



# STUDENT COLLOQUIUM 2023



## 19<sup>TH</sup> ANNUAL STUDENT COLLOQUIUM

**7 NOVEMBER 2023**  
**MINTEK, RANDBURG**  
**JOHANNESBURG**



CPD 0.1 CPD POINTS PER HOUR FOR THIS COLLOQUIUM

**REGISTER NOW**

### FINAL PROGRAMME

#### Tuesday – 07 November 2023

08:00-09:00	Registrations and Early Morning Refreshments	09:10-09:20	SAIMM Presidential Address E. Matinde, <i>President Elect</i>
09:00-09:05	Safety Brief Venue Official	09:20-09:50	Keynote Presentation: Transitioning from university to the world of work: 5 things I wish I'd known! B. Liber, <i>Briony Liber Consulting and Coaching, South Africa</i>
09:05-09:10	Welcome and Opening Address K. Banda, <i>SAIMM YPC Chairperson, Hatch</i>		

#### PARALLEL SESSIONS

##### Metallurgy

###### Session Chairperson

- 09:50-10:10 **A flotation and ultrasonic elution model for processing carbon-grit: The case of a large scale gold mine in Zimbabwe**  
P. Mlambo, *University of Zimbabwe, Zimbabwe*
- 10:10-10:30 **A comparative study of hypochlorite and lead nitrate as pre-treatment reagents on gold cyanide leaching process**  
A. Mhlanga, *University of Zimbabwe, Zimbabwe*
- 10:30-10:50 **Integrated rehabilitation of coal slurry ponds**  
A. van Niekerk, *North West University, South Africa*
- 10:50-11:05 **Mid-Morning Refreshments**
- 11:05-11:25 **Rare earth element extraction from coal fly ash using leaching techniques**  
H. Beyers, *North West University, South Africa*
- 11:25-11:45 **Corrosion of galvanized steel scaffolding in the mining environment**  
K. Molemi, *University of the Witwatersrand, South Africa*
- 11:45-12:05 **The effect of pre-oxidation of chromite pellets on their reducibility**  
M.S.H. Mabunda, *University of the Witwatersrand, South Africa*
- 12:05-12:25 **Comparison of carbon and resin extraction of gold from pre-aerated dissolutions**  
T. Zwane, *University of the Witwatersrand, South Africa*
- 12:25-12:45 **Laser cladding of Ti6Al4V with Ti6Al4V/BN/B4C**  
K. Matlou, *Vaal University of Technology, South Africa*
- 12:45-13:45 **Lunch**
- 13:45-14:05 **Characterization of heat treated DMLS Ti6Al4V**  
M. Mulaudzi, *Vaal University of Technology, South Africa*
- 14:05-14:25 **Effect of collector dosage on flotation of coal**  
P. Ranyali, *Vaal University of Technology, South Africa*
- 14:25-14:45 **Investigation of the effects of Nb and C on the mechanical properties of wire-arc additive manufactured Invar-36**  
D. Panane, *University of Pretoria, South Africa*
- 14:45-15:05 **Dry beneficiation of fine material with the aid of vibrations**  
R. Musewe, *University of Pretoria, South Africa*
- 15:05-15:25 **The effect of processing parameters on the Ti content and solidification structure of ferritic stainless steel weld metal**  
E. Matyolo, *University of Pretoria, South Africa*
- 15:25-15:45 **Evaluation of the use of moringa oil as a green collector in the flotation of chalcoppyrite**  
L. Anderson, *Namibia University of Science and Technology, Namibia*
- 15:45-16:10 **Afternoon Refreshments and Adjudication Process**
- 16:10-16:40 **Awards Ceremony and Close of Colloquium**

##### Mining

###### Session Chairperson

- 09:50-10:10 **Digitising rock joint profiles with laser scanning data**  
W.J. Botha, *University of Pretoria, South Africa*
- 10:10-10:30 **The influence of cross-sectional shape on the compressive strength of laboratory prepared samples**  
S.H. Chiloane, *University of Pretoria, South Africa*
- 10:30-10:50 **The use of soundless chemical demolition agents (SCDAs) for large scale in-situ rock breaking applications in the mining industry**  
I. Maubane, *University of Pretoria, South Africa*
- 10:50-11:05 **Mid-Morning Refreshments**
- 11:05-11:25 **Investigating the inefficiencies of continuous miners' downtime in relation to support at a South African colliery**  
X. Mabasa, *University of Johannesburg, South Africa*
- 11:25-11:45 **Investigating the significance and reliability of the mine call factor in gold mining: Using AI methods to understand the apparent metal discrepancy**  
K. Moyo, *University of Johannesburg, South Africa*
- 11:45-12:05 **Optimization of long-term production scheduling in underground mine planning using mixed integer-programming**  
R. Milisi, *University of Johannesburg, South Africa*
- 12:05-12:25 **Impact of granite dust addition on the mechanical properties of mortar courage**  
T. Changunda, *University of Namibia, Namibia*
- 12:25-12:45 **A combined sensor based emergency detection system for conveyor belts in mines**  
T. Chivhande, *University of Zimbabwe, Zimbabwe*
- 12:45-13:45 **Lunch**
- 13:45-14:05 **Design and implementation of an electronic initiation blasting system and a platform interface for remote detonation in Zimbabwe's underground small scale mines**  
G. Mukamuri, *University of Zimbabwe, Zimbabwe*
- 14:05-14:25 **A time and motion study of the day shift mining cycle at 11C# In Impala Platinum to identify delays and ways to eliminate them**  
N. Bacela, *University of the Witwatersrand, South Africa*
- 14:25-14:45 **Management and utilization of explosives in Driefontein Masakhane shaft to achieve monthly targeted production**  
R. Mulidzwi, *University of the Witwatersrand, South Africa*
- 14:45-15:05 **Mining cycle optimization in a mechanized bord and pillar operation (Sibanye-Stillwater Bathopele Mine)**  
P. Letsoalo, *University of the Witwatersrand, South Africa*
- 15:05-15:25 **A study into the optimization of Equivalent Linear Overbreak Slough (ELOS) at Rosh Pinah Zinc Corporation**  
I. Hafeni, *Namibia University of Science and Technology, Namibia*
- 15:25-15:45 **Continuation of Metallurgy Presentations (Delegates to join the metallurgy session)**
- 15:45-16:10 **Afternoon Refreshments and Adjudication Process**
- 16:10-16:40 **Awards Ceremony and Close of Colloquium**