PRELIMINARY TECHNICAL PROGRAM

Live Streaming
Live sessions at Time Zone Santiago, Chile. UTC -3. English-Spanish interpretation available.

TUESDAY, NOVEMBER 24

Course Available for Registered Participants (Free of Charge, Spanish only)

To be confirmed

WEDNESDAY, NOVEMBER 25

Inauguration Ceremony and Plenary Session 1

10:00 Words of Welcome
Carlos Barahona, Procemin-Geomet Executive Director, General Manager, Gecamin, Chile
Rick Valenta, Procemin-Geomet Co-organizer, Director, WH Bryan Mining & Geology Research Centre, SMI, The University of Queensland, Australia
Leopoldo Gutiérrez, Procemin-Geomet Co-organizer. Professor, Deptment of Metallurgical Engineering, Universidad de Concepción, Chile
Óscar Jerez, Co-Organizer. Associate Professor, Institute of Applied Economic Geology, Universidad de Concepción, Chile
Willy Kracht, Co-Organizer, Director, Dept. of Mining Engineering, Universidad de Chile
Luis Cisternas, Co-Organizer, Director, Dept. of Chemical Engineering and Mineral Processing, Universidad de Antofagasta, Chile

Plenary Session 1

10:20 Mining executive to be confirmed
10:50 Mining executive to be confirmed

11:30 Break

Authors Panel

12:00 Authors Panel Session 1
12:30 Authors Panel Session 2

13:00 Break
<table>
<thead>
<tr>
<th>Time</th>
<th>Session/Panel</th>
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<tbody>
<tr>
<td>16:00</td>
<td>Authors Panel Session 3</td>
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<tr>
<td>16:30</td>
<td>Authors Panel Session 4</td>
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<tr>
<td>17:00</td>
<td>Authors Panel Session 5</td>
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**THURSDAY, NOVEMBER 26**

**Plenary Session 2**

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<tbody>
<tr>
<td>10:00</td>
<td>Welcome and Program Update</td>
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<tr>
<td>10:10</td>
<td>Mining executive to be confirmed</td>
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<tr>
<td>10:50</td>
<td>Mining executive to be confirmed</td>
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<tr>
<td>11:30</td>
<td>Break</td>
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**Authors Panel**

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<thead>
<tr>
<th>Time</th>
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<tbody>
<tr>
<td>12:00</td>
<td>Authors Panel Session 6</td>
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<tr>
<td>12:30</td>
<td>Authors Panel Session 7</td>
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<td>13:00</td>
<td>Break</td>
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**Panel Discussion**

<table>
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<th>Time</th>
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<tbody>
<tr>
<td>16:00</td>
<td>Innovation Technology: Challenges and Opportunities Due to Covid-19</td>
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<td>Chair: To be confirmed</td>
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<td>Introductory Presentation to be confirmed</td>
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<td>Panelists to be confirmed</td>
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**FRIDAY, NOVEMBER 27**

**Plenary Session 3**

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<td>Welcome and Program Update</td>
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<td>10:10</td>
<td>Mining executive to be confirmed</td>
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<tr>
<td>10:50</td>
<td>Mining executive to be confirmed</td>
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<tr>
<td>11:30</td>
<td>Break</td>
</tr>
</tbody>
</table>
Authors Panel

12:00 Authors Panel Session 8
12:30 Authors Panel Session 9

13:00 Congress Balance and Final Comments
Carlos Barahona, Conference Executive Director, Gecamin, Chile
Claudia Velásquez, Procemin-Geomet 2020 Program Director, CVLMet Consultorías EIRL, Chile

On Demand

Pre-recorded presentations available from Monday, November 23 at 08:00 AM (UTC - 3).
Audio Available in English & Spanish.

Applied Mineralogy and Mineral Characterization

(A03) Improved Efficiency of Copper, Iron and Nickel Ore Processing with MAYA Online Elemental Analyzers
Alexander Baryshnikov, Vitaliy Ovcharenko, Victoria Rudchenko, Lyncis UAB, Lithuania; and Arturo Rodríguez, TIAR, Chile

(A15) Textural Attributes and Its Link to Breakage: A Case Study for EAF SiMn Slags
Carolina Carvajal and Holger Lieberwirth, Institut für Aufbereitungsmaschinen, TU Bergakademie Freiberg, Germany

(A22) Partial Extraction Methods for Copper Mineralogy Estimation in Geometallurgical Applications
Francisco Contreras, Daniele Beck and Héctor Montes, Mine to Port, Chile

Cristian Jara, Alejandro Ehrenfeld, Álvaro Egaña, Christian Vidal and Felipe Santibáñez, Advanced Mining Technology Center, Universidad de Chile

(A46) Geochemical Assessment of Critical Elements: A Geometallurgical Guideline for the Evaluation of By-products of an IOCG Type Deposit, Chile
Olivia Mejías, Javier Quevedo, Sustainable Minerals Institute - International Centre of Excellence (ICE), Chile; Anita Parbhakar-Fox, Sustainable Minerals Institute - BRC, University of Queensland, Australia; Brian Townley, Department of Geology, Universidad de Chile; and Leonid Danyushevsky, Centre for Ore Deposit and Earth Sciences (CODES), University of Tasmania, Australia

(A56) Mineralogical and Textural Influence on concentrates Cu grade, División Andina, Codelco, Chile
Catalina Martínez, Oscar Jerez, Beatriz Morales, Institute of Applied Economic Geology, Universidad de Concepción, Chile; and Claudio Martínez, Andina Division, Codelco, Chile
Real-time Monitoring of Slurry Mineralogy and Elemental Content Using XRD and XRF
Joel O’Dwyer, Brianna Ganly, Yves Van Haarlem, Emily Yap, Jonathan Masters, Stephen Rainey, Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia

Building an Integrated Throughput-Flotation Model for Long Term Geometallurgy
Héctor Montes, Gerardo San Martín and Claudia Velásquez, Mine to Port, Chile

Incorporation of Rock Variability to the Design of Comminution Circuits
Luis La Torre, Mayra Jefferson and Adam Johnston, Transmin Metallurgical Consultants, Peru

A Roadmap to Geometallurgical Modeling at The Cerro Lindo VMS Deposit
Mayra Jefferson, Adam Johnston, Transmin Metallurgical Consultants, Peru; Nilo Davila and Cesar Matias, Nexa Resources, Peru

Prediction of Comminution and Flotation Performance from Routine Geochemical Data at the Quebradona Project
Nicholas Clarke, Imtech, Australia; Alvaro Barros, Pablo Noriega and Leonardo Cajicá, Minera de Cobre Quebradona, Anglo Gold Ashanti, Colombia

A Geometallurgical Model to Optimize the Flotation Process of High Clays Ores
Leopoldo Gutiérrez, Oscar Jerez, Andrés Ramírez and Dennis Vega, Universidad de Concepción, Chile

Data Mining, UGM Generation for Copper Rougher Recovery Estimation, El Teniente
Jorge Avila, Ludovina Burgos and Carolina Becerra, El Teniente Division, Codelco, Chile

Geometallurgical Design of the Flotation Circuit for a Copper-Gold Deposit
David Hatton and David Bulled, SGS, Canada

Understanding the Compression Comminution of Iron Ore Using a Piston Press Test
Giovanni Pamparana and Bern Klein, Norman B. Keevil Institute of Mining Engineering, The University of British Columbia, Canada

CU Recovery Model for Cleaner-Scavenger Stage at Minera Centinela’s Flotation Plant
Gonzalo Barcos, Javier Vargas, Minera Centinela, Antofagasta Minerals, Chile; Francisco Soto and Gerardo Espinoza, Empírica, Chile

Pilot testing of the REFLUX™ Flotation Cell and the impact on full-scale circuit design
Harrison Law, Bartosz Dabrowski, Diane Taggart and Lance Christodoulou, FLSmidth, USA
(A60) Effect of Sodium Silicate Modified with Fe2+ and Al3+ Ions as Dispersant in Chalcopyrite Flotation with Presence of Kaolinite in Seawater
Kevin Irribarra, Andrés Ramírez and Leopoldo Gutiérrez, Universidad de Concepción, Chile

(A68) Geometallurgical Characterization to Boost Short-Term Planning of the Conventional Process Line at El Teniente
Valentina Toledo, El Teniente Division, Codelco, Chile; Olivia Mejías, Independent Geologist, Chile; And Oscar Jerez, Institute of Applied Economic Geology, University of Concepción, Chile

(A69) A Geometallurgical Approach to Comminution Using Primary Breakage Properties of Ores
Pia Lois, Sustainable Minerals Institute, University of Queensland, Australia and Mining Engineering Department, Universidad de Chile; Catherine Evans, Karina Barbosa, Shujaat Ali and Mohsen Yahyaei, Sustainable Minerals Institute, University of Queensland, Australia

(A72) Incidenc of Broken Ore on Sedimentation Rate, El Teniente Mine
Carolina Becerra, Ludovina Burgos, Susana Fonseca and Carolina Portilla, El Teniente Division, Codelco, Chile

Comminution - Fundamentals and Industrial Applications

(A05) Determination of Load Jc and Balls Jb Level by Power Draw and Pressure in Grinding Mills
Mario Cerda, Minera Santo Domingo SCM, Chile

(A06) Disruption or the Next POLYCOM Chapter: HPGR Pro
Egbert Burchardt, Thomas Mackert and Henrik Driemeier, Thyssenkrupp Industrial Solutions, Germany

(A16) On the Effect of Slurry Density on SAG Mill Performance
Jaime Sepúlveda, J-Consultores, Chile; and Miguel Becerra, Teck Resources, Chile

(A20) The New ERC® – Eccentric Roll Crusher: Characteristics and Implementation in Mining
Markus Dammers and Raul Ellermann, Thyssenkrupp Industrial Solutions, Germany

(A33) Improved Energy Efficiency in the Grinding and Classification in a Magnetite Concentration Plant
Solang Vera, Romke Kuyvenhoven, SMI-ICE-Chile; Jaime Sepúlveda, J-Consultores, Chile; and Marcin Ziemski, SMI University of Queensland, Chile

(A36) Increased treatment of Teck CDA plant by installing a Sizer Type Crusher
Claudio Rodriguez and Rene Rojas, Cía. Minera Teck Carmen de Andacollo, Chile

(A59) Optimization of Vertical Grinding Parameters through Online Determination of the Balls Level
José Pérez, Aldo Valenzuela, Salvador Camargo, Luis Carrillo, Jaime Bravo and Salvador Gómez

(A63) Autonomous Primary Crushing Station: Advancements, Challenges and Feasibility
Edis Nunes, Lucas Ono, Dusty Jacobson and Homero Delboni Jr, Metso-Outotec, Brazil

(A65) Improving the Efficiency of Plant-Performance by Controlling Classification
Daniel Domanski, Karl Visnovec and Rajiv Chandramohan, Ausenco, Canada
Flotation - Fundamentals, Reagents and Industrial Applications

(A24) Evaluation of Particle Size Segregation in Industrial Flotation Plant Cutters by Means of Radioactive Tracers
Nelson Barrientos, Francisco Díaz, Nuclear Tracer and Engineering, Chile; Claudio García and Gary Gálvez, SCM Minera Lumina Copper, Caserones, Chile

(A30) Application of Metallurgical Techniques for the Recovery of Industrial Minerals, Present in Metal Mining Tailings
Oswaldo Bustamante, Álvaro Barros, Jacqueline Contreras, Miguel Morely, Universidad Nacional de Colombia

(A41) Effect of Froth Transport on the Metallurgical Performance in a Large Industrial Flotation Cell
Paulina Vallejos, Juan Yianatos, Department of Chemical and Environmental Engineering, Universidad Técnica Federico Santa María, Chile; Rodrigo Grau and Alejandro Yañez, Metso-Outotec, Finland

(A43) Performance Assessment of Submersible Sensors to Measure in Real-Time Gas and Solid Holdup in a 250m³ Wemco Cell at Los Pelambres Concentrator
Miguel Maldonado, D. Meriño, I. Ramos, Department of Metallurgical Engineering, Universidad de Santiago de Chile; P. Bustos, F. Henríquez, M. Morales, Minera Los Pelambres, Antofagasta Minerals, Chile

(A51) Effect of the Bubble and Particle Size Distributions on the Kinetic Rate Constant
Constantino Suazo, MC Inversiones, Chile; and Willy Kracht, Mining Engineering Department, Universidad de Chile

(A53) Influence of Water Salinity on the Degree of Entrainment in Flotation
Leopoldo Gutierrez, Fernando Betancourt, Universidad de Concepción, Chile; Lina Uribe, Universidad de Talca, Chile; and Miguel Maldonado, Universidad de Santiago de Chile

(A61) Increasing Float Circuit Performance with MixedROWtm Flotation from LLSmith
Steve Merrill, J. Salgado, D. Lelinski and L. Christodoulou, FLSmith, USA

Data Analytics, Modeling, Design, Optimization and Control of Mineral Processes

(A07) A Novel Power Model for Conventional Mills Based on the Discrete Element Method
Mario Cerda, Minera Santo Domingo SCM, Chile

(A11) Flotation Circuit Optimization Using Modeling and Simulation
Ronney Silva, FLSmith, USA

(A12) A Multi-Compartment Model for Flotation – Development and Validation
Ronney Rodrigues, FLSmith, USA; Seyed Hassan and Aaron Noble, Department of Mining & Minerals Engineering, Virginia Tech, USA
(A18) Decision Support Systems for SAG Mill Control: A Case Study
Jacques Olivier, Paul Shelley and Eugene Davies, Molyco Global, Australia; and Chris Aldrich, Western Australian School of Mines, Curtin University, Australia

(A44) Uses of Business Intelligence Tools on Process Control and on Metallurgical Mass Balance
Luís Cortés and Pamela Illanes, Minera Spence, BHP Pampa Norte, Chile

(A48) Semi-Autogenous Grinding Model Based on Effective Grinding Rate and Three Stages Internal Classification
Miguel Becerra, Teck Resources, Chile and Luis Magne, Department of Metallurgical Engineering, Universidad de Santiago de Chile

(A49) Advanced Process Control Applied in a Flotation Circuit Using a Real-Time Image Analysis System
Marco Martins and Rafael Ferreira, CEMI Process Optimization, Brazil

(A64) A New General Formula to Predict the Specific Energy of Comminution
Roddy Valle and Joe Pezo, Metso:Outotec, Peru

(A66) Is Sampling and Quantified Data Quality Considered on Metallurgical Balance?
Oscar Dominguez, Technical Centre of Excellence, BHP, Australia

(A67) Optimizing Value from Real-Time, On-Line Particle Size Measurement on Individual Cyclones
Robert Maron, CIDRA Minerals Processing, USA; Jaime Sepulveda, J-Consultants, Chile; Mauricio Estrada and Rodrigo Bruna, SGS Minerals, Chile

Pre-Concentration and Separation - Fundamentals and Industrial Applications

(A02) Demystifying Preconceptions of Preconcentration
Walter Valery, Kristy-Ann Duffy, Peter Holtham, Eric Tabosa and Claudia Plasencia, Hatch, Australia; Roberto Valle, Hatch, Peru

(A25) Increased Throughput of Nexa’s Vazante Grinding Circuit Using 10 Deck High Frequency Screen
Larissa Demuner, Jorge Bechir, Gilvan Junior, Valerio Metsavaht, Alexandre Caitano and Ricardo Ogawa, Nexa Resources, Brazil

(A26) Size Classification and Dewatering for Fine HPGR Comminution
Cherezade Saud, Amit Kumar, Fisher Wang, Darren Gong and Bern Klein, Norman B. Keevil Institute of Mining Engineering, The University of British Columbia, Canada

(A38) Challenges in Comparing Gravity Separation Technologies for Gold Pre-Concentration Assessment
Daniel Amariei and Gianni Bartolacci, COREM, Canada
(A55) Optimisation of Parabolic Walled Mini-Hydrocyclones Using CFD Simulations and 3D Printing Technology
Dennis Vega-Garcia, Department of Metallurgical Engineering, University of Concepción, Chile; Jan Cilliers and Pablo Brito-Parada, Department of Earth Science and Engineering, Imperial College London, UK

Tailings Reprocessing

(A01) Recovery of Valuable Elements from Mine Tailings
Williams Flores, H. Contreras, Pamela Garrido, Research Center, CI-JRI, Chile; Jocelyn Concha y Pablo Espinoza, Compañía Minera del Pacifico CMP, Chile

(A27) Characterization and Reprocessing Evaluation of Zn/Pb Tailings from B2 dam at Nexa’s Morro Agudo Mine
Breno Valente, Lucas Lopes, Marília Santiliano, Jorge Bechir and Adelson Souza, Nexa Resources, Brazil

(A29) Characterization of Copper Ore Tailings and Its Potential Application in Construction Materials
Francisco Rivas, Carlos Moraga and Lina Uribe, School of Mining Engineering, Universidad de Talca, Chile

(A45) Recovery of Environmental Liabilities, Re-processing and Relocation with Ecological Methods and Reforestation with High Profitability Reached
Carlos Mejía, Hernán Parra and Ulises Lazo, Mining & Metals, CM-PSI, Peru

(A52) Reprocessing Historical Tailings: Three Chilean Case Studies
Diego Mesa, David Barriga, Patricio Berrios, Esteban Rodríguez and Roger Amelunxen

Industrial Practices and Improvements

(A35) The Energy Prism Applied to DRC’s Cobalt in the Energy Transition
Juan Pablo Mardones, Metallurgical Consultant; and Cristian Château, National Academy of Political and Strategic Studies, Chile

(A37) Peruvian Concentrator Projects
Dante Garcia, Minerals Processing Consultant, Peru

(A70) Application of New Technologies for Remote Operational Support in Metallurgical Plants
Mohsen Yahyaei, Isabella Verster, Rick Valenta, Marcin Ziemske, Sustainable Minerals Institute, University of Queensland, Australia; Bevin Wong, JKTech, University of Queensland, Australia; and Roxanne O’Donnell, Glencore, Mount Isa Mines, Australia