

Geometallurgy Conference 2025

Future-Ready Geometallurgy: Trusted Data, Advanced Tools, Smarter Decisions

13 October 2025 **Technical Workshops**

14-15 October 2025 **Conference**

16 October 2025 **Technical Visits**

Venue: Glenburn Lodge and Spa, Muldersdrift

(1-hour drive from O.R. Tambo International Airport,
Johannesburg, South Africa)

**ECSA Validated CPD Activity,
Credits = 0.1 points per hour attended.**

SUPPORTED BY GSSA & MINSA



SAIMM
THE SOUTHERN AFRICAN INSTITUTE
OF MINING AND METALLURGY

FINAL PROGRAMME

Workshops – Monday, 13 October 2025

These workshops are separately bookable and *will run concurrently, and delegates can register for only one option.*

Workshop 1 - Data Science for Geometallurgy – Sponsored by DataRock

Workshop Presented by Brenton Crawford and Wendy Ware

This full-day workshop provides a practical introduction to data science and machine learning for professionals working in geometallurgy, mine geology, and process optimisation. The content has been tailored specifically for geomet applications—where understanding rock behaviour, variability, and value is critical. Participants will gain clarity on core ML concepts and how they apply to real geoscientific and metallurgical data. The course will highlight opportunities to improve domaining, prediction, and decision-making using tools such as core imagery, geochemistry, and spectral data. Whether you are managing teams, guiding investment, or exploring new workflows, this workshop will help you engage confidently with datadriven geomet applications.

08:00-08:30	Registration and Early morning refreshments
08:30	Workshop starts
10:30-10:50	Mid-Morning Refreshments
10:50-12:30	Workshop continues
12:30-13:30	Lunch
13:30-15:00	Workshop continues
15:00-15:15	Afternoon Refreshments
15:15-16:30	Workshop continues
16:30	Workshop ends

Workshop 2 - Geometallurgy with Cancha - Sponsored by Cancha

Workshop Presented by Adam Johnston

This intensive workshop offers an introduction to the Cancha geometallurgy software, focusing on its applications in sample selection and predictive model generation. Participants will gain hands-on experience with Cancha's integrated tools, learning to manage the entire geometallurgical process—from data importation and analysis to model development and reporting. Designed to meet the evolving needs of modern mining operations, this course is suitable for professionals seeking to enhance their technical skills and apply advanced software solutions to real-world challenges. All attendees will receive a temporary one-month license for Cancha, enabling them to apply the acquired knowledge directly to their projects.

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Conference Day 1 – Tuesday, 14 October 2025

08:00–09:00 **Registration Opens & Early Morning Refreshments**

09:00–09:10 **Welcome and Opening by Conference**
M. Becker, Chairperson, University of Cape Town, South Africa

09:10–09:15 **Safety Briefing**
Venue Official

09:15–09:30 **SAIMM Presidential Address**
G.R. Lane, Vuuma, South Africa

Session 1:

Session Chair: M. Becker, University of Cape Town, South Africa

09:30–10:00 **Keynote Address: What's the problem, doc?**
Diagnosing rock knowledge in a decision-first world
W. Ware, Datarock

10:00–10:20 **Reducing processing and cost risks for new processing plants through effective design simulation**
S.K. Edwards¹, N.C. Steenkamp², ¹SKEmet Pty Ltd, ²GeoScience Professional, South Africa

10:20–10:40 **Data-driven delineation of geometallurgical domains in porphyry copper systems**
T. Mombe¹, G.T. Nwaila^{1,2}, ¹University of the Witwatersrand, ²African Research Centre for Ore Systems Science (CORES), School of Geosciences, University of the Witwatersrand, South Africa

10:40–11:00 **Mid-Morning Break**

Session Chair: S. Burness, University of Cape Town, South Africa

11:00–11:20 **Are variational gaussian processes the missing link in predictive geometallurgy?**
G.T. Nwaila¹, Í.G. Gonçalves², ¹University of the Witwatersrand, South Africa, ²Federal University of Pampa, Brazil

11:20–11:40 **Establishing QAQC protocols for reliable geometallurgical modelling in bulk commodities**
L. Tafur, Kumba Iron Ore, South Africa

11:40–12:00 **A guideline for representative geometallurgical sampling**
T. Scott, Anglo American, South Africa

12:00–12:20 **Mineralogy as a predictor of comminution behavior for Merensky Reef low-grade Ores**
V. Notole¹, G.T. Nwaila¹, M. Safari^{1,3}, S. Ndlovu⁴, ¹University of the Witwatersrand, ³Mintek, ⁴The University of Arizona, USA

12:20–13:20 **Lunch**

Session Chair: G.T. Nwaila, University of the Witwatersrand, South Africa

13:20–13:40 **Assessing lateral variability in ore hardness and geochemistry at the Namakwa Sands deposit**
S. Mgoduka, A van der Westhuizen, M. Becker, University of Cape Town, South Africa

13:40–14:00 **Addressing the elephant in the room: Integrating diamond breakage into kimberlite geometallurgy**
S. Burness, S. Bremner, M. Becker, G.H. Howarth, A. Mainza, University of Cape Town, South Africa

14:00–14:20 **Advancing geometallurgical modelling with machine learning: Recovery and comminution hardness estimation at Mogalakwena Platinum Mine**
C.N. Govender¹, T. Scott², ¹Valterra Platinum, ²Anglo American, South Africa

14:20–14:40 **Differentiation of iron oxides using modern automated scanning electron microscopy**
K. Youlton, SGS, South Africa

14:40–15:00 **Afternoon Break**

Session 2:

Session Chair: K. Youlton, SGS, South Africa

15:00–15:20 **The role of mineralogy in geometallurgy**
M. Becker, University of Cape Town, South Africa

15:20–15:40 **Is it time to rethink gold tailings characterization using real time portable and automated characterisation technologies?**
X.C. Simelane¹, S. Ndlovu^{1,2}, G.T. Nwaila¹, ¹University of the Witwatersrand, ²University of Arizona, South Africa

15:40–16:00 **Maximizing throughput of ore characterization by means of automated mineralogy**
M. Dosbaba, TESCANA, Czech Republic

16:00–18:00 **End of Day 1 and Network Cocktail Function**

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Conference Day 2 – Wednesday, 15 October 2025

08:30–09:00 Registration Opens & Early Morning Refreshments

09:00–09:10 Welcome and Opening by Conference
M. Becker, Chairperson, University of Cape Town,
South Africa

09:10–09:15 Safety Briefing
Venue Official

Session 3:

Session Chair: D. Chetty, Mintek, South Africa

09:15–09:45 Keynote Address: Communicating uncertainty in
geometallurgical models
A. Johnston, Transmin Metallurgical Consultants

09:45–10:05 Department of gold in historical Witwatersrand
tailings: implications for full value realisation and
environmental stewardship
S. Chingwaru, B.P. von der Heyden, M. Tadie,
Stellenbosch University, South Africa

10:05–10:25 Upgrading of low-grade manganese ores by
hydrogen-rich reduction for the ferroalloy industry
D.A. Barrett, Stellenbosch University, South Africa

10:25–10:35 Sponsor Presentation
Micromine micromine

10:35–10:55 Mid-Morning Break

10:55–11:15 Hydrometallurgical pretreatments for the
enhancement of magnetic separation of ferruginous
manganese tailings
E. Olivier, Stellenbosch University, South Africa

11:15–11:35

Geometallurgy in the Kalahari Copper Belt, Ngami
district Botswana

J.K. Mangwiro, Fluor South Africa

11:35–11:55

Linking mineralogy to comminution behaviour in the
Kalahari Manganese field

M. Tadie, B. von der Heyden, P. Mathebula,
L. van Eeden, Stellenbosch University, South Africa

11:55–12:15

Understanding the economic importance and
scientific significance of oceanic Fe-Mn crusts
A. Menzies¹, P. Josso², ¹Bruker Nano Analytics GmbH,
²British Geological Survey

12:15–13:15

Lunch

Session 4:

Session Chair: B.P. von der Heyden, Stellenbosch University,
South Africa

13:15–13:35

Textural Implications on iron ore beneficiation
outcomes based on jigging – A case study

K. Netshikulwe¹, E.R. Manjengwa²,
B.P. von der Heyden³, M. Tadie³
¹African Rainbow Minerals, ²Stellenbosch University

13:35–13:55

Geometallurgy Learnings from First Quantum
Minerals' Zambian Operations

L. Little, A. Kottgen, M. Chibesa, P. Ogilvie,
First Quantum Minerals Ltd., Kansanshi Mine, Zambia

13:55–15:15

Panel Discussion: Is geometallurgy in Southern Africa
'Future-Ready'

15:15

Close of Conference and Afternoon Refreshments

Thursday, 16 October 2025

Mintek Technical Visit

Time: 09:00–16:00

Mintek is South Africa's national mineral research and technology organisation, specialising in characterisation, mineral processing, extractive metallurgy, research and development, and related areas throughout the minerals value chain. A day-long visit will be undertaken to Mintek's campus in Randburg, to see its facilities in Characterisation and Mineral Processing, Extractive Metallurgy, Automation and Control. Hear about research being done to unlock value from complex ores across diverse commodities, including flowsheet development and optimisation, modelling, simulation and monitoring to predict and control variability in ore response to various processes, from laboratory to pilot scale.

ITINERARY:

09:00–09:30 Arrival, registration and visitor induction briefing (ID
or passport required)

09:30–10:00 Overview presentation of Mintek and its activities

10:00–10:15 Tea and grouping for divisional tours

10:15–13:05 Analytical chemistry, mineralogy, minerals processing,
hydrometallurgy

13:05–13:40 Lunch

13:45–15:50 Biometallurgy, pyrometallurgy, process control

15:50–16:00 Closure and departure

REQUIREMENTS:

- Please wear flat, closed shoes, preferably safety boots; hard hats will be provided.

- Please bring identification (ID or passport) for security purposes
Cost: R600 (includes return transport and lunch)