

Southern African Pyrometallurgy International Conference

PYROMETALLURGY 2006

5–8 March 2006

Cradle of Humankind, South Africa



The South African Institute of Mining and Metallurgy
Founded in 1894

VAT REGISTRATION NO: 4510106281

Please complete and return to:

Lara Winning, Conference Co-ordinator, SAIMM

P.O. Box 61127, Marshalltown, 2107

Tel: +27 11 834 1273/7 · Fax: +27 11 838 5923 or 833 8156

E-mail: lara@saimm.co.za

Website: <http://www.pyrometallurgy.co.za/Pyro2006/>

PERSONAL DETAILS

NAME:

Title First Name Other Initials Surname/Family Name

Preferred Name (for use on name badge)

Company Position

Company VAT Registration (**Compulsory—must be completed by SA delegates**)

Invoice Address

..... Code Country

Tel/Cell: Fax: E-mail:

Accompanying Persons Name

SAIMM/GSSA/TMS/IRE Membership No. Are you the presenting author?

Do you require an invitation for visa purposes? ECSA CPD points will be allocated to attending delegates

REGISTRATION FEES — All prices are inclusive of 14% VAT.

Please indicate your choice by (✓ tick).

SAIMM Members and Presenting Authors R6 270.00

GSSA/TMS/IRE Members R6 270.00

Non Members R7 410.00

SAIMM Student Members R1 710.00

Registration fees include attendance at technical sessions, proceedings, registration bag, all refreshments and lunches at the Conference, attendance at the Maropeng Banquet and the Hot Air Balloon ride.

SOCIAL FUNCTIONS

■ **Conference Banquet at Maropeng** (Tuesday 7 March 2006)
Please indicate (✓ tick) for catering purposes if you will be attending. Included in the Registration Fee for all Registered Delegates and R350.00 for Accompanying guest.

YES I will be attending (registered delegate) No Charge

YES I will be attending (accompanying guest) R 350.00

■ **Hot Air Balloon ride at sunrise**
Please indicate (✓ tick) for booking purposes if you will be interested in taking the ride. Included in the Registration Fee for all Registered Delegates and R1 300.00 for Accompanying guest.

YES I will be attending (registered delegate) No Charge

YES I will be attending (accompanying guest) R1 300.00

Approximate mass of each person for hot air balloon.....

■ **Special Requirements** — Please advise any special requirements regarding diet, health or physical disabilities.
.....

TECHNICAL VISITS

Please indicate (✓ tick). If you are interested in participating:

No. of Persons

■ Wednesday Afternoon - 8 March
Visit to one plant—R250.00

■ Wednesday Afternoon and all day Thursday 9 March
Visit to three plants—R500.00

ACCOMMODATION

Glenburn Lodge has been especially reserved for the conference and preferential rates have been negotiated. Rates include dinner, bed and breakfast. Please indicate (✓ tick) which suite you would be utilising.

■ **Hotel/Chalet** Single R 700.00

Double R1 300.00

■ **Garden Suite** Single R1 200.00

Double R1 800.00

Arrival date..... Departure Date.....

No. of nights.....

PAYMENT

Please include payment itemised as follows:

Conference Registration Fee R.....

Conference Banquet (Accompanying Persons) R.....

Hot Air Balloon (Accompanying Persons) R.....

Technical visits R.....

Accommodation 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.

Expiry Date:.....Last 4 digits on back of card.....

Signature:.....

Please print name of card holder:
.....

Our banking details are:

Bank: Standard Bank

Branch Code: 000205

Account Type: Cheque Account

Branch: Johannesburg

Account No: 000402974

Swift No. SBZAJJ

Pyro 2006



is organising the

Southern African Pyrometallurgy International Conference

Pyro 2006

5-8 March 2006

Cradle of Humankind, South Africa



BACKGROUND

The SAIMM Pyro 2006 conference is an international conference on pyrometallurgy with a southern African flavour.

The primary intention is to showcase southern African pyrometallurgical operations and to provide a forum for the exchange of ideas between people from various types of smelters.

Papers have been obtained from as many as possible of the Southern African pyrometallurgical plants. These papers include a description (and perhaps history) of the operations, and could include some highlights of current work. These descriptions of plant operations will be published as a reference book that would provide very useful information for metallurgists entering the field. The papers will also be published on a website where they can be updated as and when required. The conference will cover as much as possible of the entire field of pyrometallurgy. Some contributions will also be included from universities, research organisations, and engineering companies, so that the full spectrum of pyrometallurgical activities can be covered. International participation is strongly encouraged, with some broad overview papers dealing with international trends to be presented by experts in various topical technologies and commodities.

The conference will take place in the 'Cradle of Humankind' world heritage area, about 30 km from Johannesburg. This keeps the conference within easy reach of the city and yet far enough out into the countryside to allow people to focus on the conference. It is also within easy reach of many of the pyrometallurgical plants for those people who would like to participate in post-conference visits.

There is a particular significance to the choice of location, in that the Swartkrans area close to the Sterkfontein Caves is the site of the earliest evidence of the deliberate controlled use of fire by humans (about 1.3 million years ago), and this is obviously a necessary precursor to pyrometallurgy.



PHOTOGRAPHS COURTESY SA TOURISM

The area also lends itself to a very wide range of outdoor, social, and cultural activities to supplement the technical content of the programme. Activities such as hot air ballooning, game drives and cave exploring, will be built into the conference programme and should prove to be attractive to visitors.



The conference dates are from 5-8 March 2006, with optional social activities on the Sunday afternoon preceding the three-day conference. Post-conference plant visits will be arranged for those interested.

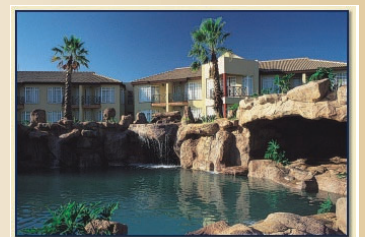
Of significance to South African participants who are registered professional engineers, is the fact that this conference will provide points towards the Continuing Professional Development that is required (as of 1 January 2006) to maintain registration with the Engineering Council of South Africa.

CONFERENCE VENUE

The conference will be held at Glenburn Lodge in the Cradle of Humankind World Heritage Site, about 40 km north-west of Johannesburg. Accommodation has been secured at the conference venue for a number of delegates. This will be made available on a first-come first-served basis.

The conference banquet is to be held at Maropeng, a brand-new development that was opened to the public in December 2005.

Wireless Internet access will be made available (at no additional charge) in the conference area, from about 6 am to 10 pm every day.



Preliminary Programme and Registration Form

PROVISIONAL PROGRAMME

Please note that this provisional programme is subject to change. Some abstracts are available online.

Sunday 5 March 2006

17:00–18:30: Registration

Monday 6 March 2006

09:00: **Welcome:** W.H. van Niekerk,
President: SAIMM

**Keynote address: Sulfuric acid
manufacture**

Bill Davenport (University of Arizona, USA)
and Matthew King (Hatch, Australia)

SESSION 1—Platinum Group Metals

**Waterval Smelter
Mortimer Smelter
Polokwane Smelter**

SESSION 2—Platinum Group Metals

Impala Platinum

Val Coetzee (Impala Platinum, South Africa)

**Spinel removal from PGM smelting
furnaces**

Arthur Barnes and Alan Newall (BCM Process
Applications, South Africa)

**Embedded measuring devices in copper
coolers**

Manfred Hopf (Saveway, Germany) and
Eugene Rossouw (Thos Begbie, South Africa)

Lunch

SESSION 3—Education and Research

**A Glimpse of Pyrometallurgy at Wits
University**

Hurman Eric (University of the Witwatersrand,
South Africa)

University of Pretoria

Chris Pistorius (University of Pretoria, South
Africa)

**A review of undergraduate teaching and
postgraduate research in pyrometallurgy
at the University of Stellenbosch**

Jacques Eksteen (University of Stellenbosch,
South Africa)

Pyrometallurgy at Mintek

Rodney Jones and Tom Curr (Mintek, South
Africa)

SESSION 4a—Engineering Companies

**Pneumatic injection of solids into
pyrometallurgical processes—past,
present and future**

Jeremy Kirsch (Clyde Bergemann Africa,
South Africa)

Pyromet

Bateman

SESSION 4b—Iran

**Kinetics of Carbochlorination of Zirconium
Dioxide**

Ali Movahhedian, S Rayegan, and
K Saberyan (Tehran University, Iran)

**The characterization studies of Tabas coal
for removal of organic and inorganic forms
of sulphur**

Esmaeil Jorjani, J Yperman, R Carleer, and
H Jorjani (Azad University, Iran)

CAVE VISITS

Sterkfontein Caves

Wonder Cave

Dinner: Braaivleis

Tuesday 7 March 2006

05:45: **Hot Air Balloon Safari at sunrise**

09:00:

SESSION 5—Ilmenite Smelting

**Heavy Mineral Processing at Richards Bay
Minerals**

Gavin Williams (Richards Bay Minerals, South
Africa)

Namakwa Sands Ilmenite Smelting

Errol Matthews and Mia Gous (Namakwa
Sands, South Africa)

Ilmenite smelting at Ticor SA

Hanlie Kotze & Jandri Beukes (Ticor, South
Africa) and Deon Bessinger (Kumba
Resources R&D, South Africa)

SESSION 6—Base metals

Recent improvements at the BCL Smelter

David Keitshokile, M T Malema, and A C Legg
(BCL, Botswana)

**Bindura Nickel Corporation Smelter
Operations**

Evaristo Dzingayi and Batirai Manhando
(Bindura Nickel Corporation, Zimbabwe)

**Transformation of the Palabora copper
smelter from a captive smelter to a
toll/custom smelter**

Dennis Brazier, Willie Laing, and Dave Nixon
(Palabora Mining Company, South Africa)

**Phasing out Reverberatory Furnace
Operations at KCM Nkana**

Chris Cutler, Jacques Eksteen (University of
Stellenbosch, South Africa) and Mohan
Natarajan (KCM Nkana, Zambia)

**Drying Technologies for Drying Copper
Concentrates**

Hannu Lehtonen (Kumera Corporation
Technology Center, Finland)

**Modelling of Nickel Oxide Reduction by
Hydrogen from the B2O3-CaO-NiO Melt in
Bubbled Layer**

Andrey Dmitriev, A S Vusikhis, L I Leontiev,
D Z Kudinov, and V A Sitnikov (Institute of
Metallurgy of the Ural Branch of Russian
Academy of Sciences, Russia)

Lunch

SESSION 7a—Zinc

An overview of the Zincor process

Jaco van Dyk (Zincor, South Africa)

SESSION 7b—Magnesium

**Mintek Thermal Magnesium Process
(MTMP)—Theoretical and Operational
Aspects**

Masud Abdel-latif (Mintek, South Africa)

**Refining testwork on crude Magnesium
produced in the Mintek Thermal
Magnesium Process**

Masud Abdel-latif (Mintek, South Africa)

SESSION 8—Engineering Companies

Hatch furnace technology

Lloyd Nelson (Hatch Africa, South Africa)

Metix—company profile

Pat Davies (Metix, South Africa)

Thermopower

18:00–22:00: **Conference Dinner: Maropeng**

Wednesday 8 March 2006

SESSION 9—Ferro-alloys

**An overview of the history and current
operational facilities of Samancor Chrome**

Marius Visser (Samancor Chrome—
Ferrometals, South Africa)

Xstrata Alloys

Willie Gericke (Xstrata Alloys, South Africa)

**Zimbabwe Alloys: The first fifty years of
operation, challenges and opportunities**

Jabulani Chirasha, Dr Nyembe Shoko, and
Munetsi Machikicho
(Zimbabwe Alloys International, Zimbabwe)

**Laboratory investigations of the electrical
resistivity of cokes and smelting charge
for optimizing operation in large
ferrochrome furnaces**

Helge Krogerus, Timo Lintumaa, and Petri
Jokinen (Outokumpu Research Oy, Finland)

**Graftech refractory linings for ferro-alloy
furnaces**

Colette Coetzee (Graftech, South Africa)

SESSION 10a—Steel

**Iron and Steel making processes at Mittal
Steel South Africa, Newcastle Works**

Victor Scholtz, D S Magudulela, Francois van
Zyl, A Coetzee, A Humpel, C Hill, and
Awie Potgieter (Mittal Steel—Newcastle,
South Africa)

**Practices and Design for Extending the
Hearth life in the Mittal Steel Company
Blast Furnaces**

Karl Spaleck, Martiens Schoeman, and
Warren Seegers (Mittal Steel—Newcastle,
South Africa) and James Bobek, Wendell
Carter, and Pinakin Chaubal (Mittal Steel Ispat
Inland, USA)

SESSION 10b—World Smelters

**Virtual tour of some large smelters around
the world**

Quinn Reynolds (Mintek, South Africa)

Lunch

Plant Visit

Thursday 9 March 2006

Optional plant visits

HOW TO GET TO GLENBURN LODGE

From the Johannesburg International Airport

- Follow the N12 Johannesburg signs (heading towards Eastgate)
- Take the N3 North off ramp at the N12/N3 interchange. N3 will eventually become the N1.
Stay on the N1 South – Roodepoort
You will **pass** the following off ramps:
Modderfontein
Marlborough
Woodmead
Johannesburg/Pretoria –N3/N1 Interchange
Rivonia
William Nicol
Hans Strydom

Take the **next off ramp – Beyers Naude – M5**

- Turn right over the highway
- Keep straight on Beyers Naude through Honeydew
- Proceed over the N14 – Krugersdorp highway
- Keep straight on for 3 km and turn left into Kromdraai Road
- Proceed on Kromdraai road for 2 km and turn right into Glenburn Lodge

From Johannesburg / Sandton / Fourways (Approx. 40–45 min)

- Keep straight on Beyers Naude – **M5** through Honeydew
- Proceed over the N14 – Krugersdorp highway
- Keep straight on for 3 km and turn left into Kromdraai Road
- Proceed on Kromdraai road for 2 km and turn right into Glenburn Lodge

From Pretoria (Approx. 35 – 40 min)

- Proceed on the N14 South towards Krugersdorp
- Go past the following off ramps:
R55 – Sandton
R511 – Sandton
R512 – Randburg/Lanseria
- Take the **next off ramp M5 – Randburg/Swartkops**
- Turn right over the highway.
- Keep straight on for 3 km and turn left into Kromdraai Road
- Proceed on Kromdraai road for 2 km and turn right into Glenburn Lodge

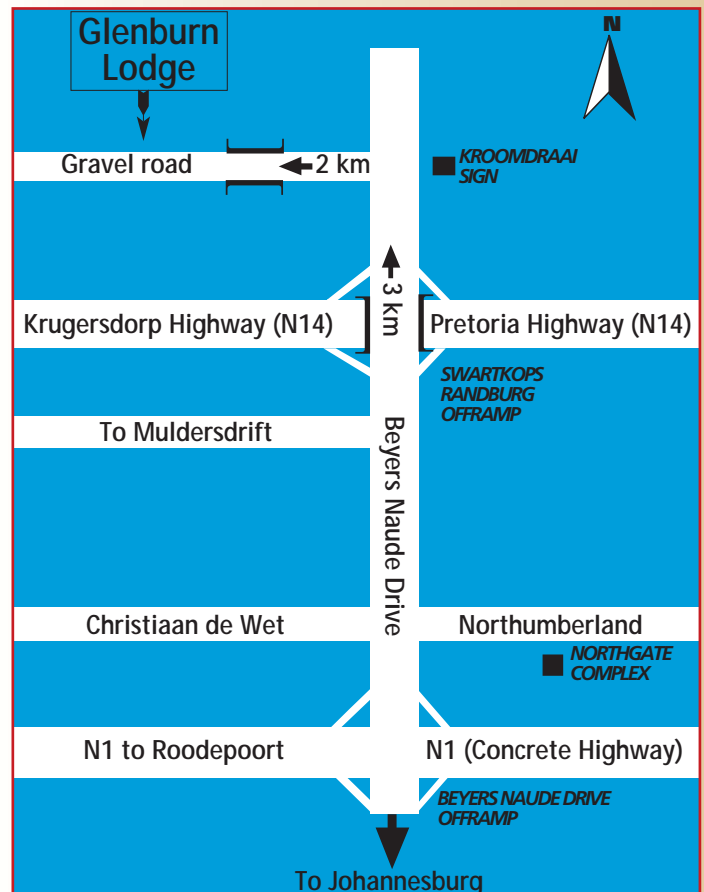
From Krugersdorp (Approx. 30 min)

- Proceed north on the N14 – Pretoria/Krugersdorp Highway

- Take the **M5 – Randburg/Swartkops** turnoff.
- At the top of the off ramp turn left.
- Keep straight on for 3 km and turn left into Kromdraai Road
- Proceed on Kromdraai road for 2 km and turn right into Glenburn Lodge

From Johannesburg South (Approx. 30 min)

- Follow the N1 North – Pretoria
- Take the **M5 – Beyers Naude**
- At the top of the off ramp turn left
- Keep straight on Beyers Naude through Honeydew
- Proceed over the N14 – Krugersdorp highway
- Keep straight on for 3 km and turn left into Kromdraai Road
- Proceed on Kromdraai road for 2 km and turn right into Glenburn Lodge



SPONSORSHIP PACKAGES

There are a number of sponsorship opportunities available, which are listed below:

PACKAGE 1 — PATRON

R25 000 (R12 500 deposit)

- Exhibition space (3m x 2m).
- Two free registrations.
- Acknowledgement of sponsorship on all conference material and proceedings.
- Prominent display of company logos.

PACKAGE 2 — EXHIBITOR

R16 000 (R8 000 deposit)

- Exhibition space (3m x 2m).
- One free registration.
- Acknowledgement of sponsorship on all conference material and proceedings.

PACKAGE 3 — ADVERTISER

R6 000 (R3 000 deposit)

- Full page (A5 portrait) full-colour advertisement on the Delegates Handbook.
- Acknowledgement of sponsorship on all conference material and proceedings.
- Promotional material for delegates pack.

OTHER SPONSORSHIP

Specific events, such as the Conference Bags or the Banquet, or even hot-air ballooning, can also be sponsored. Sponsorship packages can be customized according to the specific requirements of the sponsor.

ALL PRICES EXCLUDE VAT

Companies wishing to sponsor or exhibit should contact the Conference Co-ordinator.

Conference Co-ordinator, Lara Winning, SAIMM · P.O. Box 61127, Marshalltown, 2107

Tel: +27 11 834 1273/7 · Fax: +27 11 838 5923 or 833 8156 · E-mail: lara@saimm.co.za · Website: <http://www.pyrometallurgy.co.za/Pyro2006/>