

## Biohydrometallurgy '18

Outotec

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[#Biohydromet18](#)

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

### Monday June 11<sup>th</sup>

17.00-18.30 Registration and wine reception, with canapés (accompanying persons welcome)

### Tuesday June 12<sup>th</sup>

08.00 Registration desk opens. Coffee and light breakfast

08.45 Opening remarks  
B.A. Wills (MEL, UK)

09.00 *Technical Sessions 1*  
Chairmen: TBA

09.00 **Keynote Lecture: Towards sustainable development of mineral resources – the role of biohydrometallurgy**  
S.T.L. Harrison (University of Cape Town, South Africa)

09.30 **Keynote Lecture: Innovative biotechnological processes in a production development of Olimpiadinskoye Deposit**  
A.V. Belyi and D.V. Chernov (Polyus Krasnoyarsk, Russia)

10.00 **Development of integrated bioleaching processes for the treatment of low-grade complex ores**  
M. Gericke and P. van Staden (Mintek, South Africa)

10.20 Coffee and poster viewing

11.10 **Review on bioleaching of chalcopyrite: an emphasis on the dissolution and passivation mechanism**  
Hongbo Zhao, Yisheng Zhang, Yanjun Zhang, Jun Wang, Wenqing Qin and Guanzhou Qiu (Central South University and Lab of Biohydrometallurgy of Ministry of Education, China)

11.30 **Effect of adding surfactant in the leaching solution on the bacterial ferrous iron oxidation and chalcopyrite bioleaching**  
M. Ghadiri, S.T.L. Harrison and M.A. Fagan-Endres (University of Cape Town, South Africa)

11.50 **Sphalerite bioleaching comparison in shake flasks and percolators**  
A. Schippers, C. Tanne, J. Stummeyer and T. Graupner (Federal Institute for Geosciences and Natural Resources, Germany)

12.10 **Hybrid tank bioleaching of polymetallic sulfide concentrates**  
C.G. Bryan, R. Bransgrove (Camborne School of Mines, UK) and J.C.O. Andersen (University of Exeter, UK)

12.30 **Influence of CO<sub>2</sub> supplementation on bioleaching kinetics in stirred tank reactor**  
A.-G. Guezennec, C. Jouliau, J. Jacob, F. Bodenan and P. d'Hugues (BRGM, France)

12.50 Lunch

14.00 *Technical Session 2*  
Chairmen: TBA

14.00 **A novel understanding of chalcopyrite and bornite bioleaching mechanism: redox potential, synergistic or catalytic effect and electrochemical dissolution**  
Jun Wang, Hongbo Zhao, Yansheng Zhang, Weimin Zeng, Jianping Xie, Huanqun Yin, Hongbo Zhou, Xinxing Liu, Guohua Gu, Xueduan Liu, Wenqing Qin and Guanzhou Qiu (Key Lab of Biohydrometallurgy of Ministry of Education, and Central South University, China)

14.20 **Effect of sodium chloride on bioleaching of sulfidic ores by mesophilic acidophilic iron-oxidizing bacteria and moderately thermophilic iron/sulfur-oxidizing bacteria**  
D. Huynh, M. Kaszuba, S. Kaschabek, W. Sand and M. Schlömann (TU Bergakademie Freiberg, Germany)

- 14.40 **Approaches to modelling and simulation of heap leaching and lessons for future development of modelling tools**  
M.P. Schwarz and M. Leahy (CSIRO Mineral Resources, Australia)
- 15.00 **New approaches for bioleaching of nickel laterite ore**  
E.C. Giese, H.L. Carpen, L.C. Bertolino and C.L. Schneider (CETEM, Brazil)
- 15.20 Coffee
- 16.00 **Fine grinding and mesophile bioleaching of a Ni/Cu polymetallic concentrate: an integrated approach**  
J.R. Carr, D.E. Coulton, N.J.G. Wilshaw (Grinding Solutions Ltd, UK), D.W. Dew (Dewality Consultants Ltd, Truro), and C.G. Bryan (Camborne School of Mines, UK)
- 16.20 **Decreasing sulphate content from calcrite uranium ore using sulphate reducing bacteria**  
F.D.L. Uahengo and D. Groot (Namibian University of Science and Technology, Namibia)
- 16.40 **Bioprocessing options for platinum group element (PGE) ores**  
S. Hedrich, A. Schippers (Federal Institute for Geosciences and Natural Resources, Germany), M. Smart, S. Biswas, E. Ngoma and S.T.L. Harrison (University of Cape Town, South Africa)
- 17.00-18.00 Sundowner in hotel gardens  
Accompanying guests welcome

### Wednesday June 13th

- 07.45 Registration desk opens. Coffee and light breakfast
- 08.20 Technical Session 3  
*Chairmen: TBA*
- 08.20 **Biooxidation of a low-grade gold ore at elevated pressures**  
S. Ahoranta, A.-M. Lakaniemi, J.A. Puhakka (Tampere University of Technology, Finland) and Gang Zou (Zijin Mining Group Co. Ltd, China)
- 08.40 **Bioleaching of REE from bauxites**  
M. Barnett, B. Palumbo-Roe, E. Deady and S. Gregory (British Geological Survey, UK)
- 09.00 **New biodegradable leaching agents for recovery of rare earth elements (REE) from ion adsorption clay deposit (IAC) in north west Madagascar**  
S. Kutschke, R. Möckel, S. Bachman and K. Pollmann (Helmholtz Institute Freiberg for Resource Technology, Germany)
- 09.20 **Archaeal dominated BIOX<sup>®</sup> cultures show increased flexibility to operational changes**  
M. Smart, C.J. Edward, S.T.L. Harrison (University of Cape Town, South Africa), C. Fourie, T. Shumba and J. Iron (Barberton Mines, South Africa)
- 09.40 **Heavy metal binding peptides – biosorbents with economic and ecological potential**  
R. Braun, S. Matys, R. Jain, K. Pollmann (Helmholtz Institute Freiberg for Resource Technology, Germany) and N. Schoenberger (TU Bergakademie Freiberg, Germany)
- 10.00 **Biosorption of indium(III) from aqueous solutions by microalgal biomass: study of various process parameters**  
N.R. Nicomel, L. Otero-Gonzalez, T. Hennebel, G. Du Laing (Ghent University, Belgium), L. Arashiro, M. Garfi and I. Ferrer (Universitat Politècnica de Catalunya-BarcelonaTech, Spain)
- 10.20 Coffee
- 11.00 **The fate and impact of contaminants in a biological iron oxidation and jarosite precipitation process operated at room temperature**  
A.H. Kaksonen, C. Morris, J. Wylie, K. Usher (CSIRO Land and Water, Australia), J. Li (CSIRO Mineral Resources, Australia), F. Hilario (Vale, Brazil) and C. du Plessis (Lhoist Business Innovation Centre, Belgium)
- 11.20 **Bioleaching for tailings valorization**  
P. Kinnunen, J. Mäkinen, M. Salo, E. Yli-Rantala and M. Bomberg (VTT Technical Research Centre of Finland, Finland)
- 11.40 **Cadmium and arsenic removal from Panasqueira mine tailings by a microbial consortium**  
M.C. Vila, D. Madureira, O. Nunes, R. Lopes, S. Santos, A. Futuro, M.L. Dinis and A. Fiúza (University of Porto, Portugal)
- 12.00 **Beyond biorecovery: environmental win-win by biorefining of metallic wastes into new functional materials**  
A.J. Murray, I. Mikheenko, S.A. Archer and L.E. Macaskie (University of Birmingham, UK)
- 12.20 **A means to an end: Applying heap leach protocols to the biodesulfurisation of mine wastes**  
O. Tambwe, A. Kotsiopoulos and S.T.L. Harrison (University of Cape Town, South Africa)

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- 12.40 **Extraction of nickel, cobalt and zinc from sulphide flotation tailings by sulphur and iron oxidizing bacteria**  
P. Altinkaya, E. Kolehmainen, M. Haapalainen (Outotec Research Center, Finland), J. Mäkinen, P. Kinnunen (VTT, Finland) and M. Lundström (Aalto University, Finland)
- 13.00 Lunch
- 14.00 *Technical Session 4*  
Chairmen: TBA
- 14.00 **Enhancement of gold recovery from a South African gold tailings through bio-oxidation using iron-sulfur oxidizing bacterial strains**  
L.B. Mukumbi, S.K. Behera and S. Ndlovu (University of the Witwatersrand, South Africa)
- 14.20 **Non-steady state mathematical modeling and simulation of free cyanide biological removal and biofilm growth during a batch culture using a rotating biological contactor**  
B.S. Burneo, A.A.S. Juárez, and D.A.N. Monteros (Tecnica Particular de Loja University, Ecuador)
- 14.40 **Establishing the flow through biokinetic system as a viable test for the characterisation of sulfidic waste rock mineral for ARD potential**  
D.X. Makaula, R.J. Huddy, M.A. Fagan-Endres and S.T.L. Harrison (University of Cape Town, South Africa)
- 15.00 **Effects of operational parameters on the bio-assisted leaching of metals from pyrolyzed printed circuit boards**  
M.A. Arinanda, F. Lambert, S. Gaydardzhiev (University of Liege, Belgium), Q. Van Haute and P.-F. Bareel (Comet Traitements S.A., Belgium)
- 15.20 Coffee
- 16.00 **Determination of ferrous oxidation kinetics in the presence of metals associated with printed circuit boards to determine the potential for bioleaching of eWaste**  
C.J. Edward, T. Pather, R. Govender, E. Ngoma, E. Govender-Opitz, A. Kotsiopoulos and S.T.L. Harrison (University of Cape Town, South Africa)
- 16.20 **Double-stage continuous bioreactor for the bioleaching of printed circuit boards to recover metals with acidophilic microorganisms**  
A. Hubau, M. Minier (IRCP, France), A. Chagnes (Georessources, France) and A.G. Guezennec (BRGM, France)
- 16.40 Conference summary  
C.G. Bryan (Camborne School of Mines, University of Exeter, UK)
- 16.55 Invitation to Biohydrometallurgy '20  
A.J. Wills (MEI, UK)
- 18.15 Coaches leave for Xwama Cultural Village for informal conference dinner for Biohydromet '18 and Sustainable Minerals '18 delegates

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## POSTERS

- Evaluation of the rotational speed and carbon source on the biological removal of free cyanide present on gold mine wastewater, using a rotating biological contactor**  
M.P.G. Guadalima and D.A.N. Monteros (Tecnica Particular de Loja University, Ecuador)
- Optimization of hematite and quartz bioflotation by an artificial neural network**  
A.G. Merma, M.L. Torem and B.F. dos Santos (Pontifical Catholic University of Rio de Janeiro, Brazil)
- Ferric iron reduction coupled to sulfur oxidation at elevated pressure by acidophilic microorganisms**  
R. Zhang and A. Schippers (Federal Institute for Geosciences and Natural Resources, Germany)
- Performance of a sulfidogenic bioreactor inoculated with indigenous communities for treating acidic mine water**  
S. Hedrich (Federal Institute for Geosciences and Natural Resources, Germany), P.A. Galleguillos (CICITEM, Chile), D. González, C. Colipai and I. Nancucheo (Universidad San Sebastián, Chile)
- Investigation of adsorption behaviour on nickel lateritic ores from Queensland, Australia**  
U. Ni'mah and M. Valix (University of Sydney, Australia)
- Microbial consortia with biodegradation and metals bioleaching potential from Estonian graptolite argillite**  
A. Menert, T. Korb, M. Kivisaar (University of Tartu, Estonia) and S.S. Kulli (BiotaTec Ltd, Estonia)

**Complexation of gallium and indium by desferrioxamine in competitive environment**

R. Jain and K. Pollmann (Helmholtz Institute Freiberg for Resource Technology, Germany)

**Cooperative bioleaching of marmatite and chalcocite in the presence of *Acidithiobacillus ferrooxidans***

Yisheng Zhang, Hongbo Zhao, Yanjun Zhang, Jun Wang, Wenqing Qin and Guanzhou Qiu (Key Lab of Biohydrometallurgy of Ministry of Education, and Central South University, China)

**Quantitative and qualitative analysis of the detachment of mineral associated microorganisms from particulate mineral coated onto glass beads for flow-through leaching tests**

D.X. Makaula, R.J. Huddy, M. A. Fagan-Endres and S.T.L. Harrison (University of Cape Town, South Africa)

**Flotation of hematite using a crude biosurfactant and mathematical modelling of its electrophoretic behaviour**

J.G.S. Puelles, C.A.C. Olivera, A.G. Merma and M.L. Torem (Pontifical Catholic University of Rio de Janeiro, Brazil)

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

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

**Production of amphiphilic siderophores for bioflotation process**

S. Schrader, S. Kutschke, M. Rudolph and K. Pollmann (Helmholtz Institute Freiberg for Resource Technology, Germany)

**CEReS- co-processing of coal mine and electronic wastes: novel resources for a sustainable future**

C.G. Bryan, V. Fonti, S. Setiawati (Camborne School of Mines, UK), J. Calus-Moszeko (Central Mining Institute, Poland), Q. van Haute (Comet Traitements SA, Belgium), A.-G. Guezennec (BRGM, France), S. Gaydardzhiev (University of Liège, Belgium), P. Wavrer (CASPEO, France) and R. Frączek (TAURON Wydobycie SA, Poland)

**Analysis of sulfidic coal production wastes using biokinetic tests combined with QEMSCAN**

R. Bransgrove, G.R. Rollinson, B.J. Williamson and C.G. Bryan (Camborne School of Mines, UK)

**Cross bioleaching of low grade copper ores: a well explanation for the interaction between microorganisms and minerals**

Shuang Zhou (Changsha Medical University, China), Xingjie Wang (Wuhan University of Science and Technology, China), Liyuan Ma (China University of Geosciences, China) and Xueduan Liu (Central South University, China)

**Reaction between ferric and fluoride ions and its applied implications for the bioleaching of fluoride containing ore**

Xingjie Wang (Wuhan University of Science & Technology, China), Liyuan Ma (China University of Geosciences, China), Xueduan Liu, Guanzhou Qiu and Wenqing Qin (Central South University, China)

**Synergistic effect between sulfide mineral and *Acidithiobacillus ferrooxidans* promoted Cr(VI) reduction and coprecipitation**

Jianyu Zhu, Baojun Yang, Jiayu Li, Min Gan, Xinxing Liu, Guanzhou Qiu, Zhihe Zheng (Central South University, China) and Shengjie Sun (University of Queensland, Australia)

**A biokinetic study on BIOX® iron-oxidizing isolates, *L. ferriphilum* and *Ac. cupricumulans*, as a function of pH and temperature**

L. Maritz and S.T.L. Harrison (University of Cape Town, South Africa)

**Bio-catalytic upgrading of heavy and pyrolysis oils: optioneering of fossil, biorefined, and renewable resources**

S.A. Archer, J. Wood, L.E. Macaskie (University of Birmingham, UK) and B.K. Sharma (University of Illinois, USA)

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