

AUTOMATIC CONTROL FOR SUSTAINABLE DEVELOPMENT



MMM2013

15th IFAC Symposium



Control, Optimization and Automation in Mining, Mineral & Metal Processing



Advance Program



25-28 August 2013, Hyatt Regency
Mission Bay Spa & Marina
San Diego, California, USA



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Welcome Message



Welcome to the 15th IFAC symposium on Control, Optimization and Automation in Mining, Minerals and Metals Processing.

This time, the symposium will particularly explore as a general theme the close relationship of sustainability and control, optimization and automation. As I have similarly written in the preface of my recently published book "Automation", control, optimization and automation are closely related to the modern need for sustainable development in the 21st century. One of the principles of sustainability is "Doing More with Less" which, in other words, is also one of the goals of control, optimization and automation.

The technical program covers all aspects of control, optimization and automation in the entire A to Z spectrum of metals and materials starting from mining operations to mineral processing, from non-ferrous metals processing to iron and steel processing, from heat treatment to metal and ceramic coating and power generation. It also specifically covers metal and materials recycling processes, waste treatment and environmental issues. It includes 5 plenary presentations covering processing industries, mining, sensors, mineral processing and bio processing as well as about 75 technical presentations.

We would like to thank IFAC and TC 6.2. Mining, Mineral and Metal Processing committee for sponsoring the symposium as well as other IFAC committees for co-sponsoring (TC 6.1, TC 6.3 TC 6.4 and CC6). A heartfelt thank is directed to Corporate Sponsors, Organization Sponsors; Media; Academic Institutions and Journals and Publishers. I would also like to thank my immediate family for the support and my colleagues at FLOGEN STARS OUTREACH for the help in the preparing of this symposium.

The symposium is being held in the magnificent Mission Bay area of San Diego, California, one of the best vacation places in North America. The Hyatt Regency Mission Bay Spa & Marina hotel is located directly in the bay and about five minutes away from San Diego's Sea World and the beach. On Wednesday afternoon the registered attendees will enjoy the **Sunset Coastal Balloon Flight Adventure**, in which they will experience spectacular views of the Pacific Ocean and coastal bluffs surrounding Del Mar. Champagne, Sparkling Cider and soft drinks will be served aloft by your pilot during your 40 minutes to one hour balloon flight. The accompanying persons can also enjoy numerous activities in Mission Bay and San Diego during this high season.

We hope you will fully enjoy the technical program and the social events in the beautiful San Diego area.

Dr. Florian KONGOLI

IPC Chair

BSc (Honors), MAsC, PhD,

MTMS, MGDMB, MCIM, MSME, MAIST, MISIJ, MSigmaXi,

MIFAC, MACS, MASM, MMRS, MACerS, MECS

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- Manuel **Ramos**, Asarco, USA

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Program at a Glance

MMM 2013 Technical Program Monday August 25, 2013

08:00-09:00
Room (TBA)
Short Course Registration
09:00-12:00
Short Course

Lunch

13:00-15:00
Room (TBA)
Short Course

15:00-18:00
Symposium Registration

18:00-20:00
Reception / Pool Deck

MMM 2013 Technical Program Monday August 26, 2013

Track T1		Track T2	
08:10-09:30 Mission Ballroom I Regular Session MoAT1 <u>Mineral Processing 1</u>		08:10-09:30 Mission Ballroom II Regular Session MoAT2 <u>Mining 1</u>	
09:30-10:00 Coffee Break/ Mission Ballroom Foyer Poster Session MoBr1H/ Mission Ballroom III <u>Poster 1</u>			
10:00-12:30 Mission Ballroom Plenary Session MoPIP Session Chair: Florian Kongoli <u>Opening Speech/Plenary</u>			
14:00-15:20 Mission Ballroom I Regular Session MoP1T1 <u>Mineral Processing 2</u>		14:00-15:20 Mission Ballroom II Regular Session MoP1T2 <u>Mining 2</u>	
15:20-15:40 Coffee Break/ Mission Ballroom Foyer Poster Session MoBr2H / Mission Ballroom III <u>Poster 2</u>			
15:40-17:00 Mission Ballroom I Regular Session MoP2T1 <u>Mineral Processing 3</u>		15:40-17:00 Mission Ballroom II Regular Session MoP2T2 <u>Mining 3</u>	
18:30 – 22:30 Reception/ Mission Ballroom Patio Banquet Gala Dinner/ Mission Ballroom			

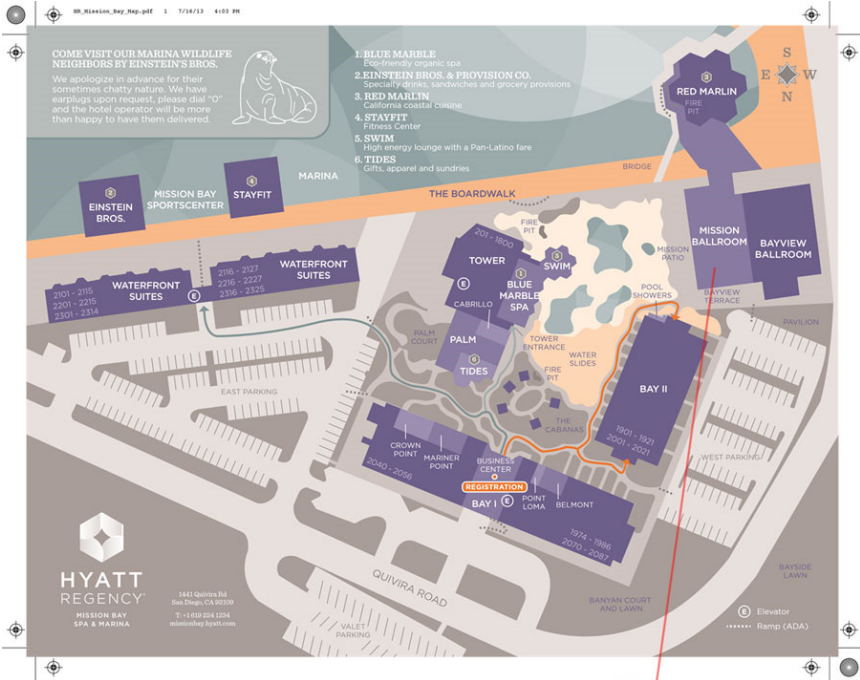
MMM 2013 Technical Program Tuesday August 27, 2013

Track T1	Track T2
8:40-10:20 Mission Ballroom I Regular Session TuA1T1 <u>Mineral Processing 4</u>	08:40-10:20 Mission Ballroom II Regular Session TuA1T2 <u>Non-Ferrous 1</u>
10:20-10:40 Coffee Break/ Mission Ballroom Foyer Poster Session TuBr1H / Mission Ballroom III <u>Poster 3</u>	
10:40-12:20 Mission Ballroom I Regular Session TuA2T1 <u>Mineral Processing 5</u>	10:40-12:20 Mission Ballroom II Regular Session TuA2T2 <u>Non-Ferrous 2</u>
14:00-15:20 Mission Ballroom I Regular Session TuP1T1 <u>Mineral Processing 6</u>	14:00-15:20 Mission Ballroom II Regular Session TuP1T2 <u>Iron 1</u>
15:20-15:40 Coffee Break/ Mission Ballroom Foyer Poster Session TuBr2H / Mission Ballroom III <u>Poster 4</u>	
15:40-17:00 Mission Ballroom I Regular Session TuP2T1 <u>Mineral Processing 7</u>	15:40-17:00 Mission Ballroom II Regular Session TuP2T2 <u>Iron 2</u>

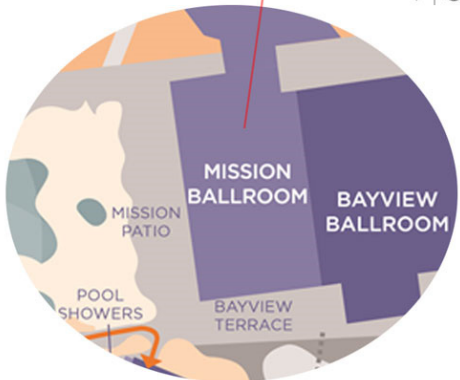
MMM 2013 Technical Program Wednesday August 28, 2013

Track T1	Track T2
08:40-10:20 Mission Ballroom I Regular Session WeA1T1 <u>Heat Treatment & Materials Characterization</u>	08:40-10:20 Mission Ballroom II Regular Session WeA1T2 <u>Steel 1</u>
10:20-10:40 Coffee Break/ Mission Ballroom Foyer Poster Session WeBrH / Mission Ballroom III <u>Poster 5</u>	
10:40-12:20 Mission Ballroom I Regular Session WeA2T1 <u>Metal and Ceramic Coating, Power Generation</u>	10:40-12:20 Mission Ballroom II Regular Session WeA2T2 <u>Steel 2</u>
14:00-15:20 Mission Ballroom I Regular Session WePT1 <u>Environmental Issues</u>	14:00-15:20 Mission Ballroom II Regular Session WePT2 <u>Recycling & Waste Treatment</u>
15:30 – 15:45 Closing Session	

Meeting Rooms Diagram



Hyatt Regency Mission Bay Spa & Marina
is located on 1441 Quivira Road,
San Diego, California,
USA 92109
Tel: +1 619 224 1234
Fax: +1 619 224 0348



On-Site Practical Info

Advance Registrant Badge Pick up /On-site registration:

Mission Ballroom Foyer

Sunday, August 25, 3 PM to 5 PM

Monday, August 26, 7 AM to 3 PM

Tuesday, August 27, 8 AM to 3 PM

Wednesday, August 28, 8 AM to 12 PM

On-site registration cost: 950\$

The registration cost includes: Technical Sessions, Technical Program, Proceedings CD, Welcoming Reception on Sunday evening, Reception and Banquet on Monday Evening, Coffee Breaks, Complimentary Fitness Center and Pool access, Complimentary Standard Internet Access in all guest rooms.

On-site Guest registration cost: 300\$

The guest registration cost includes: Full participation in the pool side Reception on Sunday evening, Banquet and Gala Reception and Dinner on Monday evening, Acceptance to all technical sessions along with your author, Coffee Breaks, Complimentary Fitness Center and Pool access, Complimentary Standard Internet Access in all guest rooms.

On-site Breakfast Suggestion:

- **Red Marlin Restaurant:** A la carte prices range from \$14 - \$16 on average. The breakfast buffet is \$22 per adult and includes non-alcoholic beverages.
 - **Einstein's Bagels:** Average pricing for a breakfast sandwich is \$7.00
 - **Fish and Chips:** Fast Food by the Marina and Gyms
- NOTE: The above menus can be found in the symposium web site at "On-site Practical Info"

On-site Lunch Suggestions:

- **Red Marlin Restaurant:** Lunch menu prices for entrees range from \$14 - \$18 on average
 - **Swim Lounge:** Lunch menu. Prices range from \$12 - \$15 on average
- NOTE: The above menus can be found in the symposium web site at "On-site Practical Info"

Other information

Transportation, Local Dining, Nightlife, Mission bay map of restaurants, San Diego Attractions, SPA, Golf, etc. can be found in the Symposium Web Site at:

<http://www.flogen.org/MMM2013//index.php?gid=63>

Social Events

WELCOME RECEPTION will be held at the Pool Deck on Sunday, 25 August, from 6:30 to 8:30 PM. It includes Chef's served Whole Sage & Garlic Roasted



Turkey as well as open bar of alcoholic and non-alcoholic drinks. **Free for** Registered Delegates and the Guests that have paid for the Guest Package.

Attire: Business casual: **Badges** are required to be accepted to the event

RECEPTION AND BANQUET GALA DINNER will be held in Mission Bay Ballroom, on Monday 26 August, 6:30 to 10 PM. It includes a three course dinner as well as open bar of alcoholic and non-alcoholic drinks.

Free for Registered Delegates and the Guests that have paid for the Guest Package.



Attire: Black tie/Business: **Badges** are required to be accepted to the event.

San Diego Artists Fiz (www.fiz4ever.com) and Kerri-Anne (www.giftofsongs.com) will

entertain the Audience at the second part of the banquet with their magnificent songs and voices.



SUNSET HOT AIR BALLOON FLIGHTS will take place on

Wednesday afternoon starting from 4:00 PM. You will experience spectacular views of the Pacific Ocean and coastal bluffs surrounding Del Mar. Once you have come aboard our colorful hot air balloons, you'll enjoy an inspired adventure filled with beautiful, sweeping vistas, panoramic views and sky sailing fun that will make lifelong memories. Champagne, Sparkling Cider and soft drinks will be served aloft by your pilot during your 40 minute to one hour balloon flight



Prior payment is required to be accepted. On-site payment might be available if spaces are available.

Attire: casual outdoor active wear and a jacket, sweatshirt or fleece pullover. Comfortable shoes are suggested (no high heels). Because the balloon burners radiate heat, we recommend that you wear a hat or a cap if you are over six feet tall.

Scientific Program

- Monday

MoAT1	Room: Mission Ballroom I
<u>Mineral Processing 1</u>	Regular Session
08:10-08:30, Paper MoAT1.1	
<i><u>Modeling of a Concentration Plant to Improve the Carbon Content Control of Iron Oxide Pellets</u></i>	
<u>Hallab, Soufiane</u> (ArcelorMittal Mines Canada), <u>Poulin, Eric</u> (Laval Univ.), <u>Hodouin, Daniel</u> (Laval Univ.)	
08:30-08:50, Paper MoAT1.2	
<i><u>Improving Sustainability Strategies in Industrial Complexes: System Integration and Collaboration</u></i>	
<u>Bascur, Osvaldo</u> (OSIsoft, LLC), <u>Fernando, Romero</u> (AngloAmerican Chile)	
08:50-09:10, Paper MoAT1.3	
<i><u>Hydrocyclones Simulation Using a New Modification in Plitt's Equation (I)</u></i>	
<u>Silva, André Carlos</u> (Federal Univ. of Goiás), <u>Silva, Elenice Maria Schons</u> (Federal Univ. of Goiás), <u>Matos, Jainer Diogo Vieira</u> (Federal Univ. of Goiás)	
09:10-09:30, Paper MoAT1.4	
<i><u>The Importance of Uncertainty Covariance Tuning for Steady-State Data Reconciliation in Mineral and Metal Processing (I)</u></i>	
<u>Vasebi, Amir</u> (LOOP - Process Observation and Optimization Laboratory, Univ.), <u>Hodouin, Daniel</u> (Laval Univ.), <u>Poulin, Eric</u> (Laval Univ.)	

MoAT2	Room: Mission Ballroom II
<u>Mining 1</u>	Regular Session
08:10-08:30, Paper MoAT2.1	
<i>Characterization of Copper Sulfides Formed in MEMS Connections by Atmospheric Corrosion in Indoor of Electronics Industry of Arid & Marine Environments (I)</i>	
Gl, Gustavo López Badilla (Inst. Tecnológico de Mexicali), Sl, Sandra Luz Toledo Perea (Inst. Tecnológico de Ensenada), Mma, Maria Marcela Acosta Gomez (Inst. Tecnológico de Mexicali), Er, Elizabeth Romero Samaniego (Inst. Tecnológico de Ensenada)	
08:30-08:50, Paper MoAT2.2	
<i>Mining Accident Detection Using Machine Learning Methods</i>	
Santibanez, Francisco (SolMat), Flores, Carlos (SolMat), Basso, Franco (SolMat), Jimenez, Abelino (SolMat), Bravo, Francisco (SolMat), Nunez, Felipe (SolMat), Luco, Hector (Minera Los Pelambres), Martinez, Luis (Minera Los Pelambres), Benitez, Angel (Minera Los Pelambres)	
08:50-09:10, Paper MoAT2.3	
<i>Decision Making Applied to Shift Change in Stochastic Open-Pit Mining Truck Dispatching (I)</i>	
Sousa Bastos, Guilherme (Federal Univ. of Itajuba)	
09:10-09:30, Paper MoAT2.4	
<i>Optimisation Algorithms in the Case of Mineral Detection Using Raman Analysis (I)</i>	
Kauppinen, Tommi Kaapro (Aalto Univ. School of Electrical Engineering), Haavisto, Olli (Aalto Univ. School of Electrical Engineering), Häkkänen, Heikki (Univ. of Jyväskylä)	

MoPIP	Mission Ballroom
<u>Official Opening Ceremony/Plenary</u>	Plenary Session
10:00-10:30, Paper MoPIP.1	
<u>Official Opening Ceremony (I)</u>	
<u>Kongoli, Florian</u> (FLOGEN Tech. Inc)	
10:30-11:00, Paper MoPIP.2	
<u>The State of Control in the Processing Sector (I)</u>	
<u>Rhinehart, R. Russell</u> (Oklahoma State Univ.)	
11:00-11:30, Paper MoPIP.3	
<u>Automated Systems – a Component of Sustainable Mining (I)</u>	
<u>Meech, John</u> (Univ. of British Columbia)	
11:30-12:00, Paper MoPIP.4	
<u>Circulating Load Calculation in Mineral Processing Closed Circuit Operations (I)</u>	
<u>Silva, André Carlos</u> (Federal Univ. of Goiás), <u>Silva, Elenice Maria Schons</u> (Federal Univ. of Goiás), <u>Rezende, Ricardo Antonio de</u> (Federal Univ. of Goiás)	
12:00-12:30, Paper MoPIP.5	
<u>Solid State Electrochemical Sensors in Metal Processing (I)</u>	
<u>Schwandt, Carsten</u> (Univ. of Cambridge), <u>Kumar, Ramachandran Vasant</u> (Univ. of Cambridge)	
12:00-12:30, Paper MoPIP.6	
<u>Control and Optimization in the Bio-Extraction of Metals from Primary Ores before the New Mineral Processing Techniques (I)</u>	
<u>Sobral, Luis G. S.</u> (Centre for Mineral Tech.), <u>Oliveira, Débora Monteiro</u> (Centre for Mineral Tech.)	

MoP1T1	Room: Mission Ballroom I
<u>Mineral Processing 2</u>	Regular Session
14:00-14:20, Paper MoP1T1.1	
<i>An Integrated Simulation-Based Solution for Operator Effectiveness</i>	
Toro, Rodrigo (Honeywell), Ortiz Maya, José Manuel (Honeywell), Zamora, Claudio (Kairos Mining S.A.)	
14:20-14:40, Paper MoP1T1.2	
<i>Increased Vertimills Productivity by Applying MPC & Advanced Control Systems at Minera Los Pelambres</i>	
Silva, Daniel (Minera Los Pelambres), Henriquez, Felipe (Minera Los Pelambres), Jimenez, Cesar (Minera Los Pelambres)	
14:40-15:00, Paper MoP1T1.3	
<i>Model Predictive Control of Potassium Chloride Drying by Fluidized Bed Dryer</i>	
Miranda, Rodrigo Cesar (CEMI – Process Tech. and Engineering), Guimarães Neto, Joaquim Ferreira (CEMI – Process Tech. and Engineering), Aguilar, Barbara Burgarelli Alves (CEMI – Process Tech. and Engineering), Silva, Cláudio Luís Soares (Vale Fertilizantes), Martins, Marco Aurelio (CEMI)	
15:00-15:20, Paper MoP1T1.4	
<i>The Importance of Good and Complete Historical Data for Improved Plant Operation and Advanced Process Control Implementation</i>	
Clout, Peter (Vista Control Systems, Inc.), LePore, Janarde (PiControl Solutions)	

MoP1T2	Room: Mission Ballroom II
<u>Mining 2</u>	Regular Session
14:00-14:20, Paper MoP1T2.1	
<i><u>Laser-Induced Breakdown Spectroscopy for Rapid Elemental Analysis of Drillcore (I)</u></i>	
Haavisto, Olli (Aalto Univ. School of Electrical Engineering), Kauppinen, Tommi Kaapro (Aalto Univ. School of Electrical Engineering), Häkkinen, Heikki (Univ. of Jyväskylä)	
14:20-14:40, Paper MoP1T2.2	
<i><u>Studies on the Feasibility of Laser-Induced Breakdown Spectroscopy in Explosion Proof Atmospheres (I)</u></i>	
Nienhaus, Karl (Inst. for Mining and Metallurgical Machinery, RWTH Aachen Un), Bartnitzki, Thomas (Inst. for Mining and Metallurgical Machinery, RWTH Aachen Un), Fietz, Nina Britta (RWTH Aachen Univ.)	
14:40-15:00, Paper MoP1T2.3	
<i><u>Concept of Shield-Data-Based Horizon Control for Longwall Coal Mining Automation (I)</u></i>	
Holm, Mirjam (Clausthal Univ. of Tech.), Beitler, Stephan (Tech. Univ. Clausthal), Arndt, Thorsten (Clausthal Univ. of Tech.), Mozar, Armin (RAG), Junker, Martin (RAG Minig Solutions), Bohn, Christian (Clausthal Univ. of Tech.)	
15:00-15:20, Paper MoP1T2.4	
<i><u>Hybrid Electric Haulage Trucks for Open Pit Mining (I)</u></i>	
Esfahanian, Ehsan (Univ. of British Columbia), Meech, John (Univ. of British Columbia)	

MoP2T1	Room: Mission Ballroom I
<u>Mineral Processing 3</u>	Regular Session
15:40-16:00, Paper MoP2T1.1	
<i>Advances in Developing Supervisory Control Strategies for Flotation Plants (I)</i>	
Bergh, Luis (Santa Maria Univ.), Yianatos, Juan (Santa Maria Univ.), Pino, Catalina (Santa Maria Univ.)	
16:00-16:20, Paper MoP2T1.2	
<i>Using a Virtual Flotation Process to Track a Real Flotation Circuit</i>	
Kartinen, Jani (Outotec Finland Oy), Pietila, Janne (Aalto Univ. School of Electrical Engineering), Remes, Antti (Outotec (Finland) Oy), Tortila, Sampo (Aalto Univ.)	
16:20-16:40, Paper MoP2T1.3	
<i>Parameter Estimation for a Flotation Process Tracking Simulator</i>	
Pietila, Janne (Aalto Univ. School of Electrical Engineering), Kartinen, Jani (Aalto Univ. School of Science and Tech.), Reinsalo, Ari-Matti (Aalto Univ.)	
16:40-17:00, Paper MoP2T1.4	
<i>Parameterization of Bubble Size Distribution in Flotation Columns (I)</i>	
Riquelme, Alberto (Univ. Laval), Desbiens, Andre (Univ. Laval), Bouchard, Jocelyn (Univ. Laval), del Villar, Rene (Univ. Laval)	

MoP2T2	Room: Mission Ballroom II
<u>Mining 3</u>	Regular Session
15:40-16:00, Paper MoP2T2.1	
<i>Loading Excavator Analysis for Trajectory Control Improvement (I)</i>	
<u>Danko, George</u> (Univ. of Nevada, Reno)	
16:00-16:20, Paper MoP2T2.2	
<i>Predicting Wear and Temperature of Autonomous Haulage Truck Tires (I)</i>	
<u>Parreira, Juliana</u> (UBC), <u>Meech, John</u> (Univ. of British Columbia)	
16:20-16:40, Paper MoP2T2.3	
<i>System Integration of Automated Mine Optimization System (I)</i>	
<u>Pan, Xiaowei</u> (Univ. of Johannesburg)	

- Tuesday

TuA1T1	Room: Mission Ballroom I
<u>Mineral Processing 4</u>	Regular Session
08:40-09:00, Paper TuA1T1.1	
<i>Hybrid Dynamic Predictive Model for Rougher Flotation (I)</i>	
Putz, Eduardo (Pontificia Univ. Catolica de Chile), Cipriano, Aldo (Pontificia Univ. Catolica de Chile)	
09:00-09:20, Paper TuA1T1.2	
<i>A Flotation Cell Model for Dynamic Simulation</i>	
Ortiz Maya, José Manuel (Honeywell), Toro, Rodrigo (Honeywell)	
09:20-09:40, Paper TuA1T1.3	
<i>Modern Systems of Automatic Control of Processes of Grinding and Flotation of Copper-Molybdenum Ore (I)</i>	
Morozov, Valery (Moscow state Univ. of mining), Ganbaatar, Zorigtyn (Erdenet Mining Corp.), Delgerbat, Lodoy (Erdenet Mining Corp.), Topchaev, Vladimir (JSC Souscvetmetavtomatika), Sokolov, Igor (Private Jt.St.Co.“Soyuztsvetmetavtomatika”), Stolyarov, Valeriy (JSC Elscort), Davaasambuu, Dorj (Erdenet mining Corp.)	
09:40-10:00, Paper TuA1T1.4	
<i>Non Ferrous Ore Flotation Control Using Image Analysis and Expert System</i>	
Machado, Frederico (CEMI Process Tech. and Engineering), Gontijo, Hugo (CEMI Process Tech. and Engineering), Aguar, Barbara Burgarelli Alves (CEMI – Process Tech. and Engineering), Martins, Marco Aurelio (CEMI)	
10:00-10:20, Paper TuA1T1.5	
<i>Implementation of a SAG Grinding Expert System at Kansanshi Mine - Zambia</i>	
van Zyl, Frane (SGS Mineral Services), Paquot, Francois (First Quantum, Kansanshi), Metzner, Gunter (SGS Mineral Services), Fouche, Fanie (First Quatum, Kansanshi), Gomez, Alan (SGS Canada Inc.)	

TuA1T2	Room: Mission Ballroom II
<u>Non-Ferrous 1</u>	Regular Session
08:40-09:00, Paper TuA1T2.1	
<i>Enterprise Manufacturing Services to Enhance Energy Effectiveness and Sustainability Management at AngloPlats</i>	
Bascur, Osvaldo (OSIsoft, LLC), Halhead, Michael (AngloVAmerican Platinum)	
09:00-09:20, Paper TuA1T2.2	
<i>Basic Principles of Controlling a Technological Process of Copper Matte Converting in a Two-Zone Vaniukov's Converted Furnace</i>	
Tsybulov, Leonid (LLC "Gipronickel Inst.), Pigarev, S.P. (LLC "Gipronickel Inst.), Kongoli, Florian (FLOGEN Tech. Inc), McBow, I. (FLOGEN Tech. Inc)	
09:20-09:40, Paper TuA1T2.3	
<i>Dynamic Simulation for Verification of Gains with the Implementation of Advanced Process Control for a Nickel Sulphide Ore Beneficiation Plant (I)</i>	
Nogueira, Andre (CEMI), Vieira, Monica (CEMI), Martins, Marco Aurelio (CEMI)	
09:40-10:00, Paper TuA1T2.4	
<i>Optimal Converter Aisle Scheduling in a Nickel Smelting Plant (I)</i>	
Ewaschuk, Christopher M. (McMaster Univ.), Swartz, Christopher L.E. (McMaster Univ.), Zhang, Yale (Vale)	
10:00-10:20, Paper TuA1T2.5	
<i>Hot Deformation Processing and Texture in Magnesium Alloy WE43 (I)</i>	
Avadhani, Ganesh (Department of Materials Engineering, Indian Inst. of Science), Tapase, Shekhar (Department of Materials Engineering, Indian Inst. of Science), Suwas, Satyam (Department of Materials Engineering, Indian Inst. of Science)	

TuA2T1	Room: Mission Ballroom I
<u>Mineral Processing 5</u>	Regular Session
10:40-11:00, Paper TuA2T1.1	
<i>Automatic Control of Impact Crushers Based on Visual Measurement of Size Distribution</i>	
Jaatinen, Antti (Metso Automation), Onnela, Tero (Metso Minerals)	
11:00-11:20, Paper TuA2T1.2	
<i>An On-Line Training Simulator Built on Dynamic Simulations of Crushing Plants (I)</i>	
Asbjörnsson, Gauti (Chalmers Univ. of Tech.), Hulthen, Erik (Chalmers Univ. of Tech.), Evertsson, Carl Magnus (Chalmers Univ. of Tech.)	
11:20-11:40, Paper TuA2T1.3	
<i>Indirect Particle Size Distribution Control in Cone Crushers</i>	
Itävuori, Pekka Tapani (Tampere Univ. of Tech.), Vilkko, Matti Kalervo (Tampere Univ. of Tech.), Jaatinen, Antti (Metso Automation)	
11:40-12:00, Paper TuA2T1.4	
<i>Evaluation of MPC Strategies for Mineral Grinding</i>	
Karelovic, Pablo (DICTUC S.A.), Razzetto, Roberto (HONEYWELL INC), Cipriano, Aldo (Pontificia Univ. Catolica de Chile)	
12:00-12:20, Paper TuA2T1.5	
<i>Beyond the Minimum Dimension for Particle Size Control</i>	
Smith, Andrew (Sympatec Inc), Steigerwald, Stefan (Sympatec Inc)	

TuA2T2	Room: Mission Ballroom II
<u>Non-Ferrous 2</u>	Regular Session
10:40-11:00, Paper TuA2T2.1	
<i><u>Decision Support System for Hydrometallurgical Processing</u></i>	
<u>Tejeda, Gabriel</u> (Pontificia Univ. Católica de Chile), <u>Reyes, Francisco</u> (Pontificia Univ. Católica de Chile), <u>Karelovic, Pablo</u> (DICTUC S.A.), <u>Herrera, Miguel</u> (Univ. Adolfo Ibañez), <u>Romero, Fernando</u> (Anglo American Chile), <u>Cipriano, Aldo</u> (Pontificia Univ. Católica de Chile)	
11:00-11:20, Paper TuA2T2.2	
<i><u>Dynamic Simulation for Acid Plant Operator Training in Chuquicamata</u></i>	
<u>Gajardo, Mallen</u> (CODELCO), <u>Hernandez, Ramon</u> (INVENSYS OPERATIONS MANAGEMENT), <u>King, Kirk</u> (Invensys Systems Chile Ltda.)	
11:20-11:40, Paper TuA2T2.3	
<i><u>Pilot Plant and New Vapor-Pyrometallurgical Process for Processing Sulfide Concentrates</u></i>	
<u>Hakobyan, Kliment</u> (Kapan Lab.), <u>Sohn, Hong</u> (Univ. of Utah.), <u>Hakobyan, Armen</u> (Kapan Lab.), <u>Blanco, Edgar</u> (Univ. of Utah), <u>Tarasov, Andrey</u> ("Gincvetmet" OJSC), <u>Melkomyan, Ararat</u> (Kapan Lab.), <u>Karamyan, Gagik</u> (Kapan Lab.), <u>Hayrapetyan, Vahram</u> (Kapan Lab.), <u>Bryukvin, Vladimir</u> (Inst. of RAS), <u>Leontiev, Vladimir</u> (Inst. of RAS), <u>Tsybine, Oleg</u> (Inst. of RAS)	
11:40-12:00, Paper TuA2T2.4	
<i><u>The Effect of the Nickel Sulphide Alloys Structure on Their Electrochemical Oxidation Parameters</u></i>	
<u>Nechvoglod, Olga</u> (Federal State Budget Inst. of Science Inst. of Metallu), <u>Selivanov, Evgeny</u> (Inst. of Science Inst. of Metallu), <u>Lobanov, Vladimir</u> (Ural Federal Univ.)	
12:00-12:20, Paper TuA2T2.5	
<i><u>Control Optimization of a Lead Sintering Process (I)</u></i>	
<u>Moreno Molina, Marcos Francisco</u> (Met-Mex Peñoles, SA de CV), <u>Morales Castelán, Jorge</u> (Met-Mex Penoles, SA de CV)	

TuP1T1	Room: Mission Ballroom I
<u>Mineral Processing 6</u>	Regular Session
14:00-14:20, Paper TuP1T1.1	
<i>Mass-Flow Estimation in Mineral-Processing Applications (I)</i>	
Väyrynen, Teemu Petteri (Tampere Univ. of Tech.), Itävuori, Pekka Tapani (Tampere Univ. of Tech.), Vilkko, Matti Kalervo (Tampere Univ. of Tech.), Jaatinen, Antti (Metso Automation)	
14:20-14:40, Paper TuP1T1.2	
<i>Optimization of Hydrocyclone Classification by On-Line Detection of Coarse Material in the Overflow Stream (I)</i>	
Russell, Jerin (CiDRA Minerals Processing), Cirulis, Dylan (Kennecott Utah Copper), Maron, Bob (CiDRA Minerals Processing), O'Keefe, Christian (CiDRA Minerals Processing), Rothman, Paul (CiDRA Minerals Processing), Newton, David (CiDRA Minerals Processing)	
14:40-15:00, Paper TuP1T1.3	
<i>Fuzzy Logic a Successful Example</i>	
Ruel, Michel (BBA Inc.)	
15:00-15:20, Paper TuP1T1.4	
<i>Polyhydration of Multicomponent Mineral Systems</i>	
Lutsyk, Vasily (Inst. of Physical Materials Science SB RAS), Vorob'eva, Vera (Inst. of Physical Materials Science SB RAS), Sumkina, Olga (Inst. of Physical Materials Science SB RAS), Lamueva, Marina (Inst. of Physical Materials Science SB RAS)	

TuP1T2	Room: Mission Ballroom II
<u>Iron 1</u>	Regular Session
14:00-14:20, Paper TuP1T2.1	
<i>Monitoring System of Firebrick Lining Erosion of Blast Furnace Hearth (I)</i>	
Dmitriev, Andrey (Inst. of Metallurgy of Ural Branch of Russian Acad. of Sci), Chesnokov, Yuri (Inst. of metallurgy of Ural Brach of Russian Acad. of scie), Chen, Kai (SKKONT), Ivanov, Oleg (Ural Federal Univ.), Zolotykh, Maxim (Ural Federal Univ.)	
14:20-14:40, Paper TuP1T2.2	
<i>Influence of Iron Ore Materials Softening Interval on Cohesive Zone Location and Form in Blast Furnace (I)</i>	
Dmitriev, Andrey (Inst. of Metallurgy of Ural Branch of Russian Acad. of Sci), Vitkina, Galina (Inst. of metallurgy), Chesnokov, Yuri (Inst. of metallurgy of Ural Brach of Russian Acad. of scie), Petukhov, Roman (Inst. of metallurgy of Ural Brach of Russian Acad. of scie)	
14:40-15:00, Paper TuP1T2.3	
<i>Iron Ore Materials and Coke Quality Characteristics and Quantitative Indicators of Blast Furnace Smelting (I)</i>	
Dmitriev, Andrey (Inst. of Metallurgy of Ural Branch of Russian Acad. of Sci), Vitkina, Galina (Inst. of metallurgy), Chesnokov, Yuri (Inst. of metallurgy of Ural Brach of Russian Acad. of scie), Petukhov, Roman (Inst. of metallurgy of Ural Brach of Russian Acad. of scie)	
15:00-15:20, Paper TuP1T2.4	
<i>On Dependence of High Temperature Rheological Behaviour of Blast Furnace Slag on Its Network Structure</i>	
Mukherjee, Dr. Kakali (CSIR-National Metallurgical Lab. Jamshedpur, India), Prakash, Swatantra (National Metallurgical Lab. and Ac-CSIR-NML Jamshedpuur)	

TuP2T1	Room: Mission Ballroom I
<u>Mineral Processing 7</u>	Regular Session
15:40-16:00, Paper TuP2T1.1	
<i><u>New Technology of Processing Pyrite Concentrate</u></i>	
Hakobyan, Kliment (Kapan Lab. of Metallurgy and Enrichment), Hakobyan, Armen (Kapan Lab. of Metallurgy and Enrichment), Melkomyan, Ararat (Kapan Lab. of Metallurgy and Enrichment), Karamyan, Gagik (Kapan Lab. of Metallurgy and Enrichment)	
16:00-16:20, Paper TuP2T1.2	
<i><u>Development and Testing of Environmentally Friendly Hydro-Electrochemical Technology for Processing Copper Sulfide Concentrates of Armenian Deposits</u></i>	
Hakobyan, Kliment (Kapan Lab.), Hakobyan, Armen (Kapan Lab.), Melkomyan, Ararat (Kapan Lab.), Karamyan, Gagik (Kapan Lab.), Hayrapetyan, Vahram (Kapan Lab.), Paramazyan, Grenik (Kapan Lab.), Bryukvin, Vladimir (Inst. of RAS), Leontiev, Vladimir (Inst. of RAS), Tsybine, Oleg (Inst. of RAS)	
16:20-16:40, Paper TuP2T1.3	
<i><u>Technology of Secondary Niobium Raw Material Recovery</u></i>	
Upolovnikova, Alena (Inst. of Metallurgy, Ural Div. Russian Acad. of Scien), Chumarev, Vladimir (Inst. of Metallurgy, Ural Div. Russian Acad. of Scien), Udoeva, Liudmila (Inst. of Metallurgy, Ural Div. Russian Acad. of Scien)	
16:40-17:00, Paper TuP2T1.4	
<i><u>Computer Controlled Pilot Scale Test of Bioleaching of Copper Sulphides Flotation Concentrate (I)</u></i>	
Sobral, Luis G. S. (Centre for Mineral Tech.), Oliveira, Débora Monteiro (Centre for Mineral Tech.), Souza, Carlos E. G. (Centre for Mineral Tech.)	

TuP2T2	Room: Mission Ballroom II
<u>Iron 2</u>	Regular Session
15:40-16:00, Paper TuP2T2.1	
<i>Automatic Control of Direct Reduction Iron Ore (DRI) Process</i>	
Guanin, Simone (Danieli & C. Officine Meccaniche S.p.A.), Pignattone, Dino (Danieli Automation S.p.A.), Martinis, Alessandro (Danieli & C. Officine Meccaniche S.p.A)	
16:00-16:20, Paper TuP2T2.2	
<i>Online Modelling of ENERGIRON Direct Reduction Shaft Furnaces</i>	
Zugliano, Alberto (Danieli & C. Officine Meccaniche S.p.A.), Primavera, Alessandra (Danieli & C. Officine Meccaniche S.p.A.), Pignattone, Dino (Danieli Automation S.p.A.), Martinis, Alessandro (Danieli & C. Officine Meccaniche S.p.A)	
16:20-16:40, Paper TuP2T2.3	
<i>Effect of South African Reductants on Ferrochrome Production (I)</i>	
Pan, Xiaowei (Univ. of Johannesburg)	

- Wednesday

WeA1T1	Mission Ballroom I
<u>Heat Treatment & Materials Characterization</u>	Regular Session
08:40-09:00, Paper WeA1T1.1	
<i><u>Energy-Efficient Control of Continuous Reheating Furnaces</u></i>	
<u>Steinboeck, Andreas</u> (Vienna Univ. of Tech.), <u>Wild, Daniel</u> (AG der Dillinger Hüttenwerke), <u>Kugi, Andreas</u> (Vienna Univ. of Tech.)	
09:00-09:20, Paper WeA1T1.2	
<i><u>Three-Phase Reaction Type Changing in Mo-Zr-V and Ti-Ir-Ru Systems (I)</u></i>	
<u>Lutsyk, Vasily</u> (Inst. of Physical Materials Science SB RAS), <u>Vorob'eva, Vera</u> (Inst. of Physical Materials Science SB RAS), <u>Sumkina, Olga</u> (Inst. of Physical Materials Science SB RAS), <u>Tsyngueev, Bulat</u> (Inst. of Physical Materials Science, Siberian Branch, Russai)	
09:20-09:40, Paper WeA1T1.3	
<i><u>Correction of X-Y Diagrams for Lead-Free Solders</u></i>	
<u>Lutsyk, Vasily</u> (Inst. of Physical Materials Science SB RAS), <u>Vorob'eva, Vera</u> (Inst. of Physical Materials Science SB RAS), <u>Zyryanov, Alexandr</u> (Inst. of Physical Materials Science SB RAS), <u>Shodorova, Svetlana</u> (Inst. of Physical Materials Science SB RAS)	
09:40-10:00, Paper WeA1T1.4	
<i><u>Optimization of Conveyer Belts Fire-Resistant Rubber Properties Using a Mathematical Model of Desirability Functions (I)</u></i>	
<u>Dushi, Afrim</u> (Univ. of Prishtina), <u>Kongoli, Florian</u> (FLOGEN Tech. Inc), <u>McBow, I.</u> (FLOGEN Tech. Inc), <u>Rizaj, Musa</u> (Univ. of Prishtina)	

WeA1T2	Room: Mission Ballroom II
<u>Steel 1</u>	Regular Session
08:40-09:00, Paper WeA1T2.1	
<u>Molten Metal Pressure Control for Defect Prevention with Generalized Predictive Control in Rapid Press Casting (I)</u>	
<u>Tasaki, Ryosuke</u> (Toyohashi Univ. of Tech.), <u>Hashimoto, Kunihiro</u> (Sintokogio.Ltd.), <u>Terashima, Kazuhiko</u> (Toyohashi Univ. of Tech.)	
09:00-09:20, Paper WeA1T2.2	
<u>On the Development of Transformable Sheet Metal Forming Tools</u>	
<u>Birkhold, Markus</u> (Univ. of Stuttgart - Inst. forControlEngineeringofMachi), <u>Pauli, Franz-Bernd</u> (Franz Pauli GmbH & Co. KG), <u>Lechler, Armin</u> (Inst. for Control Engineering of Machine Tools and Manufactu), <u>Verl, Alexander</u> (Univ. of Stuttgart - Inst. for Control Engineering of M)	
09:20-09:40, Paper WeA1T2.3	
<u>Model Predictive Controller for Strip-Tracking During Tail-Out of the Finishing Mill</u>	
<u>Hol, Camile W.J.</u> (Tata Steel Europe)	
09:40-10:00, Paper WeA1T2.4	
<u>Analysis of Radiative Heat Transfer in an Indirect-Fired Strip Annealing Furnace Based on Integral Equations (I)</u>	
<u>Niederer, Martin</u> (Vienna Univ. of Tech.), <u>Steinboeck, Andreas</u> (Vienna Univ. of Tech.), <u>Strommer, Stephan</u> (Vienna Univ. of Tech.), <u>Kugi, Andreas</u> (Vienna Univ. of Tech.)	
10:00-10:20, Paper WeA1T2.5	
<u>Estimation of Plate Temperatures in Hot Rolling Based on an Extended Kalman Filter (I)</u>	
<u>Speicher, Katrin</u> (Vienna Univ. of Tech.), <u>Steinboeck, Andreas</u> (Vienna Univ. of Tech.), <u>Wild, Daniel</u> (AG der Dillinger Hüttenwerke), <u>Kiefer, Thomas</u> (AG der Dillinger Huettenwerke), <u>Kugi, Andreas</u> (Vienna Univ. of Tech.)	

WeA2T1	Room: Mission Ballroom I
<u>Metal and Ceramic Coating, Power Generation</u>	Regular Session
10:40-11:00, Paper WeA2T1.1	
<u>Properties of Powder Coatings Formed by Gas-Dynamic Accelerator (I)</u>	
Vasilik, Nikolay (N.N.Semenov Inst. of Chemical Physics RAS), Tyurin, Yuriy (E.O.Paton Electric Welding Inst. NASU), Kolisnichenko, Oleg (E.O.Paton Electric Welding Inst. NASU), Kovaleva, Marina (Belgorod State Res. Univ.), Prozorova, Marina (Belgorod State Res. Univ.), Arseenko, Mariya (Belgorod State Res. Univ.)	
11:00-11:20, Paper WeA2T1.2	
<u>Macrokinetics of Plasma Electrolytic Oxidation of AZ91D Alloy (I)</u>	
Lugovskoy, Alex (Ariel Univ.), Zinigrad, Michael (Ariel Univ.), Kazanski, Barbara (Ariel Univ.)	
11:20-11:40, Paper WeA2T1.3	
<u>Sustainable Wind Power Generation by Online Sensor Oil Condition Monitoring against Premature Gearbox Bearing Failures</u>	
Mauntz, Manfred R. (cmc Inst. GmbH), Gegner, Jürgen (Univ. of Siegen), Kuipers, Ulrich (Univ. of Applied Sciences Hagen), Klingauf, Stefan (cmc Inst. GmbH)	

WeA2T2	Room: Mission Ballroom II
<u>Steel 2</u>	Regular Session
10:40-11:00, Paper WeA2T2.1	
<i>Mold Level Stabilization Using a Standing Wave Model in Continuous Casting (I)</i>	
Shimamoto, Hiroyuki (JFE Steel Corp.), Asano, Kazuya (JFE Steel Corp.), Okazaki, Kentaro (JFE Steel Corp.)	
11:00-11:20, Paper WeA2T2.2	
<i>Estimation of Camber Generation in Rough Rolling Process</i>	
Kang, Youngil (POSTECH), Choi, Yong-Joon (POSCO), Oh, KiJang (POSCO), Won, Sangchul (Pohang Univ. of Science & Tech.)	
11:20-11:40, Paper WeA2T2.3	
<i>Control Algorithm of a Pick and Place Three Dimensional Robots (I)</i>	
Krasniqi, Fehmi (Univ. OF PRISHTINA)	
11:40-12:00, Paper WeA2T2.4	
<i>Model Predictive Control of Continuous Ingot Solidification (I)</i>	
Ivanova, Anna (IAMM of NASU)	

WePT1	Room: Mission Ballroom I
<u>Environmental Issues</u>	Regular Session
14:00-14:20, Paper WePT1.1	
<u>Controlling Indoor Benzene Concentrations Using a Fuzzy System (I)</u>	
Pitalúa-Díaz, Nun (Univ. DE SONORA), Herrera López, Enrique Jaime (Centro de Investigación y Asistencia Tecnológica), Luis, Velázquez Contreras (Univ. DE SONORA), Alvarez-Chávez, Clara Rosalía (Univ. DE SONORA), Nora, Munguía Vega (Univ. DE SONORA)	
14:20-14:40, Paper WePT1.2	
<u>Increasing the Pollution Control in Natural Waters by Automation the Sampling Technology and Laboratory Analyses in Combination with Spot Water Sampling (I)</u>	
Neziri, Anila (Univ. of Shkodra), Malollari, Ilirjan (Univ. of Tirana, Albania)	
14:40-15:00, Paper WePT1.3	
<u>Control of the Influence of Minerals, Nitrogen, Phosphorus and Potassium During Cultivation of Some Varieties of Winter Barley (Hordeum Vulgare L.) for Beer Production</u>	
Shala, Nexhdet (Tech. in Producing Brewery, Sh. A."Birra Peja" Rr. N. Bas), Kelmendi, Bakir (Inst. of Agriculture Kosovo – Peja, Rr. Adem Jashari, 30000), Berisha, Defrime (Inst. of Agriculture Kosovo – Peja, Rr. Adem Jashari, 30000), Zuka, Violeta (Public Univ. "Haxhi Zeka" – Eliot Engel, 30000 Pejë, Kosovo)	
15:00-15:20, Paper WePT1.4	
<u>"Ecological and Technological Aspects of Use of Water Recirculation at Extraction of Precious Metals from Quartzites"</u>	
Tyushkova, Natalia (NITU MISIS)	

WePT2	Room: Mission Ballroom II
<u>Recycling & Waste Treatment</u>	Regular Session
14:00-14:20, Paper WePT2.1	
<i>Basic Control Principles for Producing a High Performing New Ceramic Glass by Mixing Fly Ash, Ferronickel Slag and Waste Glass (I)</i>	
Ibrahimi, Izet (Univ. of Prishtina), Kongoli, Florian (FLOGEN), McBow, I. (FLOGEN), Rizaj, Musa (Univ. of Prishtina), Pula, Justina (Univ. of Prishtina)	
14:20-14:40, Paper WePT2.2	
<i>Metals Recovery from Waste of Printed Circuit Boards Processed in Plasmatron Plasma Reactor</i>	
Szałatkiewicz, Jakub (Industrial Res. Inst. for Automation and Measurements,)	
14:40-15:00, Paper WePT2.3	
<i>Structural Characterization of Seydi&#351; Ehir Red Mud to Utilization in Roof Tile Manufacturing</i>	
Piskin, Sabriye (Yildiz Tech. Univ.), Kantürk Figen, Aysel (Yildiz Tech. Univ.), Özkan, Emrah (Yildiz Tech. Univ.), Özçay, Ünal (Gürallar Tile Factory)	
15:00-15:20, Paper WePT2.4	
<i>The Preparation of Silicon and Aluminum Alkali Extracts from Fused Turkish Coal Fly Ashes</i>	
Piskin, Mehmet Burcin (Yildiz Tech. Univ.), Sari Yilmaz, Muge (Yildiz Tech. Univ.)	

- Posters

MoBr1H	Mission Ballroom III
	Poster Session
MoBr1H.1	
<i>Simulation Based Microstructural Optimization of Thermo-Mechanically Treated Steel Components (I)</i>	
Fuss, Dennis (Univ. of Kassel), Stein, Tobias (Univ. of Kassel), Grahmann, Philipp (Univ. of Kassel), Luettje, Martin (Univ. of Kassel), Brueckner-Foit, Angelika (Univ. of Kassel), Steinhoff, Kurt (Univ. of Kassel), Weidig, Ursula (Univ. of Kassel)	
MoBr1H.2	
<i>Design and Analysis of the Kinetic Models of Minerals Dissolution Processes (I)</i>	
Lutsik, Vladimir (Tver State Tech. Univ.), Sobolev, Alexander (Tver State Tech. Univ.)	
MoBr1H.3	
<i>Modeling and Simulation of Haulage Systems Using a Flexible Simulation Environment (I)</i>	
Mella, Hector (Univ. de Concepción), Sbarbaro, Daniel G. (Univ. de Concepcion)	
MoBr1H.4	
<i>Unlocking the Operation Potential – Mitsubishi Copper Making C - Siphon (I)</i>	
Singh, Anil Kumar (Hindalco Industries Limited (Unit: Birla Copper)), Singh, Hridayesh Kumar (Hindalco Industries Limited (Unit: Birla Copper))	
MoBr2H.2	
<i>Study of the Population Dynamics of Yeasts in Continuous System for Copper Biosorption (I)</i>	
Monge, Onofre (Univ. of Sonora), Bañuelos, Hiram (Univ. of Sonora), Certucha, Maria Teresa (Univ. of Sonora), Almendariz, Francisco Javier (Univ. of Sonora)	

MoBr2H.3	
<i>Properties of Sintering Ore Mixed with MSWI Fly Ash (I)</i>	
Yang, Jian (Chongqing Univ.), Liu, Qingcai (Chongqing Univ.)	
MoBr2H.4	
<i>Control and Optimization of the Use of Electric Furnace Gases As Combustibles in Rotary Kilns of Newco Ferronikeli (I)</i>	
Imeri (Zeqir) Shefik , (NNP-DACI), Naim Tahiraj , (Newco Ferronikelei Complex L.L.C), Rizaj Musa , (Prishtina Univ.), Hasan Jashari , (Pristina Univ.), Kongoli, Florian (FLOGEN), McBow, I. (FLOGEN)	
TuBr1H.1	
<i>The Electrosynthesis of Gadolinium Borides in Chloride Melt (I)</i>	
Kushkhov, Khasbi (Kabardino-Balkarian State Univ.), Uzdenova, Aziza (Kabardino-Balkarian State Univ.), Saleh, Mahmood (Kabardino-Balkarian State Univ.), Tlenkopachev, Murat (Kabardino-Balkarian State Univ.), Uzdenova, Lilia (Kabardino-Balkarian State Univ.)	
TuBr1H.2	
<i>The Hightemperature Electrosynthesis of Dysprosium Borides in Chloride Melt (I)</i>	
Kushkhov, Khasbi (Kabardino-Balkarian State Univ.), Uzdenova, Aziza (Kabardino-Balkarian State Univ.), Qahtan, Abdulkader (Kabardino-Balkarian State Univ.), Tlenkopachev, Murat (Kabardino-Balkarian State Univ.), Uzdenova, Lilia (Kabardino-Balkarian State Univ.)	
TuBr1H.3	
<i>The Electroreduction of Dysprosium Ions in Equimolar NaCl-KCl Melt (I)</i>	
Kushkhov, Khasbi (Kabardino-Balkarian State Univ.), Uzdenova, Aziza (Kabardino-Balkarian State Univ.), Qahtan, Abdulkader (Kabardino-Balkarian State Univ.), Tlenkopachev, Murat (Kabardino-Balkarian State Univ.), Uzdenova, Lilia (Kabardino-Balkarian State Univ.)	
TuBr1H.4	
<i>The Electrosynthesis of Gadolinium Borides in Chloride Melt (I)</i>	

Kushkhov, Khasbi (Kabardino-Balkarian State Univ.), Uzdenova, Aziza (Kabardino-Balkarian State Univ.), Saleh, Mahmood (Kabardino-Balkarian State Univ.), Tlenkopachev, Murat (Kabardino-Balkarian State Univ.), Uzdenova, Lilia (Kabardino-Balkarian State Univ.)	
TuBr2H.1	
Elaboration and Characterization of an Activated Carbon from Diss and Esparto Grass for the Wastewater Treatment (I)	
Azzaz, Mohammed (Univ.), Lounis, Azzedine (Univ.), Taibi, Kamel (Univ.), Lenouar, Khaled (Univ.), Osmane, Khaled (Univ.)	
TuBr2H.2	
Removal of Astrazon Yellow 7GL from Aqueous Solutions by Adsorption Onto Waste Wood Powder (I)	
Taibi, Kamel (Univ.), Lounis, Azzedine (Univ.), Ouazene, Naima (Univ.)	
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Removal of Methylene Blue from Coloured Effluents by Adsorption Onto ZnAPSO-34 Nanoporous Material (I)	
Lounis, Azzedine (Univ.), Azzaz, Mohammed (Univ.), Taibi, Kamel (Univ.), Abbad, Brahim (Univ.)	
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Jugovic, Zorka (Visoka strukovna zdravstvena sanitarna skola)	
WeBrH.2	
The Electroreduction of Gadolinium Ions in Chloride Melt (I)	
Kushkhov, Khasbi (Kabardino-Balkarian State Univ.), Uzdenova, Aziza (Kabardino-Balkarian State Univ.), Saleh, Mahmood (Kabardino-Balkarian State Univ.), Uzdenova, Lilia (Kabardino-Balkarian State Univ.)	
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Seok, Seongho (Res. Inst. of Industrial Science and Tech.)	

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Alvarez-Chávez, Clara Rosalía	WePT1.1
Arndt, Thorsten	MoP1T2.3
Arseenko, Mariya	WeA2T1.1
Asano, Kazuya	WeA2T2.1
Asbjörnsson, Gauti	TuA2T1.2
Avadhani, Ganesh	TuA1T2.5
Azzaz, Mohammed	TuBr2H.1
	TuBr2H.3
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Bañuelos, Hiram	MoBr2H.2
Bartnitzki, Thomas	MoP1T2.2
Bascur, Osvaldo	MoAT1.2
	TuA1T2.1
Basso, Franco	MoAT2.2
Beitler, Stephan	MoP1T2.3
Benitez, Angel	MoAT2.2
Bergh, Luis	MoP2T1.1
Berisha, Defrime	WePT1.3
Birkhold, Markus	WeA1T2.2
Blanco, Edgar	TuA2T2.3
Bohn, Christian	MoP1T2.3
Bouchard, Jocelyn	MoP2T1.4
Bravo, Francisco	MoAT2.2
Brueckner-Foit, Angelika	MoBr1H.1
Bryukvin, Vladimir	TuA2T2.3
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Certucha, Maria Teresa	MoBr2H.2
Chen, Kai	TuP1T2.1
Chesnokov, Yuri	TuP1T2.1
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Chumarev, Vladimir	TuP2T1.3
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Danko, George	MoP2T2.1
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Delgerbat, Lodoy	TuA1T1.3
Desbiens, Andre	MoP2T1.4
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Er, Elizabeth Romero S.	MoAT2.1
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Fernando, Romero	MoAT1.2
Fietz, Nina Britta	MoP1T2.2
Flores, Carlos	MoAT2.2
Fouche, Fanie	TuA1T1.5
Fuss, Dennis	MoBr1H.1
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Gl, Gustavo López Badilla	MoAT2.1
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Grahlmann, Philipp	MoBr1H.1
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Hakobyan, Armen	TuA2T2.3	Kantürk Figen, Aysel	WePT2.3
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Hallab, Soufiane	MoAT1.1		MoP1T2.1
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Hashimoto, Kunihiro	WeA1T2.1	Kelmendi, Bakir	WePT1.3
Hayrapetyan, Vahram	TuA2T2.3	Kiefer, Thomas	WeA1T2.5
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Hernandez, Ramon	TuA2T2.2	Kolisnichenko, Oleg	WeA2T1.1
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Herrera López, Enrique Jaime	WePT1.1		MoBr2H.4
Hodouin, Daniel	MoAT1.1		MoP2T2.4
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Hol, Camile W.J.	WeA1T2.3		WePT2.1
Holm, Mirjam	MoP1T2.3	Kovaleva, Marina	WeA2T1.1
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Martinez, Luis	MoAT2.2	Okazaki, Kentaro	WeA2T2.1
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Monge, Onofre	MoBr2H.2	Pietila, Janne	MoP2T1.2
Morales Castelán, Jorge	TuA2T2.5		MoP2T1.3
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Pignattone, Dino	TuP2T2.1
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Primavera, Alessandra	TuP2T2.2
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Pula, Justina	WePT2.1
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	TuBr1H.3
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Reyes, Francisco	TuA2T2.1
Rezende, Ricardo Antonio de	MoPIP.4
Rhinehart, R. Russell	MoPIP.2
Riquelme, Alberto	MoP2T1.4
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Russell, Jerin	TuP1T1.2
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	TuBr1H.4
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Santibanez, Francisco	MoAT2.2
Sari Yilmaz, Muge	WePT2.4
Sbarbaro, Daniel G.	MoBr1H.3
Schwandt, Carsten	MoPIP.5
Selivanov, Evgeny	TuA2T2.4

Seok, Seongho	WeBrH.3
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Shimamoto, Hiroyuki	WeA2T2.1
Shodorova, Svetlana	WeA1T1.3
Silva, André Carlos	MoAT1.3
	MoPIP.4
Silva, Cláudio Luís Soares	MoP1T1.3
Silva, Daniel	MoP1T1.2
Silva, Elenice Maria Schons	MoAT1.3
	MoPIP.4
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Sl, Sandra Luz Toledo Perea	MoAT2.1
Smith, Andrew	TuA2T1.5
Sobolev, Alexander	MoBr1H.2
Sobral, Luis G. S.	MoPIP.6
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Sohn, Hong	TuA2T2.3
Sokolov, Igor	TuA1T1.3
Sousa Bastos, Guilherme	MoAT2.3
Souza, Carlos E. G.	TuP2T1.4
Speicher, Katrin	WeA1T2.5
Steigerwald, Stefan	TuA2T1.5
Stein, Tobias	MoBr1H.1
Steinboeck, Andreas	WeA1T1.1
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Steinhoff, Kurt	MoBr1H.1
Stolyarov, Valeriy	TuA1T1.3
Strommer, Stephan	WeA1T2.4
Sumkina, Olga	TuP1T1.4
	WeA1T1.2
Suwas, Satyam	TuA1T2.5
Swartz, Christopher L.E.	TuA1T2.4
Szałatkiewicz, Jakub	WePT2.2
T	
Taibi, Kamel	TuBr2H.1
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Tapase, Shekhar	TuA1T2.5
Tarasov, Andrey	TuA2T2.3
Tasaki, Ryosuke	WeA1T2.1
Tejeda, Gabriel	TuA2T2.1
Terashima, Kazuhiko	WeA1T2.1
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Topchaev, Vladimir	TuA1T1.3
Toro, Rodrigo	MoP1T1.1
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Torttila, Sampo	MoP2T1.2
Tsybine, Oleg	TuA2T2.3
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Tsybulov, Leonid	TuA1T2.2
Tsyngueev, Bulat	WeA1T1.2
Tyurin, Yuriy	WeA2T1.1
Tyushkova, Natalia	WePT1.4
U	
Udoeva, Liudmila	TuP2T1.3
Upolovnikova, Alena	TuP2T1.3
Uzdenova, Aziza	TuBr1H.1
	TuBr1H.2
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	TuBr1H.4
	WeBrH.2
Uzdenova, Lilia	TuBr1H.1
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van Zyl, Frane	TuA1T1.5
Vasebi, Amir	MoA1T1.4
Vasilik, Nikolay	WeA2T1.1
Väyrynen, Teemu Petteri	TuP1T1.1
Verl, Alexander	WeA1T2.2
Vieira, Monica	TuA1T2.3
Vilkko, Matti Kalervo	TuA2T1.3
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Vitkina, Galina	TuP1T2.2
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Vorob'eva, Vera	TuP1T1.4
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W	
Weidig, Ursula	MoBr1H.1
Wild, Daniel	WeA1T1.1
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Won, Sangchul	WeA2T2.2
Y	
Yang, Jian	MoBr2H.3
Yianatos, Juan	MoP2T1.1
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Zamora, Claudio	MoP1T1.1
Zhang, Yale	TuA1T2.4
Zinigrad, Michael	WeA2T1.2
Zolotkyh, Maxim	TuP1T2.1
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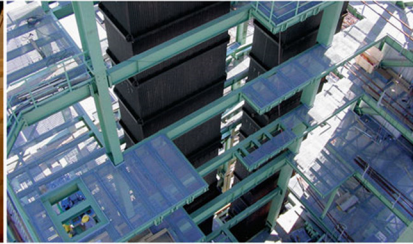


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