

## Sustainable Minerals '16



Media Partners:



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### Wednesday June 22nd

16.30-18.00 Registration, wine and cheese reception. Accompanying partners welcome

### Thursday June 23rd

- 08.00 Registration opens. Coffee and light breakfast
- 08.50 Welcoming Remarks  
B.A. Wills (MEI, UK)
- 09.10 *Technical Session 1*  
Chairmen: I. Demers (Université du Québec en Abitibi-Témiscamingue, Canada) and C. Brough (Petrolab Limited, UK)
- 09.10 **Keynote Lecture: The mine of the future – even more sustainable**  
R.J. Batterham, University of Melbourne, Australia
- 09.40 **Applications of hyperspectral mineralogy for geoenvironmental characterisation**  
N. Fox, J. Moltzen, A. Parbhakar-Fox and L. Jackson (University of Tasmania, Australia)
- 10.00 **Automated environmental mineralogy; the use of liberation analysis in humidity cell testwork**  
C. Brough, J. Strongman, J. Fletcher (Petrolab Limited, UK), R. Bowell, R. Warrender (SRK Consulting, UK) and A. Barnes (Geochemic Ltd, UK)
- 10.20 Coffee
- 11.00 **Evaluating resource efficiency at major copper mines**  
S. Spuerk, M. Drobe and B.G. Lottermoser (RWTH Aachen University, Germany)
- 11.20 **Sustainable extraction of raw materials**  
T. Henckens, P. Driessen and E. Worrell (Utrecht University, The Netherlands)
- 11.40 **Sustainable practices in the management of mining waste: a focus on prevention**  
E. Lebre, G. Corder and A. Golev (Sustainable Minerals Institute- University of Queensland, Australia)
- 12.00 **An environmental performance assessment of froth flotation for coal recovery and sulfur removal from fine coal waste**  
B.M. Fundikwa, S.T.L. Harrison and J.L. Broadhurst (University of Cape Town, South Africa)
- 12.20 **Assessing the potential risks with elemental deportment from gold waste rock**  
A.K.B. Opitz, S.T.L. Harrison, J.L. Broadhurst and M. Becker (University of Cape Town, South Africa)

- 12.40 **Recycling indices for a circular economy**  
A. van Schaik (MARAS, The Netherlands) and M.A. Reuter (Helmholtz Institute for Resource Technology, Germany)
- 13.00 Lunch
- 14.00 *Technical Session 2*  
Chairmen: Y. Shen (University of New South Wales, Australia)
- 14.00 **Opportunities for soil-related applications of fine coal processing wastes in South Africa**  
H.-M. Stander, J.L. Broadhurst, S.T.L Harrison (University of Cape Town), J.R. Amaral Filho and B.A. Firpo (Federal University of Rio Grande do Sul, Brazil)
- 14.20 **Comparing the environmental performance of rare earth deposits using GaBi software to perform a cradle-to-gate Life Cycle Assessment**  
R. Pell and F. Wall (University of Exeter, UK)
- 14.40 **Sustainability contributions of minerals and mining – a focus on the Sustainable Development Goals**  
B.C. McLellan (Kyoto University, Japan)
- 15.00 **Membrane use to recover metals and reuse wastewater**  
S.P. Chesters, M.W. Armstrong, J. Hamp (Genesys International Ltd, UK) and F. del Vigo (Genesys Membrane Products, Spain)
- 15.20 **Recovery of metals from spent lithium ion batteries using electrochemically produced acidic anolyte**  
N.J. Boxall, K.Y. Cheng, C. Morris, A.H. Kaksonen (CSIRO Land and Water, Australia), N. Haque and W. Bruckard (CSIRO Mineral Resources, Australia)
- 15.40 **Valorisation of acid mine drainage treatment sludge by combination with a natural soil as an oxygen barrier cover for mine waste reclamation**  
I. Demers, M. Mbonimpa, M. Benzaazoua, M. Bouda, S. Awoh, S. Lortie and M. Gagnon (Université du Québec en Abitibi-Témiscamingue, Canada)
- 16.00 Coffee
- 17.00 Optional Guided Coast Path Walk, ending with a beer at the Chain Locker Pub, Old Falmouth. Accompanying partners welcome

### Friday June 24<sup>th</sup>

- 08.15 Coffee and light breakfast
- 08.50 *Technical Session 3*  
Chairmen: C. Young (Montana Tech, USA) and M. Benzaazoua (Université du Québec en Abitibi-Témiscamingue, Canada)
- 08.50 **Keynote Lecture: Best practice in efficient mineral processing – comminution energy curves**  
M. Battersby (Maelgwyn Mineral Services Ltd, UK)
- 09.20 **Quantifying metal values in e-waste in Australia**  
A. Golev, D.S. Lopez and G. Corder (Sustainable Minerals Institute, University of Queensland, Australia)

- 09.40 **Metal speciation of historic and new copper mine tailings from Repparfjorden, Northern Norway, before and after acid, base and electrolytic extraction**  
K.B. Pedersen, A. Evenset, M. Frantzen (Akvaplan-niva AS, Norway), P.E. Jensen and L.M. Ottosen (Technical University of Denmark, Denmark)
- 10.00 **Kinetic principles based geochemical evaluation of acid mine drainage: a case study in Artvin, Turkey**  
G. Kalyoncu Erguler (MTA, Turkey), Z.A. Erguler, H. Akcakoca and A. Ucar (Dumlupinar University, Turkey)
- 10.20 Coffee
- 11.00 **Reducing the self-heating of sulphides by chemical treatments**  
F. Rosenblum, S. Moon, J.A. Finch, K.E. Waters (McGill University, Canada) and J.E. Nasset, Nassetech Consulting Services Inc, Canada)
- 11.20 **Comparative study on the effect of fragmentation type on components liberation during recycling of printed wiring boards**  
R. Martino, S. Gaydardzhiev (University of Liege, Belgium), C. Iseli, M. Streicher-Porte (University of Applied Sciences and Arts, Switzerland) and A. Weh (Selfrag AG, Switzerland)
- 11.40 **An example for sustainable technology diffusion in mining: achieving belt conveyor systems in the German hard-rock quarrying industry**  
T. Braun, A. Hennig and B.G. Lottermoser (RWTH Aachen University, Germany)
- 12.00 **Carbothermal reduction of copper smelter slags for recycling into pig iron and glass**  
P. Sarfo, G. Wyss, A. Das, C. Young (Montana Tech, USA) and G. Ma (Wuhan University of Science & Technology, China)
- 12.20 **Integrated management of pyrrhotite tailings at Raglan mine: Part 1: challenges of desulphurization process and reactivity prediction**  
M. Benzaazoua, M., Bouzahzah, F. Lessard, B. Bussière, I. Demers, M. Kongolo (Université du Québec en Abitibi-Témiscamingue, Canada) and L. Kormos (XPS Consulting & Testwork Services, Canada)
- 12.40 Lunch
- 14.00 *Technical Session 4*  
Chairmen: M.A. Reuter (Helmholtz Institute for Resource Technology, Germany)
- 14.00 **Recycling of mine wastes in clay bricks: scientific, technical and environmental approach**  
Y. Taha, M. Benzaazoua (Université du Québec en Abitibi-Témiscamingue, Canada), R. Hakkou and M. Mansori (Université Cadi Ayyad, Morocco)
- 14.20 **The use of the emulsion liquid membrane technique to remove copper ions from aqueous systems**  
H. Ma, O. Kökkılıç and K.E Waters (McGill University, Canada)
- 14.40 **Biosorption equilibrium and kinetic modelling of Fe (II) on immobilised *Desmodesmus sp.***  
P.P. Diale (University of the Witwatersrand, South Africa), T.S. Matambo, D. Hildebrandt and D. Glasser (University of South Africa, South Africa)
- 15.00 **Analysis of microbial communities involved in biological sulphate reduction for ARD bioremediation**  
R.J. Huddy and S.T.L. Harrison (University of Cape Town, South Africa)
- 15.20 **A bio-assisted process for the ferric leaching of electronic waste**  
E. Govender-Opitz, B. Pieters, F. Zimmermann, M. Gituma, A. Kotsiopoulos and S.T.L. Harrison (University of Cape Town, South Africa)
- 15.40 Conference Summary  
M.A. Reuter (Helmholtz Institute for Resource Technology, Germany)

16.00 Closing Remarks and invitation to Sustainable Minerals '18  
A.J. Wills (MEI, UK)

16.10 Cornish cream tea

## **POSTERS**

### **Integrated management of pyrrhotite tailings at the Raglan mine: Part 2: assessment of desulphurized tailings as cover materials to control AMD**

F. Lessard, B. Bussière, M. Benzaazoua (Université du Québec en Abitibi-Témiscamingue, Canada), J. Côté (Université Laval, Canada) and L. Marcoux (Glencore, Canada)

### **Leaching behavior of heavy metals from fired bricks containing different mine wastes**

Y. Taha, M. Benzaazoua (Université du Québec en Abitibi-Témiscamingue, Canada), R. Hakkou and M. Mansori (Université Cadi Ayyad, Morocco)

### **Environment issues on industrial processing of raw agate**

F. Vilasbôas, C.R. Santos, I.A.H. Schneider (Universidade Federal do Rio Grande do Sul, Brazil), J.C.S.P. Menezes (Universidade do Oeste de Santa Catarina, Brazil) and R.A. Silva (IMED, Brazil)

### **Experimental and numerical modelling of solid particle erosion**

C.Y. Wong, J. Wu, L. Graham, G. Short, J. Boulanger and C. Solnordal (CSIRO, Australia)

### **A pre-concentration application for high voltage selective fragmentation**

D. Parvaz, A. Mosaddeghi and A. Weh (SELFRAG AG, Switzerland)

### **Model study of the combustion of biomass in an ironmaking blast furnace**

Y. Shen, A. Yu (Monash University, Australia), T. Shiozawa (University of New South Wales, Australia) and P. Austin (BlueScope, Australia)

### **Evaluating environmental risks of historic slag: upgrading value through microanalytical characterisation**

A. Parbhakar-Fox, N. Fox (University of Tasmania, Australia) and B. Lottermoser (RWTH Aachen University, Germany)

### **Including mineralogical attributes and sustainability indicators into a modelling framework of a magnetic separator**

E. Charikinya, J. Robertson, A. Platts, M. Becker, D. Bradshaw (University of Cape Town, South Africa) and P. Lamberg (Luleå Technical University, Sweden)

### **Breakage characteristics of incinerator bottom ash in the HV pulse power process**

A. Weh and A. Mosaddeghi (SELFRAG AG, Switzerland)

### **Investigating various ammonium salts as lixiviants in the extraction of calcium from iron making slag**

I.C. Kohitlhetse, M.S. Manono and C.K. Thubakgale (Vaal University of Technology, South Africa)

### **Evaluating the recovery of Cu from a copper converter slag using froth flotation**

M.S. Manono, C.K. Thubakgale, D. Selowa (Vaal University of Technology, South Africa) and M.M. Ramakokovhu (Tshwane University of Technology, South Africa)

### **Adsorption kinetics of salicyl hydroxamic acid on the oxides of various rare earth elements**

G. Galt, A. Das, R. James and C. Young (Montana Tech, USA)

### **ST Equipment & technology; opportunities in triboelectrostatic separation**

L. Baker (ST Equipment & Technology LLC, USA)