

Sustainable Minerals '18



Outotec



[#SustainableMinerals18](#)

Provisional Timetable- changes will be highlighted and alerted on the [conference website](#)

Wednesday 13th June

14.00-17.00 **Registration open**

18.15 Coaches leave for Xwama Cultural Village for informal conference dinner for Biohydromet '18 and Sustainable Minerals '18 delegates

Thursday 14th June

08.00 Registration desk opens. Coffee and light breakfast

08.45 Opening Remarks
J. Wills (MEI, UK)

09.00 *Technical Session 1*
Chairmen: TBA

09.00 **Keynote Lecture: Water- crisis, conflict, resolution (?)**
R. Dunne (Adjunct Professor Curtin University and JKMRM, Australia)

09.30 **The potential of mineral processing simulators as a tool for water-saving strategies in the mining industry**
B. Michaux, M. Rudolph and M. Reuter (Helmholtz Institute Freiberg for Resource Technology, Germany)

09.50 **Towards closed water loops and tailings valorization for more sustainable raw material supply**
P. Kinnunen, M. Paajanen (VTT Finland), J. Raatikainen (IMA, Finland), R. Emler (Montanuniversität Leoben, Austria), S. Guignot (BTGM, France), K. Heiskanen (Outotec, Finland), A. Ciroth (GreenDelta, Germany) and J. Guimerà (Amphos 21, Spain)

10.10 **The impact of pyrite-rich sediment reactivity, consolidation and porewater migration processes on groundwater quality and environmental sustainability**
O. Karikari-Yeboah (University of South Australia, and Maiden Geotechnics, Australia), W. Skinner (University of South Australia, Australia), H. Musiyarira (Namibia University of Science & Technology, Namibia) and J. Addai-Mensah (University of South Australia, Australia, and Namibia University of Science & Technology, Namibia)

10.30 Coffee and Poster Viewing

11.20 **Transformation of Dundee Precious Metals smelter in Tsumeb to a reliable and sustainable operation**
N. Hristov (Dundee Precious Metals, Namibia)

Commented [b1]: Accepted 30th January

11.40 **Supplementing structural integrity through improved packing protocols to aid acid rock drainage prevention strategies**
D. Mjonono, S.T.L. Harrison and A. Kotsiopoulos (University of Cape Town, South Africa)

12.00 **Improved NAG pH testing for mine waste classification**
A. Parbhakar-Fox, N. Fox, L. King (University of Tasmania, Australia), T. Ferguson, R. Hill and B. Maynard (Grange Resources Tasmania, Australia)

12.20 **Tailoring the UCT biokinetic test for acid rock drainage potential to characterise stages of acid rock drainage development**
M.T. Golela, A.K. B. Opitz, J.L. Broadhurst, S.T.L. Harrison (University of Cape Town, South Africa) and S.K.O. Ntwampe (Cape Peninsula University of Technology, Cape Town)

12.40 **Sensitive, selective and biodegradable – new biosorbents for metal recovery**
R. Braun, S. Matys, R. Jain, K. Pollmann (Helmholtz Institute Freiberg for Resource Technology, Germany) and N. Schoenberger (TU Bergakademie Freiberg, Germany)

13.00 Lunch

- 14.00 *Technical Session 2*
Chairmen: TBA
- 14.00 **Using bioaccessibility testing and mineral chemistry to guide sustainable mine-site rehabilitation: a case study from Eastern Tasmania**
R. McLaine, A. Parbhakar-Fox (University of Tasmania, Australia) and N. Fox (CRC ORE, University of Tasmania, Australia)
- 14.20 **Cost-competitiveness of siderophores in recovering of critical metals from waste streams**
R. Jain and K. Pollmann (Helmholtz Institute Freiberg for Resource Technology, Germany)
- 14.40 **Improving the gold leaching process of refractory ores using the Jetleach Reactor**
J.J. Mbayo, S. Ndlovu and H. Simonsen (University of the Witwatersrand, South Africa)
- 15.00 **Current sustainable performance reporting practices by gold mining companies operating in South Africa**
D. Viljoen, E. Charikinya and J. Broadhurst (University of Cape Town, South Africa)
- 15.20 Coffee
- 16.00 **Thermochemical processing of PGM tailings and mineral concentrates for elemental recovery**
S. Mohamed (Council for Geoscience, and University of Pretoria, South Africa), E.M. van der Merwe (University of Pretoria, South Africa), L. Petrik (University of the Western Cape, South Africa) and F.J. Doucet (Council for Geoscience, South Africa)
- 16.20 **Dezincing of galvanized steel**
J. Grogan (Gopher Resources, USA) and C. Anderson (Colorado School of Mines, USA)
- 16.40 **Application of amphiphilic siderophores in froth flotation process**
S. Schrader, S. Kutschke, M. Rudolph and K. Pollmann (Helmholtz Institute Freiberg for Resource Technology, Germany)
- 17.00-18.00 Sundowner in hotel gardens
Accompanying guests welcome

Friday 15th June

- 08.15 Registration desk opens. Coffee and light breakfast
- 09.00 *Technical Session 3*
Chairmen: TBA
- 09.00 **Keynote Lecture: Converting Fe-rich residues from metallurgical processes into novel materials: the process, the properties and some performance-based applications**
Y. Pontikes (KU Leuven, Belgium)
- 09.30 **Critical raw materials – advanced recycling technologies and processes**
R. Stauber (Fraunhofer ISC, Germany)
- 09.50 **Electronic waste recycling in Africa – current status and roads to sustainability**
Z. Sadan, T. Moyo and J. Petersen (University of Cape Town, South Africa)
- 10.10 **Lithium ion battery recycling in Australia: state of play and future trends**
N.J. Boxall (CSIRO Land and Water, Australia), K.Y. Cheng (CSIRO Land and Water, and Murdoch University, Australia), A.H. Kaksonen (CSIRO Land and Water, and University of Western Australia, Australia) and W. Bruckard (CSIRO Mineral Resources, Australia)
- 10.30 Coffee
- 11.10 **Limits of the circular economy: Fairphone pushing the limits of eWaste recycling**
M.A. Reuter (Helmholtz Institute for Resource Technology Freiberg, Germany), A. van Schaik (Material Recycling and Sustainability, The Netherlands) and M. Ballester (FAIRPHONE, The Netherlands)
- 11.30 **Challenges in building life cycle inventories on platinum group metal production in South Africa**
E. Charikinya, J.L. Broadhurst, V. Russo and H. von Blottnitz (University of Cape Town, South Africa)
- 11.50 **Thermoeconomic analysis of a copper production plant. From mine to cathode**
A.A. Llamas (Technische Universität Bergakademie Freiberg/Helmholtz Institute Freiberg for Resource Technology, Germany), M. Reuter (Helmholtz Institute Freiberg for Resource Technology, Germany), M. Stelter (Technische Universität Bergakademie Freiberg, Germany), A.V. Delgado (CIRCE, Spain), M. Hultgren, M. Peltomäki and A. Roine (Outotec Research Centre, Finland)

- 12.10 **Hydrometallurgical recovery of lead from a TSL processed zinc plant residue**
R.R. Srivastava (TAE-HYUNG Recycling, Korea), J.-c. Lee (Korea Institute of Geosciences and Mineral Resources, Korea), T.T. Nguyen and J. Kang (Young Poong Sukpo Zinc Refinery, Korea)
- 12.30 **Aluminium and REEs recovery from coal fly ash for sustainable South African alumina and REEs resource**
F.J. Doucet (Council for Geoscience, South Africa) and E.M. van der Merwe (University of Pretoria, South Africa)
- 12.50 Lunch
- 14.00 *Technical Session 4*
Chairmen: TBA
- 14.00 **Fabricated soils from South African desulfurized coal processing waste**
J.R.A. Filho, J.L. Broadhurst, S.T.L. Harrison (University of Cape Town, South Africa) and B.A. Firpo (Federal University of Rio Grande do Sul, Brazil)
- 14.20 **Desulphurization of aged mine tailings containing gold**
A. Skandrani, I. Demers and M. Kongolo (Université du Québec en Abitibi-Témiscamingue, Canada)
- 14.40 **Strength and microstructure of hydrating cemented tailings backfill in sub-zero curing conditions**
M. Fall, S. Chang, F.S. Han and S. Haruna (University of Ottawa, Canada)
- 15.00 **Bi-level depth assessment of an abandoned tailings dam aiming its reprocessing for recovery of valuable metals**
M.C. Vila, J. Góis, J. Figueiredo, A. Futuro, D. Martins, M.L. Dinis and A. Fiúza (University of Porto, Portugal)
- 15.20 Coffee
- 16.00 **Uranium removal and recovery from synthetic mine wastewaters by sorption-desorption using waste digested activated sludge as sorbent**
R. Jain (Tampere University of Technology, Finland, and Helmholtz Institute Freiberg for Resource Technology, Germany), S. Peräniemi (University of Eastern Finland, Finland), N. Jordan, S. Weiss, H. Foerstendorf (Rossendorf, Institute of Resource Ecology, Germany), M. Vogel (Helmholtz Institute Freiberg for Resource Technology, Germany, and Rossendorf, Institute of Resource Ecology, Germany) and A.-M. Lakaniemi Tampere University of Technology, Finland)
- 16.20 **Modelling and simulation of mechanical separation processes using dynamic binning and neural networks**
J. Hannula, G. van den Boogaart, M. Reuter (Helmholtz Institute Freiberg for Resource Technology, Germany), S. Luukkanen (University of Oulu, Finland) and Antti Roine (Outotec Oyj, Finland)
- 16.40 Conference summary
M.A. Reuter (Helmholtz Institute Freiberg for Resource Technology, Germany)
- 16.55 Invitation to Sustainable Minerals '20
A.J. Wills (MEI, UK)
- 17.00 Farewell wine function
Accompanying guests welcome

POSTERS

Recovery of copper through bioleaching from copper slags in Kazakhstan

S. Kutschke, R. Möckel, S. Dirllich and K. Pollmann (Helmholtz Institute Freiberg for Resource Technology, Germany)

Use of fly ash as alternative mineral filler for rubber applications

E.M. van der Merwe, D. Moyo (University of Pretoria, South Africa), F.J. Doucet (Council for Geoscience, South Africa), C.D. Woolard (University of Cape Town, South Africa), S.P. Hlangothi (Nelson Mandela University, South Africa), K. Reynolds-Clausen (Eskom Holdings SOC Ltd, South Africa) and R.A. Kruger (Richonne Consulting, South Africa)

Removal of boron from mining wastewaters by electrocoagulation method: modelling of experimental results using artificial neural network

T. Ribeiro, M. Torem, A. Merma, B. dos Santos and C. Grossi (PUC-Rio, Brazil)

Screening metabolites of halophilic bacteria for their potential as pyrite bio-depressants in Cu-Mo bioflotation

G.L. Consuegra, S. Kutschke, Katrin Pollmann (Helmholtz-Zentrum-Dresden-Rossendorf, Germany) and M. Rudolph (Helmholtz Institute Freiberg for Resource Technology, Germany)

Optimizing production of yellow pigment by selective precipitation from AMD

M.P. Secco, R.T. Lermen, R.A. Silva (IMED, Brazil) and I.A.H. Schneider (UFRGS, Brazil)

Phase transformation of chalcopyrite (CuFeS₂) to copper oxide (CuO) for selective leaching of copper

P.K. Choubey, J.-c. Lee, M.-s. Kim and H.-S. Kim (Korea University of Science and Technology, and Korea Institute of Geoscience and Mineral Resources, Korea)

Selenium behaviour in lead pyrometallurgical processes

R.F. van Schalkwyk, M.A. Reuter (Helmholtz Institute Freiberg for Resource Technology, Germany) and M. Stelter (TU Bergakademie Freiberg, Germany)

Multi-criteria optimisation of the circular economy

N. Bartie, M. Fröhling and M. Reuter (Helmholtz Institute Freiberg for Resource Technology, Germany)

Developing a matrix of key characteristics for the re-purposing of coal processing wastes

R. Hove, A. Moyo, J. Amaral, S.T.L Harrison and J. Broadhurst (University of Cape Town, South Africa)

Optimising resource endowments to produce sustainable development under differing political conditions

R. Harvey (South African Institute of International Affairs, South Africa)

Reutilization of residue of washery coking coal in synthetic fuel production

A.K. Shrivastava, Shubhaaksharam Educational Consultants Private Ltd, India