

17TH ANNUAL STUDENT COLLOQUIUM

11 NOVEMBER 2021

SAIMM ONLINE

COLLOQUIUM

FINAL PROGRAMME

Thursday 11 November 2021

- 08:30–09:00 Zoom Login
09:00–09:05 Zoom Logistics
SAIMM
09:05–09:10 Welcome and Opening
D. Rachidi, *Ukwazi Mining, South Africa, Conference Chairperson*
09:10–09:20 SAIMM Presidential Address
I.J. Geldenhuys
09:20–09:50 Keynote Presentation
J. Baloyi, *CSIR, South Africa*

Metallurgy

Session Chairperson: *G. Marsden, Anglo American, South Africa*

- 09:50–10:10 An investigation of cationic accelerated kimberlite weathering: A case study of RZM Murowa
A. Saunyama, University of Zimbabwe, Zimbabwe
10:10–10:30 A size-based department study of gold in PGM ore to determine recovery optimization methods: A case study of a Platinum Mine in Zimbabwe
P. Chiseko, University of Zimbabwe, Zimbabwe
10:30–10:45 **Morning Break**
10:45–11:05 An investigation of the refractoriness of gold ore and its amenability to possible pre-treatment methods: A case study of Stella City B Gold Mine
N. Nyoni, University of Zimbabwe, Zimbabwe
11:05–11:25 Assessment of flotation characteristics of copper ores extracted from transition and sulfides zones
K. Fotopele, Namibia University of Science and Technology, Namibia
11:25–11:45 Development of medium carbon Fe-Mn-Al-Cr-C lightweight stainless steel for the biomedical industry
N. Rundora, University of the Witwatersrand, South Africa
11:45–12:05 Additive Manufacturing of polylactic acid
N. Dlamini, University of the Witwatersrand, South Africa
12:05–12:25 Microstructural characterization and mechanical properties of laser welded dissimilar joints: Mild steel & 6082 Aluminium alloy
T. Siroro, University of the Witwatersrand, South Africa
12:25–12:45 Investigating the influence of slimes on the performance of a lab-scale reflux classifier
M.F. Phuthehang, University of Pretoria, South Africa
12:45–13:15 **Lunch**
13:15–13:35 Solvent extraction separation of Mn and Co for application to the recycling of lithium-ion batteries
N. Khuzwayo, University of Pretoria, South Africa
13:35–13:55 Recycling of magnesia-carbon refractory bricks
N.P. Mabasa, University of Pretoria, South Africa
13:55–14:15 The effect of Ti content on the solidification structure of gas-tungsten arc and gas-metal arc ferritic stainless steel welds
L.S. Linda, University of Pretoria, South Africa

- 14:15–14:35 An investigation on the effect of powder recycling on the microstructure and mechanical properties of Ti-6Al-4V produced by 3D printing (directed energy deposition)
Z.N. Mthanti, University of Pretoria, South Africa
14:35–14:55 Performance assessment of a size separation nozzle for a novel dry coal beneficiation process
N. Viljoen, North-West University, South Africa
14:55–15:15 Sorbent assisted drying of chromite
C. Snyman, North-West University, South Africa
15:15–15:35 **Afternoon Break and Adjudication Process**
15:35 Prize Giving and Close of Colloquium

Mining

Session Chairperson:

- 09:50–10:10 The feasibility of a transition to underground mining in high stripping ratio areas at the ZCDC's opencast Mine
M. Chipatiso, University of Zimbabwe, Zimbabwe
10:10–10:30 Employee performance improvement through Data Science: Case study of Unki Mines (Pvt) Ltd
C. Pachawo, University of Zimbabwe, Zimbabwe
10:30–10:45 **Morning Break**
10:45–11:05 Development of a real-time rock condition assessment system utilizing remote sensing technology: A Case of Mimosa Mining Company
C. Chareka, University of Zimbabwe, Zimbabwe
11:05–11:25 Ore Reserve Valuation for a bimetallic deposit: A case Study
E. Nyenga, Namibia University of Science and Technology, Namibia
11:25–11:45 Superhard materials and potential uses in abrasive hard rock machine cutting
S. Mbonde, University of the Witwatersrand, South Africa
11:45–12:05 The importance of change management in mining
N. Maseka, University of the Witwatersrand, South Africa
12:05–12:25 The feasibility of implementing landform rehabilitation practices during the mining life cycle: Case studies of Debswana and Kolomela mines
K. Govender, University of the Witwatersrand, South Africa
12:25–12:45 A critical evaluation of conveyance arrestor requirements during an overwind scenario
J.P. Strydom, University of Pretoria, South Africa
12:45–13:15 **Lunch**
13:15–13:35 The effect of fragmentation and truck loader combination on load and haul productivity at Mothae Diamond Mine
T.P. Motsoene, University of Pretoria, South Africa
13:35–13:55 A study to investigate an unconventional approach for a conventional bord and pillar layout
M.D. Kganyago, University of Pretoria, South Africa
13:55–15:15 Continuation of Metallurgy Presentations
15:15–15:35 **Afternoon Break and Adjudication Process**
15:35 Prize Giving and Close of Colloquium