

SAIMM Minerals research showcase final draft program

Oral Presentations

Monday 11 November 2019	
Venue: Congo	
08:00-08:45	Arrival of Delegates/ Registration / Set up Posters (Kei)
Chair: M Tadie	
08:50-09:00	Word of Welcome: SAIMM WC President
09:00-09:45	Keynote Speaker: Diana Drinkwater

Monday 11 November 2019			
Session 1: Resourceful paths		Venue: Congo	
09:45-10:05	OR1 <i>Machine Learning in the Minerals Processing Industry: Applications and Future Trends</i>	Alexey V. Cherkaev Steven M. Bradshaw Tobias M. Louw	Stellenbosch University
10:05-10:25	OR2 <i>Exploring the potential use of fibre-rich plants for creating post-mining industrial development</i>	Tapiwa Chimbganda Jennifer Broadhurst	University of Cape Town
10:25-10:45	OR3 <i>Conceptualising the Urban Mine: Regulating the e-Waste Recycling Sector in South Africa.</i>	Aysha Lotter	University of Cape Town
10:50-11:10	TEA BREAK		

Monday 11 November 2019			
Session 2A: Bioprocess Engineering - Hydrometallurgy (parallel with session 2B)		Venue: Congo	
11:10-11:30	OR4 <i>Understanding the growth and activity of microorganisms interacting with the mineral surface in a packed-bed flow-through unsaturated column reactor</i>	Didi X Makaula Susan T. L. Harrison	University of Cape Town
11:30-11:50	OR5 <i>Using metagenomic analysis and metabolic activity to understand the role of organic carbon on reactor performance for continuous thiocyanate degradation</i>	Fadzai Kadzinga Robert. J. Huddy Susan. T. L. Harrison	University of Cape Town
11:50-12:10	OR6 <i>The effect of bed and fluid properties on capillary pressure and their impact on the hydrodynamic modelling of heap leaching systems</i>	Michael Odidi Marijke Fagan- Endres	University of Cape Town
12:10-12:30	OR7 <i>Effect of operating conditions on iron precipitates during bio-hydrometallurgical processes</i>	Babatunde Oladipo Elaine Govender- Opitz Tunde V. Ojumu	Cape Peninsula University of Technology
12:30-14:00	LUNCH AND POSTER VIEWING		

Monday 11 November 2019			
2B: Hydrometallurgy (parallel with session 3B)		Venue: Zambezi	
11:10-11:30	OR8 <i>Residence Time Investigation in Heap Leaching Using Artificial Silver Ores and Cyanide Lixiviant</i>	Borbor A.K.K. Gibson Glen Nwaila Jochen Petersen	University of Cape Town
11:30-11:50	OR9 <i>Effect of pretreatment on copper leaching from chalcopyrite</i>	Victor Quezada Antoni Roca Oscar Benavente Montserrat Cruells Jochen Petersen	University of Cape Town
11:50-12:10	OR10 <i>Electrochemical Behaviour of Chalcopyrite Oxidation in Chloride Solutions</i>	Luis Beiza Jochen Petersen Lilian Velásquez- Yévenes	University of Cape Town
12:10-12:30	OR11 <i>Mechanistic study of the effect of organic additives on the dissolution of chalcopyrite in sulphate media</i>	Jordy Dinga Jochen Petersen Thandazile Moyo	University of Cape Town
12:30-14:00	LUNCH AND POSTER VIEWING		

Monday 11 November 2019

3A: Electronic Waste (parallel with session 2A)				Venue: Congo
14:00-14:20	OR12	<i>Evaluating the economics of metal recycling from end-of-life lithium-ion batteries in South Africa</i>	Mari-Alet Smit Christie Dorfling Guven Akdogan	Stellenbosch University
14:20-14:40	OR13	<i>Leaching kinetic of copper from printed circuit boards through hydrometallurgical approach using ferric-acid as a lixivants</i>	Musa D. Maluleke Athanasios Kotsiopoulos Elaine Govender-Opitz Susan T.L. Harrison	University of Cape Town
14:40-15:00	OR14	<i>Influence of thermal treatment processes of printed circuit board waste on hydrometallurgical metal recovery process</i>	Iaan. A. Van Zyl Christie Dorfling Guven Akdogan	Stellenbosch University
15:00-15:20	OR15	<i>Techno-economic assessment of a hydrometallurgical metal recovery process from Waste Printed Circuit Boards</i>	Marc Patrick Prestele Thandazile Moyo Jochen Petersen	University of Cape Town
15:20-15:40	OR16	<i>Assessment of sustainable and environment friendly recycling options for lithium ion batteries in South Africa</i>	Tiaan Punt Guven Akdogan Petrie A Van Wyk Steven Bradshaw	Stellenbosch University

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3B: Flotation (parallel with session 3A)				Venue: Zambezi
14:00-14:20	OR17	<i>Novel reagent compositions for extraction of non-ferrous and noble metals from tin-sulfide ore tailings</i>	Tamara N. Matveyeva Victoria V. Getman Nadezhda K. Gromova	Russian Academy of Sciences
14:20-14:40	OR18	<i>Investigating the use of sodium metasilicate to improve the flotation performance of altered PGE ores</i>	Andrea Molifie Belinda McFadzean Megan Becker Stefan Geldenhuis	University of Cape Town
14:40-15:00	OR19	<i>The interactions of known and novel collectors with sperrylite (PtAs₂) at different pulp chemistries</i>	Sebia Pikinini Belinda. McFadzean Cyril. T. O' Connor	University of Cape Town
15:00-15:20	OR20	<i>Investigating the link between pyrite compositional variations and its recovery in froth flotation, in the gold refractory ore context</i>	Omeshan Naidoo Margreth Tadie Bjorn. P. von der Heyden	Stellenbosch University
15:20-15:40	OR21	<i>Considering the action of degrading water quality on the electrochemical response of sulphide minerals</i>	Noli Ndamase Kirsten.C. Corin Margreth Tadie	University of Cape Town

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15:40-16:40	Poster viewing – (Judging of Best Poster) Venue: Kei
16:40-17:00	Sundowners – River Club
18:00	Conference Dinner Commences – River Club

Tuesday 12 November 2019

08:30-09:00

Venue: Zambezi
Arrival of Delegates**Tuesday 12 November 2019****Session 4A: Geology & Comminution** (parallel with session 4B)**Venue: Congo**

09:00-09:20	OR22	<i>A process mineralogical study of the quartzitic ore varieties in a polymetallic base metal sulphide ore deposit</i>	Graham Stroebel Henry. J. J. Gordon Jodie. A. Miller Kirsten.C. Corin Megan. Becker	Stellenbosch University
09:20-09:40	OR23	<i>Assessing the influence of Mineralogy and Texture on the Ore Breakage Characteristics of Drill Core and Crushed Ore using the JKRBT</i>	Herbert Hill Megan. Becker Lawrence Bbosa Aubrey Mainza	University of Cape Town
09:40-10:00	OR24	<i>Impact breakage of synthetic rock sample using bonded particle DEM models</i>	Temitope.P Oladele Lawrence Bbosa Dion K Weatherley	University of Cape Town
10:00-10:20	OR25	<i>Grate vs overflow ball mill discharge configurations – Performance differences</i>	Adolph. N. Mwale Aubrey. N. Mainz Yashein Hanuman	University of Cape Town

10:20-11:00

TEA BREAK**Tuesday 12 November 2019****Session 4B: Big data, process modelling and control** (parallel with session 4A)**Venue: Zambezi**

09:00-09:20	OR26	<i>Investigating the influence of electrolyte composition on current distribution in copper electrowinning</i>	Chibwe Chalwe Margreth Tadie	Stellenbosch University
09:20-09:40	OR27	<i>The development of a semi-empirical electrowinning model to predict process performance</i>	Tucker Mandy Margreth Tadie Christie Dorfling	Stellenbosch University
09:40-10:00	OR28	<i>Control Performance Monitoring and Relay Auto Tuning of a Milling Circuit</i>	Grant Albertus Christie Dorfling Lidia Auret	Stellenbosch University
10:00-10:20	OR29	<i>A hierarchical approach to improve the interpretability of causality maps for fault identification</i>	Natali van Zijl Tobias Louw Steven Bradshaw Lidia Auret	Stellenbosch University

10:20-11:00

TEA BREAK**Tuesday 12 November 2019****Session 5A: Big data, process modelling and control** (parallel with session 5B)**Venue: Congo**

11:00-11:20	OR30	<i>Investigating the effect of surface properties on both ice and salt scaling in Eutectic Freeze Crystallization</i>	Lerato Motsepe Jemiti. Chivavava Allison E. Lewis	University of Cape Town
11:20-11:40	OR31	<i>Gypsum Seeding to prevent scale formation and improve separation efficiency</i>	Taona M. Chagwadera Alison E. Lewis Jemiti. Chivavava	University of Cape Town
11:40-12:00	OR32	<i>Antisolvent crystallization of rare earth sulfates from secondary streams</i>	Jacolien Du Plessis Jemiti. Chivavava Alison E. Lewis	University of Cape Town
12:00-12:20	OR33	<i>Developing a water accounting and assessment protocol for water management of mining and minerals processing</i>	De Waal Hugo Jennifer Broadhurst	University of Cape Town

12:20-13:20

LUNCH AND POSTER VIEWING

Tuesday 12 November 2019				
Session 5B: Sustainable practices (parallel with session 5A)				Venue: Zambezi
11:00-11:20	OR34	<i>Application of bio-surfactants as desulphurisation agents for the prevention of acid mine drainage</i>	Andre R. Augustyn Margreth Tadie Robert W. Pott	Stellenbosch University
11:20-11:40	OR35	<i>Fabricating topsoil from South African coal waste for rehabilitating mined areas</i>	Andani Mphinyane Juarez Amaral Filho Susan T.L. Harrison	University of Cape Town
11:40-12:00	OR36	<i>Evaluating the effects of microbial communities in technosols developed from ultrafine coal waste and malt residue on plant biomass production</i>	Jessica Weiler Juarez Ramos do Amaral Filho Mariette Smart Susan TL Harrison	University of Cape Town
12:20-13:20 LUNCH AND POSTER VIEWING				

Tuesday 12 November 2019				
Session 6A: Sustainable Practices				Venue: Congo
13:20-13:40	OR37	<i>Breach volume predictions: The consequences of tailings malpractice</i>	Niël Marais Charles J. MacRobert	Stellenbosch University
13:40-14:00	OR38	<i>Improving the understanding of post-mining transformation strategies that enhance rural-urban linkages: Case of Richards Bay Minerals, South Africa</i>	Lelia Lelia Elaine Govender-Opitz Philile Mbatha	University of Cape Town
14:00-14:20	OR39	<i>Incorporating sustainable practice principles into development of solutions for mitigation of mine waste</i>	Evelyn R. Manjengwa Margreth Tadie Christie Dorfling	Stellenbosch University
TEA BREAK				

Tuesday 12 November 2019	
14:20-14:40	Awards
14:40-14:50	Vote of Thanks
14:50-15:30	Refreshments
15:30	Delegates Depart

Poster presentations

Monday 11th November 2019

Poster Presentation	Title	Presenter and co-author/s	Affiliation
PP1	<i>State-Based Decision Support System for Operating Condition Shifting</i>	Francois F. Noelle Alexey Cherkaev Tobias Louw Lidia Auret Steven Bradshaw	Stellenbosch University
PP2	<i>Furnace monitoring using machine learning techniques</i>	Carl D. Theunissen Tobias.M. Louw Steven M. Bradshaw Lidia Auret	Stellenbosch University
PP3	<i>The effect of pH and organic carbon on the ferrous oxidation rate of a <i>Leptospirillum ferriphilum</i> and <i>Acidiplasma cupricumulans</i> co-culture</i>	Elina Chen Mariette Smart Susan T.L. Harrison	University of Cape Town
PP4	<i>On the production of sulphur and iron based materials from pyrite contained in South African coal waste</i>	Msimelelo Gcayiya Juarez.R Amaraal Filho Athanasios. Kotsiopoulos Mariette. Smart Susan.T.L Harrison	University of Cape Town
PP5	<i>The effect particle size on the biokinetic test used for characterisation of acid rock drainage potential of waste rock</i>	Mhlangabezi T. Golela Alexander. Opitz Susan T.L. Harrison	University of Cape Town
PP6	<i>Improving coal waste disposal strategies to facilitate the prevention of acid rock drainage</i>	Donald Mjonono Susan T.L. Harrison	University of Cape Town
PP7	<i>Preventing acid rock drainage from high sulphur coal discards through sulphide removal by heap leaching</i>	Athanasios Kotsiopoulos Tambwe Olivier Athanasios Kotsiopoulos Susan T.L. Harrison	University of Cape Town
PP8	<i>Influence of Grinding Environment on Selective Flotation of Sulphide Minerals</i>	Tanaka P. Tafirenyika Kirsten C. Corin Cyril O'Connor	University of Cape Town
PP9	<i>An electrochemical investigation on the mechanisms of interaction between electrolytes and a xanthate collector on sulphide mineral surfaces</i>	Lucia Dzinza Kirsten Corin Margreth Tadie	University of Cape Town
PP10	<i>The Characterization and Retreatment of UG2 and Merensky Tailings for the Recovery of Residual Platinum</i>	Rešoketšwe Manenzhe Kirsten Corin Margreth Tadie	University of Cape Town
PP11	<i>Water Quality Impact on Flotation Response: A Focus on Specific Ions and Temperature</i>	Charamba Apollonia A. Kirsten C. Corin, Malibongwe S. Manono	University of Cape Town
PP12	<i>Effect of selected ions on flotation performance</i>	Mathew Dzingai Kirsten Corin Malibongwe Manono	University of Cape Town

Poster Presentation	Title	Presenter and co-author/s	Affiliation
PP12	<i>Effect of selected ions on flotation performance</i>	Mathew Dzingai Kirsten Corin Malibongwe Manono	University of Cape Town
PP13	<i>Reagent Monitoring in Reticulated Process Water in the Flotation of Sulfides</i>	Michael Ngau Malibongwe Manono Kirsten Corin	University of Cape Town
PP14	<i>Review of geochemical and mineralogical data of mine tailings in the Witwatersrand region, South Africa and identification of opportunities for recovering value</i>	Cairncross Kieran Margreth Tadie	Stellenbosch University
PP15	<i>An investigation into the complementary capabilities of the X-ray computed tomography and hyperspectral imaging of drill core in geometallurgy.</i>	Dineo Mashaba Jodie Miller Marcelene Voigt Megan Becker	University of Cape Town
PP16	<i>Developing an understanding of guar degradation rates for optimum usage in copper electrowinning</i>	Nhlamulo Mkhawana Margreth Tadie Christie Dorfling	Stellenbosch University
PP17	<i>Alternatives to mercury amalgamation in artisanal gold mining (AGM)</i>	Archippe N. Manzila Jochen Petersen Thandazile Moyo	University of Cape Town
PP18	<i>A Mineralogical and Hydrometallurgical Investigation of an Ion Adsorption Clay Type Rare Earth Element Deposit, East Africa</i>	Chad Naude Agnes Odri Megan Becker Jochen Petersen	University of Cape Town
PP19	<i>Exploration of the thiosulphate process for the dissolution of gold from electronic waste and its recovery through ion-exchange</i>	Dasmi Maharaj Thandazile Moyo Jochen Petersen	University of Cape Town
PP20	<i>Investigating multiple steady states in E.F.C</i>	Anotidaishe Dondo Alison Lewis Jemittias Chivavava	University of Cape Town
PP21	<i>Kinetic Evaluation of the mixed mesophilic culture in the presence of waste Printed Circuit Boards (PCBs): Inhibition and Adaptation of the microbial culture</i>	Ruane Govender Catherine Edward Thanos Kotsiopoulos Susan L.T. Harrison	University of Cape Town
PP22	<i>Electrochemical study of the dissolution of platinum group minerals in various potential lixivants</i>	Kathija Shaik Jochen Petersen	University of Cape Town
PP23	<i>The characterisation of coal dust particles for the assessment of inhalation risk</i>	Conchita Kamanzi J. Muazzam J. Von Holdt M Becker J Broadhurst	University of Cape Town
PP24	<i>Understanding decision making associated with flowsheet development, with respect to valuable metal deportment: A review of 2 zinc operations over the last century</i>	Nicole Uys Megan Becker E. Asselin M. Reuter Jochen Petersen	University of Cape Town