Rare Earth Elements enrichment in Laterite-Bauxite deposits in Jharkhand: An approach for Critical Mineral Security- Shreya Shrey, GSI, Jharkhand
- ORAL-3: Distribution and Characterization of REE Mineralization in Carbonatite and its associated pyroxenite of Kambam Area, Tamil Nadu, India- Chittaranjan Behera, GSI, Chennai
- ORAL-4: Identifying and sorting spent Lithium-ion battery chemistries using wavelength dispersive X-ray Florescence-Vivek Verma, IIT Kanpur
- ORAL-5: The lithium deposits of India and their proposed concentration methodology, U. Vishwananth, Prasol Chemicals
- SHORT ORAL-1: Alternative Luminescence-based techniques for lanthanide detection in geological samples -Debashish Ghosh, GSI, Shillong

2nd Tech Session (Critical Mineral Beneficiation) [10:30-12:00]

- THEME LECTURE-1: DELKOR
- THEME LECTURE-2: GeoExplore
- ORAL-1: Bench scale beneficiation characteristics of Molybdenum ore from a part of Harur-Uthangarai Molybdenum Belt (HUMB) in the Southern Granulite Terrain, Tamil Nadu, India- Ravichandran, GSI, Chennai
- ORAL-2: Process mineralogy and flotation studies for the beneficiation of rare earth minerals from Dantala ore of Siwana ring complex, Rajasthan- Anuj Kumar, BARC
- ORAL-3: Process-mineralogical insights into uranium mineralization in serpentinized peridotite rocks of Kudada, Singhbhum- Ishan Bhattacharya, BARC
- ORAL-4: Flotation performance of biodiesel as collector for beneficiation of low-grade graphite ore-Vasumathy, CSIR-NML
- ORAL-5: Flocculant Study for Neutral and Leached Slurries from Ore Processing of Pressurised Alkali Leaching based Plant-Vipin Kumar, UCIL

3rd Tech Session (Critical Mineral Deposits) [12:00-13:30]

- THEME LECTURE-1: Unlocking India's Critical Minerals and Rare Earth Riches: A Multidisciplinary Journey Towards Exploring the Un-explored- Rajesh Mukherjee (NRD, TATASTEEL)
- ORAL-1: Integrated High-Resolution Electrical Tomography and Geochemical Investigations of Critical Mineral (Ni-Cu-PGE) Mineralization in the Betul Fold Belt, Central India- Dewashish Kumar (CSIR-NGRI)
- ORAL-2: Geological and Economic evaluation of Mananjary's fluvial and Paleoplacer heavy mineral and gold deposits in the Vatovavy Region, Madagascar- Ashok Kumar, BANTHWAL
- ORAL-3: Geochemical characteristics and modes of occurrence of rare earth elements and yttrium in coals from Barakar Formation, Mand Raigarh coalfield, India- Monica Sahoo, CSIR-NML
- SHORT ORAL-1: Measurement of Lithium ion in Brine solution and separation technique- Bhagirathi Behera, GSI, Shillong

4th Tech Session (Supply Chain and International Policy) [12:00-13:30]

- THEME LECTURE-1: Geospatial Mapping and spatial optimization to Identify New recycling facilities to manage India's growing EV battery waste, Nari Soundarajan, SP Global
- ORAL-1: Techno-Ecno-Environmental assessment of critical mineral recycling technology using technology assessment framework: The case of India, Amit, ICRIER
- ORAL-2: Mapping cerium flow to identify potential recovery hotspots and establish a framework for REE circular economy in Indian Scenario, Apurva, IIT BHU
- ORAL-3: Integrating National and International Policies: a holistic approach to future critical minerals' supply chains, Shashi Arya, NTNU
- ORAL-4: Unlocking India's Potential in Processing of Critical Minerals for Clean Energy and Strategic Sectors, Sunil Kumar, CEEW
- ORAL-5: Critical Minerals Importance and Opportunities in India, Hindalco Industries Ltd., Kailash Prasad, HINDALCO
- SHORT ORAL-1: Advancing rare earth supply chain for India's indigenous defence manufacturing, Neha Mishra, Centre for Air Power Studies, New Delhi

POSTER SESSION-II [14:15 ONWARDS]

1. Optimization of Oxygen Blowing Parameters to Enhance Cu Recovery from WPCBs
2. Plastics in Electronic Waste: Categories, Recycling Challenges, and Emerging Solutions
3. Sustainable Recovery of Rare Earth Elements from End-of-Life NdFeB Magnets via Chlorination Roasting: A DOE Approach
4. Recovery of REEs from Iron Depleted Red Mud Processed Residue
5. Tapping critical metals (Nb, Ta) from secondary resources
6. Optimization of chemical leaching methods for the extraction of rare earth element from Indian Coal Fly Ash
7. Evaluation of processes for the recovery of critical metals from anode slime: A review
8. Electrochemical process for recycling Lithium ion batteries
9. Classification of Battery Types based on Elemental Chemistry, and Material Characterisation- Insight towards market demand
10. Sustainable Synthesis of Alumina and GO from E-Waste for High-Performance Anticorrosion Coatings
11. Membrane Based Recovery of Rare Earth Elements
12. Synergistic Hydrometallurgical Recovery of Critical Metals from Li-ion Batteries and Waste SmCo Magnets
13. Deep Eutectic Solvents for Spent Lithium-Ion Battery Recycling
14. Selective Resource Recovery from Spent Lithium-Ion Batteries for Sustainable Material Management
15. Optimisation of fayalite slag to enhance Copper recovery from WPCBs
16. Reductive Leaching of Lithium-Ion Battery Cathode Active Material with Copper and Its Recovery
17. Electrochemical detection of ascorbic acid using reduced graphene oxide (rGO) synthesized from recovered graphite of spent lithium-ion batteries

5th Tech Session (Extraction and Separation of Critical Metals) [15:00-16:30]

IL-1: Rare earth metals extraction and separation from low-value wastes -Sankar Bhattacharya, MONASH UNIVERSITY, Australia
ORAL-1: High-Yield Recovery of PGMs from Spent Catalysts Through Collector Metal Smelting, Anjana, CSIR NIIST
ORAL-2: Recovery of Gd(III)- critical rare earth element from aqueous solution using a potential lignocellulosic biomass, G. Padhy, CSIR-IMMT
ORAL-3: Recovery of Rare Earth Elements and Platinum Group Metals from Chromite Ore Beneficiation Tailings, Aliysa Kasymzhanova, Kazakhstan
ORAL-4: Selective Extraction of Ce(IV) from a Light Lanthanoid Nitrate Solution with di-(2-ethylhexyl) phosphoric acid, Raji Mustapha, NWU, South Africa
ORAL-5: Studies on the recovery of rare earths and other critical metals from carbonatites of Ambadongar, Gujarat, India, Ram Karan, BARC, Hyderabad
SHORT ORAL-1: Assessment of a Low-Cost Biosolution for Bioleaching-Based Indium Recovery from LCD Waste: A Preliminary Study- Pooja Sevak, Univ of Mumbai

6th Tech Session (Extraction and Separation of Critical Metals) [15:00-16:30]

IL-1: POSCO Group's Nickel Strategy and R&D: From Resource Development to Process Advancements, Jingyun Park, POSCO, South Korea
ORAL-1: Bench-Scale Studies on the Recovery of Lithium from Spodumene Mineral Concentrate (Marlagalla, Karnataka)- Reshu Sinha, BARC, Hyderabad ORAL-2: Low Cost Process for the Preparation of Graphene Oxide from Indian Graphite Ore, Aswathy, CSIR-NIIST
ORAL-3: Sustainable production of titania slag and pig iron from ilmenite concentrates, Suman Shree Sahoo, CSIR-IMMT
ORAL-4: CALPHAD Prediction of Littlewood Predominance Diagram for Recovery of Cobalt from Spent Cathodes of Lithium-Ion Batteries- Soumya Sridhar, IITKanpur
ORAL-5: Selective recovery of gallium from pyrometallurgical processing residues via hydrometallurgical approach, Soniya Dhiman, HZDR, Germany SHORT ORAL-1: An efficient process for the production of potash fertilizer and ferro-silicon from indigenous K-feldspar, Shabnam Ara, CSIR-NML

7th Tech Session (Recycling of Secondary Resources) [16:45-18:00]

Theme Lecture-1: Metallothermic reduction-based technology for efficient recovery and purification of rare earth metals, K. Jayasankar, CSIR-NIIST
ORAL-1: Synthesis of anhydrous neodymium fluoride by ammonium bi-fluoride route, Sonal Gupta, BARC
ORAL-2: Green Technology for the Recovery of Strategic Metals Co, No, Cu, and Mn from Ocean Manganese Nodules, Abha Kumari, AMITY UNIVERSITY
ORAL-3: Obtaining Demetallized Rare Earth Elements and Titanium-Containing Slag Through Joint Reductive Smelting of Red and Waste Bauxite Slurries, Leila Imangaliyeva, Kazakhstan
ORAL-4: Repurposing the porous separator from spent Li-ion batteries towards building quasi-solid-state Na-metal batteries with Na2/3Ni1/3Mn2/3O2 cathode, Jyothilakshmi, IISER Tirupati
SHORT ORAL-1: Optimization of Organic Acids and Organophosphorus Extractants for Selective leaching and solvent extraction of rare earth elements from waste Permanent Magnets of Wind Turbines , Prasenjit Das, SOA, University, Bhubaneswar, INDIA

8th Tech Session (Extraction and Separation of Critical Metals) [16:45-18:00]

Theme Lecture-1: Current Status and Technical Characteristics of POSCO Group's Ore-Based Lithium Business, Hyunsoo Kim, POSCO
ORAL-1: Electrode–Electrolyte Compatibility and Composition for Electrochemical Lithium Extraction from Brine, V. Mahanata, Belgium
ORAL-2: Synthesis and Characterization of Molten Salt Mediated Ion sieve Material for the Selective Lithium Ion Recovery
ORAL-3: Sustainable Lithium Extraction from Brine Resources, Myungwon Jung, POSCO
ORAL-4: Understanding the Molecular Basis of Metal Sensing Ability of Metallothionein from MD Simulation, Mahima Ganguly, IIT Dharwad
ORAL-5: Bioleaching assisted electrochemical reclamation of titanium from red mud using extremophilic Bacillus subtilis N3, Punniyadharshini, PSG, Coimbatore

Panel Discussion (Industry - R&D - Academia Interface)

Moderator: Dr. Rishabh Jain, CEEW
Theme: Positioning Indian R&D and Industry Engagement with International Trends

19:30pm Gala Dinner

9:00H onwards

Keynote and Plenary Presentations

- Keynote-3: Next-Generation Recycling: Advanced Processes for LIB Metal Recovery (Alexandre Chagnes, Université de Lorraine, GeoRessources, France)
- Plenary-3: Mining the Unmined: Bio-Inspired Strategies for Recovering Critical Metals from Electronics (Eric D. van Hullebusch, IGP-CNRS, France)
- Q&A

9th Tech Session [10:30-13:15]

- Theme Lecture-1: Sustainable Solar PV-waste Management via Waste to Wealth Strategies for Technological Applications, Pravin Saini, CSIR-NPL
- ORAL-1: Recovery of Samarium and Cobalt from End-of-Life SmCo Magnets via Sustainable Hydrometallurgical Route by Integration of Membrane-assisted Concentration system, Pushpa Kumari, CSIR-NML
- ORAL-2: Material flows in recycling and its impact on sustainability, Arunabh Meshram, IITKanpur
- ORAL-3: Green, Fast, and Effective: REEs Extraction from NiMH Batteries and NdFeB Magnet Waste via Subcritical Water Extraction (SWE) and Electrochemical Stripping, Archana Singh, CSIR-AMPRI
- ORAL-4: Selective recovery of pure metal sulfates via antisolvent crystallization from spent nmc processed liquor, Mamata Mohapatra, CSIR-IMMT
- ORAL-5: Hydrometallurgical recovery of lithium from LFP battery waste: a sustainable approach to battery waste management, Venkateshan, CSIR-NIIST
- ORAL-6: Recycling of spent Li-ion batteries: CuO–NiO hybrid nanostructure and rGO nanomaterials for high-performance Li-ion capacitors, Aswini, IISER, Tirupati
- ORAL-7: Ligand-assisted co-operative approach for selective lithium extraction from LIB black mass via oxidative delithiation and complexation mechanism, Alok Paital, CSIR-CSMCRI
- ORAL-8: Hydrometallurgical Recovery of Critical Metals from Coal Mine Waste: A Sustainable Resource Management Approach, Pranav, SRM university
- SHORT ORAL-1: Selective removal/recovery of copper from spent lithium-ion battery leachate using ion-specific mechanism, Sipra Ghosh, CSIR-NML

10th Tech Session [10:30-13:15]

- TL-1: Mode of occurrence and beneficiation of critical and Rare Earth Elements in Indian Fly Ash, Edin Masto, CSIR-CIMFR
- ORAL-1: Reverse Leaching approach for separation of rare earths and transition metals- An application towards REE recovery from NdFeB and SmCo magnets,
- S. Sinha, CSIR-NML
- ORAL-2: Beyond Mines: bio-assisted mobilization of rare earth elements from coal fly ash for sustainable resource recovery, Anjali, CSIR-NEERI
- ORAL-3: Thermal transformation of discarded CRT printed circuit boards for recovery of critical Sn values, Rohit Gahlot, IIT Roorkee
- ORAL-4: Recovery of metallic values (Ta, Mn, Ag) from discarded tantalum capacitors, Shaila Mir, IIT Roorkee
- ORAL-5: A novel pyrometallurgical Route to recover indium and tin from waste liquid crystal displays, Ajay, IIT Hyderabad
- ORAL-6: Sustainable smelting approach for selective extraction of rare earth elements from spent NdFeB magnets, Venkata Lakshmi Borra, IIT Kharagpur
- ORAL-7: Development of critical technology routes for production of stainless steel and battery raw materials from indigenous low-grade chromite overburden, Gajanan Kapure, TATA STEEL
- ORAL-8: Selective Recovery of Graphite from Spent Lithium-Ion Battery Black Mass Using Froth Flotation, Mousumi Gharai, CSIR-NML
- SHORT ORAL-1: Sustainable Processing of spent LFPs to recover lithium and high pure FePO4, Nikita Agarwal, CSIR-NML

13:15-14:30 LUNCH

14:30 onwards – VALEDICTORY SESSION WITH CONFERENCE AWARDS

16:00 – CONFERENCE CLOSURE

Venue Details