

Process Mineralogy '14



Sunday November 16th

16.30-18.00 Registration and wine reception, with hot and cold canapés (accompanying persons welcome)

Monday November 17th

- 07.30 Registration desk opens. Light breakfast of filled croissants, tea, coffee and fruit juice
- 08.40 Opening Remarks
J. Wills (MEI, UK) and M. Becker (University of Cape Town, South Africa)
- 09.00 *Technical Session 1*
Chairmen: W. Goodall (MinAssist, Australia) and A. Cropp (Zeiss Microscopy, UK)
- 09.00 **Keynote Lecture: A way forward in process mineralogy – using automated mineralogy for modeling and simulating beneficiation processes**
P. Lamberg (Luleå University of Technology, Sweden)
- 09.40 **Measurement and interpretation of textural features at meso-scale**
E. Wightman, C. Evans and K. Tungpalan (JKMRC, Australia)
- 10.00 **Towards the use of x-ray computed tomography to quantify ore textures in a mineral processing framework**
M.A. Jardine, M. Becker, M. Harris (University of Cape Town, South Africa) and J.A. Miller (University of Stellenbosch, South Africa)
- 10.20 Coffee
- 11.00 **A new method to quantify mineral textures for geometallurgy**
C. Lund, P. Lamberg (Luleå University of Technology, Sweden) and T. Lindberg (LKAB, Sweden)
- 11.20 **Characterisation of minerals (platinum-group, arsenides, tellurides, sulphides) using benchtop μ XRF and computer-controlled SEM-EDS with SDD**
T. Salge, R. Tagle, M. Patzschke (Bruker Nano, GmbH, Germany), L. Hecht, T. Mohr-Westheide (Museum für Naturkunde, Germany) and W.U. Reimold (Humboldt Universität zu Berlin, Germany)
- 11.40 **Relating mineralogical and textural characteristics to flotation behaviour**
K. Tungpalan, E. Wightman and E. Manlapig (JKMRC, Australia)
- 12.00 **Auto-SEM shape characterization of mineral particles in comminution and flotation circuits**
L. Little, M. Becker, J. Wiese and A.N. Mainza (University of Cape Town, South Africa)
- 12.20 **Error analysis in ore particle composition distribution measurements**
R.A. Mariano and C.L. Evans (JKMRC, Australia)

- 12.40 **A method using 2-D images of particles obtained from SEM-based image analysis system to model mineral liberation in regrind stirred mills** V.J. Resabal, E. Manlapig, C. Evans and E. Wightman (JKMRC, Australia)
- 13.00 Lunch
- 14.00 *Technical Session 2*
Chairmen: K. Knorr (Bruker AXS, Germany) and C.L. Lin (University of Utah, USA)
- 14.00 **Liberability: A new approach for measuring ore comminution behavior**
A. Mwanga, P. Lamberg and J. Rosenkranz (Luleå University of Technology, Sweden)
- 14.20 **Quantifying mineral grain size distributions for process modelling**
C.L. Evans, E.M. Wightman and X. Yuan (JKMRC, Australia)
- 14.40 **Feature based classification to improve image segmentation in the 3d analysis of packed particle beds**
C.L. Lin, Y. Wang, and J.D. Miller (University of Utah, USA)
- 15.00 **Investigation of MicroCT (Computed Tomography) for 3-dimensional mineral characterisation – a dual energy approach**
D. Wang, X. Yuan, Y. Gu (JKMRC, Australia), T. Case, M. Feser (Carl Zeiss X-ray Microscopy, Inc., USA) and R.P. Schouwstra (Anglo Technical Solutions Research, South Africa)
- 15.20 Coffee
- 16.00 **Quantitative mineralogy of fine particles in slurry from multispectral imaging**
S. Leroy, G. Dislaire, P. Barnabé and E. Pirard (Université de Liège, Belgium)
- 16.20 **Multimodal microscopy applied to ore characterization: practical aspects**
O.F.M. Gomes (CETEM, Brazil), M.P.G. Lima, G.L.A. Mota (Rio de Janeiro State University, Brazil) and S. Paicornik (Catholic University of Rio de Janeiro, Brazil)
- 16.40 **Semi-automated iron ore characterization based on optical microscope analysis: quartz/resin classification**
I.D. Delbem, R. Galery, P.R.G. Brandão and A.E.C. Peres (Universidade Federal de Minas Gerais, Brazil)
- 17.00 Happy Hour, Vineyard Gardens
Accompanying guests welcome

Tuesday November 18th

- 08.15 Light breakfast of filled croissants, tea, coffee and fruit juice
- 09.00 *Technical Session 3*
Chairmen: C.P. Brough (SRK Consulting Ltd, UK) and E.L. Thyse (University of Stellenbosch, South Africa)
- 09.00 **Keynote Lecture: Predicting acid rock drainage: past, present, future**
B. Lottermoser (University of Exeter, UK)
- 09.40 **Prediction of acid rock drainage (ARD) from automated mineralogy: the computed acid rock drainage risk grade**
A. Parbhakar-Fox (University of Tasmania, Australia) and B. Lottermoser (University of Exeter, UK)

- 10.00 **Application of mineralogy in the interpretation of laboratory scale acid rock drainage prediction tests: a gold case study**
M. Becker, N. Dyantyi, J. Broadhurst, S.T.L. Harrison, J.-P. Franzidis (University of Cape Town, South Africa)
- 10.20 Coffee
- 11.00 **Fast XRD analysis of clay or amorphous phases towards 1 wt-% accuracy**
K. Knorr (Bruker AXS, Germany)
- 11.20 **Using modal composition instead of elemental grades in mineral resource estimate – high quality modal analysis by combining X-ray diffraction and X-ray fluorescence**
M.A. Parian, P. Lamberg and J. Rosenkranz (Luleå University, Sweden)
- 11.40 **PLSR - A new tool for quantitative analysis of hidden information directly from XRD data**
U. König and T. Degen (PANalytical.B.V. The Netherlands)
- 12.00 **Anomalous scattering and structural dispersion effect in the analysis of hematite-quartz samples by X-ray diffraction**
C.E. Teixeira and P.R.G. Brandao (Federal University of Minas Gerais, Brazil)
- 12.20 **REE speciation and elemental deportment of a flotation concentrate from a deposit in the Fen Carbonatites, Norway using INCAMineral™ and X-Max^N large area Silicon drift detectors**
J. Strongman (Petrolab Limited, UK), C. Lang (Oxford Instruments, UK) and A. Dijkstra (University of Plymouth, UK)
- 12.40 Lunch
- 14.00 *Technical Session 4*
Chairman: P. Lamberg (Luleå University of Technology, Sweden)
- 14.00 **Understanding the performance of a pilot vermiculites exfoliation system through process mineralogy**
O. Udodo, O. Folorunso, C. Dodds, S. Kingman and A. Ure (University of Nottingham, UK)
- 14.20 **$\alpha \rightarrow \gamma \rightarrow \beta$ -phase transformation of spodumene with hybrid microwave and conventional furnaces**
O. Peltosaari, P. Tanskanen, E.-P. Heikkinen and T. Fabritius (University of Oulu, Finland)
- 14.40 **Characterising and quantifying microwave induced damage in coarse sphalerite ore particles**
E. Charikinya, S. Bradshaw (Stellenbosch University, South Africa) and M. Becker (University of Cape Town, South Africa)
- 15.00 **The effects of electrical comminution on the mineral liberation and surface chemistry of a porphyry copper ore**
T. Parker, F. Shi and M. Powell (JKMRC, Australia)
- 15.20 **The process mineralogy of gold at the Tuzon deposit, Liberia**
C.P. Brough, M. Pittuck, P. Stenhouse, O. Jones, R. Bowell (SRK Consulting Ltd, UK), M. Fleming and W. Cook (Hummingbird Resources, UK)
- 15.40 **Downstream processing characteristics of PGM converter matte**
E.L. Thyse, G. Akdogan (University of Stellenbosch, South Africa), A. Mainza (University of Cape Town, South Africa), K.S. Viljoen (University of Johannesburg, South Africa) and P. Taskinen (Aalto University, Finland)
- 16.00 Coffee
- 17.45 Coaches leave for conference dinner at Kirstenbosch Botanical Gardens

Wednesday November 19th

- 08.45 Light breakfast of filled croissants, tea, coffee and fruit juice
- 09.20 *Technical Session 5*
Chairmen: A. Parbhakar-Fox (University of Tasmania, Australia) and B. Lottermoser (University of Exeter, UK)
- 09.20 **Distribution of Sb-bearing minerals in Cu and Zn flotation of Rockliden massive sulphide ore in north-central Sweden**
F.E. Minz, C. Wanhainen, P. Lamberg (Luleå University of Technology, Sweden) and N.-J. Bolin (Boliden, AB, Sweden)
- 09.40 **Petrological study of a Ni-laterite of Weda Bay (Indonesia) by Qemscan**
S.B. Blancher (Eramet Research, France)
- 10.00 **Recent Developments in EDS hardware and software and its application to process mineralogy**
C. Lang and M. Hiscock (Oxford Instruments Nanoanalysis, UK)
- 10.20 **By-product potential for Sn and critical metal (Nb/Ta/REE/W) minerals within IMERYS kaolin operational areas, St Austell Granite, Cornwall, UK**
B. Thompson, R. Shail, G. Rollinson, R. Pascoe, F. Wall (Camborne School of Mines, UK), E. Sennavoine and A. Phillips (IMERYS Minerals Ltd, UK)
- 10.40 Coffee
- 11.20 **Characterization of Nb - Ta concentrates using TIMA equipped with WDS spectrometer – no species left to identify**
M. Dosbaba (Tescan Orsay Holding, Czech Republic) and J. Loun (Institute of Geological Sciences, Czech Republic)
- 11.40 **The virtual processing of heavy mineral sands on a Mineralogic Mining Autosem**
I. Tonžetić (Carl Zeiss Microscopy Limited, South Africa)
- 12.00 **Predicting iron ore products from core samples: integration of extended fields image analysis, automated mineralogy, and XRD/Rietveld method**
R. Neumann, O. Gomes and R. Gallart (CETEM, Brazil)
- 12.20 **A comparison of 2D and 3D characterisations of free gold particles in gravity and flash flotation concentrates**
T. McGrath, L. O'Connor and J. Eksteen (Curtin University, Australia)
- 12.40 **Three dimensional mineral maps - towards efficient and effective mining**
M. Brown, B. von der Heyden and S.J. Theron (Exxaro Resources Limited, South Africa)
- 13.00 Lunch
- 14.00 Panel Discussion on “The Future of Process Mineralogy”
- 15.00 Final Remarks and invitation to Process Mineralogy ‘17
M. Becker (University of Cape Town, South Africa) and A.J. Wills (MEI, UK)
- 15.20 Closing wine function, Vineyard Gardens
Accompanying Guests Welcome

Thursday November 20th

Optional hike up Table Mountain. Meet in hotel foyer at 1415. This hard hike is undertaken entirely at your own risk.