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

GSSA Geological Society of South Africa

MINSA Mineralogical Association of South Africa

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: The geomet shift – A decision-first approach for the future of mining**
W. Ware, *Datarock, Australia*

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

10:20–10:40 **Data-driven delineation of geometallurgical domains in porphyry copper systems**
T. Mombe, G.T. Nwaila,*University of the Witwatersrand, 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. Nwaila[1], Í.G. Gonçalves[2], [1]*University of the Witwatersrand, South Africa*, [2]*Federal 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. Notole[1], G.T. Nwaila[1], M. Safari[1,2], S. Ndlovu[3], [1]*University of the Witwatersrand*, [3]*Mintek, South Africa*, [3]*The University of Arizona, USA*

12:20–13:20 Lunch

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

13:20–13:40 **Further development of geometallurgical proxies to predict A*b of the cemented hard layers in a mineral 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.N. 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. Govender[1], T. Scott[2], [1]*Valterra Platinum*, [2]*Anglo American, South Africa*

14:20–14:40 **Differentiation of iron oxides using modern automated scanning electron microscopy**
K. Youlton[1], L. Vonopartis[2], S. Poelinca[1], R. Harrison[1], [1]*SGS*, [2]*University of the Witwatersrand, 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 characterisation using real time portable and automated characterisation technologies?**
X.C. Simelane[1], S. Ndlovu[1,2], G.T. Nwaila[1], [1]*University of the Witwatersrand*, [2]*University of Arizona, South Africa*

15:40–16:00 **Maximising throughput of ore characterisation by means of automated mineralogy**
M. Dosbaba, *TESCAN, 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, Peru*

09:45-10:05 **Deportment of gold in historical Witwatersrand tailings: Implications for geometallurgy**
S. Chingwaru, B.P. von der Heyden, M. Tadie, *Stellenbosch University, South Africa*

10:05-10:25 **Development of beneficiation processes for low-grade manganese ores for the ferroalloy industry**
D.A. Barrett[1], M. Tadie[1], B.P. von der Heyden[1], R. Cromarty[2], [1]*Stellenbosch University*, [2]*University of Pretoria, 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, M. Tadie, B.P. von der Heyden, P. van Wyk, *Stellenbosch University, South Africa*

11:15-11:35 **Geometallurgy in the Kalahari Copper Belt, Ngami district Botswana**
J.K. Mangwiro[1], A. Bayani[2], K. Kgotlele[2], R. Situmorang[2], G. Mosanga[2],M. Babusi[2], [1]*Fluor, South Africa*, [2]*MMG Khoemacau, Botswana*

11:35-11:55 **Linking mineralogy to comminution behaviour in the Kalahari manganese field**
M. Tadie, B.P. 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. Menzies[1], P. Josso[2], [1]*Bruker Nano Analytics GmbH, Germany*, [2]*British Geological Survey, UK*

12:15-13:15 Lunch

Session 4:

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

13:15-13:35 **Textural Implications of iron ore beneficiation outcomes based on jigging – a case study**
K. Netshikulwe[1], E.R. Manjengwa[2], B.P. von der Heyden[2], M. Tadie[2], [1]*African Rainbow Minerals*, [2]*Stellenbosch University, South Africa*

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)