

GENERAL CONGRESS INFORMATION



DETAILS AND UPDATES

Complete and/or updated descriptions, if not provided in this program, are available online at www.impc2018.com and in the official mobile application IMPC 2018.



REGISTRATION

The registration desk is located in the foyer (1 floor) of the World Trade Center. Delegates must register before accessing the technical sessions, purchasing tickets for social functions, or for participating in any Congress activity. Congress badge must be worn at all time. Please approach the registration desk with any enquiries or comments.



REGISTRATION DESK SCHEDULE

Sunday, September 16	10:00 — 20:00
Monday, September 17	08:00 — 20:00
Tuesday, September 18	07:30 — 19:00
Wednesday, September 19	07:30 — 19:00
Thursday, September 20	07:30 — 19:00



SPEAKERS' INFORMATION

Speakers are required to attend the 'Meet-and-Greet' Coffee on the morning of their presentation from 7:30 to 8:00 that will be held in the Valdai-Seliger Hall. During the 'Meet-and-Greet' Coffee, Speakers will:

- Meet their Session Chairs
- Supply their biography



INTERNATIONAL EXHIBITION «IMPC2018-EXPO. MINING AND MINERAL PROCESSING»

The Expo is located in the Expocentre Fairgrounds.
Address: Russia, Moscow, Krasnopresnenskaya nab.-14

Sunday, September 16	10:00 — 18:00
Monday, September 17	10:00 — 18:00
Tuesday, September 18	10:00 — 16:00



INTERNET

Complimentary Wi-Fi is available in the World Trade Center.



OFFICIAL IMPC 2018 MOBILE APPLICATION

Please use an Official IMPC 2018 application in your cellphone. You will be updated on the latest news about the IMPC 2018 and take advantage of the following functions:

- Schedule your agenda
- Browse the Program of the Congress
- Chat with your colleagues
- Make your virtual Exhibition tour
- Check general information



SIMULTANEOUS INTERPRETATION

(English and Russia)

If you plan to use the simultaneous interpretation services, please have your identification card with you when requesting your headset. Please note: simultaneous interpretation will be available only during the Opening Ceremony, Plenary Sessions and Closing Ceremony. Headsets must be returned at the end of each Plenary Session and after Closing Ceremony.



IMPC BANQUET & AWARDS

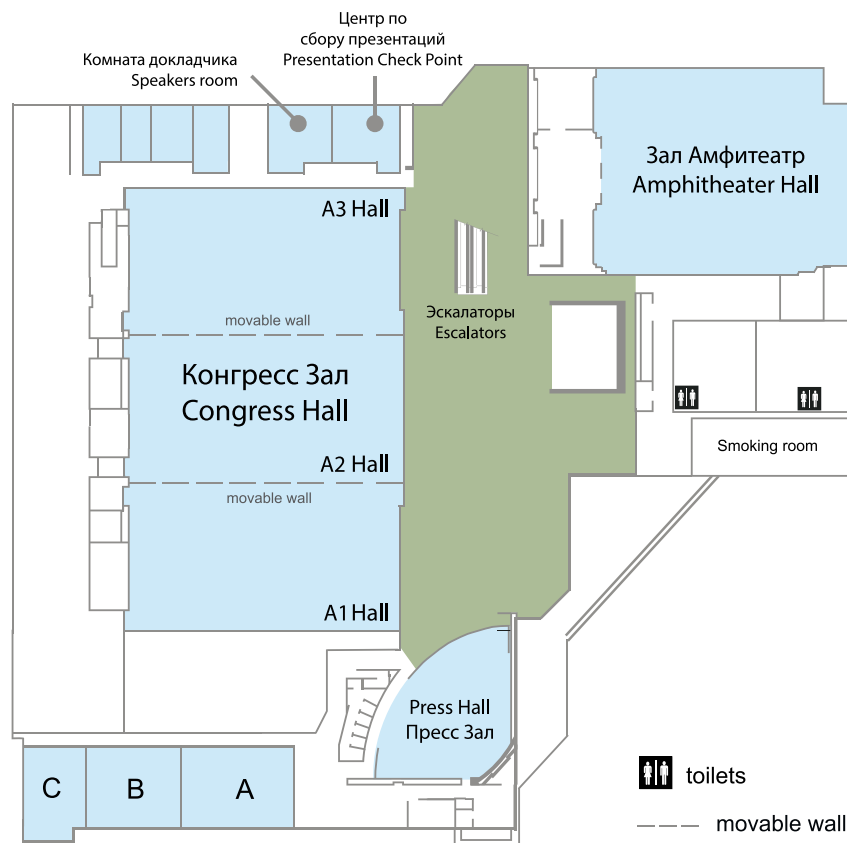
Meeting Point: Registration desk
Time: 18.15

IMPC BANQUET & AWARDS will be held in the Estet Event.
Address: Moscow, Vetkina street, building 4

WORLD TRADE CENTER PLAN



CONGRESS CENTER FLOOR 2



DAILY SCHEDULE OF EVENTS

16 September		
10.00 – 20.00	Registration	Expocentre Fairgrounds, Pavilion 7
9.00 – 15.00	Moscow Sightseeing tour	Crowne Plaza, AZIMUT Hotel Smolenskaya, Ibis Moscow Oktyabrskoye Pole, Hotel National
8.00 – 16.30	IMPC Council Meeting*	Expocentre Fairgrounds, Pavilion 7
11.30	Expo Opening «IMPC2018-EXPO. Mining and Mineral Processing»	Expocentre Fairgrounds, Pavilion 7
17.00 – 20.00	Welcome Reception	Expocentre Fairgrounds, Pavilion 7

17 September		
10.00 – 10.30	IMPC Opening Ceremony	World Trade Center Congress Hall
10.30 – 11.15	Plenary Lectures	World Trade Center Congress Hall
11.15 – 11.50	Poster Session and Coffee Break	World Trade Center Foyer
11.50 – 12.35	Technical sessions	World Trade Center
10.00 – 18.00	International Exhibition «IMPC2018-EXPO. Mining and Mineral Processing»	Expocentre Fairgrounds, Pavilion 7
12.35 – 14.00	Lunch	World Trade Center Valdai-Seliger Hall

14.00 – 15.00	Technical sessions	World Trade Center
15.00 – 15.30	Coffee Break	World Trade Center Foyer
15.30 – 18.00	Technical sessions	World Trade Center
15.30 – 17.00	Sustainability Workshop	World Trade Center Press Hall
17.00 – 18.30	IAC Meeting*	World Trade Center Neva Hall
18.30 – 21.00	Cultural reception	World Trade Center Valdai-Seliger Hall

18 September		
8.20 – 9.50	Plenary Lectures	World Trade Center Congress Hall
9.50 – 10.35	Poster Session and Coffee Break	World Trade Center Foyer
10.35 – 13.05	Technical sessions	World Trade Center
10.35 – 11.55	METALLOINVEST Presentation	World Trade Center Press Hall
11.00 – 12.00	Young Authors Commission	World Trade Center Neva Hall
10.00 – 16.00	International Exhibition «IMPC2018-EXPO. Mining and Mineral Processing»	Expocentre Fairgrounds, Pavilion 7
12.00 – 13.20	TOMS Presentation	World Trade Center Press Hall

13.05 – 14.35	Lunch	World Trade Center Valdai-Seliger Hall
14.35 – 15.35	Technical sessions	World Trade Center
15.00 – 18.00	«The Plaksin's Readings — 2018»	World Trade Center Press Hall
15.35 – 16.05	Coffee Break	World Trade Center Foyer
16.05 – 18.00	Technical sessions	World Trade Center
15.30 – 17.00	Education Workshop	World Trade Center Neva Hall
17.10 – 18.00	IMPC General Body Meeting	World Trade Center Amphitheater Hall

19 September

8.20 – 9.50	Plenary Lectures	World Trade Center Congress Hall
9.50 – 10.35	Poster Session and Coffee Break	World Trade Center Foyer
10.35 – 13.05	Technical sessions	World Trade Center
13.05 – 14.00	Lunch	World Trade Center Valdai-Seliger Hall
14.00 – 15.00	Technical sessions	World Trade Center
15.00 – 15.30	Coffee Break	World Trade Center Foyer
15.30 – 18.00	Technical sessions	World Trade Center

15.30 – 17.00	Mineral Processing Workshop	World Trade Center Neva Hall
18.15 – 22.00	IMPC Banquet & Awards	Estet Event

20 September

7.00 – 8.30	IMPC Council Breakfast Meeting*	World Trade Center A Hall
9.00 – 10.05	Technical sessions	World Trade Center
10.05 – 10.35	Coffee Break	World Trade Center Foyer
10.35 – 13.00	Technical sessions	World Trade Center
13.00 – 14.00	Lunch	World Trade Center Valdai-Seliger Hall
14.00 – 15.00	Technical sessions	World Trade Center
15.00 – 15.20	Coffee Break	World Trade Center Foyer
16.00 – 18.00	IMPC Closing Ceremony	World Trade Center Amphitheater Hall

21 September

Industrial Tours

Cultural Tours

** Private Meeting / by invitation only*



Monday, September 17

Moscow, Russia

Summary / Monday, September 17

08.00–20.00 Registration (Foyer. 1 floor)

Plenary Session

10.00–10.30 Opening Ceremony. Words of Welcome (Congress Hall)

Plenary Presentations (Congress Hall)

10.30–11.15 **Chairs:** Valentine Chanturiya, Russia,
Cyril O'Connor, South Africa

Modern seafloor hydrothermal systems and the sustainable exploitation of massive sulfide deposits: future mineral resources or unjustified expectations? (p. 365)
Academician, Prof. Nikolay Bortnikov, Russian Academy of Science, Russia

11.15–11.50 Poster Session and Coffee Break (Foyer. 1 floor)

Technical Sessions							
	A1 Hall	A2 Hall	A3 Hall	Amphitheater Hall	Press Hall	Don Hall	Selenga Hall
11.50–12.35	Session 1. Comminution & classification	Session 2. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology	Session 3. Physical enrichment — gravity, magnetic and electrostatic separation	Session 4. Hydro- and bio-hydrometallurgy	Session 5. Environmental problems and recycling of mineral-containing waste products	Session 6. Process modeling	Session 7. Technological mineralogy
12.35–14.00	🍴 Lunch						
14.00–15.00	Session 8. Comminution & classification	Session 9. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology	Session 10. Physical enrichment — gravity, magnetic and electrostatic separation	Session 11. Hydro- and bio-hydrometallurgy	Session 12. Environmental problems and recycling of mineral-containing waste products	Session 13. Process modeling	Session 14. Technological mineralogy
15.00–15.20	☕ Coffee Break						
15.20–18.00	Session 15. Comminution & classification	Session 16. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology	Session 17. Physical enrichment — gravity, magnetic and electrostatic separation	Session 18. Hydro- and bio-hydrometallurgy	Session 19. Environmental problems and recycling of mineral-containing waste products	Session 20. Process modeling	Session 21. Technological mineralogy
16.40–18.00					15.30–17.00 Sustainability workshop		
					Session 22. Environmental problems and recycling of mineral-containing waste products		
17.00–18.30	International Advisory Committee Meeting (Neva Hall)						
18.30–21.00	Cultural Reception						

	A1 Hall	A2 Hall	A3 Hall	Amphitheater Hall
	Session 1. Comminution & classification <i>Chair: Vasily Arsenyev, Russia</i>	Session 2. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology <i>Chair: Uliy Rubinshtein, Russia</i>	Session 3. Physical enrichment — gravity, magnetic and electrostatic separation <i>Chair: Alexander Kurkov, Russia</i>	Session 4. Hydro- and bio-hydrometallurgy <i>Chair: Galina Sedelnikova, Russia</i>
11.50–12.15	KEYNOTE GENERALIZED THEORY OF VIBRATORY SEPARATION OF GRANULAR MATERIALS (p. 385) Leonid Vaisberg Mekhanobr-Tekhnika REC, Russia	KEYNOTE DEVELOPMENT OF NORILSK NICKEL CONCENTRATORS IN 2015–2017 (p. 1022) Sergey Dyachenko PJSC MMC Norilsk Nickel, Russia	KEYNOTE RECOVERY OF RARE EARTHS AND P FROM A PHOSPHATE FLOTATION TAILS (p. 761) Jinrong Zhang¹, H. Liang^{1,3}, D. DePaoli² ¹ FIPR Institute, Florida Polytechnic University, USA ² Oak Ridge National Laboratory, USA ³ School of Metallurgy, Northeastern University, China	KEYNOTE THE ACTIVATED CARBONS ADSORPTION OF CYANIDE COMPLEXES OF TRANSITION METALS FROM SOLUTIONS AND PULPS: CAUSE AND EFFECT (p. 286) N.V. Vorob'ev-Desyatovskii¹, S.A. Kubyshkin¹, A. Pichugina², A.A. Agafonov², S.M. Sukharzhevsky³, A.L. Shakhnin⁴, A.A. Komlev⁵ ¹ JSC Polymetal Engineering, Russia ² M.V. Lomonosov Moscow State University, Faculty of Chemistry, Russia ³ St.Petersburg State University, Institute of Chemistry, Russia ⁴ Peter the Great St.Petersburg Polytechnic University, Russia ⁵ School of Engineering Science, Department of Technical Physics, Lappeenranta University of Technology, Finland
12.15–12.35	ELEMENT METHOD (DEM) — THE SARCHESHMEH COPPER COMPLEX CONE CRUSHER CASE (p. 144) Elham Nematollahi¹, S. Zare¹, F. Ghorbani¹, A. Ghasemi¹, S. Banisi² ¹ Kashigar Mineral Processing Research Center, Shahid Bahonar University of Kerman, Iran ² Mining Engineering Department, Shahid Bahonar University of Kerman, Iran	EFFECT OF IMPELLER DESIGN AND OPERATION ON BUBBLE SIZE AND FROTH STABILITY (p. 542) Diego Mesa, A. Morrison, P. Brito-Parada Department of Earth Science and Engineering, Royal School of Mines, Imperial College London, United Kingdom	DRY MAGNETIC SEPARATION OF MAGNETITE FROM MAGNETITE-QUARTZ BLENDS USING CYCLOMAG PLANAR MAGNETIC SEPARATOR (p. 135) Emmanuel Baawuah¹, C. Kelsey², J.R. Kelly², J. Addai-Mensah^{1,3}, W. Skinner¹ ¹ Future Industries Institute, University of South Australia, Australia ² IMP Technologies, Pty., Ltd., Australia ³ Department of Mining and Process Engineering, Namibia University of Science and Technology, Windhoek, Namibia	PRESSURE OXIDATION AS A UNIVERSAL METHOD FOR PROCESSING SULPHIDE CONCENTRATES OF PRECIOUS AND BASE METALS (p. 106) Alexander V. Epiforov, Stanislav V. Balikov Irkutsk Research Institute of Rare and Precious Metals and Diamonds (IRGIREDMET JSC), Russia
12.35–14.00	Lunch. (Valdai-Seliger Hall, 1 floor)			

	Press Hall	Don Hall	Selenga Hall
	Session 5. Environmental problems and recycling of mineral-containing waste products <i>Chair: Elena Zelinskaya, Russia</i>	Session 6. Process modeling <i>Chair: Valery Morozov, Russia</i>	Session 7. Technological mineralogy <i>Chair: Joe Zhou, Canada</i>
11.50–12.15	KEYNOTE THE GEO-METALLURGY OF THE CIRCULAR ECONOMY. — DESIGN FOR RECYCLING OF FAIRPHONE AS AN EXAMPLE (p. 1061) Markus A. Reuter Helmholtz Institute Freiberg for Resource Technology, Germany	KEYNOTE THE STUDY ON GENETIC MINERAL PROCESSING ENGINEERING (p. 421) Sun Chuanyao¹, Han Long², Zhou Junwu³, Song Zhenguo² ¹ State Key Laboratory of Mineral Processing, BGRIMM, China ² Institute of Mineral Processing, BGRIMM, China ³ State Key Laboratory of Process Automation in Mining & Metallurgy, BGRIMM, China	KEYNOTE NEW METHODS OF MINERAL PROCESSING AND TECHNOLOGY FOR THE PROGRESS OF SUSTAINABILITY IN COMPLEX ORE TREATMENT (p. 6) E.G. Ozhogina¹, Olga Kotova² ¹ All-Russian scientific-research institute of mineral resources named after N.M.Fedorovsky, Russia ² Institute of Geology Komi Science center of Ural Branch of RAS, Russia
12.15–12.35	BIOREMEDIATION OF Pb(II) IONS FROM AQUEOUS SOLUTION USING EXTRACELLULAR POLYMERIC SUBSTANCES (EPS) PURIFIED FROM PSEUDOMONAS FLUORESCENS (p. 679) S. Vimalnath¹, R. Vasant Kumar², S. Carsten³, Sankaran Subramanian¹ ¹ Department of Materials Engineering, Indian Institute of Science, India ² Department of Materials Science and Metallurgy, University of Cambridge, United Kingdom ³ National Chair of Materials Science and Metallurgy, University of Nizwa, Oman	CRITICAL ASSESSMENT OF FROTH FLOTATION FUNDAMENTAL MODELS (p. 70) Nathalie Kupka¹, D.H. Hoang^{1,2,3}, Martin Rudolph¹ ¹ Department of Mineral Processing, Helmholtz Institute Freiberg for Resource Technology, Germany ² Department of Mineral Processing, Faculty of Mining, Hanoi University of Mining and Geology, Vietnam ³ Institute of Mechanical Process Engineering and Mineral Processing, Technische Universität Bergakademie Freiberg, Germany	EXPERIMENTAL SUBSTANTIATION OF THE RELATION OF THE STRUCTURAL-CHEMICAL PROPERTIES OF MINERAL EDUCATION ON NATURAL DIAMONDS FROM THE SUBSTANCE COMPOSITION OF THE KIMBERLITE ORE (p. 715) Iurii Podkamennyi¹, G.P. Dvoichenkova¹, O.E. Kovalchuk² ¹ Institute of Comprehensive Exploitation of Mineral Resources Russian Academy of Sciences, Russia ² Geo-Scientific research Enterprise ALROSA, Russia
12.35–14.00	Lunch. (Valdai-Seliger Hall, 1 floor)		

NOTE

	A1 Hall	A2 Hall	A3 Hall	Amphitheater Hall
	Session 8. Comminution & classification <i>Chair: Margarita Mezzetti, Germany</i>	Session 9. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology <i>Chair: Janusz Laskowski, Canada</i>	Session 10. Physical enrichment — gravity, magnetic and electrostatic separation <i>Chair: Ralph Holmes, Australia</i>	Session 11. Hydro- and bio-hydrometallurgy <i>Chair: Galina Sedelnikova, Russia</i>
14.00–14.20	RESEARCH AND PRACTICE OF ROLLER-PRESSES IN ORE PREPARATION (p. 73) Pavel Fedotov National Research Irkutsk State Technical University, Russia	TAILORING CHEMISTRIES TO MEET THE NEED IN SILICA SAND BENEFICIATION (p. 7) Lucas Moore, G. Wang, Y.R. Xiong, J. Gu, and K. Price¹ ¹ Industrial Minerals, ArrMaz, United States of America	EFFECTS OF PHYSICAL SEPARATION AS A PRETREATMENT FOR AMMONIUM THIOSULFATE LEACHING OF GOLD FROM WASTE MOBILE PHONES (p. 107) Sanghee Jeon¹, M. Ito², R. Pongsumrankul¹, S. Tanaka¹, N Kitajima¹, C.B. Tabelin², N. Hiroyoshi² ¹ Laboratory of Mineral Processing and Resources Recycling, Division of Sustainable Resources Engineering, Graduate School of Engineering, Hokkaido University, Japan ² Laboratory of Mineral Processing and Resources Recycling, Division of Sustainable Resources Engineering, Faculty of Engineering, Hokkaido University, Japan	PRESSURE LEACHING OF CARBONACEOUS SULFIDE CONCENTRATES FOR RECOVERY OF COPPER AND IRON (p. 545) Refilwe S. Magwaneng¹, Kazutoshi Haga², Altansukh Batnasan¹, Atsushi Shibayama¹, Masato Kosugi³, Ryo Kawarabuki³, Kohei Mitsuhashi³, Masanobu Kawata³ ¹ Department of Earth Resource Engineering and Environmental Science, Graduate School of International Resource Sciences, Akita University, Japan ² Department of Materials Science, Graduate School of Engineering Science, Akita University, Japan ³ Nittetsu Mining Co.Ltd, Japan
14.20–14.40	RECASTING MINERAL PROCESSING FLOW-SHEETS (p. 74) C.G. Kelsey², Joseph Kelly¹ and W. Skinner³ ¹ IMP Technologies PL, Australia ² Technical Director IMP, Australia ³ Future Industries Institute, University of South Australia, Australia	COLUMN DIAMETER EFFECTS ON DYNAMIC FROTH STABILITY MEASUREMENT (p. 178) Stefan Geldenhuys, B. McFadzean Centre for Minerals Research, Department of Chemical Engineering, University of Cape Town, South Africa	EXPERIMENTAL INVESTIGATION INTO THE KINETICS OF THE FALCON UF CONCENTRATOR (p. 320) Quentin Dehaine^{1,2}, Y. Foucaud², C. Eswaraiah^{2,3}, J.-S. Kroll-Rabotin⁴, L. Filippov² ¹ Camborne School of Mines, University of Exeter, UK ² Université de Lorraine, France ³ CSIR, Institute of Minerals and Materials Technology, India ⁴ Département Science et Ingénierie des Matériaux et Métallurgie (SI2M), Institut Jean-Lamour, Université de Lorraine, CNRS, France	COMBINED ENERGY IMPACT ON ACID LEACHING OF EUDIALYTE CONCENTRATE (p. 108) Andrey Samusev, V.A. Chanturiya¹, V.G. Minenko¹ Institute of Comprehensive Exploitation of Mineral Resources, Russian Academy of Sciences (ICEMR RAS), Russia
14.40–15.00	RESEARCH OF GRINDING PROCESS TO PROTECT THE FLAKE OF GRAPHITE USING VERTICAL STIRRED MILL (p. 91) Yuan Long, Guowang Zhang, Xiao Xiao, Lilong Huang, Li Shi Changsha Research Institute of Mining & Metallurgy, China		RECOVERY OF IRON FROM REFRACTORY IRON ORE USING SUSPENSION MAGNETIZATION ROASTING FOLLOWED BY MAGNETIC SEPARATION (p. 276) Yongsheng Sun, Y.X. Han, Y.J. Li, P. Gao School of Resources and Civil Engineering, Northeastern University, China	COMPREHENSIVE HYDROMETALLURGICAL PROCESSING OF RADIOACTIVE RARE-METAL CONCENTRATES (p. 148) S.I. Anufrieva, E.G. Likhnikheevich, Nataliya Permyakova All-russian scientific-research institute of mineral resources named after N.M. Fedorovsky, Russia
	15.00–15.20 ☕ Coffee Break. (Foyer)			

	Press Hall	Don Hall	Selenga Hall
	Session 12. Environmental problems and recycling of mineral-containing waste products <i>Chair: Vladimir Masloboev, Russia</i>	Session 13. Process modeling <i>Chair: Romke Kuyvenhoven, Chile</i>	Session 14. Technological mineralogy <i>Chair: Olga Kotova, Russia</i>
14.00–14.20	INVESTIGATION INTO RECOVERY OF TITANIA SLAG FROM WASTE ILMENITE SMELTING FURNACE DUST (p. 182) M. Khesa¹, G. Akdogan¹, Neil Snyders¹, S. Bradshaw¹, C. Dorfling¹, J. Eksteen² ¹ University of Stellenbosch, Process Engineering, South Africa ² Western Australian School of Mines, Curtin University, Australia	GRINDING FLOTATION OPTIMIZATION USING OPERATIONAL INTELLIGENCE (p. 194) Osvaldo Bascur, A. Soudek OSIsoft, LLC., USA	CLAY SAMPLE PREPARATION TREATMENT FOR XRD ANALYSIS (p. 174) D. Steele¹, Saeed Farrokhpay^{2,3}, B. Ndlovu², D. Bradshaw² ¹ Institute for Future Environments, Queensland University of Technology, Australia ² Sustainable Mineral Institute, University of Queensland, Australia ³ GeoResources, University of Lorraine, France
14.20–14.40	ALTERING REACTIVITY OF PUMICE BY FINE GRINDING FOR ITS USE AS ALKALI ACTIVATED CEMENT (AAC) RAW MATERIAL (p. 586) Gabor Mucsi¹, R. Szabó¹, B. Egyed¹, F. Kristály², Á. Rácz¹, I. Gombkötő¹, S. Nagy¹, S. Kumar³ ¹ Institute of Raw Material Preparation and Environmental Processing, University of Miskolc, Hungary ² Institute of Mineralogy and Geology, University of Miskolc, Hungary ³ CSIR-National Metallurgical Laboratory, India	PROCESS ANALYTICS: TRANSFORMING MINERAL PROCESS PLANT DATA INTO ACTIONABLE INSIGHTS (p. 209) J. Steyn¹, Osvaldo Bascur², B. Gorain³ ¹ Flank Engineering Inc., Canada ² OSIsoft, LLC., USA ³ Barrick Gold Corporation, Canada	MODERN METHOD AND SYSTEMS OF OPTICAL ORE GRADE ANALYSIS BY PROCESSING OF COPPERMOLYBDENUM ORES (p. 30) Valery Morozov¹, Ganbaatar Zorigt², Delgerbat Lodoy², Y.P. Morozov³ ¹ National University of Science and Technology MISiS, Russia ² Erdenet Mining Corporation Amar sqv., Mongolia ³ Urals State University of Mines, Russia
14.40–15.00	MAIN FUNCTIONAL GROUPS OF BACTERIA INVOLVED IN BIODETOXIFICATION OF GOLD HEAP LEACHING WASTES (p. 395) Marina Belykh¹, S.V. Petrov¹, A.Yu. Chikin¹, N.L. Belkova², E.P. Olberg¹ ¹ Irkutsk research institute of precious and rare metals and diamonds, Russia, ² Limnological Institute RAS, Russia	IDENTIFICATION OF COAL TYPES ON THE BASIS OF ANALYSIS OF THEIR PROPERTIES BY MEANS OF STATISTICAL METHODS (p.5) Tomasz Niedoba, P. Pięta, A. Surowiak¹, D. Jamróz² ¹ AGH University of Science and Technology, Faculty of Mining and Geoengineering, Department of Environmental Engineering and Mineral Processing, Poland ² AGH University of Science and Technology, Faculty of Electrical Engineering, Automatics, Computer Science and Biomedical Engineering, Department of Applied Computer Science, Poland	THE CRUCIAL ROLE OF ELEMENTAL SULPHUR FORMATION ON SELF-HEATING OF SULPHIDES (p. 1057) F. Rosenblum¹, J.E. Nessel², James Finch¹, K.E. Waters¹, R. Langlois¹ ¹ Department of Mining and Materials Engineering, McGill University, Canada ² NesseTech Consulting Services Inc., Canada
	15.00–15.20 ☕ Coffee Break. (Foyer)		

NOTE

	A1 Hall	A2 Hall	A3 Hall	Amphitheater Hall
	Session 15. Comminution & classification <i>Chair: Pavel Fedotov, Russia</i>	Session 16. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology <i>Chair: Vladko Panayotov, Bulgaria</i>	Session 17. Physical enrichment – gravity, magnetic and electrostatic separation <i>Chair: Rolf Cleiv, Norway</i>	Session 18. Hydro- and bio-hydrometallurgy <i>Chair: Grigory Voiloshnikov, Russia</i>
15.20-15.40	INFLUENCING PARAMETERS OF THE SELECTIVE COMMINATION AT IMPACT LOAD (p. 290) <u>Max Hesse, H. Lieberwirth</u> Institute of Mineral Processing Machines, Germany	THE MODIFICATION OF THE PHYSICOCHEMICAL, ADSORPTION, AND FLOTATION PROPERTIES OF TANTALITE, COLUMBITE, ZIRCON, AND FELDSPAR UNDER THE ACTION OF ANOLYTE, AN ACIDIC PRODUCT OF WATER ELECTROLYSIS (p. 21) <u>Elena Chanturiya, V.A. Chanturiya, M.V. Ryazantseva, I.V. Khabarova, E.V. Koporulina</u> Melnikov Research Institute of Comprehensive Exploitation of Mineral Resources, Russian Academy of Sciences (IPKON RAS), Russia	DENSITY AND SUSCEPTIBILITY: GEOMETALLURGICAL CHARACTERIZATION OF A CASSITERITE-BEARING COMPLEX SKARN ORE FROM THE ORE MOUNTAINS, GERMANY (p. 607) <u>Markus Buchmann¹, E. Schach², T. Leißner¹, R. Tolosana-Delgado², M. Kern², N. Krupko², M. Rudolph², U. Peuker¹</u> ¹ Institute of Mechanical Process Engineering and Mineral Processing, TU Bergakademie Freiberg, Germany ² Helmholtz Institute Freiberg for Resource Technology, Helmholtz-Zentrum Dresden-Rossendorf, Germany	ELECTROCHEMICAL OXIDATION AND DISSOLUTION OF REFRACTORY BENGUET (PHILIPPINES) GOLD CONCENTRATE IN HYPOCHLORITE SOLUTIONS (p. 590) <u>Hanna Regidor, H.D. Mendoza, Dr. Eng., M.G. Mena, Ph. D.¹</u> Department of Mining, Metallurgical and Materials Engineering, University of the Philippines, Philippines
15.40-16.00	HPGR ROLLER LIFE EXTENSION WITH WEAR MANAGEMENT SYSTEM (p. 172) <u>M. Pischtschan, S. Belz, Marcelo Perrucci</u> Product Management & Development, Product Group Mining, Aluminium & Cement, Switzerland	INFLUENCE OF MONAZITE CHEMISTRY AND CARBON DIOXIDE ON ZETA POTENTIAL AND FATTY ACIDS COLLECTORS ADSORPTION (p.237) <u>Anthony Geneyton¹, L.O. Filipov¹, N.E. Menad²</u> ¹ GeoRessources, Université de Lorraine, France ² Bureau de recherche Géologique et Minière, France	UPGRADATION OF LOW-GRADE FERRUGINOUS CHROMITE ORE BY REDUCTION ROASTING USING CONVENTIONAL AND MICROWAVE HEATING (p. 669) <u>Sunil Kumar Tripathy, S. Prasad, S.Z. Khan, Y. Rama Murthy, Veerendra Singh, Gajanan Kapure</u> Research and Development Division, Tata Steel Ltd., India	LEACHING OF BASE GOLD-BEARING ORE WITH CHLORIDE-HYPOCHLORITE SOLUTIONS (p. 981) <u>Anna Rasskazova</u> Mineral processing laboratory, Mining Institute, Far Eastern Branch, Russian Academy of Sciences, Russia
16.00-16.20	TOWERMILL PERFORMANCES IN MAGNETITE CONCENTRATOR AND SCALE-UP VALIDATION (p. 265) <u>Samayamutthirian Palaniandy¹, H. Ishikawa²</u> ¹ Nippon Eirich Co. Ltd., Australia ² Nippon Eirich Co. Ltd., Japan	FLOTATION OF A SHEELITE-CARBONATE ORE WITH WIDE RANGE OF CARBONATE MODULE (p. 24) <u>Vladislava Ignatkina¹, E.D. Shepeta², L.A. Samatova², F.O. Milovich¹</u> ¹ National University of Science and Technology "MISIS", Russia ² Institute of Mining of the Far-Eastern Branch of the Russian Academy of Sciences, Russia	INFLUENCE OF ACOUSTIC ACTIONS ON THE DESTRUCTION OF THE MINERAL AGGREGATES OF PRECIOUS METALS FROM IRON-MANGANESE ORES (p. 32) <u>Igor Rasskazov, Kryukov V.G., Litvinova N.M., Lavrik N.A., Rasskazova A.V</u> Mining Institute the Far Eastern Branch of Russian Academy of Sciences, Russia	PURIFICATION OF A NORWEGIAN ILMENITE ORE TO PRODUCE SYNTHETIC RUTILE (p. 374) <u>James M. Mwase¹, Stoyan Gaydardzhiev¹, Eduard Stefanescu², Egon Sehner²</u> ¹ GeMMe, Mineral Processing and Recycling, University of Liege, Belgium ² CMI Industry Metals, Group Cockerill Maintenance & Ingénierie, Germany

	A1 Hall	A2 Hall	A3 Hall	Amphitheater Hall
	Session 15. Comminution & classification <i>Chair: Pavel Fedotov, Russia</i>	Session 16. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology <i>Chair: Vladko Panayotov, Bulgaria</i>	Session 17. Physical enrichment – gravity, magnetic and electrostatic separation <i>Chair: Rolf Cleiv, Norway</i>	Session 18. Hydro- and bio-hydrometallurgy <i>Chair: Grigory Voiloshnikov, Russia</i>
16.20-16.40	IMPACTS ON ENERGY CONSUMPTION AND WEAR IN GRINDING CIRCUITS WITH A PRECONCENTRATION STAGE (p. 288) Mauricio Bergerman, D. Jose Neto, E.S. Mano, A.P. Chaves Mining and Petroleum Engineering Department, University of Sao Paulo, Brazil	THE EFFECT OF WATER QUALITY ON THE ADSORPTION OF A XANTHATE COLLECTOR IN THE FLOTATION OF A SULPHIDE ORE (p. 102) Kirsten Corin, Resoketswe Manenzhe, Malibongwe Manono, Jenny Wiese Centre for Minerals Research, Department of Chemical Engineering, University of Cape Town, South Africa	THE STUDY'S RESULTS ON THE USE OF ELECTRICAL SEPARATION FOR VARIOUS ORES (p. 53) Nikolay Shikhov¹, Urvanzev A.I.² ¹ OJSC "Uralmekhanobr", Russia ² OJSC "Russkaya Korona", Russia	AMMONIUM THIOSULFATE LEACHING OF GOLD FROM PRINTED CIRCUIT BOARD WASTE (p. 401) P. Albertyn, Christie Dorfling Department of Process Engineering, Stellenbosch University, South Africa
16.40-17.00	FROM AVERAGE-BASED ORE IMPACT BREAKAGE CHARACTERISATION TO QUANTIFYING BREAKAGE VARIABILITY (p. 269) Farhad Faramarzi, R.D. Morrison, S.S. Kanchibotla Julius Kruttschnitt Mineral Research Centre, Sustainable Minerals Institute, The University of Queensland, Australia	THE DEVELOPMENT OF ANTIMONY PRODUCTION IN RUSSIA ON THE BASIS OF INNOVATIVE TECHNOLOGIES (p. 26) Petr Solozhenkin¹, V.N. Kovalev² ¹ Federal State Budget Scientific Entity "Institute for Research of Problems of Complex Development of Mineral Resources, Russian Academy of Sciences (IPKON RAN), Russia ² LLC "Energoterm-System", Russia	BENEFICIATION STUDIES OF A LOW-GRADE IRON ORE IN CHINA (p. 120) Baoyu Cui, Dezhou Wei, Hao Zhang, Caie Zhang, Qiang Zhao, Xuetao Wang School of Resources and Civil Engineering, Northeastern University, China	INVESTIGATING THE EFFECTS OF THIOUREA AND SELENIUM ON THE ELECTROREDUCTION OF CUPRIC IONS IN ACIDIC SULPHATE SOLUTIONS (p. 403) F. Ngandu, Christie Dorfling, S.M. Bradshaw Department of Process Engineering, Stellenbosch University, South Africa
17.00-17.20	OPTIMISATION OF GRINDING PROCESS IN A MAGNETITE ORE BENEFICIATION PLANT (p. 322) Wen Xuan¹, M.D. Vilarinho², F. Vasconcelos Guimarães¹, A.C. Araujo¹ ¹ Mineral Processing, Mining R&D, ArcelorMittal Maizières Research, France ² Lagetec LTDA – ME, Brazil	QUANTIFYING MINERAL LIBERATION BY GRADE AND SURFACE EXPOSURE USING X-RAY MICROTOMOGRAPHY FOR FLOTATION PROCESSES (p. 456) Francisco Reyes, J.J. Cilliers, S.J. Neethling Department of Earth Science and Engineering, Imperial College London, United Kingdom	APPLICATION OF THE TAGGED NEUTRON METHOD FOR DIAMONDS DETECTION IN KIMBERLITE (p. 78) V.M. Bystritsky¹, G.M. Nikitin², Yu.N. Rogov¹, A.B. Sadovsky¹, Mikhail Sapozhnikov¹ ¹ Diamant, LLC, Russia ² Institute "Yakutniproalmaz", ALROSA, Russia	THERMO- AND HYDROCHEMICAL MODIFICATION OF SOLID MINERALS CONTAINING ARGILLACEOUS VARIETIES (p. 383) Vasily Arsentev, A.M. Gerasimov, A.O. Mezenin, I.D. Ustinov¹ ¹ Mekhanobr-Tekhnika REC, Russia

	Press Hall	Don Hall	Selenga Hall
	Session 19. Environmental problems and recycling of mineral-containing waste products <i>Chair: Kari Heiskanen, Finland</i>	Session 20. Process modeling <i>Chair: Tomasz Niedoba, Poland</i>	Session 21. Technological mineralogy <i>Chair: Jing Li, Canada</i>
16.20-16.40		INTRODUCING HPGR APPLICABILITY INDEX AS A NOVEL CRITERIA FOR SELECTION OF HPGR AT IRON ORE PELLET FEED PREPARATION CIRCUIT (p. 497) Mohsen Zare, A. Dehghani, R. Hejazi, M. Saghacian, V. Sheikhzadeh R&D Department, Fakoor Sanat Tehran Company, Iran	DEPARTMENT STUDY AND EXTRACTIVE METALLURGY OF GOLD AND SILVER IN A SULFIDE ORE FROM CHINA (p. 509) Jing Li^{1,2}, J. Zhou^{1,2,3} ¹ Xiamen Zijin Technology of Mining and Metallurgy Limited, China ² State Key Laboratory of Comprehensive Utilization of Low Grade Refractory Gold Ores, China ³ Joe Zhou Mineralogy Ltd, Canada
16.40-17.00	COMPREHENSIVE PROCESSING OF IRON-BEARING MINERALS (p. 707) Sergey Prokopyev OOO PK Spirit (Limited Liability Production Company Spirit), Russia	APPLYING LINEAR MODEL PREDICTIVE CONTROL TO CRUSHING CIRCUIT SIMULATIONS (p. 555) Marcus Johansson, M. Evertsson Department of Industrial and Material science, Chalmers University of Technology, Sweden	INTEGRATED GOLD DEPARTMENT METHODOLOGY FOR COMPLEX RE-FRACTORY COPPER GOLD ORE (p. 653) Aparup Chattopadhyay¹, Barun K. Gorain², Stamen S. Dimov³, Brian R. Hart³, John Jiang⁴ ¹ Integrated Process Mineralogy Solutions Inc. Canada ² Barrick Gold Corporation, Canada ³ Surface Science Western, Western University ⁴ AuTec Innovative Extractive Solutions
17.00-17.20	Session 22. Environmental problems and recycling of mineral-containing waste products <i>Chair: Marinela Panayotova, Bulgaria</i>	FINE MODELLING OF ORES FOR GEOMETALLURGY-BASED PROCESS SIMULATION (p. 558) S. Brochot¹, Manuel Gonzalez Fernandez² and M.V. Durance¹ ¹ Caspeo, 3 avenue Claude Guillemin, BP 36009, 45060, Orleans CEDEX 2, France ² Caspeo Chile SpA, Santiago, Chile	PROBLEM OF PROCESS-RELATED DAMAGE TO DIAMONDS AND POSSIBLE WAYS OF ITS SOLUTION. INSTRUMENTAL ASSESSMENT METHOD (p. 768) Igor Makarsky, L.G. Tarasova, D.N. Nikitin Yakutniiproalmaz Institute, Russia
	NEW EFFICIENT TECHNIQUES OF SAPONITE RECOVERY FROM PROCESS WATER OF DIAMOND TREATMENT PLANTS YIELDING HIGH-QUALITY MARKETABLE PRODUCTS (p. 66) Vladimir Minenko¹, Makarov D.V.², Samusev A.L.¹, Suvorova O.V.³, Selivanova E.A.⁴ ¹ Institute of Comprehensive Exploitation of Mineral Resources, Russian Academy of Sciences, (ICEMR RAS), Russia ² Institute of Industrial North Ecology Problems of the Kola Science Centre of RAS, Russia ³ I.V. Tananaev Institute of Chemistry and Technology of Rare Elements and Mineral Raw Materials of the Kola Science Centre of RAS, Russia ⁴ Geological Institute of the Kola Science Centre of RAS, Russia		

NOTE

Neva Hall			
17.00–18.30	International Advisory Committee Meeting		
A1 Hall	A2 Hall	A3 Hall	
Session 15. Comminution & classification <i>Chair: Pavel Fedotov, Russia</i>	Session 16. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology <i>Chair: Vladko Panayotov, Bulgaria</i>	Session 17. Physical enrichment – gravity, magnetic and electrostatic separation <i>Chair: Rolf Cleiv, Norway</i>	
17.20-17.40	REPLACING PETROV'S PROCESS WITH ATMOSPHERIC FLOTATION USING PB-BHA COMPLEXES FOR SEPARATING SCHEELITE FROM FLUORITE (p. 179) <u>Haisheng Han¹</u> , Wei Sun ¹ , Yuehua Hu ¹ , Anh V Nguyen ^{1,2} , Xiaodong Li ³ , Kefeng Chen ³ , Honghu Tang ¹ , Jianjun Wang ¹ , Zhao Wei ¹ , Ruolin Wang ¹ ¹ School of Mineral Processing and Bioengineering, Central South University, China ² School of Chemical Engineering, The University of Queensland, Australia ³ Hu Nan Shizhuyuan Non-ferrous Metal Limited Liability Corporation, China	PROCESSING A COMPLEX W ORE BY PRECONCENTRATING WITH A FALCON CONCENTRATOR PRIOR TO FLOTATION (p. 255) <u>Yann Foucaud¹</u> , Q. Dehaine ^{1,2} , I. Filippova ¹ , L.Filippov ¹ ¹ GeoRessources, Université de Lorraine, CNRS, France ² Camborne School of Mines, University of Exeter, United Kingdom	
17.40-18.00	A NUMERICAL STUDY OF THE EFFECTS OF MICROWAVE PRE-TREATMENT ON VALUE LIBERATION FROM A ZINC ORE (p. 648) <u>Pierre-Henri Koch¹</u> , Edson Charikinya ² ¹ Division of Minerals and Metallurgical Engineering (MiMeR), Luleå University of Technology, Sweden ² Minerals to Metals Initiative, University of Cape Town, South Africa	MODIFICATION OF STRUCTURAL – CHEMICAL AND TECHNOLOGICAL PROPERTIES OF RARE – METAL MINERALS UNDER THE INFLUENCE OF HIGH – POWER ELECTROMANETIC PULSES (p. 28) <u>I.Zh. Bunin</u> , <u>Maria Ryazantseva</u> , <u>E.V. Koporulina</u> The laboratory of mineral components separation theory, N.V. Mel'nikov Institute of Comprehensive Exploitation of Mineral Resources of Russian Academy of Science, Russia	INTERMEDIATE SIZE BENEFICIATION WITH REFLUX CLASSIFIER (p. 175) <u>Bijay Tiwari</u> , <u>D. Bhargav</u> , <u>Jitender Singh</u> , <u>D. Chakraborty</u> Process Technology group, Tata Steel Limited, India
18.30-21.00	Cultural Reception (Valdai-Seligor Hall, 1 floor)		

	Amphitheater Hall	Press Hall	Don Hall	Selenga Hall
	Session 18. Hydro- and bio-hydrometallurgy <i>Chair: Grigory Voiloshnikov, Russia</i>	Session 22. Environmental problems and recycling of mineral-containing waste products <i>Chair: Marinela Panayotova, Bulgaria</i>	Session 20. Process modeling <i>Chair: Tomasz Niedoba, Poland</i>	Session 21. Technological mineralogy <i>Chair: Jing Li, Canada</i>
17.20-17.40	MODELS FOR THE DIFFUSION COEFFICIENT OF CUPRIC ION AND LIMITING CURRENT DENSITY IN A COPPER ELECTROREFINING ELECTROLYTE (p. 443) Taina Kalliomäki, B. P. Wilson, J. Aromaa, M. Lundström Aalto University, School of Chemical Technology, Department of Materials Science and Engineering, Finland		DEVELOPMENT OF A SAG MILL MODEL BASED ON THE SAGDESIGN TEST: APPLICATION TO PLANT DESIGN AND OPTIMIZATION (p. 587) S. Brochot¹ and Manuel Gonzalez Fernandez² ¹ Caspeo, 3 avenue Claude Guillemin, BP 36009, 45060, Orleans CEDEX 2, France ² Caspeo Chile SpA, Santiago, Chile	EFFECTS OF COPPER SLAG COOLING STUDIED WITH IMAGE PROCESSING SOFTWARE (p. 810) Milen Kadiyski, V. Stoyanova, V. Stoilov, E. Visariev Aurubis Bulgaria, Bulgaria
17.40-18.00	THE IMPROVEMENT OF HEAVY RARE EARTH RECOVERY FROM WEATHERED RESIDUAL RARE EARTH ORE BY PLANETARY MILLING ADDED SODIUM HYDROXIDE (p. 496) Tatsuya Kato¹, G. Granata², C. Tokoro², Y. Tsunazawa³, T. Takagi³ ¹ Graduate School of Creative Science and Engineering, Waseda University, Japan ² Faculty of Science and Engineering, Waseda University, Japan ³ Research Institute for Geo-Resources and Environment, National Institute of Advanced Industrial Science and Technology, Japan			NEW MINERAL SENSING TECHNOLOGIES FOR GRADE ENGINEERING® AND COARSE GANGUE REJECTION (p. 798) Greg Wilkie¹, P. Revell¹, P. Coghill², A. Blouin³, M. Sabsabi³ ¹ CRC ORE QCAT Technology Transfer Centre, Australia ² CSIRO Minerals Resources, Australia ³ National Research Council of Canada, Canada
	18.30-21.00 Cultural Reception (Valdai-Seliger Hall, 1 floor)			

NOTE



Summary / Monday, September 18	
07.30	Registration (Foyer. 1 floor)
Plenary Session	
08.20–09.50	Plenary Presentations Plenary Presentations (Congress Hall) Chairs: Eric Forssberg, Sweden, James Finch, Canada
	The future of mining: will in-place recovery ever come of age? (p. 677) <i>Prof. Robin Batterham, University of Melbourne, Australia</i>
	Current status and main development areas of mineral and chemical company «EUROCHEM» (p. 1058) <i>Igor Nechaev, General Director of the JSC «MCC «EuroChem», Russia</i>
09.50–10.35	Poster Session and Coffee Break (Foyer. 1 floor)

Technical Sessions						
	A1 Hall	A2 Hall	A3 Hall	Amphitheater Hall	Don Hall	Selenga Hall
10.35–13.00	Session 23. Comminution & classification	Session 24. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology	Session 25. Physical enrichment – gravity, magnetic and electrostatic separation	Session 26. Hydro- and bio-hydrometallurgy	Session 27. Process modeling	Session 28. Technological mineralogy
13.00–14.30	🍴 Lunch					
14.30–15.35	Session 29. Comminution & classification	Session 30. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology	Session 31. Physical enrichment – gravity, magnetic and electrostatic separation	Session 32. Hydro- and bio-hydrometallurgy	Session 33. Pillarization, agglomeration and sintering	Session 34. Technological mineralogy
15.35–16.05	☕ Coffee Break					
16.05–17.25	Session 35. Comminution & classification	Session 36. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology	Session 37. Physical enrichment – gravity, magnetic and electrostatic separation	Session 38. Hydro- and bio-hydrometallurgy	Session 39. Pillarization, agglomeration and sintering	Session 21. Technological mineralogy
Press Hall						
10.35–11.55	METALLOINVEST THE MAIN TRENDS IN THE ENRICHMENT EFFICIENCY IN THE PROCESSING OF IRON ORES					
15.00–18.00	"The Plaksin's Readings – 2018"					
Neva Hall						
11.00–12.00	Young Authors Commission					
15.30–17.00	Education commission workshop					
17.00–18.30	🌐 IMPC General Body Meeting. (Amphitheater Hall)					

Press Hall			
10.35–11.55	METALLOINVEST THE MAIN TRENDS IN THE ENRICHMENT EFFICIENCY IN THE PROCESSING OF IRON ORES Sergey Gubin, Sergey Nemikin		
Neva Hall			
11.00–12.00	Young Authors Commission		
A1 Hall		A2 Hall	A3 Hall
Session 23. Comminution & classification Chair: Herbert Hill, South Africa		Session 24. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology Chair: Georgios Anastassakis, Greece	Session 25. Physical enrichment – gravity, magnetic and electrostatic separation Chair: Imre Gombkoto, Hungary
10.35–11.00	KEYNOTE THE CHOOSING SPECIAL METHODS OF DISINTEGRATION FOR VERY COMPLICATED RARE ORE (p. 19) Galina Gazaleeva ¹ , Bulatov K.V. ¹ , Levchenko E.N. ² ¹ OJSC “Uralmekhanobr”, Russia ² FGUP “IMGRE”, Russia	KEYNOTE FLOTATION IN HIGHLY CONCENTRATED ELECTROLYTE SOLUTIONS/SEAWATER (p. 162) Janusz Laskowski ¹ , S. Castro ² , L. Gutierrez ³ ¹ N.B. Keevil Institute of Mining Engineering, University of British Columbia, Canada ² Min-Flot Research Center for Mineral Flotation, Chile ³ Department of Metallurgical Engineering, University of Concepcion, Chile	KEYNOTE APPLICATION OF X-RAY TRANSMISSION SENSOR-BASED SORTING FOR PRECONCENTRATION OF SEAFLOOR MASSIVE SULPHIDE ROCK SAMPLES FROM THE LOKI'S CASTLE AREA AT THE ARCTIC MID-OCEAN RIDGE (p. 61) Przemyslaw Kowalczyk ¹ , Klaus M. Hahn ² , Jutta Lennartz ² , Ben Snook ¹ , Hermann Wotruba ² , Kurt Aasly ¹ , Rolf Arne Kleiv ¹ ¹ NTNU Norwegian University of Science and Technology, Department of Geoscience and Petroleum, Norway ² RWTH Aachen University, Unit of Mineral Processing, Germany
	THE EVALUATION OF THE ENERGY EFFICIENCY OF THE CRUSHING PROCESS “IN THE LAYER” IN CONE CRUSHERS (p. 45) Svetlana Elnikova, Bratygina E.V. OJSC “Uralmekhanobr”, Russia	FLOTATION AND ADSORPTION CHARACTERISTIC OF FATTY ACIDS SEPARATED FROM WASTE COOKING OIL (p. 530) Wenda Guo ¹ , Y.X. Han ¹ , Y.M. Zhu ¹ , S.M. Zhang ¹ , B.B. Luo ² ¹ College of Resource and Civil Engineering, Northeastern University Shenyang, China ² Department of Chemical and Materials Engineering, University of Alberta Edmonton, Canada	INVESTIGATION ON PRE-CONCENTRATION EFFICIENCY OF A LOW GRADE HEMATITE ORE USING MAGNETIC SEPARATION (p. 34) Jianwen Yu, Y.X. Han, Y.J. Li, P. Gao Department of Mineral Processing, School of Resources and Civil Engineering, Northeastern University, China
11.00–11.20			
11.20–11.40	INITIAL APPLIFICATION OF A DYNAMIC, MECHANISTIC MILL MODEL (p. 571) B. Bonfils, Malcolm Powell JKMRC, Sustainable Minerals Institute, University of Queensland Australia	ON THE RELATIONSHIP BETWEEN PARTIAL MOLAR EXCESS GIBBS ENERGY AND CONTACT ANGLE (p. 116) M.C. Harris, Cyril O'Connor Centre for Minerals Research, Department of Chemical Engineering, University of Cape Town, South Africa	

	Amphitheater Hall	Don Hall	Selenga Hall
	Session 26. Hydro- and bio-hydrometallurgy <i>Chair: Toyohisa Fujita, Japan</i>	Session 27. Process modeling <i>Chair: Pradip, India</i>	Session 28. Technological mineralogy <i>Chair: James Finch, Canada</i>
10.35-11.00	KEYNOTE STATE OF RARE AND RARE EARTH METALS PRODUCTION IN THE WORLD AND KAZAKHSTAN (p. 80) Zinesh Abisheva Kazakh National Research Technical University named after K.I. Satpayev, Satpayev, Kazakhstan	KEYNOTE GEOMETALLURGICAL CHARACTERIZATION OF VIZCACHITAS CU/MO ORE, CHILE (p. 934) Antony Amberg¹, Gonzalo Saldias², Romke Kuyvenhoven³, Francisco Soto³, Heriban Soto⁴, Catherine Souza⁴ ¹ Los Andes Copper, Chile ² Minera Vizcachitas, Chile ³ Empirica Consultores, Chile ⁴ SGS Minerals, Chile	KEYNOTE GEOMETALLURGY AND MINERALOGY OF PRECIOUS METAL ORES: IMPORTANCE AND APPLICATION IN PROCESS SELECTION AND PLANT OPTIMIZATION (p. 1016) Joe Zhou¹, I. Dymov², J. Li³ ¹ Joe Zhou Mineralogy Ltd, Canada, ² Process Metallurgy Consultant Ltd, Canada ³ Zijin Mining Group, China
11.00-11.20	TUNGSTEN LEACHING FROM SCHEELITE CONCENTRATE USING SODIUM HYDROXIDE IN THE PRESENCE OF PHOSPHATE BY AUTOCLAVING PROCESS (p. 46) Yanbai Shen, Tingting Li, Guodong Li, Shuling Gao, Cong Han, Dezhou Wei School of Resources and Civil Engineering, Northeastern University, China	IMPROVED MAGNETIC SEPARATION TESTING FOR GEOMETALLURGICAL MODELING OF BIF MAGNETITE DEPOSIT — AUSTRALIA, YOGI MINE (p. 689) Rasool Hejazi¹, M. Ahadi², M. Tavousi², O. Asghari³, M. Saghacian¹, R. Barreiro⁴ ¹ R&D Department, Fakoore Sanat Tehran Company, Iran ² Exploration and Mining Department, Technical Office, Kusha Madan Consulting Eng., Iran. ³ Mining Engineering, University of Tehran ⁴ FST & IDG Joint Venture, Western Australia	RESEARCH ON OCCURRENCE CHARACTERISTICS OF RARE EARTH ELEMENTS IN CARLIN-TYPE GOLD ORE IN THE SOUTHWEST OF GUIZHOU PROVINCE (p. 624) X.H. Li^{1,2,3,4}, Qin Zhang^{2,3,4}, Z.H. Shen^{2,3,4}, F. Xie^{2,3,4} and S. Mao^{2,3} ¹ College of Materials and Metallurgy, Guizhou University, Guiyang, China ² Mining College, Guizhou University, Guiyang 550025, China ³ National & Local Joint Laboratory of Engineering for Effective Utilization of Regional Mineral Resources from Karst Areas, Guiyang, China ⁴ Guizhou Key Lab of Comprehensive Utilization of Non-metallic Mineral Resources, Guiyang, China
11.20-11.40	RECOVERY OF RARE EARTH ELEMENTS AND PHOSPHORUS FROM APATITE ORE BY LEACHING AND PRECIPITATION (p. 238) Kazutoshi Haga¹, K. Amano¹, A. Battengel², A. Batnasan³, Y. Watanabe³, A. Shibayama³ ¹ Akita University, Graduate School of Engineering Science, Japan ² Akita University, Graduate School of Engineering and Resource Science, Japan ³ Akita University, Graduate School of International Resource Sciences, Japan	NUMERICAL SIMULATION OF THE EFFECT OF NEAR GRAVITY DENSITY PARTICLES ON THE PERFORMANCE OF DMC TREATING COAL (p. 929) Asha Kumari A.V.¹, Narasimha Mangadoddy¹, Raja Banerjee R.², Sreedhar G.E.³, Shivakumar R.³, Ranjan Kumar³ ¹ Department of Chemical Engineering, Indian Institute of Technology Hyderabad, India ² Department of Mechanical and Aerospace Engineering, Indian Institute of Technology Hyderabad, Ordinance Factory Estate, India ³ Research and Development, National Mineral Development Corporation Limited, India	MINERALOGICAL CHARACTERIZATION OF COPPER IN SMELTER SLAGS (p. 883) Ilya Anisimov, A.M. Sagitova, I.A. Agapov, N.V. Rylov Technology Research Department, Polymetal Engineering JSC, Russia.

	A1 Hall	A2 Hall	A3 Hall
	Session 23. Comminution & classification <i>Chair: Herbert Hill, South Africa</i>	Session 24. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology <i>Chair: Georgios Anastassakis, Greece</i>	Session 25. Physical enrichment – gravity, magnetic and electrostatic separation <i>Chair: Imre Gombkoto, Hungary</i>
11.40-12.00	COMPARISON OF WET AND DRY STIRRED MEDIA MILLING FROM ENERGETIC AND MECHANOCHEMICAL POINT OF VIEW (p. 577) Adam Racz¹, K. Bohács¹, F. Kristály², É. Gregus¹, G. Mucsi¹ ¹ Institute of Raw Material Preparation and Environmental Processing, University of Miskolc, Hungary ² Institute of Mineralogy and Geology, University of Miskolc, Hungary	EFFECT OF PHYSICAL COLLECTOR SORPTION ON FLOTATION PARAMETERS (p. 72) Sergey Kondratyev Federal State Budgetary Scientific Institution — N.A. Chinakal Institute of Mining, Siberian Branch, Russian Academy of Sciences, Russia	ADVANCED LITHIUM ORE PROCESSING METHODS (p. 27) Alexander Kurkov, A.A. Rogozhin, S.I. Anufrieva, E.G. Likhnikovich Technology Department, All-Russian Scientific-Research Institute of mineral resources named after N.M. Fedorovsky, Russia
12.00-12.20	COMPARATIVE STUDY OF OPTIMIZATION SCHEMES IN MINERAL PROCESSING SIMULATIONS (p. 591) Kanishk Bhadani, G. Asbjörnsson, E. Hulthén, M. Bengtsson, M. Evertsson Department of Industrial and Materials Science, Chalmers University of Technology, Sweden	REVERSE CATIONIC FLOTATION — A POSSIBILITY TO REDUCE SILICATE CONTENT IN MAGNETITE CONCENTRATE IN LKAB'S BENEFICIATION PLANTS IN KIRUNA (p. 101) Kari Niiranen¹, Viktoria Töyrä¹ and Patrick Krolop² ¹ Technical and Process Development, Luossavaara-Kiirunavaara AB (publ.), Sweden ² Division of Economic Geology and Petrology, Institute of Mineralogy, TU Bergakademie Freiberg, Germany	PARTICLE TACKING TO STUDY THE MECHANISMS OF JIGGING (p. 284) Wynand Roux, N. Naude Department of Materials Science and Metallurgical Engineering, University of Pretoria, South Africa
12.20-12.40	DEGREE EVALUATION OF GRINDING ON FRACTIONAL COMPOSITION AT DESTRUCTION OF POLYMINERAL RAW MATERIALS (p. 605) Nadezhda Nikolaeva, A. Romashev, T. Aleksandrova Mineral Processing Department, Saint-Petersburg Mining University, Russia	EFFECT OF COMPOSITION AND MOLECULAR STRUCTURE ON THE FLOTATION ACTIVITY OF OXYETHYLATED SURFACTANTS (p. 44) Stanislav Titkov¹, N.N. Panteleva¹, E.I. Afonina¹, S.N. Aliferova², T.M. Gurkova¹, A.V. Konobeevskich¹ ¹ Galurgy Institute, Russia ² Uralkali company, Russia	THE ROLE OF MICROSCOPIC MAGNETITE INCLUSIONS IN MAGNETIC MINERAL PROCESSING HIGHLIGHTED BY NORWEGIAN EXAMPLES (p. 379) K.L. Sandvik¹, Hakon Havskjold¹, N. Church¹, E. Larsen¹, M. Tro², T. Malvik¹, R. A. Kleiv¹ ¹ Department of Geoscience and Petroleum, Norwegian University of Science and Technology, Norway ² Rana Gruber A/S, Norway
12.40-13.00	MICROSTRUCTURAL INVESTIGATION OF COMPLEX ORES PROCESSED WITH ELECTRIC IMPULSES (p. 639) Margarita Mezzetti, O. Popov¹, H. Lieberwirth¹, E. Anders², M. Voigt², P. Hoske² ¹ Institute of Mineral Processing Machines, TUBAF, Germany ² Institute of Fluid Power, TU Dresden, Germany		BULK ORE SORTING FOR GRADE ENHANCEMENT (p. 524) P.J. Coghill¹, Nick Cutmore¹, D.G. Miljak¹, C. Beal², A.S. Broesder² ¹ CSIRO Mineral Resources, Australia ² RFC Ambrian Limited, Australia
13.00-14.30	Lunch. (Valdai-Seliger Hall, 1 floor)		

	Amphitheater Hall	Don Hall	Selenga Hall
	Session 26. Hydro- and bio-hydrometallurgy <i>Chair: Toyohisa Fujita, Japan</i>	Session 27. Process modeling <i>Chair: Pradip, India</i>	Session 28. Technological mineralogy <i>Chair: James Finch, Canada</i>
11.40-12.00	ATMOSPHERIC OXIDATION OF GOLD-COPPER FLOTATION CONCENTRATE (p. 100) Ruslan Nabiulin¹, A.V. Bogorodsky, S.V. Balikov, Yu.E. Emelyanov¹ ¹ JSC Irgridmet, Russia	DESIGNING OF MASS FLOW OBSERVER SYSTEM OF A MINERAL PROCESSING PLANT (p. 592) Ali Vazirzadeh, N. Jovanovic Hatch Ltd., Canada	APPLIED ORE MICROSCOPY IN SOLVING CONCENTRATION PROBLEMS OF PB-ZN-AG ORE RICH WITH SB AND AS (p. 942) R. Tomanec, Marina Blagojev Department of Mineral Processing, Faculty of Mining and Geology, University of Belgrade, Serbia
12.00-12.20	COPPER RECOVERY AND ARSENIC REMOVAL FROM ENARGITE ORES AND CONCENTRATES DURING HIGH PRESSURE OXIDATIVE LEACHING (p. 163) Atsushi Shibayama¹, Altansukh Batnasan¹, Kazutoshi Haga² ¹ Graduate School of International Resource Sciences, Akita University, Japan ² Graduate School of Engineering Science, Akita University, Japan	MULTI-OBJECTIVE OPTIMIZATION OF A MINERAL PROCESSING PLANT VIA MACMACHINE LEARNING AND GENETIC ALGORITHMS (p. 543) Vishnu Masampally, Aditya Pareek, Nagaravi Kumar, Varma Nadimpalli, Venkataramana Runkana TCS Research, Tata Consultancy Services Ltd., Pune, 411013, India	ASSESSMENT OF RENTAL INCOME IN MINERAL PROCESSING FOR RARE EARTH DEPOSITS (p. 997) Sergey Grishaev¹, S.V. Bogdanov² ¹ Minpromtorg, Russia ² State University of Management, Russia
12.20-12.40	THE INTMET PROJECT PROVIDES INNOVATIVE HYDRO AND BIOHYDRO- TECHNOLOGIES TO DEAL EFFICIENTLY WITH POLYMETALLIC AND COMPLEX SUPHIDE ORES (p. 583) Carlos Frias¹, Francisco Sánchez¹, Petrus Van Standen², Dragan Milanovic³, Eero Kolehmainen⁴ ¹ Cobre Las Cruces, Spain ² Mintek, South Africa ³ Mining and Metallurgy Institute Bor, Serbia ⁴ Outotec (Finland) Oy Research Center, Finland		NEW DATA ON ADSORPTION OF BUTYL XANTHATE ON THE SULFIDES UNDER CONDITIONS OF THEIR PRELIMINARY TREATMENT BY WATER ELECTROLYSIS PRODUCTS (p. 77) Elizaveta Koporulina¹, M.V. Ryazantseva¹, E.L. Chanturiya², E.S. Zhuravleva¹ ¹ The N.V. Mel'nikov Institute of Comprehensive Exploitation of Mineral Resources of Russian Academy of Science, Russia, ² National University of Science and Technology MISiS, Russia
12.40-13.00	CHANGES IN THE GOLD COMPLEX CHEMISTRY AND EQUILIBRIUM REACTIONS AFFECTING GOLD RECOVERY IN THE CALCIUM THIOSULFATE SYSTEM (p. 292) Janet Baron Gavidia¹, Y. Choi² ¹ AuTec Innovative Extractive Solutions Ltd., Canada ² Barrick Gold Corporation, Canada		INFLUENCE OF ENERGY PULSE IMPACTS ON PHYSICO-CHEMICAL, STRUCTURAL AND TECHNOLOGICAL PROPERTIES OF DIAMOND AND KIMBERLITE ROCK-FORMING MINERALS (p. 858) Nataliya Anashkina¹, Bunin I.Zh.¹, Khachatryan G.K.² ¹ Federal state budgetary institution "N.V. Mel'nikov Institute of Comprehensive Exploitation of Mineral Resources RAS", Russia ² Federal State Unitary Enterprise "Central Geological Research Institute for Nonferrous and Precious Metals", Russia
13.00-14.30	Lunch. (Valdai-Seliger Hall, 1 floor)		

Press Hall			
15.00-18.00	"The Plaksin's Readings – 2018"		
Neva Hall			
15.30–17.00	Education commission workshop		
A1 Hall		A2 Hall	A3 Hall
Session 29. Comminution & classification Chair: Pavel Fedotov, Russia		Session 30. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology Chair: Aleksandr Kurkov, Russia	Session 31. Physical enrichment – gravity, magnetic and electrostatic separation Chair: Toyohisa Fujita, Japan
14.30-14.55	KEYNOTE COMPARING THE ORE BREAKAGE CHARACTERISTICS OF DRILL CORE AND CRUSHED ORE USING THE JKRB T (p. 568) Herbert Hill, A. Mainza, L. Bbosa, M. Becker Centre for Minerals Research, Department of Chemical Engineering, University of Cape Town, South Africa	KEYNOTE PROCESS FLOWSHEET FOR UDOKAN COPPER ORES (p. 1018) Arkady Senchenko ¹ , K.V. Fedotov ² , V.A. Chanturiya ³ ¹ Science-Research and Design Institute “Technologies of Minerals Separation” (Institute TOMS) Ltd., Russia ² Institute of Mineral Resources Management and Processing of the Irkutsk National Research Technical University, Russia ³ Institute of Complex Exploration of Mineral Resources of the Russian Academy of Science, Russia	INNOVATIONS TO ENHANCE THE SEPARABILITY CHARACTERISTICS OF BOF-SLAG (p. 599) Ali Kamali Moaveni ¹ , A. Boehm ¹ ¹ Montanuniversitaet Leoben, Department Mineral Resources, Chair of Mineral Processing, Austria
14.55-15.15	SELECTED EFFECTS OF HIGH-PRESSURE GRINDING THAT INCREASE THE LEVEL OF ORE RECOVERY (p. 645) Daniel Saramak AGH University of Science and Technology, Faculty of Mining and Geoengineering, Department of Environmental Engineering and Mineral Processing, Poland	DEMYSTIFYING PROCESS WATER EFFECTS ON GANGUE-DEPRESSANT ADSORPTION IN SULPHIDE FLOTATION (p. 128) Malibongwe Manono, Corin K.C., Wiese, J.G. Centre for Minerals Research, Department of Chemical Engineering, University of Cape Town, South Africa	EFFICIENCY OF DENSE MEDIUM CYCLONES IN PROCESSING CARBONACOUS IRON ORES (p. 602) Andreas Boehm ¹ , F. Schillab ¹ , A.Stadtschnitzer ² , A. Kogelbauer ² ¹ Montanuniversitaet Leoben, Department Mineral Resources, Chair of Mineral Processing, Austria,
15.15-15.35	IMPROVEMENT OF THE SELECTIVE COMMUNUTION OF A LOW-GRADE SCHIST ORE CONTAINING CASSITERITE USING A HIGH VOLTAGE PULSE TECHNOLOGY (p. 741) Kathy Bru ¹ and D. B. Parvaz ² ¹ BRGM, Water, Environment and Ecotechnologies Division —Waste and raw materials & recycling Unit, France ² SELFRAG AG, Switzerland		DEVELOPMENT A NOVEL PROVEN WET MAGNETIC SEPARATOR FOR IMPROVEMENT EFFICIENCY OF LEBEDINSKY CONCENTRATE PLANT (p. 674) M. Asghari ¹ , Rasool Hejazi ² , A. Dehghani ² , M. Saghaeian ² , A. Haratian ¹ M. Lak ¹ ¹ Fakoor Meghnatis Spadana (FMS) Company, Iran ² FakoorSanat Tehran Company, Iran
15.35-16.05	☕ Coffee Break. (Foyer)		

	Amphitheater Hall	Don Hall	Selenga Hall
	Session 32. Hydro- and bio-hydrometallurgy <i>Chair: Christie Dorfling, South Africa</i>	Session 33. Pillarization, agglomeration and sintering <i>Chair: Satyananda Patra, India</i>	Session 34. Technological mineralogy <i>Chair: Olga Poperechnikova, Russia</i>
14.30-14.55	KEYNOTE BIOOXIDATION OF GOLD AND SILVER-EARING HIGH SULPHIDE REFRACTORY CONCENTRATE (p. 115) <u>Galina Sedelnikova</u>, Savari E., Kim D., Dmitrakova U Mineral Processing Department, Central research institute of geological prospecting for base and precious metals (TsNIGRI), Russia	KEYNOTE EVALUATION AND IMPORVEMENT OF SAMPLING AND ANALYSIS FOR MOISTURE CONTENT IN IRON ORE PELLET FEED – VARIOGRAPHIC SAMPLING EXPERIMENTS AND IR ON-LINE ANALYSIS (p. 152) <u>Karin Engström</u>¹, K-O. Mickelsson¹, K.H. Esbensen², S. Töyrä¹ ¹ LKAB, Sweden ² Adjunct professor, Aalborg University, Denmark. Adjunct professor, Geological Survey of Denmark and Greenland (GEUS), Copenhagen. Assoc. Professor, Université du Québec à Chicoutimi.	SYSTEMS OF SAMPLING AND PROCESS CONTROL OF MINERAL DRESSING (p. 36) V.Z. Kozin¹, Yu.P. Morozov¹, <u>Alexander Komlev</u>², P.S. Volkov¹, E.A. Bekchurina¹ ¹ Department of mineral dressing, Ural State Mining University, Russia ² LLC “Tails CO”, Russia
14.55-15.15	OBTAINING OSMIUM CONCENTRATE FROM WASTEWATER OF COPPER PRODUCTION (p. 230) Z.S. Abisheva¹, A.N Zagorodnyaya², <u>Yelena Bochevskaya</u>², A.S. Sharipova², E.A. Sargelova² ¹ NJSC Kazakh National Research Technical University named after K.I. Satpaev (NJSC «KazNITU»), Kazakhstan ² JSC «Institute of Metallurgy and Ore Benefication» (JSC «IMOB»), Kazakhstan	THERMODYNAMIC ANALYSIS OF THE PROCESS OF SOLID-PHASE SINTERING OF ILMENITE CONCENTRATE DEPOSITS «CENTRAL» (p. 47) <u>Evgeny Bratyggin</u>¹, E.G. Dmitrieva¹ ¹ JSC «Uralmekhanobr», Russia	APPLICATIONS OF PROCESS MINERALOGY IN THE GOLD DEPARTMENT STUDY OF FLOTATION PROCESS STREAMS (p. 208) <u>Xiaowen (Wendy) Ma</u>¹, David Way², Hans Liang³ ¹ BV Minerals — Metallurgical Division, Canada ²⁻³ JKTech Pty Ltd., Australia
15.15-15.35	TECHNOLOGY OF COMPLEX PROCESSING OF PHOSPHORIC SLAGS WITH RARE-EARTH METALS RECOVERY AND OBTAINING OF PRECIPITATED SILICON DIOXIDE (p. 231) <u>Yelena Bochevskaya</u>¹, Z.S. Abisheva², Z.B. Karshigina¹, Ata Akci¹, E.A. Sargelova¹ ¹ JSC “Institute of Metallurgy and Ore Benefication” (JSC “IMOB”), Kazakhstan ² NJSC Kazakh National Research Technical University named after K.I. Satpaev (NJSC “KazNITU”), Kazakhstan ³ Mineral-Metal Recovery and Recycling (MMR&R) Research Group, Mineral Processing Division, Department of Mining Engineering, Suleyman Demirel University, Turkey	USE OF THE SATURATION CURVE TO PREDICT THE OPTIMAL MOISTURE IN SINTERING (p. 188) <u>Filipe Guimaraes</u>¹, A. M. Costa², A. C. Araujo¹, T. Sylow³, M. Gotelip Barbosa¹ ¹ ArcelorMittal Maizières Research, France ² Universidade Federal do Rio Grande do Sul, Brazil ³ ArcelorMittal Mining, United Kingdom	RATIONALE FOR THE USE OF PRELIMINARY MAGNETIC PULSE TREATMENT OF IRON ORES FOR THEIR SELECTIVE (p. 917) <u>Pavel Ananyev</u>, Plotnikova A. ¹ NCP “CIMT”, Russia ² “GUN”, Russia
15.35-16.05	 Coffee Break. (Foyer)		

	A1 Hall	A2 Hall	A3 Hall
	Session 35. Comminution & classification <i>Chair: Daniel Saramak, Poland</i>	Session 36. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology <i>Chair: Stanislav Titkov, Russia</i>	Session 37. Physical enrichment – gravity, magnetic and electrostatic separation <i>Chair: Alexander Kurkov, Russia</i>
16.05-16.25	SEGREGATION OF MINERALS IN DYNAMIC AIR CLASSIFIERS (p. 790) Thomas Mütze¹, G. Kretschmar², T. Leifner¹, F. v. d. Meer³ ¹ TU Bergakademie Freiberg, Institute of Mechanical Process Engineering and Mineral Processing, Germany ² Knauf Gips KG, Germany ³ WEIR Minerals, The Netherlands	A MULTISTAGE FLOTATION MODEL AND ITS APPLICATIONS (p. 41) Boris Ksenofontov, V.P. Yakushkin Department of Ecology and Environment Protection, Bauman Moscow State Technical University, Russia	CHARACTERISTICS OF SECONDARY COPPER MINERALS USING HEAT AND MICROWAVE TREATMENTS FOR PHYSICAL SEPARATION (p. 733) Toyohisa Fujita¹, J. Ponou¹, Y. Iwazaki¹, G. Dodbiba¹, K. Mitsuhashi², T. Atarashi², M. Kawata², S. Yamasaki² ¹ Department of Systems Innovation, Graduate School of Engineering, The University of Tokyo, Japan ² Research and Development Department, Nittetsu Mining Co. Ltd., Japan
16.25-16.45	AN INVESTIGATION OF PARTICLE SHAPE EFFECTS ON LOAD MOVEMENT IN TUMBLING MILLS BY DISCRETE ELEMENT METHOD (DEM) (p. 145) Zahra Bibak¹, S. Rahmani¹, S. Banisi² ¹ Kashigar Mineral Processing Research Center, Shahid Bahonar University of Kerman, Iran ² Mining Engineering Department, Shahid Bahonar University of Kerman, Iran	DENSITY FUNCTIONAL THEORY STUDY OF ACTIVATION OF QUARTZ IN AQUEOUS OLEATE SOLUTION (p. 58) Chen Zhang, Lixia Li, Zhitao Yuan, Xinyang Xu College of Civil and Resources Engineering, Northeastern University, China	SIZE-BY-SIZE EVALUATION OF THE CONCENTRATION PROCESS IN SPIRAL CONCENTRATORS (p. 714) Damla Izerdem, S.L. Ergun Hacettepe University Mining Engineering Department, Mineral Processing Division, Turkey
16.45-17.05	DETERMINING IMPACT OF OPERATING PARAMETERS ON HPGR PERFORMANCE USING DESIGN EXPERT AND INDUSTRIAL TESTS RESULTS (p. 833) Parisa Ghobadi¹, E. Pourjenaei² ¹ Process Engineering department, Fakoor Sanat Tehran (FST), Iran ² Process operation department, Asfalt Toos (AST), Iran	USE OF LIGNIN DERIVATIVES FOR SELECTIVE FLOTATION OF CU-MO (p. 191) Lina Uribe¹, Leopoldo Gutierrez², Vicente Hernandez³, Caludia Vidal³, Regis Texeira³ ¹ Department of Mining Engineering, University of Talca, Chile ² Department of Metallurgical Engineering, University of Concepcion, Chile ³ Center of Biotechnology, University of Concepcion, Chile	TRIBOELECTRIC SEPARATION OF ILMENITE ORE BASED ON TRIBOELECTRIC CHARACTERISTICS OF MINERALS (p. 687) Haifeng Wang^{1,2}, Guangwen Zhang^{1,2}, Zhen Peng^{1,2}, Xing Yang^{1,2}, Yaqun He^{1,2,3} ¹ Key Laboratory of Coal Processing and Efficient Utilization, China University of Mining & Technology, China ² School of Chemical Engineering and Technology, China University of Mining & Technology, China ³ Advanced Analysis & Computation Center, China University of Mining & Technology, China
17.05-17.25	RESEARCH ON KINEMATICS OF MEDIA IN TOWER MILL BASED ON DISCRETE ELEMENT METHOD (p. 311) Jiancheng He^{1,2}, Shijie Lu^{1,2}, Jianchao Yao^{1,2}, Hongxi Zhou^{1,2}, Xiaoxu Sun^{1,2} ¹ Beijing General Research Institute of Mining and Metallurgy Beijing, 100160 China ² BGRIMM Machinery & Automation Technology Co., Ltd. Beijing, 100160 China	RESEARCH OF SLURRY PREPARATION BEFORE SELECTIVE FLOTATION FOR SULPHIDE POLYMETALLIC ORES (p.12) Tatyana Aleksandrova, Sergey Romanenko, Karen Arastumian Saint-Petersburg Mining University	A HOLISTIC APPROACH TO PRECONCENTRATE NICKEL IN LATERITE ORES (p. 176) Saeed Farrokhpay, L. Filippov Université de Lorraine, GeoRessources Laboratory, UMR 7359, 2 rue du Doyen Marcel Roubault, 54518 Vandoeuvre-lès-Nancy, France
17.10-18.00	IMPC General Body Meeting. (Amphitheater Hall)		

	Amphitheater Hall	Don Hall	Selenga Hall
	Session 38. Hydro- and bio-hydrometallurgy <i>Chair: Galina Sedelnikova, Russia</i>	Session 39. Pillarization, agglomeration and sintering <i>Chair: Satyananda Patra, India</i>	Session 40. Technological mineralogy <i>Chair: Zhiyong Gao, China</i>
16.05-16.25	THE CHARACTERISTICS OF GOLD OPEN CIRCUIT POTENTIAL IN FERRIC CHLORIDE LEACHING (p. 722) Sipi Seisko, J. Aromaa, M. Lundström Department of Chemical and Metallurgical Engineering, School of Chemical Engineering, Aalto University, Finland	WATER-BENTONITE INTERACTION OF IRON ORE GREEN PELLETS THROUGH MICRO-STRUCTURAL ANALYSIS (p. 372) Satyananda Patra, R. Venugopal Department of Fuel & Mineral Engineering, Indian Institute of Technology (Indian School of Mines), Dhanbad, Jharkhand, India	PROCESS IMPROVEMENT IN IRON ORE AND SINTER THROUGH REAL-TIME ON BELT ANALYSIS (p. 105) Mike Kalicinski, L. Balzan¹, A.R. Harris², and Z. Bauk³ ¹ Technical Consultant, Scantech International, Australia ² Operations Manager, Scantech International, Australia ³ Product Optimisation Manager, Scantech International, Australia
16.25-16.45	NEW FLUORIDE BERYLLIUM TECHNOLOGY (p. 736) Alexander Dyachenko, Roman Kraydenko, Lev Mal'yutin Tomsk Polytechnic University, Russia	INFLUENCE OF LIMESTONE AND DOLOMITE PARTICLE SIZES ON GRANULATION OF SINTER FEED BLENDS CONTAINING HIGH MAGNETITE CONCENTRATE (p. 447) Mustapha Adam¹, J. Addai-Mensah^{1,2}, J. Begelhole³, W. Skinner¹ ¹ Future Industries Institute, University of South Australia, Australia ² Department of Mining and Process Engineering, Namibia University of Science and Technology, Namibia ³ Simec Mining, Australia	
16.45-17.05	NEW FLUORIDE TUNGSTEN TECHNOLOGY (p. 738) Alexander Dyachenko, Roman Kraydenko, Sergey Chegrintsev Tomsk Polytechnic University, Russia	PHYSICO-CHEMICAL CHARACTERISATION OF INDUSTRIAL MANGANESE DUSTS AND SLUDGES AND ITS IMPLICATION FOR AGGLOMERATION: FROM ORE TO METAL (p. 495) John-Lee Dubos^{1,2}, B. Orberger^{1,3}, J.M. Milazzo¹, S. B. Blancher¹, J. Lützenkirchen⁴ ¹ Eramet Research, France ² GEOPS, Université Paris Sud-Université Paris Saclay, France ³ Catura Geoprojects, France ⁴ INE, Karlsruhe Institute of Technology, Germany	RELATING THE MINEROLOGICAL CHARACTERISTICS OF MANGOTE SURFACE OXIDIZED ORE TO GOLD BENEFICIATION (p. 11) Jun Xiao, Daixiong Chen, Yanhong Dong and Jianwen Yang Hunan Research Institute for Non-ferrous Metals, Changsha, China 410100
17.05-17.25	NITRIC ACID LEACHING FOR PRE-TREATMENT OF A COPPER BEARING AUROFERROUS PYRITIC CONCENTRATE (p.184) Oktay Celep, P. Altinkaya, E.Y. Yazici and H. Deveci Hydromet B&PM Group, Department of Mining Engineering Division of Mineral&Coal Processing, Karadeniz Technical University, Turkey	AN INVESTIGATION ON CHLORIDE AND AKALINE IMPURITIES OF PELLETIZING PLANTS IN IRAN (p. 551) Armin Abazarpoor, R. Hejazi, M. Saghacian, V. Sheikhzadeh R&D department, Fakoor Sanat Tehran Company, Iran	
17.10-18.00	 IMPC General Body Meeting. (Amphitheater Hall)		



Wednesday,
September 19

Kazan, Russia

Summary / Wednesday, September 19	
07.30	Registration (Foyer. 1 floor)
Plenary Session	
	Plenary Presentations Plenary Presentations (Congress Hall) Chairs: Pradip, India Juan Yianatos, Chile
08.20–09.50	Innovation-based processes of integrated and high-level processing of natural and technogenic minerals in Russia (p. 183) <i>Academician, Prof. Valentine Chanturiya, Institute of Comprehensive Exploitation of Mineral Resources Russian Academy of Sciences (ICEMR RAS), Russia</i> Technological Innovation and Sustainable Competitive Advantage in the Copper Industry – Real or Imaginary? (p. 1059) <i>Dr. John Marsden, John O. Marsden LLC dba Metallurgium, USA</i>
09.50–10.35	Poster Session and Coffee Break (Foyer. 1 floor)

Technical Sessions								
	A1 Hall	A2 Hall		A3 Hall	Amphitheater Hall	Press Hall	Don Hall	Selenga Hall
10.35–13.00	Session 40. Comminution & classification	Session 41. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology	10.35–12.00	Session 42. Physical enrichment — gravity, magnetic and electrostatic separation	Session 43. Hydro- and bio- hydrometallurgy	Session 44. Environmental problems and recycling of mineral-containing waste products	Session 45. Dewatering	Session 46. Processing of fines and slimes
			12.00–13.00	Session 47. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology				
13.00–14.00	🍴 Lunch							
14.00–15.00	Session 48. Comminution & classification	Session 49. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology		Session 50. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology	Session 51. Hydro- and bio- hydrometallurgy	Session 52. Environmental problems and recycling of mineral-containing waste products		Session 53. Processing of fines and slimes
15.00–15.30	☕ Coffee Break							
15.30–17.30	Session 54. Comminution & classification	Session 55. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology		Session 56. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology	Session 57. Hydro- and bio- hydrometallurgy	Session 58. Environmental problems and recycling of mineral-containing waste products		Session 59. Processing of fines and slimes
Neva Hall								
15.30–17.00	Minerals processing commission workshop							
18.15–22.00	🍷 IMPC Banquet & Awards							

	A1 Hall	A2 Hall	A3 Hall	Amphitheater Hall
	Session 40. Comminution & classification <i>Chair: Diana Drinkwater, Australia</i>	Session 41. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology <i>Chair: Lev Filippov, France</i>	Session 42. Physical enrichment – gravity, magnetic and electrostatic separation <i>Chair: Przemyslaw Kowalczyk, Norway</i>	Session 43. Hydro- and bio-hydrometallurgy <i>Chair: James Gebhardt, USA</i>
10.35-11.00	KEYNOTE CUTTING-EDGE TECHNOLOGICAL SOLUTIONS ENABLING COMPETITIVE ADVANTAGES OF IRON-ORE CONCENTRATE PRODUCED BY PJSC MIKHAILOVSKY GOK (p. 1029) Rinat Ismagilov¹, A.V. Kozub², D.O. Sharkovsky² ¹ METALLOINVEST Management Company LLC, Russia ² PJSC Mikhailovsky GOK, Russia	KEYNOTE SOME OPTIONS FOR ESTABLISHING FUTURE TECHNOLOGIES FOR THE MINERALS PROCESSING – BASIC PRINCIPLES, RESULTS, PERSPECTIVES (p. 254) Vladko Panayotov, M. Panayotova University of Mining and Geology, Bulgaria	KEYNOTE CHANGING PROJECT ECONOMICS BY THE APPLICATION OF ORE SORTING TECHNOLOGY (p. 892) Yi Ran Zhang¹, Brent Hilscher², Maria Holuszko¹, Nawoong Yoon¹ ¹ University of British Columbia – NBK Mining Engineering, Canada ² Sacré-Davey Engineering Inc., Canada	KEYNOTE ADSORPTION TECHNOLOGY FOR GOLD AND SILVER RECOVERY USING RESINS AND ACTIVATED CARBONS (p. 387) Grigory Voiloshnikov, V.E. Dementyev JSC Irgiredmet, Russia
11.00-11.20	POSITRON EMISSION PARTICLE TRACKING OF NEAR GRAVITATIONAL MATERIAL INSIDE A DENSE MEDIA CYCLONE (p. 916) Maximilian Richter¹, A.N. Mainza¹, I. Govender² and N. Mangadoddy³ ¹ Centre for Minerals Research, Department of Chemical Engineering, University of Cape Town, South Africa ² School of Engineering, University of Kwa-Zulu Natal, South Africa ³ Indian Institute of Technology, India	THE EFFECT OF HYDROGEN PEROXIDE ADDITION IN THE FLOTATION OF SULPHIDE ORES (p. 171) Jenny Wiese¹, K. Corin¹, Z. Song², C.T. O'Connor¹ ¹ Centre for Minerals Research, Department of Chemical Engineering, University of Cape Town, South Africa ² Beijing General Research Institute of Mining and Metallurgy, China	PHYSICAL PROPERTY CHANGES OF FE-TI OXIDES ALONG THEIR ALTERATION: A GEOMETALLURGICAL STUDY TO IMPROVE THE YIELD OF A MINERALURGICAL PLANT (p. 787) Arthur Delaporte^{1,2}, S. B. Blancher¹, P. Goncalves², T. Wallmach¹ ¹ Eramet Research, France ² Laboratory Chrono-Environnement, University of Bourgogne Franche-Comté, France	STUDY OF THE USE OF VERTICAL STIRRED BALL MILLING AS METHOD TO ENHANCE THE DISSOLUTION OF COPPER FROM CHALCOPYRITE (p. 588) Giuseppe Granata¹, M. Minagawa², T. Kato², C. Tokoro¹ ¹ Faculty of Science and Engineering, Waseda University, Japan ² Graduate School of Creative Science and Engineering, Waseda University, Japan
11.20-11.40	UNDERSTANDING THE INTERACTION OF MULTICOMPONENT PARTICLES IN HYDROCYCLONE CLASSIFIER USING CFD MODEL (p. 941) Mandakini Padhi, Narasimha Mangadoddy, Teja Reddy Department of Chemical Engineering, Indian Institute of Technology, India	THE EFFECT OF NON-SULPHIDE GANGUE MINERALS IN ENARGITE SEPARATION FROM OTHER COPPER SULPHIDES IN COMPLEX ORE SYSTEMS (p. 110) Maedeh Tayebi-Khorami¹, E. Manlapig¹, E. Forbes², D. Bradshaw³ ¹ Julius Kruttschnitt Mineral Research Centre, University of Queensland, Australia ² CSIRO, Mineral Resources, Australia ³ Minerals to Metals Initiative, Department of Chemical Engineering, University of Cape Town, South Africa	DIVERSITY OF MICROORGANISMS OXIDIZING SULFIDE MINERALS AND OPPORTUNITIES FOR IMPROVEMENT OF BIO HYDROMETALLURGICAL TECHNOLOGIES (p. 589) Aleksandr Bulaev^{1,2} ¹ Winogradsky Institute of Microbiology, Research Center of Biotechnology RAS, Russia ² Biological Faculty, Lomonosov Moscow State University, Russia	

	A1 Hall	A2 Hall	A3 Hall	Amphitheater Hall
	Session 40. Comminution & classification <i>Chair: Diana Drinkwater, Australia</i>	Session 41. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology <i>Chair: Lev Filippov, France</i>	Session 42. Physical enrichment – gravity, magnetic and electrostatic separation <i>Chair: Przemyslaw Kowalczyk, Norway</i>	Session 43. Hydro- and bio-hydrometallurgy <i>Chair: James Gebhardt, USA</i>
11.40-12.00	COMPLEX SOLUTIONS FOR INCREASE OF PRODUCTION VOLUMES OF IRON ORE CONCENTRATE WITH Fe CONTENT MORE THAN 69.5% AT JSC LEBEDINSKY GOK (p. 1030) S.M. Okunev, E.V. Mezentseva JSC LEBEDINSKY GOK, Russia	ON THE SELECTION OF TECHNOLOGIES OF COMPREHENSIVE PROCESSING OF ORES OF NON-FERROUS AND RARE METALS BASED ON PENETRATIVE DISCLOSURE OF MINERALS COMPREHENSIVE PROCESSING (p. 157) V.A. Bocharov¹, Tatyana Yushina¹, V.A. Ignatkina¹, A.A. Kayumov¹, I.M. Petrov² ¹Department of Processing and Concentration of Mineral and Technogenic Resources, Mining Institute, National Research University of Technology MISiS, Russia ²INFOMINE Research Group, Russia	OUTCOME ANALYSIS OF TESTWORK CARRIED OUT USING VARIOUS SEPARATION METHODS TO DETERMINE OXIDIZED QUARTZITE PROPERTIES (p. 1032) I.N. Gridasov, E.V. Shelepov, T.V. Ignatova PJSC Mikhailovsky GOK, Russia	GOLD ADSORPTION AND ELUTION IN THIOSULFATE LEACHING SYSTEM USING FUNCTIONALIZED MAGNETIC NANOPARTICLES (p. 796) Nirmala Ilankoon, E.A. Oraby, J.J. Eksteen, C. Aldrich Department of Mining Engineering & Metallurgical Engineering, Western Australian School of Mines, Australia
12.00-12.20	PRODUCTION GRADE CLASSIFICATION OF OXIDIZED FERRUGINOUS QUARTZITES DEPOSITED IN MIKHAILOVSKOYE ORE FIELD (p. 1033) R.I. Ismagilov¹, V.V. Khromov², I.N. Gridasov² ¹METALLOINVEST Management Company, Russia ²PJSC Mikhailovsky GOK, Russia	COLUMN FLOTATION OF COALS AND MINERALS WITH OSCILLATORY AIR SUPPLY (p. 164) J. Wang, C. Li, Liguang Wang The University of Queensland, School of Chemical Engineering, Australia	Session 47. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology <i>Chair: Yuliy Rubinstein, Russia</i> INVESTIGATING REAGENT-MINERAL INTERACTIONS BY COLLOIDAL PROBE ATOMIC FORCE MICROSCOPY (p. 285) Bent Babel, Martin Rudolph Processing department, Helmholtz Institute Freiberg for Resource Technology, Germany	STUDY OF ILMENITE AND ANATASE MECHANOCHEMICAL REDUCTION AND THEIR SUBSEQUENT LEACHING (p. 809) Marcela Achimovičová^{1,2}, M. Kaňuchová³, J. Briancin¹ ¹Institute of Mineral and Waste Processing, Waste Disposal and Geomechanics, University of Technology, Germany ²Institute of Geotechnics, Slovak Academy of Sciences, Slovakia ³Faculty of Mining, Ecology, Process Control and Geotechnology, Technical University, Slovakia

	Press Hall	Don Hall	Selenga Hall
	Session 44. Environmental problems and recycling of mineral-containing waste products <i>Chair: Neil Snyders, South Africa</i>	Session 45. Dewatering <i>Chair: Giuseppe Bonifazi, Italy</i>	Session 46. Processing of fines and slimes <i>Chair: Georgios Anastassakis, Greece</i>
11.40-12.00	MICROBIAL COMMUNITY RESPONSES TO CYANIDE IN A BIOLOGICAL TREATMENT REACTOR FOR CYANIDE CONTAINING WASTEWATER FROM GOLD PROCESSING PLANT (p. 824) Doyun Shin^{1,2,3}, Hyunsik Park^{1,2}, Jae-chun Lee^{1,2}, Minseuk Kim¹, Jaehoon Lee³ ¹ Korea Institute of Geoscience and Mineral Resources (KIGAM), Republic of Korea ² Korea University of Science and Technology, Republic of Korea ³ University of Arizona, USA		USE OF GUAR GUM AS A CLAY-FLOCCULATING AGENT FOR CHALCOPYRITE FLOTATION (p. 253) M. Jeldres¹, R.J. Jeldres², Leopoldo Gutierrez¹ ¹ Department of Metallurgical Engineering, University of Concepcion, Chile ² Department of Chemical Engineering and Mineral Process, Universidad de Antofagasta, Chile
12.00-12.20	ECOLOGICAL MONITORING OF WATERS MINING INDUSTRY HAVING TECHNOGENESIS AS A BASIS FOR SELECTING STRATEGY AND TECHNOLOGY OF THEIR PROCESSING (p. 266) Natalia Orekhova¹, I.V. Shadrinova², N.A. Volkova³, N.G. Novikova² ¹ Magnitogorsk State Technical University named after G.I. Nosov, Russia ² Federal State Institution of Science Institute of complex development of mineral resources to them. N.V. Melnikova, Academician of the Russian Academy of Sciences, Russia ³ UMMC-Holding Corporation, Russia	DEWATERING AND WATER RECYCLING EXPERIMENTS ON BAUXITE FLOTATION TAILINGS (p. 946) Yuhua Wang, Dongfang Lu, Yanqing Jiang and Huilan Yang School of Minerals Processing & Bioengineering, Central South University, China	PRODUCTION OF SYNTHETIC CARNALLITE FROM THE WASTES OF TITANIUM AND MAGNESIUM PRODUCTION WITH THE EXTRACTION OF NIOBIUM-CONTAINING MIDDLLINGS (p. 279) Almagul Ultarakova, Onayev Murat, Yessengaziyev Azamat, Barkytova Botakoz Joint Stock Company Institute of Metallurgy and Ore Benefication, Kazakhstan

NOTE

	A1 Hall	A2 Hall	A3 Hall	Amphitheater Hall
	Session 40. Comminution & classification <i>Chair: Diana Drinkwater, Australia</i>	Session 41. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology <i>Chair: Lev Filippov, France</i>	Session 47. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology <i>Chair: Yuliy Rubinstein, Russia</i>	Session 43. Hydro- and bio-hydrometallurgy <i>Chair: James Gebhardt, USA</i>
12.20-12.40	AUTOMATED CONTROL SYSTEM OF TECHNICAL PROCESS OF ORE GRINDING BASED ON A MATHEMATICAL MODEL FOR MILL CHARGING (p. 1036) S.A. Nemykin¹, M.E. Taranenko¹, V.A. Krivosov² ¹ JSC "Lebedinsky GOK", Russia ² STI NUST "MISA", Russia	EFFECT OF GRINDING MEDIA ON THE SHAPE INDEXES AND SURFACE PROPERTIES OF FLUORITE PARTICLES (p. 168) Chengwei Li, Zhiyong Gao, Wei Sun, Yuehua Hu School of Mineral Processing and Bioengineering, Central South University, China	DYNAMIC VAPOR SORPTION — A NOVEL METHOD FOR MEASURING THE HYDROPHOBICITY IN INDUSTRIAL-SCALE FROTH FLOTATION (p. 431) Lisa Malm¹, Ann-Sofi Kindstedt Danielsson², Anders Sand³, Jan Rosenkranz³ and Ingvar Ymén² ¹ Boliden Mineral, Dept. of Process Technology, Sweden ² RISE- Research Institutes of Sweden AB, Surface, Process and Pharmaceutical Development, Sweden ³ Minerals and Metallurgical Engineering, Dept. of Civil, Environmental and Natural Resources Engineering, Luleå University of Technology, Sweden	OPTIMIZATION OF EFFECTIVE PARAMETERS IN GOLD EXTRACTION PROCESS FROM POLY METAL ORE, USING THIUREA AS A CYANIDE ALTERNATIVE AND SODIUM CYANIDE (p. 846) Hadi Abdollahi^{1,2}, Pouya Karimi^{3,4}, Ahmad Amini² ¹ School of Mining, College of Engineering, University of Tehran, Iran ² Mineral Processing Division, Geological Survey and exploration of Iran, Iran ³ Mining Department, TMU University, Iran ⁴ Central Laboratory and Quality Control, Gol-E-Gohar Mining and Industrial Company, Iran
12.40-13.00	PHYSICAL MODELING TO DESIGN TOOTHED SCREW ROLL CRUSHERS AND SHREDDERS (p. 1048) Stepanenko A.I. GORMASHEXPORT, Russia		IMPROVING PROFITABILITY, SUSTAINABILITY AND THE OVERALL OPERATING EFFICIENCY FROM MINE TO PROCESS IN RUSSIAN OPERATIONS (p. 271) W. Valery¹, K. Duffy¹, R. Hayashida², Alex Jankovic¹, Erico Tabosa¹, Ivan Yelkin³ ¹ Hatch Brisbane, Australia ² Hatch Brazil, Brazil ³ Hatch Russia, Russia	STUDY ON PRACTICABILITY OF STAINLESS PERMANENT CATHODE BLANK IN COBALT ELECTROWINNING PROCESS (p. 851) Chi Zhang¹, Junyi Wu² ¹ Peking Brotech Company, China ² Sanmen Sanyou Technology Inc, China
13.00-14.30	Lunch. (Valdai-Seliger Hall, 1 floor)			

	Press Hall	Don Hall	Selenga Hall	NOTE
	Session 44. Environmental problems and recycling of mineral-containing waste products <i>Chair: Neil Snyders, South Africa</i>	Session 45. Dewatering <i>Chair: Giuseppe Bonifazi, Italy</i>	Session 46. Processing of fines and slimes <i>Chair: Georgios Anastassakis, Greece</i>	
12.20-12.40	HIGH VOLTAGE PULSE FRAGMENTATION FOR METAL LIBERATION FROM WASTE LED LAMPS (p. 896) <u>Amit Kumar</u>, V.K. Kuppusamy, M. Holuszko NBK Institute of Mining Engineering, University of British Columbia, Canada	EFFICIENT PERFORMANCE OF THE THICKENER BY ADJUSTING THE OPERATIONAL PROCESS PARAMETERS; INDUSTRIAL EXPERIMENTS AT JALAL ABAD HEMATITE IRON ORE CONCENTRATE PLANT (p. 504) <u>Mehdi Mohammadinejad</u>, M. Zare, R. Hejazi, M. Saghaeian¹ ¹ FakoorSanat Tehran Company, Iran	INVESTIGATING FINE PARTICLE RECOVERY IN THE LEAD FLOTATION CIRCUIT OF MINERA FRESNILLO (p. 578) K. Tungpalan^{1,3}, Mario Corona-Arroyo², L. Carillo⁴, A. Tolentino⁴, C. Quintero⁴, J. Bravo⁴, R. Zarate⁵ and A. Lynch³ ¹ Department of Mining, Metallurgical and Materials Engineering, University of the Philippines, Diliman, Philippines ² División de Ingenierías, Departamento de Minas, Metalurgia y Geología, Universidad de Guanajuato, México ³ Julius Kruttschnitt Minerals Research Centre, University of Queensland, Australia ⁴ Compañía Minera Fresnillo PLC, Unidad Fresnillo, Zacatecas, México ⁵ Centro de Investigación y Desarrollo Tecnológico, Departamento de Procesamiento de Minerales, Servicios Especializados Peñoles, México	
12.40-13.00		STEAM PRESSURE FILTRATION — TECHNOLOGY FOR DRY TAILINGS STOCKAGE (p. 899) <u>Urs Peuker</u> TU Bergakademie Freiberg, Institute Mechanische Verfahrenstechnik und Aufbereitungstechnik, Germany	OIL ASSISTED COLUMN FLOTATION OF A CASSITERITE-BEARING COMPLEX SKARN ORE FROM THE ORE MOUNTAINS, GERMANY (p. 426) <u>Edgar Schach</u>¹, Markus Buchmann², Tom Leistner¹, Marius Kern¹, Urs A. Peuker², Martin Rudolph¹ ¹ Helmholtz Institute Freiberg for Resource Technology, Germany ² Institute of Mechanical Process Engineering and Mineral Processing, TU Bergakademie Freiberg, Germany	
13.00-14.30	Lunch. (Valdai-Seliger Hall, 1 floor)			

A1 Hall		A2 Hall		A3 Hall		Amphitheater Hall	
Session 48. Comminution & classification		Session 49. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology		Session 50. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology		Session 51. Hydro- and bio-hydrometallurgy	
<i>Chair: Thomas Mutze, Germany</i>		<i>Chair: Jenny Wiese, South Africa</i>		<i>Chair: Juan Yianatos, Chile</i>		<i>Chair: Han Long, China</i>	
14.00-14.20	A COMPARISON OF SINGLE-PARTICLE AND PARTICLE-BED BREAKAGE OF MINERAL ORES UNDER COMPRESSIVE LOADING (p. 838) Daozhen Gong^{1,2}, B. Klein², S. Nadolski², C. Sun¹, T. Sun¹, J. Kou¹ ¹ University of Science and Technology Beijing, School of Civil and Resource Engineering, China ² University of British Columbia, Norman B. Keevil Institute of Mining Engineering, Canada	14.00-14.25	KEYNOTE NOVEL COLLECTORS AND GREEN MODIFIERS FOR FLOTATION OF NOBLE METALS FROM REFRACTORY ORES (p. 789) Tamara Matveeva, T.A. Ivanova Institute of Comprehensive Exploitation of Mineral Resources, Russian Academy of Sciences (ICERM RAS), Russia	14.25-14.40	KEYNOTE COLUMN FLOTATION: THEORY AND PRACTICE (p. 757) Yuliy Rubinstein Institute of Solid Fossil Fuels Preparation, Russia	14.25-14.45	KEYNOTE HEAP LEACH MODELING: ANALYSIS AND OPTIMIZATION WITH CFD TECHNOLOGY (p. 913) D. McBride¹, James Gebhardt², T.N. Croft¹, M. Cross¹ ¹ College of Engineering, Swansea University, United Kingdom ² Automation Group, FLSmidth Inc, USA
	VACUUM DESINTEGRATION OF CLAY GOLD DUSTS (p. 808) Sergey Novopashin Kutateladze Institute of Thermophysics, Russia		TECFLOTE™ — NOVEL CHEMISTRY FOR NEW SULFIDE COLLECTORS. A SELECTIVE COLLECTOR AT NATURAL PH FOR PYRITE RICH ORES AND ORES CONTAINING SULFIDES, GOLD, SILVER AND PLATINUM GROUP ELEMENTS (p. 244) Andrew Lewis AkzoNobel, Sweden		INSIGHTS INTO NANOSCALE PHENOMENA ON THE SULFIDE MINERAL SURFACES RELATED TO FLOTATION AND LEACHING (p. 410) Yuri Mikhlin¹, A.S. Romanchenko¹, S.A. Vorobyev¹, A.A. Karacharov¹, M.N. Likhatski¹, Ye.V. Tomashevich¹, S.V. Saikova² ¹ Institute of Chemistry and Chemical Technology of the Siberian Branch of the Russian Academy of sciences, Russia ² Siberian Federal University, Russia		HYDROMETALLURGICAL TREATMENT OF NI HYPERACCUMULATOR BIOMASS: COMPARISON OF A. MURALE AND R. BENGALENSIS (p. 927) Baptiste Laubie¹, M. Guilpain¹, C. Hazotte¹, B. Jally¹, V. Houzelot¹, J.L. Morel², M.-O. Simonnot¹ ¹ Université de Lorraine, France ² Université de Lorraine, France

	Press Hall	Selenga Hall
	Session 52. Environmental problems and recycling of mineral-containing waste products <i>Chair: Elena Zelinskaya, Russia</i>	Session 53. Processing of fines and slimes <i>Chair: Leopoldo Gutierrez, Chile</i>
14.00-14.20	KEYNOTE SCIENTIFIC INNOVATIONS IN RSE “NC CPMRM RK”: SYSTEMATIC APPROACH (p. 99) Abdurassul Zharmentov National Centre on complex processing of mineral raw materials of RK, Kazakhstan	PILOT DENSE MEDIUM SEPARATION OF HEMATITE FINES (p. 462) Tebogo Moloane¹, C. Bergman¹, Heloise Thiele² ¹ Minerals Processing Division ² Mintek, South Africa
14.30-14.55	EXPERIMENTAL STUDIES OF THE PELLETIZING FLOCCULATION PROCESS OF IRON HYDROXIDE CONTAINING SUSPENSIONS IN A TAYLOR COUETTE-REACTOR (p. 159) Logsch F.¹, Claudia Glaser, Balz J.¹, Ay P.¹, Leiker M.² and Heiduschke R.² ¹ Brandenburg University of Technology, Chair of Mineral processing Cottbus, Germany ² P.U.S. Produktions- und Umwelt Service GmbH, Lauta, Germany	CHITOSAN AS A SELECTIVE FLOCCULANT FOR BENEFICIATION OF HIGH ALUMINA CONTAINING INDIAN IRON ORE SLIMES: A THEORETICAL AND EXPERIMENTAL STUDY (p. 150) Dharmendra Kumar, Vinay Jain, Venugopal Tammishetti and Beena Rai Physical Sciences Research, TCS Research, Tata Research Development and Design Centre, Tata Consultancy Services, 54-B, Hadapsar Industrial Estate, Hadapsar, Pune, Maharashtra, India-411013

NOTE

A1 Hall		A3 Hall	Amphitheater Hall
Session 48. Comminution & classification		Session 50. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology	Session 51. Hydro- and bio-hydrometallurgy
Chair: Thomas Mutze, Germany		Chair: Juan Yanatos, Chile	Chair: Han Long, China
14.40-15.00	HAVE YOU BEEN ON A MINE SITE? THE SMI-JKMRC STUDENT VENTURE (p. 560) J. J. Frausto¹, E.C. Avelar¹, G. Figueroa¹, Y. Reja¹, D.K.Tungpalan¹, M.A. Corona-Arroyo², R. Alanis³, S. Gómez⁴, A.J. Lynch⁵, Dr. Marcin Ziernicki ¹Julius Kruttschnitt Mineral Research Centre, SMI, The University of Queensland, 40 Isles Rd, Brisbane Qld, 4068 ²División de Ingenierías, Departamento de Minas, Metalurgia y Geología, Universidad de Guanajuato, Ex Hacienda de San Matías, Guanajuato, Gto, 36020 ³Servicios Especializados Penoles, S.A. de C.V., Calz Manuel Gómez Morin 444, Torreón, Coah. México, 27276 ⁴Fresnillo PLC, Calz. Saltillo 400 #989, Col. Campestre La Rosita, Torreón, Coah. Mexico, 27250 ⁵Emeritus Professor of Julius Kruttschnitt Mineral Research Centre, SMI, University of Queensland, 40 Isles Rd, Brisbane Qld, 4068	SURFACE BROKEN BONDS: A FAST WAY TO START MINERAL CHEMISTRY STUDIES (p. 169) Zhiyong Gao, Ruiying Fan School of Minerals Processing and Bioengineering, Central South University, China	REE RECOVERY FROM MINE TAILINGS VIA THE HYPERACCUMULATOR D. DICHOTOMA (p. 928) Baptiste Laubie¹, Z. Chour¹, Y.-T. Tang², R.-L. Qui², J.L. Morel³, M.-O. Simonnot¹, L. Muhr¹ ¹Université de Lorraine, France ²School of Environmental Science and Engineering, Sun YatSen University, China ³Université de Lorraine, France
	MITIGATION OF OPERATIONAL SHORTCOMINGS IN AN ISAMILL THROUGH DESIGN CHANGE- A NUMERICAL PERSPECTIVE (p. 861) S. Sahu, N.K.V. Nadimpalli and Venkataramana Runkana Tata Research Development & Design Centre, Tata Consultancy Services, 54, Hadapsar Industrial Estate, Pune, India 411013		PHYSICAL SEPARATION AND HYDROMETALLURGICAL PROCESSES FOR TREATMENT OF WEEE (p. 908) H. Deveci¹, E.Y. Yazici¹, Ata. Akcil², C. Erust² and O. Celep¹ ¹Hydromet B&PM Research Group, Div. of Mineral&Coal Processing, Dept. of Mining Eng., Karadeniz Technical University, Trabzon, 61080, Turkey ²Department of Mining Engineering, Mineral Processing Division (Mineral-Metal Recovery and Recycling Research Group), Suleyman Demirel University, TR32260 Isparta, Turkey
15.00-15.35 ☕ Coffee Break. (Foyer)			

14.45-15.05

Neva Hall				
15.30–17.00 Minerals processing commission workshop. Chair: Rodney Elvish, Australia				
A1 Hall	A2 Hall	A3 Hall	Amphitheater Hall	
Session 54. Comminution & classification <i>Chair: Vasily Arsentiev, Russia</i>	Session 55. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology <i>Chair: Maria Ryazantseva, Russia</i>	Session 56. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology <i>Chair: Lisa Malm, Sweden</i>	Session 57. Hydro- and bio-hydrometallurgy <i>Chair: Grigory Voiloshnikov, Russia</i>	
15.35–15.50 THE NEW SUITE OF BREAKAGE CHARACTERISATION TESTS (p. 573) <u>Malcolm Powell</u> , B. Bonfils, G.R. Ballantyne, M. Yahyaei, M.M. Hilden JKMRC, Sustainable Minerals Institute, University of Queensland, 40 Isles Rd, Indooroopilly, 4069, Australia	THE EFFECT OF A HIGH SHEAR HYDRODYNAMIC CAVITATION DEVICE ON THE FLOTATION OF A PGM UG2 ORE (p. 274) <u>Victor Ross</u> ¹ , M. Dlame ¹ , A. Singh ² , M. Ntlhane ¹ ¹ Mineral Processing Division, Mintek, South Africa ² GoldOre Pty Ltd, South Africa	ON THE RECOVERY OF ASSOCIATED MINERALS IN THE FLOTATION PROCESS BASED ON SIZELIBERATION DATA (p. 466) <u>Paulina Vallejos</u> , Juan Yianatos, H. Gallardo Automation and Supervision Centre for Mining Industry, CASIM Department of Chemical and Environmental Eng., Federico Santa Maria Technical University, Chile	EVALUATING THE IMPACT OF MECHANICAL PRETREATMENT ON LEACHING OF BASE METALS FROM WASTE PRINTED CIRCUIT BOARDS (p. 405) <u>W.A. Rossouw</u> , <u>Christie Dorfling</u> Department of Process Engineering, Stellenbosch University, South Africa	
15.50–16.10 COAL GRINDING AIDED BY HIGH PRESSURE WATER JETS (p. 29) <u>Maria Caterina Tilocca</u> ¹ , M. Surracco ² ¹ Department of Civil-Environmental Engineering and Architecture, University of Cagliari-via Marengo 2–09123, Cagliari — Sardinia — Italy ² Department of Civil-Environmental Engineering and Architecture, University of Cagliari-via Marengo 2–09123, Cagliari — Sardinia — Italy	THE USE OF DIISOBUTYL THIO-PHOSPHINATES IN THE FLOTATION OF COPPER-NICKEL ORE CONTAINING PLATINUM GROUP ELEMENTS (p. 71) <u>Anatoly Lavrinenko</u> ¹ , D.V. Makarov ² , L.M. Sarkisova ¹ and N.I. Gluhova ¹ ¹ Institute of Comprehensive Exploitation of Mineral Resources Russian Academy of Science, Russia ² Institute of Industrial Ecology Problems in the North, Russia	MINERAL SOLID TRANSPORT IN A TWODIMENSIONAL FLOTATION FROTH (p. 469) <u>Vallejos P.</u> ¹ , <u>Juan Yianatos</u> ¹ , Matamoros C. ¹ , Diaz F. ² ¹ Automation and Supervision Center for Mining Industry (CASIM), Department of Chemical and Environmental Engineering, Federico Santa Maria Technical University, Chile ² Nuclear Trace and Engineering Ltd., Chile	INTRODUCTION OF GRAVITY CONCENTRATES INTENSIVE CYANIDATION TECHNOLOGY USING PLANT AUGUST KSh-3 AT RUSSIAN OPERATIONS (p. 979) <u>V.M. Mullov</u> , A.V. Yevdokimov, Ye.V. Bogorodsky Irgridmet JSC, Russia	
16.10–16.30 RESEARCH ON THE INFLUENCE OF KEY PARAMETERS OF TOWER MILL ON GRINDING EFFECT (p. 225) <u>Shijie Lu</u> ^{1,2} , <u>Jiancheng He</u> ^{1,2} , Xiaoxu Sun ^{1,2} , Hongxi Zhou ^{1,2} , Jianchao Yao ^{1,2} ¹ Beijing General Research Institute of Mining and Metallurgy, Beijing 100160 China ² BGRIMM Machinery & Automation Technology Co., Ltd.	INVESTIGATION OF THE REVERSE FLOTATION OF HEMATITE IN THREE DIFFERENT TYPES OF LABORATORY FLOTATION CELLS (p. 283) <u>Mehdi Safari</u> ¹ , F.S. Hoseinian ² , D. Deglon ¹ , K., L.L. Filho ^{3,4} , T. Souza ⁴ ¹ Centre for Minerals Research, Department of Chemical Engineering, University of Cape Town, South Africa ² Department of Mining and Metallurgical Engineering, Amirkabir University of Technology, Iran ³ University of São Paulo, Polytechnic Engineering School, Mining and Petroleum Department Brazil ⁴ Vale Institute of Technology, Brazil	ON POSSIBLE EXTRACTION OF FREE GOLD WITHIN GRAIN SIZE –0.8+0 MM BY FLASH FLOTATION OF LOW-SULPHIDE GOLD-CONTAINING ORES (p.476) <u>Olga Poperechnikova</u> , A.V. Kuptsova, S.P. Nagaeva SP ZAO RIVS, Russia	THE DEVELOPMENT OF AMMONIACAL AND CYANIDATION TECHNOLOGY OF GOLD RECOVERY FROM COPPER GOLD-BEARING ORE (p. 980) <u>Vasilii Lodeischikov</u> , O.D. Khmel'nitskaya, V.F. Petrov IRGIRDMET JSC, Russia	

	A2 Hall	A3 Hall	Amphitheater Hall
	Session 55. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology <i>Chair: Maria Ryazantseva, Russia</i>	Session 56. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology <i>Chair: Lisa Malm, Sweden</i>	Session 57. Hydro- and bio-hydrometallurgy <i>Chair: Grigory Voiloshnikov, Russia</i>
16.30-16.50	THE LAWS OF FROTH PRODUCTS' BENEFICIATION IN TAPERED CHUTES (p. 35) Yury Morozov, Bekchurina E.A. Department of mineral dressing, Ural State Mining University, Russia	PHOSPHATE AS A POTENTIAL SUBSTITUTE FOR DICHROMATE, WHEN DEPRESSING GALENA IN COPPER AND LEAD SEPARATION (p. 477) Alexandra Lundmark¹, Ingvar Ymén² ¹ Boliden Mineral, Dept. of Process Technology, Sweden ² RISE- Research Institutes of Sweden AB, Bioscience and Materials / Surface, Process and Formulation, Sweden	THE MECHANISM OF GOLD DISSOLUTION IN ALKALINE FERRICYANIDE THIOSULFATE SOLUTION (p. 964) Xiao Li^{1,2}, Yongliang Wang¹, Guoyan Fu^{1,2}, Peiwei Han¹, Shufeng Ye² ¹ State Key Laboratory of Multiphase Complex Systems, Institute of Process Engineering, Chinese Academy of Sciences, China ² School of Chemistry and Chemical Engineering, University of Chinese Academy of Sciences, China
16.50-17.10	TECHNOLOGY OF COMPLEX PROCESSING OF SULFIDE-MAGNETITE ORE (p. 52) Sergey Mamonov^{1,2}, S.V. Volkova¹, T.P. Dresvyakyna¹ ¹ OJSC "Uralmekhanobr", Russia ² Non-state Higher Educational Establishment "UMMC Technical University", Russia	IRON ORE FLOTATION WITH A MODIFIED DEPRESSANT (p. 484) Arash Tohry¹, P. Hatefi¹, A. Dehghani¹, O. Rahmani², M. Noor-Mohammadi³ ¹ Department of Mining and Metallurgical Engineering, Yazd, University, Iran ² Chador-Malu Mining and Industrial Company, Iran ³ Toofal Sanat Consulting Engineering Company, Chador-Malu, Iron Ore Mine, Iran	ADSORPTION RECOVERY OF GOLD IN PRESSURE OXIDATION OF REFRACTORY SULPHIDE CONCENTRATES (p. 356) Andrey Boldyrev A.V., Balikov S.V., Gudkov S.S., Bogorodsky A.V., Emelyanov Yu.E., Eugene Y. Posedko JSC Irigredmet, Russia
17.10-17.30			STUDY OF PRESSURE OXIDATION AND BACTERIAL LEACHING EFFICIENCY AS A METHOD OF REFRACTORY GOLD CONCENTRATE BREAKDOWN (p. 1024) Saburbayeva L.Yu.¹, Anna Boduen², Polezhaev S.Yu.¹, Ukraitsev I.V.¹ ¹ SP ZAO IVS, Russia ² St. Petersburg Mining University, Russia
18.15-22.00	 IMPC Banquet & Awards. Meeting Point: Registration desk (World Trade Center)		



Summary / Thursday, September 20

08.00 Registration (Foyer, 1 floor)

Technical Sessions							
	A1 Hall	A2 Hall	A3 Hall	Amphitheater Hall	Press Hall	Don Hall	Selenga Hall
09.00-10.05	Session 60. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology	Session 61. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology	Session 62. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology	Session 63. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology	Session 64. Environmental problems and recycling of mineral-containing waste products	Session 65. Hydro- and bio-hydrometallurgy	Session 66. Processing of fines and slimes
10.05-10.35	Poster Session and Coffee Break. (Foyer)						
10.35-13.00	Session 67. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology	Session 68. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology	Session 69. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology	Session 70. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology	Session 71. Environmental problems and recycling of mineral-containing waste products		Session 72. Processing of fines and slimes
13.00-14.00	🍴 Lunch						
14.00-15.00	Session 73. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology	Session 74. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology	Session 75. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology	Session 76. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology	Session 77. Environmental problems and recycling of mineral-containing waste products	Session 78. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology	
15.00-15.20	☕ Coffee Break						
15.20-16.00				Session 79. Environmental problems and recycling of mineral-containing waste products	Session 80. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology	Session 81. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology	
16.00-18.00	Closing Ceremony. (Amphitheater Hall)						

	A1 Hall	A2 Hall	A3 Hall	Amphitheater Hall
	Session 60. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology <i>Chair: Fathi Habashi, Canada</i>	Session 61. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology <i>Chair: Victor Ross, South Africa</i>	Session 62. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology <i>Chair: David Deglon, South Africa</i>	Session 63. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology <i>Chair: Kirsten Corin, South Africa</i>
09.00-09.25	KEYNOTE WETTABILITY HETEROGENEITIES AND THEIR IMPORTANCE IN HETEROCOAGULATION PROCESSES FOR MINERAL SEPARATION (p. 600) Martin Rudolph¹, F. Perez Maldonado^{1,2}, B. Babel¹, L. Ditscherlein², P. Knüpper², U.A. Peuker² ¹ Department of Processing, Helmholtz Institute Freiberg for Resource Technology (HIF), Germany ² Institute of Mechanical Process Engineering and Mineral Processing, TU Bergakademie Freiberg, Germany	KEYNOTE FUNDAMENTALS OF THE USE OF COLLECTOR BLENDS FOR THE FLOTATION OF LOW CONTRAST NON SULFIDE ORES (p. 905) Lev Filippov^{1,2}, I.V. Filippova^{1,2} ¹ Université de Lorraine, Laboratoire GeoRessources ENSG, France ² National University of science and technology MISIS, Russia	THE EFFECT OF SOME DESIGN AN OPERATING VARIABLES ON VACUUM.PRESSURE AND BUBBLE SIZE IN A JAMESON CELL (p. 1060) Xiangzhou Ding, Yue Hua Tan and James A. Finch Department of Mining and Materials Engineering, McGill University, 3610 rue Robert-Bourassa, Montréal, Quebec, Canada H3A 0C5	INVESTIGATION OF COLUMN FLOTATION HYDRODYNAMICS USING ELECTRICAL RESISTANCE TOMOGRAPHY COUPLED WITH PRESSURE TRANSDUCERS (p. 930) Balraju Vadlakonda¹, Prasad Kopparthi^{1,2}, A.K. Mukherjee², Narasimha Mangadoddy¹ ¹ Department of Chemical Engineering, Indian Institute of Technology Hyderabad, India ² R & D division TATA Steel, India.
09.25-09.45	ENTHALPY OF ADSORPTION OF MBT, MBO AND MBI AND MODIFIED MBT ONTO PYRITE SURFACES: A COMPUTATIONAL AND EXPERIMENTAL APPROACH (p. 603) Peace Mkhonto¹, X. Zhang², B. McFadzean³, J. Taguta³, P.E. Ngoepe¹ ¹ Materials Modelling Centre, University of Limpopo, South Africa ² State Key Laboratory of Mineral Processing, Beijing General Research Institute of Mining and Metallurgy, China ³ Centre for Minerals Research, University of Cape Town, South Africa	APPLYING ANALYSIS OF MINERAL SURFACES TO PREDICT FLOTATION BEHAVIOR (p. 330) Hidekazu Matsuoka¹, R. Kawarabuki¹, K. Mitsuhashi¹, M. Kawata¹, C. Tokoro², K. Haga³, A. Shibayama⁴ ¹ Nittetsu Mining Co., Japan ² Faculty of Creative Science and Engineering, Waseda University, Japan ³ Department of Engineering in Applied Chemistry, Akita University, Japan ⁴ Graduate School of International Resource Sciences, Japan	FROTH PROPERTIES AND ITS EFFECT ON LABSCALE FLOTATION OF A CARBONACEOUS SEDIMENTARY APATITE ORE (p. 570) Duong Huu Hoang^{1,2,3}, Nathalie Kupka¹, Urs A. Peuker², Martin Rudolph¹ ¹ Department of Processing, Helmholtz Institute Freiberg for Resource Technology, Germany ² Institute of Mechanical Process Engineering and Mineral Processing, Technische Universität Bergakademie Freiberg, Germany ³ Department of Mineral Processing, Faculty of Mining, Hanoi University of Mining and Geology, Vietnam	RESEARCH OF SLURRY PREPARATION BEFORE SELECTIVE FLOTATION FOR SULPHIDE-POLYMETALLIC ORES (p. 943) Tatyana Aleksandrova, Sergey Romanenko, Karen Arastumian Saint-Petersburg Mining University, Russia
09.45-10.05	APPLYING AN ATOMIC FORCE MICROSCOPY IN THE STUDY OF THE FLOTATION OF COPPER SULFIDE MINERALS (p. 616) Jinhong Zhang, Wei Zhang Department of Mining and Geological Engineering, The University of Arizona, USA	EFFECT OF EPISTEMIC UNCERTAINTY IN THE SELECTION OF CONCENTRATION CIRCUIT STRUCTURES (p. 332) R. Acosta-Flores¹, L.A. Cisternas¹, F.A. Lucay¹, Edelmira Gálvez² ¹ Department of Mineral Process and Chemical Engineering, Universidad de Antofagasta, Chile ² Department of Mines and Metallurgical Engineering, Universidad Católica del Norte, Chile		WASTE MANAGEMENT OF MINING AND PROCESSING OF NONMETALLIC RAW MATERI (p. 441) Lygina T.Z., Luzin V.P., Kornilov A.V., Chekmarev A.S. Federal state unitary enterprise "Central scientific research Institute of Geology of nonmetal minerals", Russian Federation, Kazan
	10.05-10.35 Poster Session and Coffee Break. (Foyer, 1 floor)			

	Press Hall	Don Hall	Selenga Hall
	Session 64. Environmental problems and recycling of mineral-containing waste products <i>Chair: Ljudmilla Bokanyi, Hungary</i>	Session 65. Hydro- and bio-hydrometallurgy <i>Chair: Grigory Voiloshnikov, Russia</i>	Session 66. Processing of fines and slimes <i>Chair: Kevin Galvin, Australia</i>
09.00-09.25	SECONDARY MINERALIZATION IN TAILINGS OF PORPHYRY COPPER DEPOSITS (p. 492) Alexey Novoselov, U. Kelm¹ ¹ Instituto de Geología Económica Aplicada, Universidad de Concepción, Chile	INFLUENCE OF HALIDE AND PSEUDOHALIDE IONS ON GOLD EXTRACTION FROM DOUBLE REFRACTORY CONCENTRATES IN POX-CIL PROCESS (p. 897) S.F. Kaplan, A.S. Dolotov and Valery Kovalev CJSC Polymetal Engineering, 2 Prospect Narodnogo Opolchenia, Saint Petersburg, Russia 198216	INVESTIGATION OF PROCESSING OF PYROMETALLURGICALLY PRE-TREATED LATERITIC NICKEL ORES (p. 791) Klaus M. Hahn¹, Hermann Wotruba¹, Bernd G. Friedrich² ¹ Unit of Mineral Processing (AMR), RWTH Aachen University, Germany ² Institute IME Process Metallurgy and Metal Recycling, RWTH Aachen University, Germany
09.25-09.45	SMALL SCALE PROCESSING OF AU FROM A WEATHERED REFRACTORY ORE TAILINGS HEAP (p. 439) Neil Snijders¹, G. Akdogan¹, S.M. Bradshaw¹, J.H. van Vreden², R. Smith² ¹ Department of Processing Engineering, Stellenbosch University, South Africa ² Goldplat Recovery Pty Ltd, South Africa	UTILIZATION OF HIGHLY SALINE RECYCLING INDUSTRIAL WATER AND ITS INFLUENCE ON THE EXTRACTION OF GOLD FROM DOUBLE REFRACTORY CONCENTRATES IN THE FRAMEWORK OF AUTOCLAVE TECHNOLOGY (POX-CIL)(p. 898) Saveliy Kaplan, A.S. Dolotov and V.N. Kovalev CJSC Polymetal Engineering 2, Prospect Narodnogo Opolchenia, Saint-Petersburg, Russia 198216	ENERGY AND COST EFFICIENT TRANSPORTATION OF MINERALS AND TAILINGS IN SLURRY FORM (p. 802) V. Prasad, P. Thareja¹, Surya Mehrotra² ¹ Department of Chemical Engineering, Indian Institute of Technology Gandhinagar, India ² Dept. of Material Science & Engineering, Indian Institute of Technology Gandhinagar, India
09.45-10.05	EAFD TREATMENT JOINING PYRO AND HYDRO METALLURGY (p. 801) Massimo Maccagni, E. Guerrini¹, J. Nielsen² ¹ Engitec Technologies S.p.A., Italy ² Engitec USA, USA	ORGANIC CARBON PRESSURE OXIDATION IS A NEW APPROACH TO DOUBLE-REFRACTORY GOLD CONCENTRATE PROCESSING (p. 1015) V. Kovalev, S. F. Kaplan, Valeriy Tsyplakov, Nikolai V. Vorob'ev-Desyatovskii, Igor A. Agapov CJSC Polymetal Engineering, 2 Prospect Narodnogo Opolchenia, Saint Petersburg, Russia 198216	GEOMETALLURGICAL INVESTIGATION OF THE PROCESSING OF REE-Y-Nb-Zr COMPLEX ORE (p. 818) Janet Katzmarzyk¹, L. Gronen², H. Wotruba¹, S. Sindern², F.M. Meyer^{2,3}, A. Hellmann² ¹ Unit of Mineral Processing (AMR), RWTH Aachen University, Germany ² Institute of Applied Mineralogy and Economic Geology, RWTH, Aachen University, Germany ³ German-Mongolian Institute of Resource Technology, GMIT Campus, Mongolia
10.05-10.35	Poster Session and Coffee Break. (Foyer, 1 floor)		

NOTE

	A1 Hall	A2 Hall	A3 Hall
	Session 67. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology <i>Chair: Georgios Anastassakis, Greece</i>	Session 68. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology <i>Chair: Stoyan Gaydardzhiev, Belgium</i>	Session 69. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology <i>Chair: Yosuke Ebisu, Japan</i>
10.35-11.00	EXPERIMENTAL AND COMPUTATIONAL INSIGHTS INTO THE SELECTIVE ADSORPTION MECHANISM OF A NOVEL FLOTATION REAGENT 4-AMINO-5-MERCAPTO-1,2,4-TRIAZOLE ON CHALCOPYRITE SURFACE (p. 625) Zhigang Yin¹, Yuehua Hu¹, Jianyong He¹, Zhijie Xu¹, Jingxiang Zou², Wei Sun¹, Chenyang Zhang¹ ¹ School of Minerals Processing and Bioengineering, Central South University, China ² Institute of Theoretical and Computational Chemistry, School of Chemistry and Chemical Engineering, Nanjing University, China	MINERALOGICAL INSIGHT INTO THE COPPER SELECTIVE FLOTATION AT “DPM CHELOPECH “CONCENTRATOR (p. 337) D. Naumov¹, L. Stamenov², Stoyan Gaydardzhiev¹, H. Bouzazhah¹ ¹ University of Liege, Belgium ² Dundee Precious Metals Chelopech EAD, Bulgaria	INTERACTIVE EFFECTS BETWEEN FROTHERS AND DITHIOPHOSPHATE COLLECTORS IN SULFIDE MINERAL FLOTATION (p. 597) Belinda McFadzean, T. Jordaan, D. Pienaar, C.T. O'Connor Centre for Minerals Research, University of Cape Town, South Africa
11.00-11.20	A PHYSICO-CHEMICAL INVESTIGATION INTO THE SEPARATION OF ZIRCON AND QUARTZ BY FLOTATION (p. 660) Christopher Marion, Ronghao Li, Hillary Williams, Devin Hundt, Kristian E. Waters Department of Mining and Materials Engineering, McGill University, Canada	EVALUATION OF LIGNIN SULFONATE AS A DEPRESSANT IN LEAD AND ZINC FLOTATION PLANT (p. 313) Abdolrahim Foroutan¹, M. Abbaszadeh², T.P. Oladele³, M. Paymardi² ¹ Department of Mining and Metallurgical Engineering, University of Yazd, Iran ² Research and Development Center, Bama complex, Iran ³ Centre for Mineral Research, University of Cape Town, South Africa	THE BEHAVIOR OF FINE COPPER SULFIDE MINERALS IN A DENVER-TYPE FLOTATION CELL OPERATED WITH FORCED AIR (p. 527) Yosuke Ebisu^{1,2}, M. Kosugi¹, J.V. Satur¹, R. Kawarabuki¹, K. Mitsuhashi¹, M. Kawata¹, W. Kracht^{2,3} ¹ Nittetsu Mining Co., Ltd., Japan ² Department of Mining Engineering, Universidad de Chile, Chile ³ Advanced Mining Technology Center, Universidad de Chile Chile
11.20-11.40	INVESTIGATION OF REAGENTS FOR SELECTIVE FLOTATION ON CHALCOPYRITE AND MOLYBDENITE (p. 663) Hajime Miki¹, T. Hirajima, Y. Muta, G.P.W. Suyantara, K. Sasaki ¹ Department of Earth Resources Engineering, Kyushu University, Japan	BAO HA'S GRAPHITE FLOTATION (p. 308) Thi Hien Tran, Duy Anh Dao, Ngoc Anh Tran, Thi Thu Hien-Dinh National Institute of Mining-Metallurgy Science & Technology, Vietnam	FUNCTION OF HYDROGEN BONDS IN ADSORPTION MECHANISM OF FLOTATION COLLECTORS ON NONSULFIDE MINERALS (p. 521) Z. Cheng, Yimin Zhu, Y. Han and Y. Li Department of Mineral Processing Engineering, Northeastern University, Shenyang, China
11.40-12.00	THE USE OF FENTON'S REAGENT ON SELECTIVE FLOTATION OF CHALCOPYRITE AND MOLYBDENITE (p. 664) Gde Pandhe, Wisnu Suyantara, Tsuyoshi Hirajima, Hajime Miki, Keiko Sasaki Department of Earth Resources Engineering, Faculty of Engineering, Kyushu University, Japan	FLOTATION OF IRON-BEARING TUNGSTEN MINERALS AND MICA FROM GRAVITY TAILINGS OF RARE-METAL ORES PROCESSING (p. 351) Tiunov M.Yu., Bogidaev S.A. Joint-stock company “Irkutsk research institute of precious and rare metals and diamonds”, Russia	STUDY ON THE INTERACTION BETWEEN FINE FLUORITE PARTICLES AND BUBBLES (p. 534) Huang Hongjun, Q.S. Huang, X.X. Zhang, Y.H. Hu, Z.F. Dai School of Minerals Processing and Bioengineering, Central South University, China

	Amphitheater Hall	Press Hall	Selenga Hall
	Session 70. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology <i>Chair: Fathi Habashi, Canada</i>	Session 71. Environmental problems and recycling of mineral-containing waste products <i>Chair: Xue Kai, China</i>	Session 72. Processing of fines and slimes <i>Chair: Kevin Galvin, Australia</i>
10.35-11.00	PRE-TREATED SEAWATER WITH SODIUM HYDROXIDE AND CARBON DIOXIDE TO IMPROVE CHALCOPYRITE FLOATABILITY WITH HIGH KAOLINE PRESENCE (p. 956) C. Cruz^{1,2,3}, P.A. Robles⁴, R.I. Jeldres¹, Luis Cisternas^{1,3} ¹Departamento de Ingeniería Química y Procesos de Minerales, Universidad de Antofagasta, Chile ²School of Business and Management, Lappeenranta University of Technology, Finland ³Centro de Investigación Científico Tecnológico para la Minería, Chile ⁴CSIRO, Chile International Center of Excellence, Chile	METHODOLOGY USE OF REMOTE SENSING TO ASSESS THE CONDITION OF THE ENVIRONMENTAL IN THE TERRITORIES LOCATION ENTERPRISES OF THE MINING COMPLEX (p. 688) Gennadiy Kalabin Institute of Complex Exploitation of Mineral Resources, RAS, Russia	COMPREHENSIVE REDESIGN OF THE BUBLON®-PROCESS FOR THE PRODUCTION OF HIGHQUALITY AND LIGHT-WEIGHT GRANULATES FROM FINE SANDS WITH VOLCANIC ORIGIN (p. 847) Georg Weingrill¹, J. Neubacher², H. Flachberger¹ ¹Chair of Mineral Processing, Montanuniversität Leoben, Franz-Josef-Straße 18, 8700 Leoben, Austria ²Bublon GmbH, Grazer Straße 19, 8200 Gleisdorf, Austria
11.00-11.20	TALNAKH CONCENTRATOR MODERNIZATION BY MEANS OF NEW MINERAL PROCESSING TECHNOLOGIES AND ORE STREAMS REDIRECTION TO REDUCE SULFUR DIOXIDE EMISSIONS FROM THE METALLURGICAL OPERATIONS (p. 985) A.I. Yuryev, L.S. Lesnikova, M.S. Datsiev¹, Vitaly Ivanov² ¹Polar Division (PD) of PJSC “MMC “Norilsk Nickel”, Russia ²Head Office of PJSC “MMC “Norilsk Nickel”, Russia	THE ENRICHMENT OF SEPIOLITE TO OBTAIN HIGHTECH PRODUCTS (p. 436) Lygina T.Z., Chekmarev A.S., Egorova K.G., Skvorcov A.V. Federal state unitary enterprise “Central scientific research Institute of Geology of nonmetal minerals”, Russia	
11.20-11.40	RELATING THE ENTHALPY OF IMMERSION TO MINERAL SURFACE HYDROPHOBICITY (p. 1009) Jestos Taguta, C.T. O'Connor, B. McFadzean Centre for Minerals Research, University of Cape Town, South Africa	PREPARATION AND APPLICATION OF A MAGIC RESIN FOR THE REMOVAL OF ZN (p. 783) Lei Wang, Qi Zheng, Xiao-kui Che General Research Institute for Nonferrous Metals, China	OPTIMIZED COMBINED PROCESSING TECHNOLOGY FOR THE ACCUMULATED REFRACTORY COPPER ORE TAILINGS AT MADNEULI DEPOSIT (p. 1031) R.I. Sturua, D.G. Talakhadze, A.V. Abshilawa Georgian Technical University, Georgia
11.40-12.00	A DENSITY FUNCTIONAL BASED TIGHT BINDING (DFTB+) STUDY ON THE SULFIDIZATION-AMINE FLOTATION MECHANISM OF SMITHSONITE (p. 1026) Ye Chen¹, Meng Liu¹, Jianhua Chen^{1,2,3}, Yuqiong Li¹, Cuihua Zhao¹, Xiao Mu¹ ¹School of Resources, Environment and Materials, Guangxi University, China ²Guangxi Key Laboratory of Processing for Non-ferrous Metal and Featured Materials, Guangxi University, China ³Innovation Center for Metal Resources Utilization and Environment Protection, Guangxi University, China	A NOVEL TECHNOLOGY TO RECOVER COPPER FROM WASTE PRINTED CIRCUIT BOARDS (p. 304) Wenhua Li, Wei Liu, Jiaqi Xu, Junwei Han, Fen Jiao, Wenqing Qin School of Minerals Processing and Bioengineering, Central South University, China	

	A1 Hall	A2 Hall	A3 Hall
	Session 67. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology <i>Chair: Georgios Anastassakis, Greece</i>	Session 68. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology <i>Chair: Stoyan Gaydardzhiev, Belgium</i>	Session 69. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology <i>Chair: Yosuke Ebisu, Japan</i>
12.00-12.20	USING EFFECTIVE DIALKYL DITHIOPHOSPHATES IN THE FLOTATION OF GOLD ORES (p. 673) Vladimir Ryaboy¹, S.E. Levkovets², V.P. Kretov², I.V. Ryaboy¹ ¹ Mekhanobr-Orgsintez-Reagent, Russia ² Kvadrat Plus, Russia	ON BUBBLE-PARTICLE DETACHMENT MECHANISMS IN COARSE PARTICLE FLOTATION (p. 363) Subhasish Mitra¹, G.M. Evans¹, A.V. Nguyen² ¹ Discipline of Chemical Engineering, School of Engineering, University of Newcastle, Australia ² School of Chemical Engineering, University of Queensland, Australia	THE EFFECT OF PH ON THE DEPRESSION OF IRON OXIDES IN THE PRESENCE OF COMPLEX GANGUE SILICATE MINERALS (p. 541) Carlos Henrique Veloso^{1,2}, L.O. Filippov¹, I.V. Filippova¹, A.C. Araujo² ¹ Université de Lorraine, France ² ArcelorMittal Mining Global Research and Development, France
12.20-12.40	REVERSE FLOTATION OF IRON ORE: CIRCUIT UPGRADING (p. 699) A. Silva¹, Antonio Peres², P. Oliveira¹ ¹ Samarco, Mina do Germano, Brazil ² UFMG Universidade Federal de Minas Gerais, Brazil	STUDY OF THE WETTING BEHAVIOR AND FLOTATION PROPERTIES OF TALC AND MOLYBDENITE (p. 375) Qidong Zhang, Kun Song, Wenjuan Li, Guiying Zhou, Yong Chen National Engineering Laboratory of Biohydrometallurgy, General Research Institute for Nonferrous Metals Engineering, China	OPTIMISING FROTH STABILITY OF COPPER FLOTATION TAILINGS (p. 565) Isobel Mackay¹, J.J. Cilliers¹, A.R. Videla², P.R. Brito-Parada¹ ¹ Department of Earth Science and Engineering, Imperial College London, United Kingdom ² Department of Mining Engineering, Pontificia Universidad Catolica de Chile, Chile
12.40-13.00	INVESTIGATION OF THE FLOTATION PERFORMANCE OF NICKEL SULPHIDE BY HIGH INTENSITY AGITATION PRETREATMENT (p. 518) Yanfei Chen, Qiming Feng, Qing Shi, Guofan Zhang, Yiping Lu, Leming Ou, Kun Liu, Longsheng Yi School of Minerals Processing and Bioengineering, Central South University, China	THE PRINCIPLE OF INDIVIDUALIZATION TECHNOLOGY OF SELECTIVE FLOTATION (p. 149) Vladimir Samyguin, A.Y Nikitin, E.C. Nikulin, I.Y. Titov Somex, 5, Gazoprovodnaya Street, Kolomna, Moscow region, Moscow, Russia, 140405	
13.00-14.00	Lunch. (Valdai-Seliger Hall, 1 floor)		

	Amphitheater Hall	Press Hall	Selenga Hall
	Session 70. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology <i>Chair: Fathi Habashi, Canada</i>	Session 71. Environmental problems and recycling of mineral-containing waste products <i>Chair: Xue Kai, China</i>	Session 72. Processing of fines and slimes <i>Chair: Kevin Galvin, Australia</i>
12.00-12.20	DEVELOPMENT AND APPLICATION OF NEW FATTY ACIDS MODIFIERS FOR IGNEOUS APATITE ORES FLOTATION (p. 1005) Rostislav Kamkin¹, A. Michailovski², P. Mikkola³ ¹ OOO BASF, Russia ² BASF SE, Germany ³ BASF Oy, Finland	PREPARATION OF SLAG BASED CEMENTITIOUS MATERIAL AND ITS APPLICATION IN THE CEMENTATION OF TAILINGS (p. 465) Peng Wu¹, Junxiang Wang¹, Minjie Lian², Xianjun Lyu¹ ¹ College of Chemical and Environmental Engineering, Shandong University of Science and Technology, China ² Sinosteel Mining 8, Haidian, China	EVALUATION OF APPLICABILITY OF HIGHINTERNAL-PHASE (HIP) EMULSIONS BASED OIL AGGLOMERATION PROCESS TO TREAT FINES FROM WESTERN CANADIAN BITUMINOUS COALS AND RUSSIAN SUB-BITUMINOUS COALS (p. 853) Igor Mikhalev, M. Holuszko¹, A. Kumar¹ and V. Kumar¹ ¹ Norman B. Keevil Institute of Mining Engineering, University of British Columbia (UBC), Canada ² Branch of "SibNIIugleobogascheniye" LLC in Krasnoyarsk city, Russia
12.20-12.40	COLLECTING AGENTS FOR FLOTATION UPGRADE OF MIKHAILOVSKY GOK'S MAGNETITE IRON ORE CONCENTRATE (p. 1034) D.O. Sharkovsky, S.L. Gubin, T.V. Ignatova, A.V. Levshin PJSC Mikhailovsky GOK, Russia	RECOVERY OF GOLD&SILVER FROM JEWELRY WASTE BY FLOTATION METHOD (p. 1025) A. Demirağ and Firat Burat Istanbul Technical University, Faculty of Mines, Mineral Processing Department, 34469 Maslak, Istanbul, Turkey	
12.40-13.00	CURRENT UNDERSTANDING OF THIOL COLLECTOR ADSORPTION MECHANISM ON TENNANTITE USING COMPUTATIONAL DOCKING AND FTIR-TECHNIQUES (p. 1043) P. Solozhenkin¹, Olga Ibragimova², E. Emelyanenko³, J. Yagudina⁴ ¹ IPKON the RASci, Russia ² Department of Geoscience and Petroleum, Norwegian University of Science and Technology, Norway ³ Department of Geology and Mineral Processing Engineering, Nosov Magnitogorsk State Technical University, Russia ⁴ Uchaly Mining and Concentration, Complex, Russia		
13.00-14.00	Lunch. (Valdai-Seliger Hall, 1 floor)		

	A1 Hall	A2 Hall	A3 Hall
	Session 73. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology <i>Chair: Antonio Peres, Brazil</i>	Session 74. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology <i>Chair: Stoyan Gaydardzhiev, Belgium</i>	Session 75. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology <i>Chair: Subhashish Mitra, Australia</i>
14.00-14.20	EFFECT OF MICROWAVE TREATMENT ON PROCESSING OF ULTRAMAFIC NICKEL ORES (p. 503) <u>Erin Bobicki</u> Department of Materials Science and Engineering, University of Toronto, Canada	SIMULATION RESEARCH OF THE RESIDENCE TIME DISTRIBUTION IN 0.2 M3 FLOTATION CELL (p. 1038) <u>Shen Zhenchang</u>¹, Zhang Ming¹, Chen Feifei¹, Chen Jianhua² ¹ Beijing Engineering Research Center on Efficient and Energy Conservation Equipment of Mineral Processing, State Key Laboratory of Mineral Processing, BGRIMM Technology Group, China ² Guangxi University, China	APPLICATION OF DEPRESSANT TS IN BARITE RECOVERY FROM A LEAD-ZINC TAILINGS (p. 732) <u>Hongying Zhang</u>, Y.H. Tang, J. Zhang Guangdong Institute of Resources Comprehensive Utilization, China
14.20-14.40	FLOTATION FLOWSHEET DEVELOPMENT FOR THE NEW NUSSIR ASA COPPER ORE DEPOSIT IN NORTHERN NORWAY (p. 491) <u>Priyanka Dhar</u>¹, Hassan Bouzazah², Kurt Aasly¹, Maria Thornhill¹, Hanumantha Rao Kota¹ ¹ Department of Geology and Petroleum Engineering, NTNU, Norway ² Génie Minéral, Matériaux et Environnement (GeMME), Belgium	RESEARCH ON THE INFLUENCE OF IMPELLER PUMPING PERFORMANCES AND GAS ACCUMULATION EFFECT ON FLUID DYNAMICS OF AIR FORCES & PULP INDUCES FLOTATION CELL (p. 546) <u>Yang Yihong</u>, Zhang Ming, Chen Dong, Han Dengfeng Beijing Engineering Research Center on Efficient and Energy Conservation Equipment of Mineral Processing, State Key Laboratory of Mineral Processing, BGRIMM Technology Group, Beijing, China	FINE PARTICLE RECOVERY BY ELECTROFLOTATION WITH SODIUM OLEATE (p. 444) <u>R.H. Rojas</u>, <u>Mauricio Leonardo Torem</u>, A.G. Merma Department of Chemical and Materials Engineering, Pontifical Catholic University of Rio de Janeiro, Brazil
14.40-15.00	ON THE EFFECT OF WATER HARDNESS IN FLUORITE FLOTATION — THE ROLE OF ION SPECIFICITY (p. 487) <u>Bruno Michaux</u>, Martin Rudolph, Markus Reuter Helmholtz-Zentrum Dresden-Rossendorf, Helmholtz Institute Freiberg for Resource Technology, Germany		MODIFICATION OF THE SURFACE OF SULFIDE MINERALS AND CASSITERITE BY METAL-ADSORBAT COMPLEXES DURING TIN ORE FLOTATION (p. 805) <u>T.N. Matveeva</u>, <u>Alexandr Gapchich</u>, <u>Nadezhda Gromova</u> Institute of Comprehensive Exploitation of Mineral Resources, Russian Academy of Sciences, Moscow, Russia
15.00-15.20	 Coffee Break. (Foyer)		

	Amphitheater Hall	Press Hall	Don Hall
	Session 76. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology <i>Chair: Olga Ibragimova, Russia</i>	Session 77. Environmental problems and recycling of mineral-containing waste products <i>Chair: Elena Zelinskaya, Russia</i>	Session 78. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology <i>Chair: Valeriy Morozov, Russia</i>
14.00-14.20	OPERATING FLOTATION CELLS OF THE KFM SERIES IN THE HEAD OF FULL-SCALE COPPER, COPPER-ZINC, LEAD-ZINC ORE CONCENTRATION CIRCUITS (p. 1045) <u>Mark Viduetsky</u>, V.A. Maltsev, A.P. Purgin, I.F. Garifulin¹, A.M. Panshin², A.A. Metelev³, A.I. Stepanenko⁴, I. Yochev⁵ ¹ Ural Federal University, Russia ⁴ PJSC Gormashexport, Russia ² LLC UGMK-Holding, Russia ⁵ Rudmetal AD, Bulgaria ³ PJSC Svyatogor, Russia	AN EXPERIMENTAL STUDY OF THE COMPREHENSIVE RECOVERY OF COPPER-ZINC SULFIDE MINERALS FROM CYANIDE TAILINGS (p.772) <u>Tingsheng Qiu</u>^{1,2}, <u>Huashan Yan</u>¹, <u>Ting Li</u>³, <u>Xiong Huang</u>⁴, <u>Guanghua Ai</u>^{1,2} ¹ Faculty of Resource & Environmental Engineering, Jiangxi University of Science & Technology, Ganzhou, Jiangxi 341000, China ² Jiangxi Key Laboratory of Mining Engineering, Ganzhou 341000, China ³ SLon Magnetic Separator Ltd., Ganzhou, Jiangxi 341000, China ⁴ Zijin Design and Research Institute of Mining and Metallurgy, Xiamen, Fujian 361000, China	EFFECT OF CONTROLLED CONDITIONING ON FLOTATION (p. 717) <u>Jaakko Karvonen</u>, L.E. Veki¹, J.O. Leppinen² and S.M. Luukkanen² ¹ Outotec Research Center, Pori Kuparitie 10, 28330 Pori, Finland ² University of Oulu Pentti Kaiteran katu 1, 90014 Oulu, Finland
14.20-14.40	THE EFFECT OF SOME DESIGN AND OPERATING VARIABLES ON VACUUM PRESSURE and BUBBLE SIZE IN A JAMESON CELL (p. 1060) <u>Xiangzhou Ding</u>, <u>Yue Hua Tan</u>, <u>James A. Finch</u> Department of Mining and Materials Engineering, McGill University, Canada	ALTERING REACTIVITY OF PUMICE BY FINE GRINDING FOR ITS USE AS ALKALI ACTIVATED CEMENT (AAC) RAW MATERIAL (p. 586) <u>Gabor. Mucsi</u>, R. Szabó¹, B. Egyed¹, F. Kristály², Á. Rácz¹, I. Gombkötő¹, S. Nagy¹ and S. Kumar³ ¹ Institute of Raw Material Preparation and Environmental Processing, University of Miskolc, Hungary, 3515 Miskolc-Egyetemváros ² Institute of Mineralogy and Geology, University of Miskolc, Hungary, 3515 Miskolc-Egyetemváros ³ CSIR-National Metallurgical Laboratory, Jamshedpur 831007, India	STUDIES ON FLOCCULATION PERFORMANCE OF POLYACRYLAMIDE POLYMER FOR OILFIELD DRILLING MUD SYSTEM (p. 807) <u>Kunal Chandan</u>, G.P. Karmakar Department, of Mining Engineering, Indian Institute of Technology, Kharagpur- 721302, India
14.40-15.00			COALESCENCE DYNAMIC AND POST-RUPTURE OSCILLATION OF TWO CAPILLARY-HELD BUBBLES USING THE VOLUME OF FLUID METHOD (p. 865) <u>Ysenia Saavedra Moreno</u>, G. Bournival and S. Ata School of Mining Engineering, University of New South Wales, Sydney, New South Wales, Australia 2052
15.00-15.20	☕ Coffee Break. (Foyer)		

	Amphitheater Hall	Press Hall	Don Hall
	Session 79. Environmental problems and recycling of mineral-containing waste products <i>Chair: Masloboev Vladimir, Russia</i>	Session 80. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology <i>Chair: Zhiyong Gao, China</i>	Session 81. Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology <i>Chair: Lev Filippov, France</i>
15.20-15.40	HEAVY METALS MIGRATION DECREASE IN THE AREA OF INDUSTRIAL FACILITY FOR ENVIRONMENTAL SAFETY (p. 312) Galina Sarapulova, K.V. Fedotov Irkutsk National Research Technical University, Irkutsk, Russia	A NOVEL TECHNOLOGY FOR REMOVAL OF CALCIUM IN MAGNESITE BY FLOTATION AND LEACHING (p. 531) Zhu Yangge, Hu Xiaoxing, Zheng Guibing State Key Laboratory of Mineral Processing, BGRIMM Technology Group, China	QUANTITATIVE MINERALOGY TO ASSESS THE EFFICACY OF ALKYL HYDROXAMATES IN FLOTATION (p. 891) Tarun Bhambhani, D.R. Nagaraj and O. Yavuzkan Mineral Processing R&D, Solvay, USA
15.40-16.00	A FENTON-LIKE CATALYST FROM DIATOMITE TO EFFECTIVELY DEGRADE METHYLENE BLUE (p. 219) Kun Liu^{1,2}, Zishun Li^{1,2}, Xuekun Tang^{1,2}, Qiming Feng¹, Leming Ou¹, Guofan Zhang¹, Yiping Lu¹ and Qing Shi¹ ¹ School of Minerals Processing and Bioengineering, Central South University, Changsha 410083, China ² Hunan Key Laboratory of Mineral Materials and Application, Central South University, Changsha 410083, China	EFFECT OF PYRRHOTITE MAGNETIC ON THE SEPARATION OF BISMUTH-SULFUR AND CASSITERITE GRAVITY SEPARATION (p. 1027) Xiaolu Ye Beijing Key Laboratory of Metal Mineral Resources Test and Evaluation, BGRIMM Technology Group, Beijing, 102600, China	EXPLORING THE MECHANISMS IN BIODEPRESSION OF PYRITE IN SEAWATER FLOTATION (p. 328) Francisca San Martín^{1,3}, Willy Kracht^{1,3}, Tomás Vargas^{2,3}, Martin Rudolph⁴ ¹ Department of Mining Engineering, Universidad de Chile, Chile ² Department of Chemical and Biotechnological Engineering, Universidad de Chile, Chile ³ Advanced Mining Technology Center, AMTC, Universidad de Chile, Chile ⁴ Helmholtz Institute Freiberg for Resource Technology, HIF, Germany
16.00-18.00	 Closing Ceremony (Amphitheater Hall)		

POSTER SESSION

Monday, September 17	
Technological mineralogy	
PHYSICO-CHEMICAL BASES OF PROCESSES OF THERMAL PROCESSING OF RESISTANT GOLD ORES (p. 49) <u>Matushkina A.N.¹, Gazaleeva G.I.¹, Amdur A.M.²</u> ¹JSC "Uralmekhanobr", 87, Khokhryakova street, Ekaterinburg, Russia, 620144 ²Ural state mining University, 30, Kuibysheva street, Ekaterinburg, Russia, 620144	POSSIBLE INCREASING OF ZINC RECOVERY FROM METALLURGICAL WASTE THROUGH CRUSHING OPERATIONS (p. 649) <u>Daniel Saramak, T. Gawenda, D. Krawczykowski</u> AGH University of Science and Technology Faculty of Mining and Geoengineering Department of Environmental Engineering and Mineral Processing Mickiewiczza 30 Aw., 30–059 Cracow, Poland
FLOTATION PROCESS OPTIMIZATION BASED ON MINERALOGICAL ANALYSIS (p. 68) <u>Pengyu Zhang, Leming Ou, Qiming Feng, Yiping Lu, Kun Liu, Guofan Zhang, Qing Shi</u> Central South University 932, Lushan Street, Changsha, China 410083	AN EMPIRICAL MODEL FOR MEASUREMENT OF AG MILL FILLING DEGREE, CASE STUDY: CHOGHART IRON ORE PROCESSING PLANT (p. 702) <u>M. Ranjbar¹ and Arash Tohry, A. Dehghani² and M. KHosravi Rad³</u> ¹Tamsco Joint Venture, Choghart Iron Ore Mine Choghart Mine, Bafq, Yazd, Iran ²Department of Mining and Metallurgical Engineering Yazd University, Yazd, Iran ³Department of Mining, Islamic Azad University of Bafq, Bafq, Yazd, Iran
MINERALOGICAL INVESTIGATIONS OF WALL ACCRETION AND LINING OF THE BLAST FURNACE HEARTH (p. 156) <u>A. Makavetskias</u> College of Mining, National University of Science and Technology "MISIS", Russia	A DEM INVESTIGATION OF THE MECHANISM GOVERNING IMPROVED GRINDING EFFICIENCY OBTAINED BY PARTIAL REPLACEMENT OF A BALL CHARGE BY PEBBLES (p. 836) <u>Sandile Nkwanyana, Indresan Govender and Brian Loveday</u> University of KwaZulu-Natal, King George V Ave, Durban, South Africa, 4041
STUDY ON PROCESS MINEROLOGY OF A URANIUMMOLYBDENUM ASSOCIATED DEPOSIT (p. 748) <u>Ma Jia, Tang Bao-bin, Liu Kang, Li Chun-feng, Liu Zhi-chao</u> Beijing Research Institute of Chemical Engineering and Metallurgy, CNNC 145, Jiukeshu Street of Tongzhou District, Beijing, China 101149	VALIDATION AND DEVELOPMENT OF BENCH SCALE TESTING FOR FULL SCALE HPGR (p. 857) <u>Michael McClintock, F. Wang, B. Klein, A. Kumar</u> NBK Institute of Mining Engineering & Mineral Processing UBC, Canada
Comminution & classification	
VIBRATIONAL DISINTEGRATION OF SOLID MATERIALS IN QUASIRESONANT MODES (p. 81) <u>L.A. Vaisberg¹, Sergey Kazakov¹ and E.V. Shishkin²</u> ¹Research-and-production complex "Mekhanobr-Tekhnika" (AO), korpus 5, dom 3, liniya 22, V.O., St. Petersburg, Russia, 199106, ²St. Petersburg Mining University, dom 2, liniya 21, V.O., St. Petersburg, Russia	TESTING THE HIGH FREQUENCY FINE SCREEN MODEL USING INDUSTRIAL DATA (p. 918) <u>Adolph Mwale¹, A.N. Mainza¹, P.A. Bebswa¹, J.J. Frausto², G. Ballantyne², R. Cruz³, S. Gomez³</u> ¹Center for Minerals Research Department of Chemical Engineering University of Cape Town. Private Bag X3, Rondebosch, 7700, Cape Town, South Africa ²Julius Kruttschnitt Mineral Research The University of Queensland Experimental Mine. 40 Isles Road, Indooroopilly, Brisbane, QLD 4068, Australia ³Fresnillo PLC, Calz. Saltillo 400 #989, Col. Campestre La Rosita, Torreon, Coah. Mexico, 27250

PREDICTION OF LIBERATION EFFICIENCY BASED ON THE COMBINED GRINDING AND LIBERATION MODEL (p. 165) DonWoo Lee¹, H. Cho¹ and J. Kwon² ¹ Department of Energy System Engineering, Seoul National University, Korea ² Korea Institute of Geoscience and Mineral Resources, Korea	AMENDMENT OF PHYSICO-MECHANICAL ORE PROPERTIES DETERMINATION METHODS FOR BALL MILL GRINDING PROCESSES IN COMMINUTION CIRCUITS (p. 923) Leonid Chitalov, V.V. Lvov Department of Mineral Processing, Faculty of mineral raw materials processing, Saint-Petersburg Mining University 2, 21st Line of Vasilievsky Island, Saint-Petersburg 199106, Russia
PREDICTING THE PERFORMANCE OF A BATCH VERTICAL STIRRED MILL (p. 256) Danielle Rocha¹, H.B. Miller¹ and D.B. Mazzinghy² ¹ Mining Engineering Department, Colorado School of Mines, Golden, Colorado, United States ² Mining Engineering Department, Universidade Federal de Minas Gerais, Belo Horizonte, Minas Gerais, Brazil	THE CORRELATION OF PARTICLE SIZE DISTRIBUTIONS BETWEEN GROUND PRODUCT AND CLASSIFICATION UNDERFLOW (p. 972) Caibin Wu, Ali Lei, Ningning Liao and Jingsheng Ye Jiangxi University of Science and Technology, School of Resource and Environmental Engineering, Ganzhou, Jiangxi 341000, China
COMPARISON OF TWO METHODS ESTIMATING SPECIFIC ENERGY AND THROUGHPUT OF REGRIND BALL MILLS (p. 359) Arkady Senchenko and Y.V. Kulikov Institute TOMS Ltd, Lermontov Street, 83/1, P.O. Box. 83, 664074, Irkutsk, Russia	MINERAL FEED GRINDING PERFORMANCE OF DRUM MILLS (p. 96) P.V. Malyarov Platov South Russia State Polytechnic University (NPI)
DEVELOPMENT OF A LABORATORY TEST TO DESIGN VERTICAL STIRRED MILLS FOR IRON ORE REGRIND CIRCUITS (p. 437) Mauricio Bergerman¹, D.B. Mazzinghy², L.C. de R. Machado³ and H. Delboni Júnior¹ ¹ Mining and Petroleum Engineering Department, University of Sao Paulo, Brazil ² Mining Engineering Department, Federal University of Minas Gerais, Brazil ³ Minas Rio Project, Anglo American, Brazil	EXPERIMENT RESEARCH ON THE METAL MINERALS' CRUSHABILITY DURING THE MICROWAVE'S THERMO-MECHANICAL COUPLING EFFECTS (p. 48) F. Zhang, Xia Xiaou, Chen Bang Beijing General Research Institute of Mining&Metallurgy Beijing, China
TOWARDS ECO-EFFICIENCY IN COMMINUTION BY PUSHING CRUSHING PERFORMANCE: CONE CRUSHER VS VSI (p. 468) Hamid-Reza Manouchehri^{1,2} ¹ Sandvik Mining and Rock Technology, Sandvik SRP AB, Svedala, Sweden ² Adj. Professo, NBK Institute of Mining Engineering, University of British Columbia, Canada	APPLICATION AND DEVELOPMENT OF INERTIA CONE CRUSHER IN CHINA (p. 355) Fangming Liu^{1,2}, Xiao'ou Xia^{1,2}, Xiujian Luo¹, Bang Chen¹, Xu Wang¹, Wei Tang¹ ¹ Beijing General Research Institute of Mining and Metallurgy (BGRIMM), Beijing, China ² University of Science & Technology Beijing (USTB), Beijing, China
DYNAMIC MODELING AND SIMULATION OF AN AG/SAG MILL WITH MULTI COMPONENT ORE (p. 601) Haijie Li¹, Magnus Evertsson², Mats Lindqvist¹, Erik Hulthen² ¹ FLSmidth A/S, Vigerslev Allé 77, DK-2500 Valby, Copenhagen, Denmark ² Chalmers University of Technology, SE-412 96 Gothenburg, Sweden	ANALYSIS OF THE CAUSES OF APATITE LOSSES IN THE FLOTATION OF ORES AND TECHNOGENIC PRODUCTS (p. 1050) Igor Barmin¹, A.V. Tugolukov¹, V.V. Morozov², V.V. Polivanskaya² ¹ MCC "EuroChem", Moscow, Russia ² National University of Science and Technology MISiS

Pillarization, agglomeration and sintering	
EFFICIENT UTILISATION OF COARSEMAGNETITE CONCENTRATES IN SINTERING AND PELLETISING (p. 854) Liming Lu, Matt Adam, Alexander Edenton, Steve Suthers, Matt Kilburn, Rodney Smyth CSIRO Mineral Resources, P.O.Box 883, Kenmore, QLD 4069, Australia	INVESTIGATION ASPECTS OF FLOCCULATION AND COAGULATION PROCESS ON THE EFFICIENCY OF IRON TAILING THICKENING PROCESS (p. 874) S.M.H. Haddad, A. Dehghani, R. Hejazi, M. Saghaeian R&D department, Fakoor Sanat Tehran Company, FST. Co. Court, No. 16, 20th Allay, Ghaem — Magham Farahani Ave, Tehran, Iran
STRENGTHEN THE SEPARATION OF IRON AND SLAG BY CO-REDUCTION OF HIGH-MANGANESE AND HIGH-ALUMINUM IRON ORES (p. 69) Jian Pan, Siwei Li, Deqing Zhu	
Tuesday, September 18	
Physical enrichment – gravity, magnetic and electrostatic separation	
CScheme FOR OBTAINING IRON HIGH-QUALITY IRON CONCENTRATE FOR SUBSEQUENT METALLIZATION WITH REFERENCE TO A MIXTURE OF ORES OF THE SOKOLOVSKOSARBAYSKY MINING-AND-PROCESSING INTEGRATED WORKS (REPUBLIC OF KAZAKHSTAN) (p. 42) Sopina N.A. OJSC “Uralmekhanobr”, Ekaterinburg, Russia	CScheme FOR OBTAINING IRON HIGH-QUALITY IRON CONCENTRATE FOR SUBSEQUENT METALLIZATION WITH REFERENCE TO A MIXTURE OF ORES OF THE SOKOLOVSKO-SARBAYSKY MINING-AND-PROCESSING INTEGRATED WORKS (REPUBLIC OF KAZAKHSTAN) (p. 976) Sopina N.A. OJSC “Uralmekhanobr”, 87, Khokhryakova street, Ekaterinburg, Russia 620144
NEW PROCESSING TECHNOLOGY RESEARCH FOR MAGNETIC SEPARATION APPLICATIONS TO COPPER-SULFUR ORE BENEFICIATION (p. 2) Xiaotong Zhou, Lihong Deng, Tong Guan, Guangqin Fu, Yuanlin Chen, Fei Yang, Hui Zhang Guangdong Institute of Resources Comprehensive Utilization, State Key Laboratory of Rare Metal Separation and Comprehensive Utilization, Guangdong Provincial Key Laboratory of Mineral Resource Development and Comprehensive Utilization, 363 Changxing Road, Guangzhou, PRC 510650	PREPARATION OF DIRECT REDUCED IRON POWDER AND TI-V-RICH MATERIAL FROM VANADIUM TITANOMAGNETITE CONCENTRATE BY REDUCTION-MAGNETIC SEPARATION (p. 1019) Fuqiang Zheng, Feng Chen, Yufeng Guo, Guanzhou Qiu, Tao Jiang, Shuai Wang School of Minerals Processing and Bioengineering, Central South University, Changsha, Hunan 410083, P R China
COST-EFFECTIVE PROCESSES AND EQUIPMENT FOR EFFICIENT RECOVERY OF FINE FREE GOLD FROM MINERALS AT AN EVERY STAGE OF PROCESSING (p. 262) Mankov V.M., Zamyatin O.V. Joint-stock company “Irkutsk research institute of precious and rare metals and diamonds” Irkutsk, Russia	TECHNOLOGICAL SOLUTIONS FOR PROCESSING OF HARD-TO-TREAT LEAD-ZINC ORE (p. 131) Galina Pahomova National University of Science and Technology “MISIS”, 4, Leninsky Prospect, Moscow, Russia, 119049

Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology

REMOVAL OF MICROCRYSTALLINE OPALINE SILICA FROM BENTONITE BY ULTRASONIC TREATMENT (p. 199)

Wantae Kim, S. Kim, I. Bae and J. Seo

Resources Recovery Research Center, Mineral Resources Research Division, Korea Institute of Geoscience and Mineral Resources, Korea

APPLICATION OF MAGNETIC SEPARATOR WITH ROTATING MAGNETIC FIELD FOR DRY PRECONCENTRATION OF FINE PARTICLE MAGNETITE (p. 211)

Xiaoming Wang^{1,2}, Xiaou Xia^{1,2}, Dianyin Liang¹

¹Beijing General Research Institute of Mining&Metallurgy Fengtai District, Beijing, China 100160

²University of Science&Technology Beijing Haidian District, Beijing, China 100083

STANDARDIZATION AND OPTIMIZATION OF ARTIFICIAL COLORING IN BLACK FOR AGATAS OF RIO GRANDE DO SUL/BRAZIL (p. 728)

C. Ericksson¹ and Ireune Brum²

¹Federal University of Rio Grande do Sul, Av Bento Gonçalves 9500. Porto Alegre/RS, Brazil

²Technology Center, Federal University of Rio Grande do Sul, Av Bento Gonçalves 9500. Porto Alegre/RS, Brazil

UNIFUNCTIONALITY PRINCIPLE OF SEPARATING PROCESSES AND ITS PRACTICAL APPLICATION IN MINERAL PROCESSING (p. 775)

Anatoly Kimarski

Engineering Dobersek@GmbH, Germany

IMPACT: DEVELOPING MODULAR MOBILE PLANTS FOR SELECTIVE, LOW-IMPACT MINING OF SMALL HIGH-GRADE DEPOSITS (p. 933)

A.J. Morrison, J.J. Cilliers and Pablo Brito-Parada

Department of Earth Science and Engineering, Imperial College London, United Kingdom

EXPERIMENTAL STUDY ON PRE-DISCARDING AILINGS FOR A LOW GRADE COMPLEX MULTIMETALS WO-MO ORE (p. 962)

Jin Liu

Guangdong Institute of Resources Comprehensive Utilization, 363 Changxing Road, Guangzhou, China, PRC 510650

PROCESSING OF FLOTATION TAILINGS FROM BENEFICATION BY USING MODIFIED FLOTATION REAGENTS (p. 86)

Senushkina Larissa, N.K. Tussupbayev, D.K. Turysbekov, S.M. Narbekova, A.M. Muhamedilova

Institute of Metallurgy and Ore Beneficiation, Almaty, Kazakhstan 050010

MINERALOGY AND RESEARCH ON A NEW TECHNOLOGY FOR LOW-GRADE OF HIGH SULFUR BAUXITE FLOTATION (p. 83)

Zhou Jing, Li Tianxia, Zhu Yimin

Hunan Research Institute of Non-ferrous Metals, Changsha, Hunan, China 400100

STUDY ON SURFACE CHARACTERISTICS OF PITCHBLLENDE AND URANINITE (p. 210)

Li Chun-feng, Liu Zhi-chao, Li Guang, Ma Jia, Qiang Lu-de, Tang Bao-bin

Beijing Research Institute of Chemical Engineering and Metallurgy, CNNC 145, Jiukeshu Street of Tongzhou District, Beijing, China 101149

INFLUENCE OF REAGENT SPECIES ON GOLD FLOTATION EFFECT OF GRAVITY TAILINGS (p. 111)

Wei Yang¹, Ping Dong¹, He Wan¹, YaPing Wang², Tao Long¹

¹College of Materials and Mineral Resources, Xi'an University of Architecture and Technology, Xi'an 710055, China

²College of Foreign Languages, Baoji University of Arts and Sciences, Baoji 721000, China

FLOTATION REAGENT SYSTEM TO FINE FRACTION OF THE MOATIZE COAL/MOZAMBIQUE (p. 22)

A.F. Castro¹, Ireune Brum², E. Zanetti³, P.M. Zancan² and D. Johann²

¹Polytechnic Institute of Tete, Estrada Nacional, 7, km 1, Matundo, PO Box 362, Tete, Moçambique

²Federal University of Rio Grande do Sul, Av. Bento Gonçalves 9500, PO Box 15021, Porto Alegre/RS, Brasil CEP 91501-970

³Vale Institute of Technology, Av. Juscelino Kubitschek, 31, Ouro Preto/MG, Brasil CEP 35400-000

DEVELOPMENT AND APPLICATION OF PVM VERTICAL RING HIGH-GRADIENT HIGH-INTENSITY PERMANENT MAGNETIC SEPARATOR (p. 324) Hongxiang Ran^{1,2}, Honggang Wei¹, Yonghui Hu¹ ¹ Beijing General Research Institute of Mining and Metallurgy Building 23, Zone 18 of ABP, No.188, South 4th Ring Road West, Beijing, 100160,China ² School of Mechanical Engineering, University of Science and Technology Beijing, 30 Xueyuan Road, Haidian District, Beijing 100083 ,China	
Environmental problems and recycling of mineral-containing waste products	
ELECTIVE FLOTATION OF CHALCOPYRITE, ARSENOPYRITE AND ANTIMONITE FROM COMPLEX ORES (p. 1000) T.N. Matveeva, N.K. Gromova and L.B. Lantsova Institute of Comprehensive Exploitation of Mineral Resources, Russian Academy of Sciences	LEAD IMMOBILIZATION IN ARTIFICIAL CONTAMINATED SOIL USING SULFURIMPREGNATED CARBONACIOUS MATERIAL DERIVED FROM RICE STRAW (p. 118) Takaaki Wajima Department of Urban Environment Systems, Chiba University, Japan
NEW TECHNOLOGY OF COMPREHENSIVELY RECYCLING OF SPENT MAGNESIA-CHROME REFRACTORIES (p. 217) Kai Xue, Fen Jiao, Wei Liu, Wenqing Qin, Lianbing Cai, Junwei Han, Tan Xu School of Minerals Processing and Bioengineering, Central South University, Changsha, Hunan, China, 410083	ENVIRONMENTAL PROBLEMS IN THE AURIFEROUS ORES MINING AND PROCESSING (p. 222) Elena Zelinskaya, V.U. Starostina Irkutsk National Research Technical University 83, Lermontov str, Irkutsk, Russia
ANALYSIS OF DUST EMISSION FOR SELECTED CRUSHERS (p. 644) Daniel Saramak AGH University of Science and Technology Faculty of Mining and Geoengineering Department of Environmental Engineering and Mineral Processing, Mickiewicza 30 Av., 30–059 Cracow, Poland	CONCENTRATION TRIALS OF TAILINGS CONTAINING NONFERROUS AND NOBLE METALS USING DRY SEPARATION (p. 760) Andrey Kozlov, V.F. Bannikov Vernadsky State Geological Museum, Russia
Wednesday, September 19	
Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology	
A NOVEL STATISTICAL INSIGHT TO SELECTION OF THE BEST FLOTATION KINETIC MODEL (p. 67) A. Hassanzadeh^{1,2}, S. Cagirci³, Z. Öztürk⁴ ¹ Department of Processing, Helmholtz Institute Freiberg for Resource Technology, Helmholtz-Zentrum Dresden-Rossendorf, Chemnitz Straße 40, Freiberg 09599, Germany ² Istanbul Technical University, Faculty of Mines, Mineral Processing Engineering Department, Maslak, Istanbul, Turkey 34469 ³ Alumni of University of Cologne, Mathematical Institute, Cologne 50931, Germany ⁴ AGH University of Science and Technology, Department of Environmental Engineering and Mineral Processing, Krakow, Poland	INCREASING FINAL CONCENTRATE GRADE OF THE SARCHESHMEH COPPER COMPLEX FLOTATION CIRCUIT BY FLOWSHEET MODIFICATION (p. 146) H. Bidshahri¹, Gholamabbas Parsapour², M. Pourkani¹, M.J.Rajabi¹, E. Arghavani¹, Gh.A. Mohamadian³, and S. Banisi⁴ ¹ Kashigar Mineral Processing Research Center, Shahid Bahonar University of Kerman, Kerman, Islamic Republic of Iran ² Vali-E-Asr University of Rafsanjan, Rafsanjan, Islamic Republic of Iran ³ Sarcheshmeh Copper Complex, Rafsanjan, Islamic Republic of Iran ⁴ Shahid Bahonar University of Kerman, Kerman, Islamic Republic of Iran

STUDY ON CRYSTAL STRUCTURES, SURFACE PROPERTY AND FLOATABILITY OF SPODUMENE AND SILICATES (p. 947)

Yuhua Wang¹, Guangli Zhu¹, Fushun Yu², Dongfang Lu¹, Yuehao Zhao¹, Haitao Zheng¹

¹ School of Minerals Processing & Bioengineering, Central South University, Changsha 410083, China

² School of Resources and Environmental Engineering, Shandong University of Technology, Zibo 255049, China

FLOTATION OF TENNANTITE FROM PYRITE COPPER-BEARING ORES (p. 25)

Vladislava Ignatkina, V.A. Bocharov, L.C. Khachatryan, A.A. Kayumov¹, R.H. Sharipov, M.V. Lukyantseva, D.M. Altynamanovand, V.V. Zakopaylo²

¹ National University of Science and Technology "MISiS", 4, Leninsky Prospect, Moscow, Russia 119049

² Joint Stock Company "Uchalinsky GOK", 2, Gornozavodskaya street, Uchaly, Republic of Bashkortostan, Russia 453700

STUDY ON DESIGN, SYNTHESIS AND FLOATION EXPERIMENT OF A NOVEL O-ISOPROPYL-NBENZYL THIONOCARBAMATE (p. 31)

Cao Fei^{1,2}, Zhou Dezh¹, Sun Desi and Sun Chuanyao²

¹ Department of Chemistry and Environmental Engineering, Jiujiang University, Jiujiang, Jiangxi, China

² State Key Laboratory of Mineral Processing, Beijing General Research Institute of Mining and Metallurgy, Beijing, China

RESEARCH ON RECOVERY OF AGLESITE FROM LEAD-SILVER RESIDUES USING A NEW COLLECTOR (p. 88)

W. Yao^{1,2}, M. L. Li^{1,2,3}, R. Cui^{1,2} and B. Hu^{1,2}

¹ Hubei Key Laboratory for Efficient Utilization and Agglomeration of Metallurgical Mineral resources, China

² College of Resources and Environmental Engineering, Wuhan University of Science and Technology, China

³ Changsha Research Institute of Mining and Metallurgy Co., Ltd. China

CALCIUM POLYSULPHIDE AS A SULFIDIZATOR AT FLOTATION OF THE OXIDIZED LEAD-BEARING ORES (p. 97)

N.K. Tussupbayev, A.A. Mukhanova, S.M. Narbekova, L.V. Semushkina, D.K. Turysbekov, Zh.A. Kaldybayeva

Institute of Metallurgy and Ore Beneficiation, Almaty, Kazakhstan 050010

BIOLOGICAL PROCESSING OF BULK CO NCENTRATE FLOTATION BEFORE SELECTION CI RCUIT (p. 189)

Natalia Algebrastova¹, Yu. Gurevich², I. Prokopev¹, M. Teremova², A. Razyjznaya¹

¹ Siberian Federal University, 79 Svobodny, Krasnoyarsk, Russia, 660041

² Krasnoyarsk Science Centre of the SB of RAS, 50, Akademgorodok, Krasnoyarsk, Russia, 660036

INTERACTIVE EFFECTS IN MINERAL FLOTATION PROCESS (p. 75)

Wanzhong Yin¹, Yuan Tang¹, Jin Yao¹, Ximei Luo² and Jizhen Wang³

¹ School of Resources and Civil Engineering, Northeastern University, China

² Faculty of Land Resource Engineering, Kunming University of Science and Technology, China

³ School of Chemistry and Chemical Engineering, Xi'an University of Science and Technology, China

IMPACT OF CAT ION SUBSTITUTION (CD, CO) ON THE GEOMETALLURG ICAL RESPONSE OF SPHALERITE (p. 281)

Lebogang Babedi¹, M. Tadie², P. Neethling and B.P. von der Heyden¹

¹ Department of Earth Sciences, Stellenbosch University, South Africa

² Department of Process Engineering, Stellenbosch University, South Africa

PICO-BUBBLE COLUMN FLOTATION OF ULTRAFINE RARE EARTH BEARING MINERALS (p. 300)

Bogale Tadesse, Hongjuan Chen and Boris Albijan

Department of Mining Engineering and Metallurgical Engineering, Western Australian School of Mines, Curtin University, Egan St, Kalgoorlie, WA 6430, Australia

RELATING MINEROLOGICAL CHARACTERISTICS OF A REFRACTORY COPPER-MOLYBDENUM ORE TO CU-MO FLOTATION SEPARATION (p. 305)

Yanhong Dong, Daixiong Chen, Yucai Zhou and Jun Xiao

Hunan Research Institute for Non-ferrous Metals, Changsha, China 410100

MULTIFACTOR SYSTEM OF INTENSIFICATION OF FLOTATION ENRICHMENT OF THE POOR PLATINOMETAL RAW MATERIALS (p. 236) <u>A.V. Kanarskaya</u> National University of Science and Technology "MISIS", 4, Leninsky Prospect, Moscow, Russia, 119049	BENEFICIATION STUDIES OF A RARE EARTH ORE FROM THE OLSERUM DEPOSIT (p. 321) <u>Jason Yang, N. Heino, T. Saastamoinen</u> GTK Mintec, Geological Survey of Finland, Finland
ENRICHMENT OF LEPIDOLITE AND PRODUCING LITHIUM COMPOUNDS FROM LITHIUM ORE IN CENTRAL OF VIETNAM (p. 142) <u>Duy Anh Dao¹, Thi Hien Tran¹, Hong Son Nguyen¹, Thi Thu, Hien-Dinh¹, Huy Hoan Nguyen²</u> ¹ National Institute of Mining-Metallurgy Science & Technology, Vietnam ² Department of Science and Technology, Ministry of Industry and Trade, Vietnam	COMPARISON OF THE FLOTATION OF ENARGITE USING FRESH AND SEAWATER (p. 338) <u>R. Yepsen, F. Alarcón, Leopoldo Gutierrez</u> Department of Metallurgical Engineering, Universidad de Concepción, Edmundo Larenas 285, Concepción, Chile
AMMONIACAL ACTIVATION OF LIME DEPRESSED PYRITE (p. 384) <u>S. Dzhamyarov², I. Grigorova¹, M. Ranchev¹, Ivan Nishkov¹</u> ¹ Department of Mineral Processing and Recycling, 1 University of Mining and Geology "St. Ivan Rilski", 1700 Sofia, Bulgaria ² Dundee Precious Metals Chelopech, 2087, Bulgaria	NON-CYANIDE FLOTATION METHOD OF IRON-RICH SPHALERITE IN THE PROCESSING OF LEAD-ZINC ORES (p. 391) <u>Irena Grigorova¹, M. Ranchev¹, N. Valkanov², I. Nishkov¹</u> ¹ Department of Mineral Processing and Recycling, 1 University of Mining and Geology "St. Ivan Rilski", 1700 Sofia, Bulgaria ² MINSTROY HOLDING JSC 57 G. M. Dimitrov Blvd. 1172 Sofia, Bulgaria
STUDY ON THE MECHANISM OF HOW METAL IONS AFFECT THE FLOATABILITY OF ILMENITE AND TITANAUGITE (p. 529) <u>Zhu Yangge¹, Zhang Guofan², Feng Qiming², Hu Xiaoxing¹, Zhang Xingrong¹</u> ¹ State Key Laboratory of Mineral Processing, BGRIMM Technology Group, China ² School of University of Minerals Processing and Bioengineering, Central South University, China	THE DESIGN OF ORGANIC MACROMOLECULAR DEPRESSANTS AND THEIR APPLICATIONS IN THE FLOTATION OF MINERALS SEPARATIONS (p. 299) <u>Zhang Xingrong, Zhu Yangge, Zheng Guibing, Ren Aijun, Xie Yu and Qian Zhibo</u> Institute of Mineral Resources State Key Laboratory of Mineral Processing, BGRIMM, R&D Center, No. 22, A306, Beixing Road East, Daxing District, Beijing, 102628
RESEARCH ON THE EFFECTS AND MECHANISM OF A NEW DEPRESSANT FOR GALENA IN THE SEPARATION FROM CHALCOPYRITE (p. 160) <u>B. Qian, W.G. Wu, X.R. Zhang, W. Zeng, Z.J. Sun, S.Z. Zhou, R.S. Wang, Y. Yu, Z.K. Hu, L. Wan</u> Beijing General Research Institute of Mining and Metallurgy (BGRIMM), State Key Laboratory of Mineral Processing Science and Technology, Beijing, China 100160	COMPARISON OF DIFFERENT REAGENT SYSTEMS FOR THE NEW NUSSIR ASA COPPER ORE DEPOSIT IN NORTHERN NORWAY (p. 493) <u>Priyanka Dhar, Maria Thornhill and Hanumantha Rao Kota</u> Department of Geosciences and Petroleum Engineering, NTNU, Norway

Environmental problems and recycling of mineral-containing waste products

COMPLEX TECHNOLOGY DEVELOPMENT FOR PROCESSING SECONDARY RAW MATERIALS OF ALUMINUM PRODUCTION FOR USE IN THE ELECTROLYSIS PROCESS (p. 264)

A.E. Burdonov, E.V. Zelinskaya

Irkutsk National Research Technical University, Irkutsk, st. Lermontova, 83, 664074

ENVIRONMENTAL BACKGROUND OF THE INTEGRATED PROCESSING OF HYDROMINERAL RESOURCES (p. 377)

Olga Ulanova, E.V. Zelinskaya and K.V. Fedotov

Department of Mineral Enrichment and Environmental Protection, Institute of Subsoil Use, Irkutsk National Research Technical University, 83 Lermontov Str., Irkutsk, 664074 Russia

EVALUATING THE CURRENT STATUS OF METAL PRODUCTION FROM SECONDARY RESOURCES IN SOUTH AFRICA (p. 399)

Cristie Dorfling, G. Akdogan and C.A. Snyder

Department of Process Engineering, Stellenbosch University, Private Bag X1, Matieland, 7602, South Africa

SECONDARY PB PROCESSING: IT'S TIME FOR ELECTROCHEMISTRY (p. 804)

Massimo Maccagni, E. Guerrini¹, J. Nielsen²

¹ Engitec Technologies S.p.A., Via Borsellino e Falcone, 31, 20026 Novate Milanese (MI), Italy
² Engitec USA, 813 Marti Drive, Rolla, Missouri MO-65401, USA

LABORATORY TEST STUDY AND PRODUCTION PRACTICE ON COMPREHENSIVE UTILIZATION OF NONMETALLIC MINERALS IN NONFERROUS METAL MINE TAILINGS (p. 429)

Z.G. Song, S.S. Lu, G.B. Zheng, S.Q. Li, Q. Cui, A.J. Ren and S.S. Ling

State Key Laboratory of Mineral Processing, BGRIMM, China

X-RAY RADIOMETRIC AND TRIBOELECTRIC SEPARATION OF DIAMOND-BEARING MATERIALS (p. 267)

Rakhmeev R.N., Fedorov Yu.O., Chikin A.Yu., Kononko R.V.

JSC Irgridmet, 38 Gagarin blvd., Irkutsk, 664025, Russia

Thursday, September 20

Surface chemistry. Flotation fundamentals. Flotation reagents. Flotation technology

A COMPOSITE THIONOCARBAMATE AND MERCAPTAN COLLECTOR: SYNTHESIS AND FLOTATION PERFORMANCE TO CHALCOPYRITE (p. 445)

Xin Ma, Shuai Wang and Hong Zhong

College of Chemistry and Chemical Engineering, Central South University, Changsha, China 410083

STUDY OF LEACHING KINETICS OF EXTRACTED INDIUM FROM ZINC OXIDE (p. 63)

Mingfei He and Yude Gao

¹ Guangdong Institute of Resources Comprehensive Utilization
² State Key Laboratory of Rare Metal Separation and Comprehensive Utilization
³ Guangdong Provincial Key Laboratory of Mineral resource Development and Comprehensive Utilization, 363 changxing road, tianhe district, guangzhou city, guangdong province 510650, China

ON THE RECOVERY OF ASSOCIATED MINERALS IN THE FLOTATION PROCESS BASED ON SIZE LIBERATION DATA (p. 486)

Paulina Vallejos, J. Yianatos, H. Gallardo

Automation and Supervision Centre for Mining Industry, CASIM Department of Chemical and Environmental Eng., Federico Santa Maria Technical University

BIOTECHNOLOGICAL METHOD OF OBTAINING HIGH-QUALITY IRON CONCENTRATES (p. 129)

E. Ashirbaeva

National University of Science and Technology "MISIS", 4, Leninsky Prospect, Moscow, Russia

INTEGRATING COMPUTATIONAL MODELING WITH EXPERIMENTAL ENTHALPY OF ADSORPTION: A XANTHATE-PYRITE SYSTEM (p. 595) B. McFadzean¹, P.P. Mkhonto² and P.E. Ngoepe² ¹Centre for Minerals Research, University of Cape Town, South Africa ²Materials Modelling Centre, University of Limpopo, South Africa	LEACHING BEHAVIOR OF CU, BI AND SB FROM TROF FURNACE DORÉ SLAG DURING MINERAL ACID LEACHING (p. 137) P. Halli¹, T. Hailemariam¹, P. Latostenmaa² and M. Lundström¹ ¹Aalto University, School of Chemical Technology, Dept. of Materials Science and Engineering, Vuorimiehentie 2, P.O. Box 16200, FI-00076 Aalto, Finland ²Boliden Harjavalta, Teollisuuskatu 1, FI-29200 Harjavalta
EVALUATION OF DISPERSANTS ON THE FLOATABILITY OF MOLYBDENITE IN SEAWATER USING INDUCTION TIME MEASUREMENTS (p. 614) A.D. Ramirez^{1,2}, M.A. Garces^{1,2} and L.E. Gutierrez^{1,2} ¹Department of Metallurgical Engineer, University of Concepcion, Chile ²Water research center for agriculture and mining (CHRIAM), University of Concepcion, Chile	ALKALINE PRESSURE OXIDATION LEACHING OF ARSENIC FROM GOLD CONCENTRATE IN LOWER TEMPERATURE (p. 153) Yongliang Wang¹, Guoyan Fu^{1,2}, Xiao Li^{1,2}, Peiwei Han¹, Peng Qian¹, Shufeng Ye¹ ¹State Key Laboratory of Multiphase Complex Systems, Institute of Process Engineering, Chinese Academy of Sciences, Beijing 100190, China Institute of Mineral Resources ²School of Chemistry and Chemical Engineering, University of Chinese Academy of Sciences, Beijing 100049, China
COMPUTATIONAL INSIGHTS INTO THE INTERACTION MECHANISM OF FLOTATION REAGENTS WITH CHALCOPYRITE AND HIGHTHROUGHPUT SCREENING FLOTATION REAGENT FOR COPPER ORES (p. 623) Jianyong He, Zhigang Yin, Chenyang Zhang, Yuehua Hu School of Minerals Processing and Bioengineering, Central South University, Changsha, Hunan, China 410083	BIOHYDROMETALLURGICAL EXTRACTION OF NONFERROUS AND NOBLE METALS FROM PRIMARY MINERAL ORES AND SPENT STACKS OF HEAP LEACHING OF OXIDED ORES (p. 154) I.H. Mukhametshin¹, I.B. Fadina¹, E.A. Ashirbaeva², E.N. Baranova² ¹AO "NPF "BZK", Russia, Rep. Bashkortostan, Village Safarovo, Industrial site "NPF "BZK", 453720 ²National University of Science and Technolog
A TREATMENT PROCESS FOR MINE, TAILINGS STORAGE FACILITY, CIRCULATING, AND WASTE WATER AT MINING AND METALS PROJECTS (p. 1044) M.G. Viduetsky, V.A. Maltsev, A.P. Purgin, I.F. Garifulin¹ ¹Ural Federal University, Mira 28, Ekaterinburg, Russia 620002	THIOSULPHATE LEACHING OF GOLD/SILVER FROM A COPPER-BEARING PYRITIC GOLD CONCENTRATE (p. 185) F. Ahlatci, Ersin Y. Yazici, O. Celep and H. Deveci Hydromet B&PM Research Group, Div. of Mineral&Coal Processing, Dept. of Mining Eng., Karadeniz Technical University, 61080, Trabzon, Turkey
Processing of fines and slimes	
RECOVERY OF FREE CYANIDE FROM THIOCYANATE WITH OZONE (p. 303) S.V. Petrov, E.P. Olberg, V.F. Petrov Joint-stock company Irkutsk research institute of precious and rare metals and diamonds JSC Irgridmet, 38 Gagarin blvd., Irkutsk, 664025, Russia	FLOTATION SEPARATION RESEARCH ON A CARBON-CONTAINING REFRACTORY COPPERMOLYBDENUM ORE (p. 82) Zhu Yimin, Zhou Yucai, Zhou Jing Hunan Research Institute of Non-ferrous Metals, Changsha, Hunan, China

ALBION PROCESS CAPABILITIES FOR PROCESSING OF FEED MATER (p. 360) A.Y. Senchenko, A.V. Aksenov, A.A. Vasiliev and Y.G. Seredkin Institute TOMS Ltd, Lermontov Street, 83/1, P.O. Box. 83, 664074, Irkutsk, Russia	AGGLOMERATION-ASSISTED SEPARATION OF FINE VALUE MINERAL PARTICLES FROM MINERAL GANGUE (p. 629) Georgios N. Anastassakis¹ and C.A.C. Sequeira² ¹School of Mining Engineering and Metallurgy, National Technical University of Athens (NTUA), Greece ²Center of Physics and Engineering of Advanced Materials, Instituto Superior Técnico, University of Lisbon, Portugal
INNOVATIVE TECHNOLOGY FOR INTEGRATED PROCESSING OF OXIDIZED NICKEL ORES (p. 362) A.Y. Senchenko, S.G. Rybkin and A.V. Aksenov Institute TOMS Ltd, Lermontov street, 83/1, P.O. Box. 83, 664074, Irkutsk, Russia	RESEARCH ON MICROWAVE ASSISTED LEACHING OF COPPER ANODE SLIME BASED ON THE TAGUCHI METHODS (p. 672) Ziyuan Ma^{1,2,3}, Y. Liu^{1,2,3}, J.K Zhou^{1,2,3}, M.D Liu^{1,2,3} and Z.Z Liu^{1,2,3} ¹Guangdong Institute of Resources Comprehensive Utilization, Guangdong Academy of Sciences, Guangzhou, China ²State Key Laboratory of Separation and Comprehensive Utilization of Rare Metals, Guangzhou, China ³Guangdong Provincial Key Laboratory of Development and Comprehensive Utilization of Mineral Resources State Key, Guangzhou, China
Hydro- and bio-hydrometallurgy	
TECHNOLOGY FOR INCREASE IN CONTENT OF DIOXIDE OF THE TITAN IN TITANIUM SLAG BY METHOD OF CHEMICAL ENRICHMENT (p. 705) M.A. Naimanbayev, N.G. Lokhova, Zh.A. Baltabekova Institute of Metallurgy and Ore Benefication 29/133, Shevchenko Str., Almaty, Kazakhstan, 050010	DEVELOPMENT OF HYDROMETALLURGICAL TECHNOLOGY FOR TREATMENT OF OXIDIZED GOLD-BEARING ORES OF KOCHKOVSKOE DEPOSIT (p. 51) A.M. Klyushnikov, V.V. Musaev, R.R. Galimov OJSC "Uralmechanobr", Russia
RESEARCH ON MANGANESE CLEANER PRODUCTION TECHNOLOGIES (p. 780) Shuai Wang^{1,2}, Ting Dai^{1, 2}, Zhanfang Cao^{1,2} and Hong Zhong^{1,2} ¹College of Chemistry and Chemical Engineering, Central South University, Changsha, China ²Hunan Provincial Key Laboratory of Efficient and Clean Utilization of Manganese Resources, Central South University, Changsha, China 410083	A NEW TYPE OF 700 M3 BIO-OXUDATION REACTOR FOR REFRACTORY GOLD CONCENTRATE (p. 536) Dong Ganguo, Wu Feng, Chen Qiang, Han Zhibin, Shen Zhengchang Beijing Engineering Research Center on Efficient and Conservation Equipment of Mineral Processing, State Key, Laboratory of Mineral Processing, Beijing General Research, Institute of Mineral Processing, China



EUROCHEM



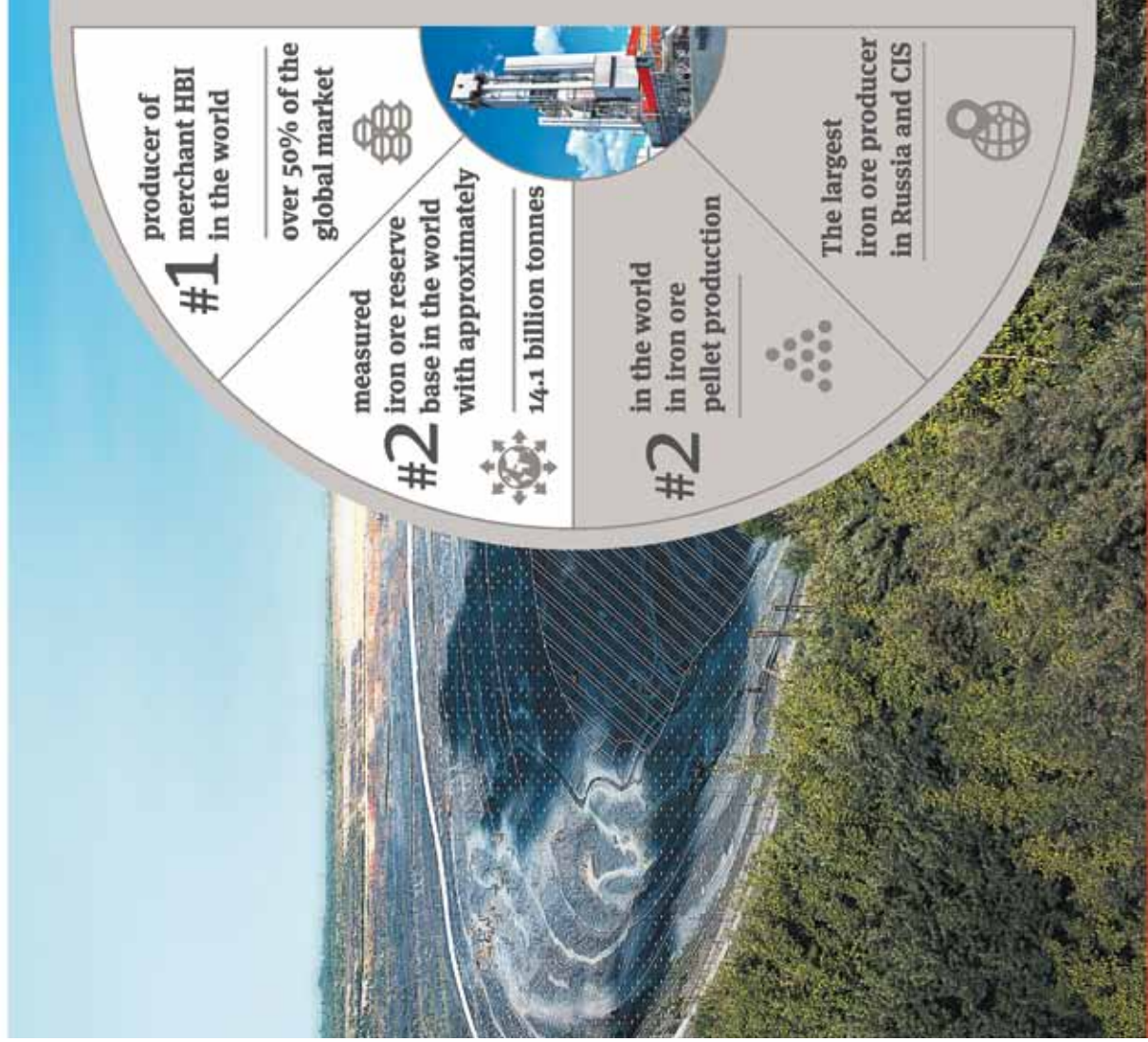
GREENEST PERFORMANCE ENHANCER

WWW.EUROCHEMGROUP.COM



Metalloinvest

Resources create opportunities



www.metalloinvest.com

TOMS INSTITUTE

World class
metallurgical testing,
engineering and consulting



Comminution	Mineral processing
Metallurgy	Mineralogy
Analytical analysis	Process development
Mining and geological consulting	Design and engineering

www.tomsmineral.ru



NORNICKEL



**ENSURING
RELIABILITY**



«**Nornickel**» is the world's largest producer of nickel and palladium, and one of the world's leading producers of platinum and copper. The Company produces cobalt, rhodium, silver, gold, iridium, ruthenium, selenium, tellurium and sulfur.

«**Nornickel**» is involved in prospecting, exploration, extraction, refining and metallurgical processing of minerals, production, marketing and sale of base and precious metals.

The main Russian production units of «**Nornickel**» are vertically integrated and include: the **Polar Division of MMC Norilsk Nickel**, **Kola Mining and Metallurgical Company** and **Bystrinsky mining** and processing plant, located in the Gazimuro-Zavodsky District of Trans-Baikal Territory.

Norilsk Nickel Harjavalta belonging to the Group is the only nickel refining plant in Finland.

«**Nornickel**» has its own global network of representative and sales offices in Russia, the UK, China, USA and Switzerland.



WHEN DETERMINING THE STRATEGY FOR ITS GLOBAL OPERATIONS AND FUTURE DEVELOPMENT, «**NORNICKEL**» IS FOCUSED ON COMPLIANCE WITH ALL SOCIAL AND ENVIRONMENTAL RESPONSIBILITY PRINCIPLES IN THE VARIOUS COUNTRIES IN WHICH IT OPERATES, WHICH IS ESSENTIAL FOR ENSURING SUSTAINABLE AND EFFICIENT BUSINESS DEVELOPMENT.

Project activities

- Project and working documentation:
- Mine-and-mill industry
 - Metallurgical industry
 - Chemical industry
 - Construction and architecture
 - Automation, electrical engineering and instrumentation
 - Design support engineering
 - Thermal power generation and gas supply
 - Ecology, industrial safety
 - Special discipline
 - Support of investment projects

- Financial feasibility studies
- Pre-feasibility study
- Feasibility study of conditions
- Support of tender procedures
- Engineering in cooperation with foreign partners

General engineering services at

all stages of investment project:

- Conceptual engineering
- Basic engineering
- Detailed engineering
- Construction design supervision
- Commissioning and driving up to the design performance

Research and Development

- Assay laboratory
- Study of raw material composition (chemical, phase and mineral analysis)
 - Development of new methodologies
- Beneficiation department
- R & D, development of process beneficiation schemes for non-ferrous ores, precious metals and technogenic raw materials
 - R & D, development of hydrometallurgical technologies for processing of various raw materials

Department of ore preparation and special research methods

- R & D, development of technologies and methods for the preparation of raw materials for metallurgy
- Development and modelling of technologies for crushing and grinding
- Physical testing of mineral and technogenic raw materials

- R & D, development of technological beneficiation schemes for ores of ferrous and rare metals, non-metallic raw materials

Department of Mining Science

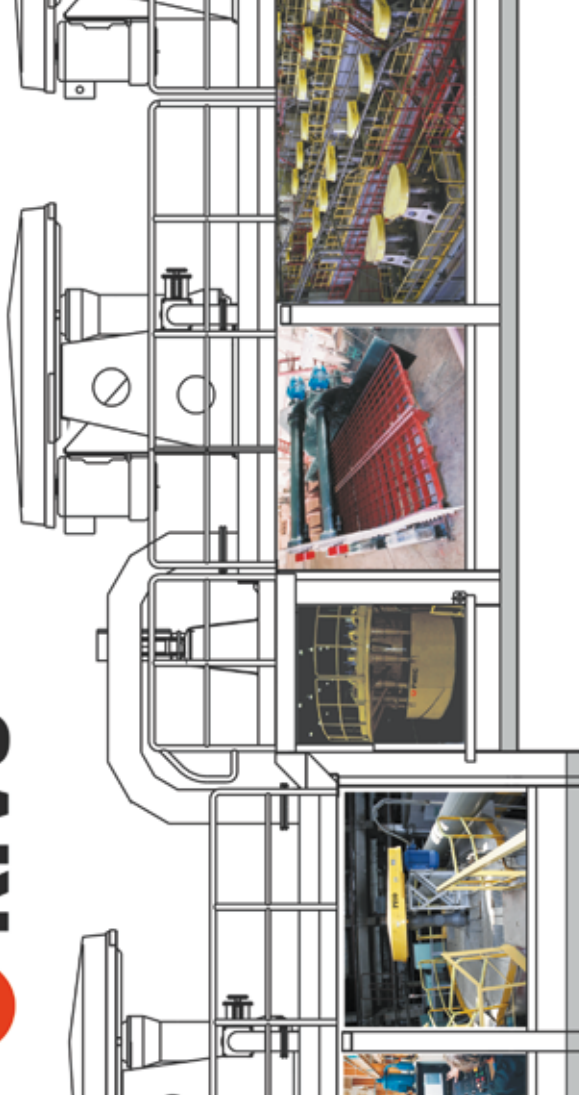
- The development of technologies, process procedure and methods for safe and efficient extraction of raw materials in the underground and open-cast mines.
- Scientific support of mining enterprises

1929

www.umbr.ru

e-mail: umbr@umbr.ru

Golden Sponsor XXIX International Mineral Processing Congress



The Company provides:

Greenfield project engineering, design and construction.
Reconstruction of operating processing plants.
Research, development and implementation of new mineral processing technologies.
Process regulations development, new process solutions implementation providing target process performance at operating plants.

Audit of mineral processing operations.
Design of new machines and mechanisms.
Mining and processing equipment upgrade.
APCS design for processing plants.
Complex automation of process operations and beneficiation stages.
Monitoring, maintenance service and spare parts supply.



NPO RIVS supplies the following equipment:

Crushing and grinding equipment.

Flotation machines for metallic and non-metallic ores of all types.

Tanks for different ore-dressing and chemical processes.

Classifying equipment for crushing and grinding processes.

Hydrocyclones and hydrocyclone banks.

Centrifugal gravel pumps.

Tailored sumps and tanks.

Automation tools for mining equipment.

Reagent feeders of various types.

Spare parts for mining and processing equipment.

Industrial rubber ware for mining and processing equipment.





20 лет РАБОТЫ

с твердыми полезными ископаемыми

Максимальное извлечение с минимальными затратами

ООО ПК «СПИРИТ»

- Разработка технологий обогащения ТПИ
- Разработка регламентов, проектов
- Геолого-разведочные работы
- Изучение вещественного состава ТПИ
- Производство обогатительного оборудования
- Комплексация технологических схем
- Шеф-монтаж, запуск в эксплуатацию
- Технологическое сопровождение обогатительных производств



www.spirit.irk.ru



SOLVAY MINING SOLUTIONS

Inspired by your challenges. Driven by *service.*

We work the way you do. As a market leader who understands these challenges, we bring our customers an unmatched ability to maximize their mining investments.

Solvay Mining Solutions keeps your mineralogy, design and process requirements in the foreground while developing sustainable science to deliver more future.

[solvay.com](https://www.solvay.com)



ООО «ФЛСмидт Рус»
 127035, г. Москва, ул. Новослободская, д. 23
 Бизнес-центр «Межерхольд»
 +7 495 660 8880 • +7 495 641 2778
Info.flsm.moscow@flsmidth.com

FLSmidth

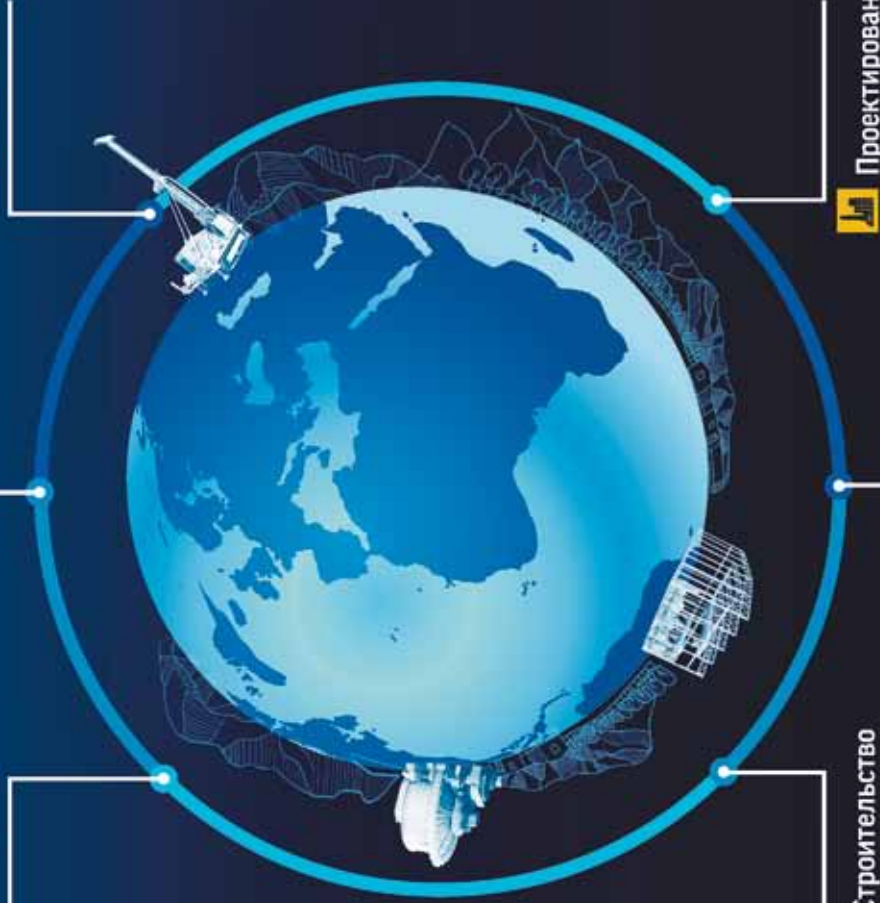


Анализ проб

Исследование проб



Обоснование
кондций



Строительство



Поставка и монтаж
оборудования



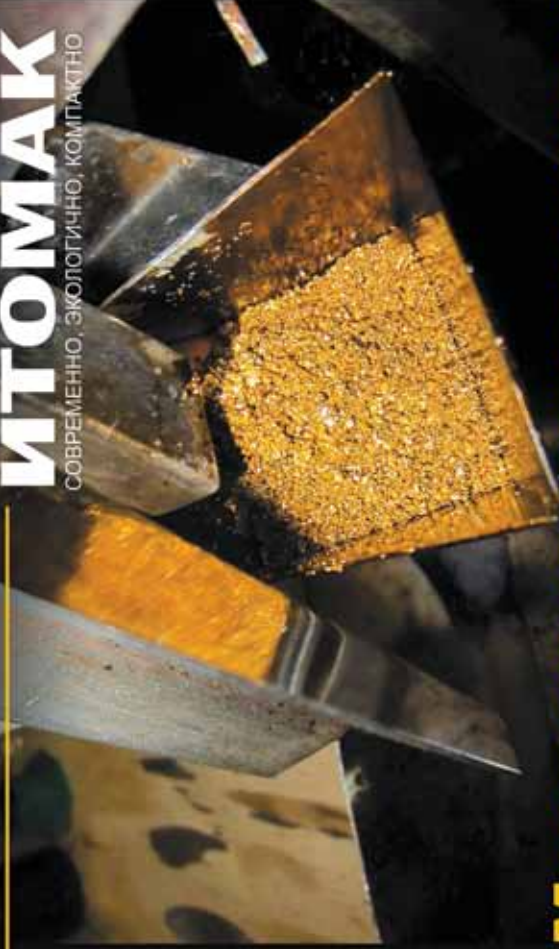
Проектирование

т. +7 (3952) 728-729
e-mail: gold@irgiredmet.ru
www.irgiredmet.ru

ОБОГАТИТЕЛЬНОЕ ОБОРУДОВАНИЕ

ИТОМАК

СОВРЕМЕННО, ЭКОЛОГИЧНО, КОМПАКТНО



Микроны в килограммы

Производство обогатительного оборудования для извлечения мелких и тонких классов золота на основе систем гравитационной сепарации. Разработка **технологических линий** на основе экологически чистых (гравитационных и магнитных) методов обогащения, позволяющих извлекать **тонкодисперсные** частицы золота и других тяжёлых минералов, в том числе из техногенных образований.

Поставка **передовых модульных геологоразведочных обогатительных установок** для золото- и аптамаздобывающей отрасли. Комплексное исследование проб и разработка рекомендаций по технологии гравитационного и магнитного обогащения сырья, содержащего тонкодисперсные частицы полезных минералов.

Проведение исследований в области гравитационных и магнитных методов обогащения. Запуск комплексов для доводки золотосодержащих концентратов. Поставка **геологоразведочных и обогатительных установок**, лабораторного оборудования. Разработка обогатительного оборудования, проведение опытно-конструкторских

работ, изготовление и тестирование образцов.

Основным видом продукции предприятия являются **центробежные концентраторы** с горизонтальной осью вращения (до 300 т/час), которые характеризуются высокими показателями удельной производительности и эффективности, низким энергопотреблением и габаритами. Простота эксплуатации, технического обслуживания и ремонта устойчивость к нестандартным ситуациям.

Сухие электромагнитные сепараторы выпускаются трех типов (до 30 кг/час). Основное преимущество сухих магнитных сепараторов «ИТОМАК» является то, что величина магнитного поля на зубцах ролика или на острие клина достигает 2,2 Тесла.

Магнитожидкостные сепараторы производятся двух типов: на постоянных магнитах (до 3 кг/час) и на электромагнитах (до 25 кг/час). Они позволяют разделять любые немагнитные минералы, отличающиеся по плотности не более чем на 0,2 г/см³, что дает возможность без промежуточных операций доводить шликки до чистого золота и отделять от золота металлические медь, свинец и другие примеси.

Компания ИТОМАК является одним из лидеров в разработке горно-обогатительного оборудования!



25 лет
на мировом рынке

+7 (383) 325-13-62
+7 (383) 325-13-69
www.itomak.ru

ИТОМАК