

Technical Visits
 Wesizwe Platinum Mine
 (surface visit)
 Lonmin Platinum
 (base metals refinery visit)



is organising the 5th International

Platinum Conference

'A Catalyst for Change'

Sun City, South Africa

18–20 September, 2012 · **Conference**
 21 September, 2012 · **Technical visits**



The 2012 conference 'Platinum - A Catalyst for Change' is the fifth time that this international event has been convened since 2004 and through it the SAIMM is looking to further promote change.

The 2012 conference is more inclusive, with a comprehensive approach encompassing all aspects of the industry. Through facilitating learning and knowledge in this evolving environment, we must continue to build a strong, viable platinum industry that will benefit all stakeholders for decades to come.

This prestigious event attracts more than 400 key role players through:

- Stimulating discussion
- Facilitating industry networking
- Large, knowledgeable audiences
- Comprehensive industry support from all role players.

A catalyst is a substance that increases the rate of a chemical reaction without itself undergoing any permanent chemical change, or a person or thing that precipitates an event or causes a change.

PGMs, and particularly platinum, are well known for their chemical catalytic behaviour, their role in minimising harmful motor vehicle exhaust gases, and their ability to increase the effectiveness of fuel cells to create a greener world. Less well known is the catalytic effect that the platinum industry has had in transforming South Africa and promoting change. Central to the social transformation of the South African mining industry has been the Mining Charter, with many platinum mining companies meeting or exceeding requirements and so setting new benchmarks. However, the platinum mining industry has also led the way in safety performance improvement across the mining industry, with significant reductions in injuries and deaths in recent years. Similarly, many of the recent technological innovations that will shape the mining industry of the future have been developed and tested in the platinum industry. This is Platinum as a Catalyst for Change.

Other features of this prestigious event include:

- 3 days of invaluable knowledge sharing and best practice case studies
- **BBQ on the Beach at the Valley of Waves**— 18:00, 19 September 2012
- **Exhibition showcasing** some of the top suppliers
- **Networking cocktail function**— 18:00, 18 September 2012, in the Pilanesberg Room, Sun City

SPONSORS:



Second Announcement, Registration Form & Preliminary Programme

Platinum Conference 'A Catalyst for Change'

Sun City, South Africa

18–20 September, 2012 · Conference

21 September, 2012 · Technical visits



The Southern African Institute of Mining and Metallurgy
Founded in 1894

Please complete and return to:
SAIMM, P.O. Box 61127, Marshalltown, 2107
Tel: +27 11 834 1273/7 · Fax: +27 11 838 5923 or 833 8156
E-mail: raymond@saimm.co.za (Conference Organiser) or
anna@saimm.co.za (Registration)

PERSONAL DETAILS

Title First Name Other Initials Surname/Family Name

Preferred Name (for use on name badge)

Company Designation

Company VAT Registration (Compulsory—SA companies) Order No

Invoice Address

..... Code Country

Tel/Cell: Fax: E-mail:

Accompanying Persons Name

SAIMM Membership No. Are you a presenting author? Do you require an invitation for visa purposes?

Please note: • Non-members are allowed free membership of the SAIMM, up to 30 June 2013, for attending this conference.
• Members of the Geological Society of South Africa are entitled to the same rates for registration as the SAIMM members.

3 ECSA CPD points will be allocated to all attending delegates

REGISTRATION FEES — All prices are inclusive of VAT.

Please indicate your choice by (✓ tick).

SAIMM Members/Author	R9 400	<input type="checkbox"/>
Non Members	R9 999	<input type="checkbox"/>
Student Members	R2 500	<input type="checkbox"/>

Registration fees include attendance at technical sessions, proceedings, cocktail parties, all refreshments and lunches at the conference.

Cancellation and transfer policy:

Delegates unable to attend the event may send a substitute delegate in their place. Please send written details of substitution. Written cancellations must be received more than 10 working days prior to the date of the event and will be liable for 50% of the event fee. Failure to cancel, or cancellation received 10 working days or less prior to the event date, will result in liability for the full event fee.

SOCIAL FUNCTIONS

■ Welcome cocktail party (Tuesday 18 September 2012)

Please indicate (✓ tick) for catering purposes if you will be attending this function (included in the registration fee for all fully registered delegates and students).

Payment required for additional guests only R250 each

YES I will be attending (registered delegates) N/C

■ Barbeque at the Valley of the waves (Wednesday 19 September 2012)

Please indicate (✓ tick) for catering purposes if you will be attending this function (included in the registration fee for all fully registered delegates and students).

Payment required for additional guests only—R450

YES I will be attending (registered delegates) N/C

■ Special requirements — Please advise of any special requirements for diet, health or physical disabilities.

TECHNICAL VISITS—Please indicate (✓ tick) if you are interested.

Please note that all tours are subject to a maximum of twenty and a minimum number of ten participants. Should this number not be achieved, the organisers reserve the right to cancel the tour.

Cost R850 per person (including transportation)

Technical Visits · (Friday 21 September 2012)

- 1. Wesizwe Platinum Mine (surface visit)
- 2. Lonmin Platinum (base metals refinery visit)

PAYMENT

Please include payment itemised as follows:

Conference registration fee R

Social functions (guests) R

Technical visits R

TOTAL R

Cheques—Please find enclosed a cheque/money order (in SA rands) payable to SAIMM or

Credit Cards—Please debit (✓ tick) my:

Visa Mastercard American Express Diners Club

Card No.

CVC authorisation (last 3 digits on the back of the card)

Expiry date:

Signature:

Please print name of cardholder:

Payment:

Full payment is due on application for registration. Registration will be confirmed ONLY after payment is received. **PROOF OF PAYMENT** with your invoice number reflected must be sent via fax or e-mail to the Conference Co-ordinator. Delegates who have not paid will not be permitted to attend the conference.

Our banking details are:

Bank: Standard Bank Branch: Johannesburg
Branch Code: 000205 Account No: 000402974
Account Type: Cheque Account Swift No. SBZAJJ

PRELIMINARY PROGRAMME

18 September 2012—Tuesday

07:00–08:00 **Registration & early morning refreshments**

08:00–08:10 **Opening Address: President SAIMM**

Session 1

08:10–08:40 **Keynote Address:**

N. Nicolau, *Anglo American Platinum Limited*

08:40–09:10 **Keynote Address:**

J. Koolen, *Independent Strategy Consultant*

Session 2 Marketing

09:10–09:35 **Trends in the catalytic converter industry: Implications for PGM usage**

Dr D. Vanoppen, *BASF*

09:35–10:00 **Heraeus filling the precious metal niche**

Ms C. Viviers, *Heraeus*

10:00–10:25 **Ruthenium and iridium. Strategic metals for tomorrow**

Ms A. Cowley, *Johnson & Matthey*

10:25–10:50 **Mid Morning Refreshments**

Session 3A Mining

10:50–11:15 **Sponsor Presentation: Sandvik**

11:15–11:40 **Optimisation of mechanised mining layout within Anglo American Platinum**

P. Valicek, F. Fourie, G. Krafft, and J. Sevenoaks

11:40–12:05 **Case Study: Using software optimisation techniques for the optimal allocation of equipment in a mechanised underground mining environment**

D. Kok and G.R. Lane, *Cyest Corporation*

12:05–12:30 **TBA**

A. Widlake, *Murray & Roberts Cementation*

Session 4A Mining

12:30–12:55 **Mechanised bolting—onboard drilling automation and a change in the support regime in mechanised mining**

A. Marek, S. Thorley, B. Ghore, and A. Comorge, *Sandvik*

12:55–13:20 **The Age of Intelligence—Online diagnostic and automated maintenance planning**

A. Marek, H. Haubmann, and S. Thorley, *Sandvik*

13:20–13:45 **Mine Development—Access to deposit**

S.M. Rupprecht, *University of Johannesburg*

13:45–14:25 **Lunch**

Session 5A Safety, Health, Environment

14:25–14:35 **Sponsor Presentation: Read Swatmann Voigt**

14:35–15:00 **Towards benchmarking of safety performance in the platinum sector**

B. Genc and T.R. Stacey, *University of the Witwatersrand*

15:00–15:25 **Hydrogeological properties of the UG2 Pyroxenite Aquifers of the Bushveld Igneous Complex**

R. Gebrekristos* and P. Cheshire†, **Digby Wells Environmental* and †*Groundwater Monitoring Services*

15:25–15:50 **Is water conservation and water demand management areal option?**

F. Botha* and K. Chetty†, **Praxos* and †*Lonmin plc*

15:50–16:15 **Mid afternoon refreshments**

Session 6A Safety, health, environment /defining mineral resource reporting

16:15–14:40 **The 4th wave: culture based behavioural safety**
L. Bloch, *Lance Bloch & Associates*

16:40–17:05 **Underground environmental challenges in deep platinum mining**

M. Karsten* and L. Mackay†, **BBE Consulting* and †*Implata Platinum Ltd*

17:30–19:00 **Networking Cocktail Function**

Session 3B Smelting

10:50–11:15 **Sponsor Presentation: RHI AG**

11:15–11:40 **PGM furnace crucible design for high power, maintainability and long life**

A. Shaw, N. Voerman, J. Nell, L. Nelson, B. De Villiers, B. Pieterse, R. Hundermark, C. Walker, F. Stober, A. Sadri, and J. Janzen, *Hatch, Canada*

11:40–12:05 **Highly efficient electric smelters for the platinum industry—SMS solutions for energy saving**

R. Degel*, H. Oterdoom*, A. van Niekerk†, and K. Schmale†, **SMS Siemag AG, Germany* and †*Metix, South Africa*

12:05–12:30 **Outotec Smelting Solutions for the PGM Industry**

L. Aspola, R. Matuszewicz, K. Haavanlammi, and S. Hughes, *Outotec*

Session 4B Smelting

12:30–12:55 **Innovative magnesia chrome fused grain for NFM refractory applications**

D. Gregurek*, T. Prietl†, S.B. Breyner*, A. Ressler*, and N.-M. Berghofer†, **RHI AG, TC Leoben, Magnesitstrasse 2 Leoben* and †*RHIAG, Wienerberstrasse 9, Vienna, Austria*

12:55–13:20 **Interaction of graphite with primary PGM matte**
B.M. Thethwayo and A.M. Garbers-Craig, *University of Pretoria*

13:20–13:45 **Electrode models for Söderberg electrodes**
B. Larsen, *Elkem Carbon AS, Norway*

13:45–14:25 **Lunch**

Session 5B Mineral Processing

14:25–14:35 **Sponsor Presentation: Atlas Copco**

14:35–15:00 **The development of different applications of the Anglo Platinum Bubble Sizer for the optimisation of PGM flotation circuits**

M. Greyling, A. Harris, G. Marsden, and L. Venkatesan, *Anglo American Platinum Limited*

15:00–15:25 **The minerals plant of the future—Leveraging automation using intelligent collaborative environment**

D.G. Almond, K. Becerra, and D. Campaign, *FLSmidth Inc.*

15:25–15:50 **Potential changes in the physical beneficiation processes that can improve the recovery or costs for the Platinum Group Metals**

J. Engelbrecht, *Multotec*

15:50–16:15 **Mid afternoon refreshments**

Session 6B Mineral Processing

16:15–14:40 **Fully autogenous grinding at Unki Mine Concentrator—A case of successful value engineering**

T. Nyakudarika*, S. Makumbe†, and C.M. Rule†, **DRA Mineral Projects (Pty) Ltd* and †*Anglo American Platinum Limited*

16:40–17:05 **Hybrid Energy Flotation™—On the optimization of fine and coarse particle kinetics in a single row**

D. Govender, D. Lelinski, and F. Traczyk, *FLSmidth Salt Lake City Inc*

19 September 2012—Wednesday

07:00–08:00 Registration & early morning refreshments

08:00–08:10 Welcome: Conference Chairman

Session 7

08:10–08:40 **Keynote Address:**
M. Rossouw, *Xstrata Alloys, Chairman–Energy Intensive Users Group of South Africa*

08:40–09:10 **Keynote Address:**
S. Phiri, *Royal Bafokeng*

Session 8 Political & Economic

09:10–09:35 **Navigating above the ground risk in the platinum sector**
A. Lane, *Monitor Group*

09:35–10:00 **The mystery of the missing millions**
T.C. Huber, T.S. Hattingh, and J.L. Porter, *University of the Witwatersrand*

10:00–10:30 Mid Morning Refreshments

Session 9A Mining

10:30–10:40 **Sponsor Presentation: Anglo American Platinum**
10:40–11:05 **Underground support technologies in Southern African platinum mines to reduce safety risks and enhance productivity**
P.H. Ferreira, *Minova RSA*

11:05–11:30 **Towards an improved pillar design methodology at Bathopele Mine**
Y. Rajpal, *Anglo American Platinum Limited*

11:30–11:55 **Applications and benefits of 3D laser scanning for the mining industry**
J.W. van der Merwe and D.C. Andersen, *Anglo American Platinum Limited*

Session 10A Mining

11:55–12:20 **Systems engineering new platinum frontiers**
M.C. Holton and J.L. Porter, *Centre for Mechanised Mining Systems (CMMS), University of the Witwatersrand*

12:20–12:45 **Wesizwe Platinum from an 'explorer to a mine developer'**
J.M. Mothomogolo, *Wesizwe Platinum Ltd*

12:45–13:10 **Mine design, scheduling and modifying factors methodology applied to big blocks vs. individual panels**
D. Hanekom, *Anglo American Platinum Limited*

13:10–13:15 **Sponsor presentation: Murray & Roberts Cementation**

13:15–14:00 Lunch

Session 11 A Mineral Resource Management

14:00–14:10 **Sponsor Presentation: Minova RSA**

14:10–14:35 **The Basic Resource Equations (BRE)—a new approach to the definition and reconciliation of mineral resources and reserves at Anglo American Platinum Ltd**
D.H. Diering, D.C. Andersen, G. Langwieder, and G.L. Smith, *Anglo American Platinum Limited*

14:35–15:00 **Process and asset monitoring at a PGM concentrator for UG2 concentrate**
P. French, J. Rademan, and J. Wiese, *Lonmin*

15:00–15:25 **A Case study: How an object orientated modelling approach for a mine option study can increase the quality of decision**
E. Gabryk, G.R. Lane, M. Terblanche, and G. Krafft, *Cyest Corporation*

15:25–16:00 Mid afternoon refreshments

Session 12A Mineral Resource Management

16:00–16:25 **Case study on quantitative risk modelling to get a realistic risk adjusted project valuation**
G.R. Lane, M. Terblanche, G. Meyer, and N. Sasto, *Cyest Corporation*

16:25–16:50 **Framework to simplify the management of throughput and constraints**
A. Cambitsis, *Cyest Corporation*

16:50–17:15 **The oxidized ores of the main sulfide zone, Great Dyke, Zimbabwe: Turning resources into minable reserves—mineralogy is the key**
T. Oberthür*, F. Melcher*, P. Buchholz,* and M. Locmelis†, **Federal Institute for Geosciences and Natural Resources (BGR)* and †*The University of Western Australia, Crawley, Australia*

Session 9B Refining

10:30–10:40 **Sponsor Presentation: Metix Pty Ltd**

10:40–11:05 **Metal accounting in the platinum industry: How effective is it?**
P.G. Gaylard, N.G. Randolph, and C.M.G. Wortley, *University of Cape Town*

11:05–11:30 **Recycling of platinum group metals from automotive catalysts by an acidic leaching process**
R. Rumpold and J. Antrekowitsch, *University of Leoben, Austria*

11:30–11:55 **Platinum^{IV} and rhodium^{III} chemistry viewed through new eyes: What new secrets can ¹⁹⁵Pt and ¹⁰³Rh NMR spectroscopy reveal about speciation in as relevant to refining solutions?**
K.R. Koch, *Stellenbosch University*

Session 10B Refining

11:55–12:20 **Investigating ion exchange for the recovery of platinum, palladium and gold from a pregnant cyanide heap leach solution**
E. Schoeman*, S.M. Bradshaw*, G. Akdogan*, and J.J. Eksteen†, **University of Stellenbosch* and †*Curtin University, Australia*

12:20–12:45 **The adsorption and elution of platinum group metals from cyanide leach solutions using activated carbon**
C.A. Snyders*, C.N. Mpinga*, S.M. Bradshaw*, G. Akdogan*, and J.J. Eksteen†, **Stellenbosch University* and †*Curtin University, Australia*

12:45–12:55 **Sponsor presentation: Outotec**

12:55–14:00 Lunch

Session 11 B Mineral Processing

14:00–14:10 **Sponsor Presentation: Prophecy Platinum Corporation**

14:10–14:35 **Tailings disposal: An approach to optimise water and energy efficiency**
P.L. Moolman* and A. Vietti†, **DRA Mineral Projects* and †*Paterson & Cooke Consulting Engineers*

14:35–15:00 **Technology selection of stirred mills for energy efficiency in primary and regrinding applications for the platinum industry**
C. Ntsele* and J. Allen†, **Metso Minerals South Africa (Pty) Ltd* and †*Metso Minerals Industries, USA*

15:00–15:25 **Pre-concentration of UG2 ore and the benefits to the concentrator plant**
F. Smit*, V. Coetzee*, and M. Seymour†, **DRA Mineral Projects (DRAMP)*, †*DRA Mining (DRAM)*

15:25–16:00 Mid afternoon refreshments

Session 12 B Mineral Processing

- 16:00–16:25 **Case studies of simultaneous mining and mineral processing optimisation applied to platinum and nickel operations**
S. Burks, *Whittle Consulting (Africa) (Pty) Ltd*
- 16:25–16:50 **Developing platinum concentrator phased development schedule by utilising a dynamic stockpile model**
J. Labuschagne, *TWP Consulting*
- 16:50–17:15 **Using SmartTag™ to track ore in process integration and optimization projects: Some case studies in a variety of applications**
E. Isokangas*, B. Sönmez†, M. Wortley‡, W. Valery‡, Metso Process Technology & Innovation - *Finland, †Turkey and ‡Australia

20:00–22:00 **BBQ at the Valley of the Waves**

20 September 2012—Thursday

07:00–08:00 **Registration & early morning refreshments**

08:00–08:10 **Welcome: Conference Chairman**

Session 13

08:10–08:40 **Keynote Address:**
M. Solomon

08:40–09:10 **Keynote Address:**
C. Griffith, *Anglo American*

Session 14 Applications

09:10–09:35 **The South African catalytic converter industry**
K. Dewar, *Catalytic converter interest group*

09:35–10:00 **Update on the development of Platinum-based alloys for potential high temperature applications**
L.A. Cornish**†, M.B. Shongwe**†, B. Odera**†, J.K. Odusote**§, M.J. Witcomb**‡, L.H. Chown**†, G.O. Rading**‡, and M.J. Papo**° **DST/NRF Centre of Excellence in Strong Materials, hosted by the University of the Witwatersrand, †School of Chemical and Metallurgical Engineering, University of the Witwatersrand, ‡African Materials Science and Engineering Network (AMSEN): A Carnegie-IAS Network, §School of Physics, University of Witwatersand, #University of Ilorin, Nigeria, °University of Nairobi, Kenya, and °Mintek*

10:00–10:30 **Mid Morning Refreshments**

Session 15A Human Challenges

10:30–10:40 **Sponsor Presentation:**

10:40–11:05 **Filling the global industry skills gap**
S. Forrest, *SFA (Oxford) Ltd*

11:05–11:30 **Sandvik apprentice programme: we make it possible**
S. Marx, *Sandvik*

11:30–11:55 **A perspective on the supply and utilisation of mining graduates in the South African context**
C. Musingwini, J.A. Cruise, H.R. Phillips, *University of the Witwatersrand*

12:00–12:40 **Lunch**

Session 16A Projects

12:40–13:05 **Development of innovative funding mechanisms for mining start-ups**
J. Mothomogolo, *Wesizwe Platinum Ltd*

13:05–13:30 **Analysis of critical success factors for public private partnerships in the SA infrastructure development**

M.M. Maseko, *Read, Swatman & Voigt*

13:30–13:55 **Application of base metal concentrate commercial treatment terms to evaluate net smelter returns in the South African PGE industry**

V. Agnello and D. Cowen, and P.J. Petit, *Snowden Mining Industry Consultants*

13:55–14:20 **Mid afternoon refreshments**

Session 15B Mineral Processing

10:30–10:40 **Sponsor Presentation:**

10:40–11:05 **A protocol for conducting and analysing plant trials: Testing of high chrome grinding media for improved metallurgy**

C.J. Greet, *Magotteaux, Australia*

11:05–11:30 **The impact of entrained air and enhanced flow measurements for mass flow calculations and balancing at platinum concentrators**

C. O'Keefe*, J. Felix†, P. Thwaites‡, *CIDRA Minerals Processing, †Felix Project Management, and ‡Xstrata Process Support

11:30–11:55 **Ultra fine screening in the platinum industry**
N. Barkhuysen, *Derrick Corporation*

12:00–12:40 **Lunch**

Session 16B Energy & Infrastructure

12:40–13:05 **Fuelcell technology in underground mining**
A.R. Miller*, G. van den Berg†, D.L. Barnes*, R.I. Eisele*, D.M. Tanner*, J.M. Vallely*, and D.A. Lassiter*, *Vehicle Projects Inc. and †Anglo American Platinum Limited

13:05–13:30 **What is the best energy delivery system for hand-held stope drilling and associated equipment in narrow-reef hard rock mines?**
P.J. Petit* and P.D. Fraser†, *Snowden Mining Industry Consultants and †Hydro Power Equipment (Pty) Ltd

13:30–13:55 **The use of high-pressure, water-hydraulic (hydropower) technology in South African, narrow-reef, hard-rock mines**
P.D. Fraser, *Hydro Power Equipment (Pty) Ltd*

13:55–14:20 **Mid afternoon refreshments**

Session 17 S Forrest Session

14:20–14:40 **High level market forces at play: supply squeeze versus technology offset**

B. Clarke, *SFA*

14:40–15:00 **Zimbabwe: Filling the bread basket with PGMs**
S. Trickey, *SFA*

15:00–15:20 **Recycling surge: green shoots for end-users**
R. Grimble, *SFA*

15:20–15:40 **Swinging the technology pendulum: has the PGM clock stopped?**
J. Watts, *SFA*

15:40–16:30 **Discussion Session**

16:30–16:40 **Conference Closure**