



MINISTRY OF
EDUCATION



MINISTRY OF ECONOMY
AND DEVELOPMENT



The 3rd International Conference on Resources and Technology – RESAT 2025

Agenda and Abstracts

19-20 June 2025,
Ulaanbaatar, Mongolia

Hosted by

German-Mongolian Institute for Resources and Technology (GMIT)

in cooperation with

The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

CONFERENCE AGENDA

Thursday, 19 June 2025

Ballroom, 4th floor, Novotel hotel, Ulaanbaatar, Mongolia

Time	Activity / Presentation	Speaker / Chair
08:00 – 09:00	Registration (4 th floor)	
09:00 – 09:20	Opening Remarks	Prof. Battengel Baatar <i>Chair of the Conference, Rector of GMIT</i> Dr. Undraa Agvaanluvsan <i>Member of the Parliament of Mongolia</i> Battumur Batsuuri <i>Advisor to the Minister of Economy and Development, Mongolia</i> Hana Becker <i>Deputy Head of Mission, Embassy of the Federal Republic of Germany to Mongolia</i>
09:20 – 09:40	Global Perspectives on STI Ecosystem Development	Dr. Battogtokh Dorjgotov <i>Director General, Department of Science, Technology Integrated Policy, Ministry of Economy and Development, Mongolia</i>
09:40 – 10:00	Transformation of Mining Regions and the Use of Underground Space in Germany	Prof. Axel Preusse <i>Head of the Institute for Mine Surveying, Mining Subsidence Engineering and Geophysics in Mining, RWTH Aachen, Germany</i>
10:00 – 10:20	Photo session & Coffee break	
Session 1a: Raw material processing & environmental and economic challenges		Chairs: Battengel Baatar (GMIT) Sebastian Burghoff (GIZ)
10:20 – 10:35	Processing of a polymetallic REE ore (REE -Zr - Nb), ground by a vertical roller mill and sorted by magnetic separation and flotation	<u>Nomintuya Choijilsuren*</u> Tobias Vraetz
10:35 – 10:50	Improving efficiency of flotation for Tavantolgoi coal after interplay combination ultrasonic and electrolysis	<u>Ariyasuren Purevdorj</u> Erdenechimeg Dolgor Tugsuu Tserendorj*
10:50 – 11:05	Multimodal characterization of minerals from Erdenet mining corporation: implications for enhanced flotation and processing efficiency	<u>Bulganchimeg Unentogtokh</u> Narangerel Adiyasuren Khaliun Amartuvshin Sondor Ganbat Davaadulam Batbileg Ganzorig Chimed*

11:05 – 11:20	Studies on fabrication of 2D MoS ₂ nanomaterial from molybdenite-bearing rock at the Erdenetiin Ovoo deposit	<u>Narangerel Adiyasuren</u> Batmunkh Tumen-Ayush Delgerjargal Altantsetseg Enkhtur Erdenebileg Ganzorig Chimed*
11:20 – 11:35	Metallurgical test work of lithium and rubidium ore	<u>Purev-Ochir Togtokhbaatar*</u> Baasandorj Myagmarsuren Battsengel Baatar
11:35 – 11:50	An experimental study of new depressants to upgrade fluorite ore for hydrofluoric acid production	<u>Narangerav Terbish</u> Purev-Ochir Togtokhbaatar Bayardulam Jamiyansuren Baasandorj Myagmarsuren*
11:50 – 12:15	Q&A session	
12:15 - 13:30	Lunch	

Session 2: Renewable and storage materials

Chairs:
Ik Jin Kim (GMIT)
Ganzorig Chimed (NUM)

13:30 – 13:45	Energy efficiency benchmark industry	<u>Tino Schuette*</u>
13:45 – 14:00	Innovative silicon anode design: the rule of MXene and copolymeric binders in lithium-ion batteries	<u>Bolormaa Gendensuren</u> Yuri Seo Eun-Suok Oh*
14:00 – 14:15	Innovative business model for sustainability: the inclusion of green technology and green marketing in Peru's Quinoa agriculture	<u>Diego Naoki Kawanishi Ramos</u> Helmut Yabar* Takeshi Mizunoya
14:15 – 14:30	A study on the impact of solar panels' tilt angle on operation and maintenance	<u>Munkhsaran Nairamdaltgerel</u> Mungunshagai Gansukh*
14:30 – 14:45	Advanced uncertainty modeling to enhance resource efficiency in high voltage material engineering	<u>Daniel Fiss*</u> Stefan Kühnel Alexander Kratzsch Stefan Kornhuber
14:45 – 15:00	Study on the diagnosis of rotor faults in motors using inrush current	<u>Ariunbolor Purvee*</u> <u>Bold Enkhbold</u> Nikita Abramov
15:00 – 15:15	Recent advances in carbon capture, utilization, and storage and its applications	<u>John Wang B.*</u>
15:15 – 15:30	Study on Iron (Fe) Alloying of Nickel (Ni) Extracted from Spent NiMH Batteries	<u>Uriankhai Chinzorig</u> Sarantuya Lkhagvajav* Sevjidsuren Galsan
15:30 - 16:00	Coffee break	

Time	Activity / Presentation	Speaker / Chair
Session 3: Resource-oriented engineering development and circular economy		Chairs: Gantuya Ganbat (GMIT) Tino Schuette (University of Applied Science Zittau/Goerlitz, Germany)
16:00 – 16:15	Pilot-testing electrostatic dust Precipitators in Ulaanbaatar/ Mongolia: insights into particulate matter composition and potential for air pollution reduction	<u>Gunther Claus Stehr*</u> Daniel Karthe Byambasuren Battulga Lodoysamba Sereeter
16:15 – 16:30	Battery-electric vehicles: the pathway to pollution-free road transport in the Global South?	<u>Daniel Karthe*</u> Luisa Prates Gantuya Ganbat Minjeong Choi Serena Caucci Seoyoung Lim Lulu Zhang Lili Wang Jack O'Connor Christina Dornack Alexey Alekseenko
16:30 – 16:45	Evaluating sustainable municipal solid waste management scenarios for Ulaanbaatar, Mongolia: an integrated life cycle assessment and geospatial analysis	<u>Buyanbilig Namnansuren</u> Helmut Yabar* Takeshi Mizunoya
16:45 – 17:00	Safety assessment of road railing on UB-Nalaikh road	<u>Dashdavaa Tuvshintur</u> Sungchil Lee* Odbileg Norovrinchen
17:00 – 18:00	Poster session	
18:00	Welcome reception	

Friday, 20 June 2025

Ballroom, 4th floor, Novotel hotel, Ulaanbaatar, Mongolia

Time	Activity / Presentation	Speaker / Chair
Session 4a: Green development technology (interdisciplinary session)		Chairs: Sungchil Lee (GMIT) Daniel Karthe (UNU-Flores)
09:00 – 09:15	Lesson learnt from Mongolia's first adoption of the toward sustainable mining (TSM) framework	Enkhzaya Chuluunbaatar* Oyungerel Ganbaatar
09:15 – 09:30	Effect of characteristics of circulating water on the flotation process of Erdenetiin Ovoo porphyry copper-molybdenum deposit	Ganbat Munkhtuya* Erdenebileg Tsedevsuren Batmend Tseveenjav Myagmarsuren Bayanmunkh
09:30 – 09:45	Detection of enteric bacteria in Selbe River, Mongolia with dissolved oxygen and BOD assimilative capacity of the river	Bodigerel Lkhagvasuren Enkhzul Enkhsaikhan Usukhbayar Puntsagsuren Ariunaa Saraadan Ariuntuya Tserendorj*
09:45 – 10:00	Assessing land governance frameworks to support environmental and land use planning in resource-oriented development	Unenbuyan Gantig*
10:00 – 10:15	Enhancing control engineering education through simulation-based lab work using open-source multibody dynamics software	Young Suk Kim* Odbileg Norovryenchin
10:15 – 10:30	Mapping wildfire dynamics in eastern Mongolia: integrating remote sensing for sustainable resource management	Enkhjin Enkhbold Gantuya Ganbat*
10:30-10:45	Coffee break	
Session 4b: Green development technology (interdisciplinary session)		Chairs: Enkhzaya Chuluunbaatar (GMIT) Orgodol Togoo (Boroo Gold LLC)
10:45 – 11:00	Mongolia's rare earth elements: market potential and strategic insights for German industry engagement	Thomas Hollenberg Oyungerel Balgansuren*
11:00 – 11:15	Review of sustainable water technologies for heavy metal removal	Bolormaa Purevjav* Bern Klein Enkhzaya Chuluunbaatar Gantuya Ganbat

11:15 – 11:30	CFD-based optimization of stove designs for sustainable heating in Mongolian gers	<u>Battulga Nasanjargal*</u> Gantuya Ganbat
11:30 – 11:45	Biodegradation of polyhydroxyalkanoates (PHAs) in various environment and isolation of PHA-degrading bacteria	<u>Odbat Erdenechimeg</u> Sivashankari Ramamoorthi Chimed Ganzorig* Takeharu Tsuge
11:45 – 12:00	Bestger - Mongolian national green building rating system	<u>Batgerel Tseren*</u>
12:00 - 12:15	Porous ceramics by direct foaming and its applications	Kamrun Nahar Fatema Liew Yun Ming Heah Cheng Yong Sungchil Lee <u>Ik Jin Kim*</u>
12:15-13:00 Lunch		
Session 1b: Raw material processing & environmental and economic challenges		
		Chairs: <u>Altantuya Ochirkhuyag (MAS)</u> <u>Gunther Claus Stehr (HTWD)</u>
13:00– 13:15	Chemical reduction based synthesis copper nanopowder from copper concentrate at the Erdenetiin Ovoo deposit	<u>Munkhjin Byambachuluun</u> Narangerel Adiyasuren Ganzorig Chimed*
13:15 – 13:30	Ionometallurgical test work on gold and copper concentrate	<u>Purev-Ochir Togtokhbaatar*</u> Charlotte Ashworth Güth Gero Frisch
13:30 – 13:45	Purification and structural optimization of natural MoS ₂ extracted from Mongolian molybdenite concentrate	<u>Bayardulam Jamiyansuren</u> Bolormaa Gendensuren Battsengel Baatar* Narangarav Terbish
13:45 – 14:00	Rare Earth recycling from NdFeB magnets via pyrometallurgy & molten salt electrolysis	<u>Ulziikhuu Otgonbayar</u> Chinedu Francis Anochie Daniel Vogt* Alexandros Charitos
14:00 – 14:15	Thermal dissolution of coal: a pathway to high-value carbon materials	<u>Vladimir Safin*</u> Budeebazar Avid Peter Kuznetsov Nergui Navchtsetseg Ludmila Kuznetsova Anastasia Obukhova
14:15 – 15:00 Coffee break & Poster session		

Hybrid session		Chair: Altangerel Lkhamsuren (GMIT)
15:00 – 15:15	Mining for the energy transition: Exploring questions of justice and equity for Mongolia	<u>Vigya Sharma*</u> (Australia)
15:15 – 15:30	Overview of current research topics in advanced mineral processing technologies	<u>Tobias Vraetz*</u> (Germany)
15:30 – 15:45	Theoretical strategies for enhancing catalytic performance in advanced hydrogen storage systems	<u>Sung Gu Kang*</u> (Korea)
15:45 – 16:00	Collaborative GIS for sustainable waste management: the case of Ulaanbaatar in 3R4UB	<u>Francesco S. Sammarco*</u> (Italy) Gaia Daldanise Fabio Maria Esposito Gabriella Esposito De Vita Gantuya Ganbat Marina Rigillo
16:00 – 16:15	Stochastic optimal control of heating systems with a geothermal energy storage	<u>Ralf Wunderlich*</u> (Germany)
16:15	Closing remarks	

Poster Session		
Nº	Presentation	Speakers
1	Correlation between different adhesion measurement methods according to binder content	<u>In-Seo Kim</u> Gendensuren Bolormaa Ji-Young Nam Eun-Suok Oh*
2	Research on synthesis and process for performance optimization of mid-nickel single-crystal cathode materials for lithium-ion battery	<u>Ye-Jin Sung</u> So-Yeon An Seo-Yoon Oh Ye-Eun Hwang Eun-Suok Oh*
3	Computational exploration of Pt _n clusters on Ti-based MXenes for methylcyclohexane dehydrogenation catalysis	<u>Thi Bich Tram Bui</u> Prasad Reddy Sung Gu Kang*
4	Surface-displayed cobalt-affinity recombinant Escherichia coli for the potential applications of cobalt recovery from wastewater and photocatalytic dye degradation	<u>Jonguk Lee</u> Saranya Shanmugasundaram Soon Ho Hong*
5	Impact of the Ni-Oxygen vacancy interface created after the reduction of the NiAl ₂ O ₄ phase on resistance to coke formation during Dry Reforming of Methane	<u>Nhiem Pham-Ngoc</u> Azam Jamsaz Phuong Anh Nguyen Song Chao Youngil Lee Eun Woo Shin*

6	Examining the influence of cations on modulating the electrochemical properties of nickel-copper oxy(hydroxide) for enhanced ammonia oxidation reaction	Pragyan Sharma Jin Suk Chung*
7	Multi-objective optimization of lignin-to-vanillin process for minimizing cost and CO2 emissions using machine learning-based surrogate modeling	Yun Gyu Lee Dong Hwi Jeong*
8	Process simulation, techno-economic and environmental evaluation of hydrogen-based reduction ironmaking process	Yoo Ri Kim Jeong Cheol Lee Shi Kyung Yoon Dong Hwi Jeong*
9	Fabrication of metallic membranes and the impact of catalytic layer thickness on permeation behavior	Hyeon Uk Kim Ik Seong Ahn Chan Hyun Lee*
10	Development of thermal swing adsorption (TSA) process for moisture removal from pome-derived biomethane	Jae Hyeon Park Chan Hyun Lee*
11	Facile preparation of phosphorous-doped graphene quantum dots/bismuth iron vanadate composite as bifunctional electrocatalysts for water splitting	Beena Mol Babu Min Jae Kim Tata Sanjay Kanna Sharma* Won Mook Choi*
12	Steam gasification of Tavantolgoi bituminous coals with a combined drop-tube and fixed-bed reactor	Zorigtbaatar Erdenemunkh* Baigalmaa Ganbold Enkhsaruul Byambajav
13	Spectroscopic and thermal analysis of CuO-ZnO composite particles synthesized by sol-gel method	Davaadulam Batbileg* Narangerel Adiyasuren Ganzorig Chimed
14	Kinetic investigation of sphalerite leaching in ethaline deep eutectic solvent	Maral Bat-Erdene*
15	Preparation and characterization of ZnO: Al thin films using low temperature aqueous solution method	Maral Bolor-Erdene Oyunjargal Tumurbaatar Ganzorig Chimed*
16	Integrating flood mitigation and groundwater recharge in water scarce mining area of southern Mongolia	Tuguldur Bat-Itgelt* Ariuntuya Tserendorj Alireza Arab
17	Elemental and mineralogical analysis of rare earth elements in iron ore concentrate waste	Battsengel Baatar* Bayardulam Jamiyansuren Baasandorj Myagmarsuren
18	Estimating the impact of cloud cover on solar energy utilization in Mongolia	Ganbold Boldbaatar Jambajamts Lkhamjav*
19	Investigation of slurry rheology fundamentals, measurements and applications in the mining industry	Batchimeg Batbayar*

20	Processing technological solutions for acid mine drainage of copper ore stockpiles (on the example of Erdenet Ovoo mine)	<u>Nergui Nosron*</u> Ulziisaikhan Naidandorj
21	Simulation of copper recovery from acid mine drainage using 3 stage membrane filtration and SX-EW process in Aspen Plus	Nergui Nosron <u>Khuslen Ankhbayar</u> Bolor-Erdene Byambabasan Ulziisaikhan Naidan Enkhbayar Dondog Zoljargal Naranbaatar Ganzorig Chimed*
22	Water hammering in slurry of lime distribution pipeline at Oyu Tolgoi, LLC	<u>Odbileg Norovryenchin*</u> Turtsetseg Nanjid Sungchil Lee
23	Vegetation-climate responses in mining areas in the Mongolian Plateau	<u>Urangoo Baasandorj</u> Nandin-Erdene Geserbaatar Gantuya Ganbat*
24	Research on zero-waste technology for iron ore beneficiation and processing	<u>Khuzaabayar Lkhagvabaatar*</u> Danzandorj Sunjidmaa Bavuu Chinzorig
25	Strategic study of technology for the development of mining-metallurgy complex	<u>Bolor-Erdene Otgonkhuu*</u>
26	A study on the technology for producing thermal insulation material from iron ore beneficiation plant waste	<u>Khuzaabayar Lkhagvabaatar</u> Danzandorj Sunjidmaa* Bavuu Chinzorig
27	Nighttime light as a proxy for socioeconomic and environmental change in urban and mining contexts	<u>Munkh-Erdene Tuvshinkhuu</u> Enkhjargal Sodnomdarjaa Gantuya Ganbat*
28	Study on the production of triple superphosphate (tsp) fertilizer from phosphate concentrate by acid leaching method	Davaabal Batmunkh Javzandulam Chuluuntumur Bayarzul Uyat Oyun-Erdene Gendenjamts <u>Altantuya Ochirkhuyag*</u>
29	Baseline study and design solutions for the tailings storage facility project of the mineral processing plant	<u>Otgon Maruush*</u> Bavuu Chinzorig*
30	Unseen threats: soil pollution from household ash in Nalaikh's ger districts	<u>Enkhjargal Sodnomdarjaa*</u> Martin Knippertz