

THURSDAY 6 AUGUST

| Plenary Day 1 | | Chair: D Deglon | |
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| 08:30 - 09:15 | PL01 | When the going gets tough...A metallurgical strategy for the bottom line" | <i>I Smit: Anglo Base</i> |
| Session 1A General | | | |
| 09:20 | OR01 | A review of the Lonmin Base Metal Refinery: History, process modifications and remaining challenges | <i>N Steenkamp, M Horne: Lonmin</i> |
| 09:40 | OR02 | An analysis of errors in batch flotation testing of platinum ores | <i>TJ Napier-Munn: JKMRRC; D de Vaux: Anglo Research; N Plint: Anglo Platinum</i> |
| 10:00 | OR03 | Combining positron tracking and image analysis to interpret particle motion in froths | <i>J Cilliers: Imperial College London, UK</i> |
| 10:20 | TEA | | |
| Session 2A Comminution | | Chair: M Powell | |
| 10:50 | OR04 | Closed-circuit milling and classifying: an investigation of the classifier impact on PGM recoveries | <i>HM Nel, P Morgan: DRA Mineral Projects</i> |
| 11:10 | OR05 | Effect of grading axial lifter profile angle on the performance of a high aspect ratio (L/D) pilot ball mill | <i>JT Kalala, N Makhamele, AL Hinde: Mintek</i> |
| 11:30 | OR06 | Characterisation of porosity in tumbling mills | <i>K Sichelwe, I Govender, AN Mainza: University of Cape Town</i> |
| 11:50 | OR07 | Assessment of HPGR and fine grinding technologies for Platinum ore comminution circuits | <i>M Phiri, A Mainza: University of Cape Town</i> |
| SHORT PRESENTATIONS WITH POSTER | | | |
| 12:10 | SP01 | Breakage behaviour of PGM ores in a piston-die press | <i>H Dong, AL Hinde, JT Kalala: Mintek</i> |
| 12:17 | SP02 | A study of slurry flow and distribution in an overflow ball mill using a Gamma camera | <i>AB Makokha, MH Moys: Witwatersrand University</i> |
| 12:24 | SP03 | Circulation rate modeling of tumbling mill media using Positron Emission Particle Tracking (PEPT) | <i>DVV Kallon, I Govender, AN Mainza: University of Cape Town</i> |
| 12:31 | SP04 | Influence of high pressure grinding roll (HPGR) operating conditions on the competency of flakes generated | <i>JT Kalala, A Mokwena, AL Hinde: Mintek</i> |
| 12:38 | SP05 | Labelling tracer particles for use in positron emission particle tracking | <i>TS Volkwyn et al: University of Cape Town</i> |

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| 12:45 | SP06 | The effect of the iron endpoint during Peirce-Smith converting on matte process mineralogy and downstream processing of base and precious metals | <i>EL Thyse, G Akdogan: Stellenbosch; JJ Eksteen: Lonmin</i> |
| 12:52 | SP07 | Laboratory-scale optimisation of cleaner flotation of a UG2-ore | <i>R Hurdeyal, BK Loveday, L Maharaj: Univesity of KwaZulu Natal</i> |
| 13:00 | LUNCH | | |
| Session 3A | | Physical Processes | Chair: Brian Loveday |
| 14:00 | OR12 | Performance quantification of applicators for microwave treatment of crushed mineral ore | <i>SM Bradshaw, AY Ali, R Marchand, A Barnard: Stellenbosch University</i> |
| 14:20 | OR13 | Advances in dense medium cyclone plant design | <i>TJ Napier-Munn: JKMRRC; G Gibson: Xstrata Zinc: B Besson: formerly Xstrata Zinc</i> |
| 14:40 | OR14 | Rheological effects on gas dispersion | <i>NZP Shabalala, M Harris, DA Deglon: University of Cape Town</i> |
| 15:00 | OR15 | Use of machine learning and computer vision to monitor coal on conveyor belts | <i>C Aldrich, GT Jemwa: Stellenbosch University</i> |
| 15:20 | OR16 | The potential for spirals to facilitate selective grinding of UG2 ores | <i>L Maharaj, P Chetty, R Balkissoon: University of KwaZulu-Natal</i> |
| SHORT PRESENTATIONS WITH POSTER | | | |
| 15:40 | SP15 | The use of sphere bonding in DEM to represent flow behaviour of irregular particles | <i>M Bwalya, MH Moys: Witwatersrand University</i> |
| 15:47 | SP16 | An investigation on the effect of mineralogy and surface chemistry on slurry rheology | <i>B Ndlovu, M Becker, D Deglon, J-P Franzidis: University of Cape Town</i> |
| 15:54 | SP17 | The "fifty cent" rheometer: effect of slip, lift speed and stability on measurement of yield stress | <i>MN Ichegbo: Cape Peninsula University of Technology</i> |
| 16:01 | SP18 | Effect of particle size, shape and density on the performance of an air fluidized bed in dry coal beneficiation | <i>P Chikerema, MH Moys: Witwatersrand University</i> |

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| 16:08 | SP19 | Processing of Sedimentary and Low grade Phosphate Rock by Flotation: Case Study Dalir Area of Iran | <i>S Khoshjavan, B Rezai: Amirkabir University of Technology, Iran; A Amini: Geological survey of Iran Organization</i> |
| 16:15-17:15 | | POSTER SESSION | |
| FRIDAY 7 AUGUST | | | |
| Plenary Day 2 | | | Chair: T Napier-Munn |
| 08:30 - 09:15 | PL02 | The future isn't what it used to be - managing research in a financially constrained environment | <i>N Plint: Anglo Platinum</i> |
| Session 4A | | General | Chair: T-J Napier-Munn |
| 09:20 | OR22 | A SWOT Analysis of the South African mining and mineral processing industry: Outcomes of a survey of the industry | <i>P Gaylard</i> |
| 09:40 | OR23 | PEPT Cape Town: a new positron emission particle tracking facility | <i>A Buffler et al: University of Cape Town</i> |
| 10:00 | OR24 | The Minerals to Metals Initiative at UCT | <i>J-P Franzidis, University of Cape Town</i> |
| 10:20 | TEA | | |
| Session 5A | | Flotation | Chair J Sweet |
| 10:50 | OR25 | The effect of increased frother dosage on froth stability at high depressant dosages | <i>JG Wiese, PJ Harris: University of Cape Town; DJ Bradshaw: University of Queensland, Australia</i> |
| 11:10 | OR26 | Visual flotation monitoring to identify non-productive cells | <i>DJ Oosthuizen, V Mahomed: Mintek</i> |
| 11:30 | OR27 | Change point detection in mineral process systems with random forest models | <i>L Auret, C Aldrich: Stellenbosch University</i> |
| 11:50 | OR28 | The effect of ionic strength of plant water on valuable mineral and gangue recovery in a platinum bearing ore from the Merensky Reef | <i>KC Corin, A Reddy, L Miyen, J Wiese, P Harris: University of Cape Town</i> |
| 12:10 | OR29 | Flotation bank air profiling using air recovery: how much air and where to add it | <i>J Cilliers, K Hadler, C Smith: Imperial College London: UK</i> |
| 12:30 | LUNCH | | |
| Session 6A | | Flotation | Chair: M Harris |
| 13:30 | OR35 | Investigations into froth efficiency at Lonmin concentrators | <i>V Ross, M Chele: Lonmin</i> |

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| 13:50 | OR36 | Measurement of particle loading on bubbles in flotation | <i>C Bhondayi, MH Moys: Witwatersrand University</i> |
| 14:10 | OR37 | The mineralogy of pyrrhotite from the Sudbury CCN and Phoenix nickel ores and its effect on flotation performance | <i>M Becker: University of Cape Town; D Bradshaw: University of Queensland, Australia; J de Villiers: University of Pretoria</i> |
| 14:30 | OR38 | An investigation into the flotation behaviour of pyrrhotite present in the Merensky reef | <i>C O'Connor, S Allison: University of Cape Town</i> |
| 14:50 | OR39 | The effect of inert grinding at EPC concentrator | <i>J Steyn: Lonmin</i> |
| 15:10 | CLOSING | | |

Poster Presentations

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| PPO1 | Large particle effects in chemical/biochemical heap leach processes | <i>Y Ghorbani, A Manixa, Petersen : University c Town</i> |
| PP02 | A proposed combined economic and environmental analysis of the different copper processing routes | <i>D Lusinga, J Broadhur Petersen : University c Town</i> |
| PPO3 | Using Computed X-ray Tomography and Positron Emission Particle Tracking (PEPT) to investigate Industrial Systems | <i>A Morrison, A Mainza, Govender : University Town</i> |
| PP04 | Electrochemical and physical characterisation of lead based anodes in comparison to against Ti-(70%) IrO ₂ / (30%) Ta ₂ O ₅ dimensionally stable anodes for use in copper electrowinning | <i>V Sibanda, JH Potgiet University</i> |
| PPO5 | Can bioleaching micro-organisms be used to accelerate sulphide leaching from dump rock to mitigate ongoing risk of AMD formation? | <i>A Opitz, STL Harrison University of Cape Tow</i> |
| PP06 | The effect of the iron endpoint during Peirce Smith converting on the mineralogy and leaching characteristics of converter matte | <i>F van Schalkwyk, G. A Petersen : University c Town</i> |
| PPO7 | Optimizing effective factor in recovery of ore body sample of gold in Torqabe with Cyaniding method bod | <i>M Zavvari, Birjand Uni Iran</i> |

| Session 2B | | Bio Processing | | Chair: C Aldrich |
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| 10:50 | OR08 | Key considerations in optimising bioheap leach performance | <i>STL Harrison: University of Cape Town</i> | |
| 11:10 | OR09 | The effect of nitrogen supplementation on the growth and bioleaching performance of selected biomining micro-organisms | <i>AW van Zyl, STL Harrison, RP van Hille: University of Cape Town</i> | |
| 11:30 | OR10 | Fine grinding of sulfide concentrates and the effect on surface properties for use in (Bio) hydrometallurgy | <i>G Jones: University of Cape Town</i> | |
| 11:50 | OR11 | Simulation and design of metallurgical operations | <i>F Crundwell: CM Solutions</i> | |
| SHORT PRESENTATIONS WITH POSTER | | | | |
| 12:10 | SP08 | Investigating the effect of turbulence on crystallization kinetics | <i>C Mokgethia, J-P Franzidis, AE Lewis, DA Deglon : University of Cape Town</i> | |
| 12:17 | SP09 | Chemical modelling of manganese chloride in aqueous acidic solutions | <i>C Biley, C Aldrich: Stellenbosch University</i> | |
| 12:24 | SP10 | Investigation of a method for determining plant depressant concentrations | <i>BJ McFadzean, P Harris: University of Cape Town</i> | |
| 12:31 | SP11 | CFD modelling of cavern formation in a mechanical flotation cell | <i>CW Bakker, DA Deglon, CJ Meyer: University of Cape Town</i> | |
| 12:38 | SP12 | Identification of platinum ore via trace element signatures | <i>M Hassan, A Buffler, A Mainza: University of Cape Town</i> | |

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| 12:45 | SP13 | Stratabound oxidised copper orebodies – a process mineralogy case study | <i>K Pillay, W Clark, W Thompson: Mintek</i> |
| 12:52 | SP14 | Modelling and characterization of industrial brine | <i>L Zibi, AE Lewis, J Nathoo : University of Cape Town</i> |
| 13:00 | LUNCH | | |
| Session 3B | | Hydrometallurgy | Chair: Andre Burger |
| 14:00 | OR17 | Investigation to determine the feasibility of directly leaching platinum group metals from a low grade concentrate material | <i>JM Mwase, J Petersen: UCT</i> |
| 14:20 | OR18 | Investigating factors that affect separation in an eutectic freeze crystallisation process | <i>ST Reddy, J Nathoo, AE Lewis: University of Cape Town; HJM Kramer: Delft University of Technology, Netherlands</i> |
| 14:40 | OR19 | Effect of spectator ions on the biosorption of heavy metals on a marine alga | <i>R van Wyngaard, MJ Leeuwner, C Aldrich: Stellenbosch University</i> |
| 15:00 | OR20 | Nucleation kinetics of Selenium (+4) precipitation from acidic copper sulphate solution | <i>M Mangere, J Nathoo, AE Lewis: University of Cape Town</i> |
| 15:20 | OR21 | TBA | |
| SHORT PRESENTATIONS WITH POSTER | | | |
| 15:40 | SP20 | Phosphate crystallization from dewatering liquors using fluidised bed reactor | <i>R Ramaru, J Nathoo, AE Lewis: University of Cape Town</i> |
| 15:47 | SP21 | Optimisation of platinum solvent extraction from leach liquors | <i>G Mutamba, PJ van der Plas: Cape Peninsula University of Technology</i> |
| 15:54 | SP22 | The effect of operating conditions on the nature of metal sulphide precipitates | <i>TP Mokone, RP van Hille, AE Lewis: University of Cape Town</i> |
| 16:01 | SP23 | Aliquat 336 as extractant for the recovery of SO from aqueous alkaline industrial wastes | <i>CN Mpinga, PJ van der Plas: Cape Peninsula University of Technology</i> |

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| 16:08 | SP24 | Multiscale process condition monitoring: A multiple kernel learning perspective | <i>GT Jemwa, C Aldrich: University of Stellenbosch</i> |
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| 16:15-17:15 | POSTER SESSION |
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| Session 5B | Pyrometallurgy | Chair: S Bradshaw |
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| 10:50 | OR30 | Prediction of matte temperatures associated with the smelting of UG2 – Merensky concentrate blends | <i>JJ Eksteen: Lonmin</i> |
| 11:10 | OR31 | Off-gas conditioning for a new 3 MW platinum furnace | <i>M Grant, B Williams: Enviroplus Design</i> |
| 11:30 | OR32 | The application of time series variography as an aid in controlling the %SiO ₂ within a feed stream to an ilmenite smelter | <i>EL Thyse, G Akdogan: Stellenbosch; RM Viljoen: Exxaro</i> |
| 11:50 | OR33 | Predicting the roof temperature in a submerged electric arc furnace with a neural network | <i>FJ Wolfaardt, C Aldrich: Stellenbosch University</i> |
| 12:10 | OR34 | Design and feasibility of a new direct reduced iron process | <i>H Delpont</i> |
| 12:30 | LUNCH | | |

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