Tuesday 9th June

16.00-17.15  Registration Desk Open
17.30-19.30  Welcome function
             Accompanying guests welcome

Wednesday 10th June

08.00  Registration desk opens. Tea, coffee and fruit juice
09.00  Welcome to Cornwall
        J. Wills (MEI, UK)
09.15  Technical Session 1
        Chairmen: TBA
09.15  Keynote Lecture: Mining and complexity: a new look at old concepts
        A. Littleboy (Sustainable Minerals Institute, University of Queensland, Australia)
09.45  Technology and data-driven approach for sustainability in mineral extraction – A conceptual framework
        F.S. Desta and M.W.N. Buxton (Delft University of Technology, The Netherlands)
10.00  Analysing environmental management and stakeholders in the mining industry using Game Theory
        B.C Collins and M. Kumral (McGill University, Canada)
10.15  Mining, sorting and the circular economy
        D. Schwaab, I. Hartwig and M. Robben (TOMRA Sorting Gmbh, Germany)
10.30  The MIREU Project: Overview and work in Cornwall
        R. Halkes, F. Wall, A. Sweeney (Camborne School of Mines, UK), A. Mitchell (Camborne School of Mines and Wardell Armstrong International, UK) and A. Allen (Wardell Armstrong International, UK)
10.45  Coffee and poster viewing
11.30  Keynote Lecture: Process simulation for improving life cycle assessment in the minerals industry
        L.M. Tavares and J.S. Segura (Universidade Federal do Rio de Janeiro, Brazil)
12.00  Life cycle assessment as a design tool to recover value from gold mine tailings: a Witwatersrand, South Africa case study
        K. Cairncross and M. Tadie (Stellenbosch University, South Africa)
12.15  **Linking CAD models to process simulation for product recyclability estimation**  
M. Heibeck (Helmholtz Institute Freiberg for Resource Technology, Germany), A. Filippatos, N. Modler (Technische Universität Dresden, Germany) and M. Reuter (Helmholtz Institute Freiberg, and Technische Universität Bergakademie Freiberg, Germany)

12.30  **Selective recycling of gold from printed circuit boards residues**  
I.F.F. Neto and H.M.V.M. Soares (University of Porto, Portugal)

12.45  Lunch

14.00  Technical Session 2  
*Chairmen: TBA*

14.00  **Towards sustainable mineral processing: microwave pretreatment of ores**  
E.R. Bobicki, D. Boucher, J. Forster (University of Toronto, Canada), C. Pickles and A. Olmsted (Queen’s University, Canada)

14.15  **Breakage characteristics of incinerator bottom ash in the HV pulse power process**  
A. Weh, A. Mosaddeghi (SELRAG AG, Switzerland) and D. Parvaz (Lightning Machines Ltd, UK)

14.30  **Energy efficiency improvement in tumbling mills by replacement of standard grinding media with Relo (Reuleaux tetrahedron-shaped) grinding media**  
P. Bodurov, V. Genchev, N. Kolev (Relo-B Ltd, Bulgaria) and B. Simpson (Wardell Armstrong International Ltd, UK)

14.45  **Effect of additives on the efficient use of energy in dry grinding of magnetite**  
V. Chipakwe, T. Karlkvist, J. Rosenkranz and S.C. Chelgani (Luleå University of Technology, Sweden)

15.00  **Recovery of fine metal fractions from lithium-ion battery waste using froth flotation**  
T. Rinne and R. Serna-Guerrero (Aalto University, Finland)

15.15  **Predicting the fate of diethylenetriamine in the management of pyrrhotite tailings**  
X. Tian, E. Furnell and E.R. Bobicki (University of Toronto, Canada)

15.30  **The performance and biomass retention of a biological sulphate reducing, lactate-supplemented, up-flow anaerobic packed bed reactor**  
T. Hessler, S.T.L. Harrison and R.J. Huddy (University of Cape Town, South Africa)

15.45  **Metal recovery process for multi-metal pregnant leachate solution from bioleaching**  
J. Mäkinen, G. Pietek, V. Miettinen (VTT Technical Research Centre of Finland Ltd, Finland)

16.00  Coffee

17.30  Meet on seafront outside Falmouth Hotel for optional guided coastal walk, ending at Chain Locker pub by the inner harbour (accompanying guests welcome)

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**Thursday 11th June**

08.15  Registration desk opens. Tea, coffee and fruit juice

09.00  **Technical Session 3**  
*Chairmen: I. Demers (UQAT, Canada)*

09.00  **Keynote Lecture: ‘The war on waste’ How could the mining industry respond?**  
A. Parbhakar-Fox (Sustainable Minerals Institute, University of Queensland, Australia)

09.30  **The driving factors for handling mine waste**  
C. Olsen (FLSmidth, USA) and R.D. Croce (FLSmidth, Brazil)

09.45  **Bioremediation of thioctanate-contaminated gold mine process water**  
R. Huddy, F. Kadztinga, S.T. Harrison (University of Cape Town, South Africa) and J. Banfield (University of California-Berkeley, USA, and University of Melbourne, Australia)
10.00 Native herbaceous plant species on tailings storage facilities on the Zambian Copperbelt how phytomining potential
Lee Mudenda S.T.L. Harrison (University of Cape Town, South Africa) and S. Syampungani (Copperbelt University, Zambia)

10.15 Phytoremediation of chromium(VI) in wastewater using Chrysopogon zizanioides (vetiver grass)
F.F. Masinire, D.O. Adenuga, S.M. Tichapondwa and E.M.N. Chirwa (University of Pretoria, South Africa)

10.30 Coffee

11.15 Evaluating microbial effects on quality and productivity of Fabricated Soils (FabSoils) produced with ultrafine coal waste and malt residue
J. Weiler (Universidade Federal do Rio Grande do Sul, Brazil), J.R. Amaral Filho, M. Smart and S.T.L. Harrison (University of Cape Town, South Africa)

11.30 Application of field-portable XRF (pXRF) to evaluate the reprocessing potential of pegmatite tailings for rare metals
S. Lohmeier and B.G. Lottermoser (RWTH Aachen University, Germany)

11.45 Thermodynamic database development to calculate rare earth element recovery in waste material: current progress
A.J. Gerbino, P. Wang and J. Lu (OLI Systems, Inc., USA)

12.00 Opportunities and challenges in co-disposing mine wastes to prevent acid rock drainage
A. Kotsiopoulos, D. Mjonono and S.T.L. Harrison (University of Cape Town, South Africa)

12.15 Estimation of acid mine drainage potential of sulphide tailings based on mineralogical characterisation data
C. Mafra, H. Bouzahzah, Stoyan Gaydardzhiev (University of Liege, Belgium) and L. Stamenov (Dundee Precious Metals, Bulgaria)

12.30 Heavy metal recovery from acid mine drainage by sorption/desorption approach
R. Barthen, A.-M. Lakaniemi (Tampere University, Finland), M.L.K. Sulonen (University of Surrey, UK), R. Jain (Helmholtz Institute Freiberg for Resource Technology, Germany) and S. Peräniemi (University of Eastern Finland, Finland)

12.45 Lunch

14.00 Technical Session 4
Chairmen: TBA

14.00 Spent mushroom compost as an agent for successive alkalinity- and acidity-producing systems for treatment of hydrometallurgical leachates
M. Dabrowska, P. Stasiuk and L. Drewniak (University of Warsaw, Poland)

14.15 Studies on a continuous pelletisation-flocculation process of iron-hydroxide-containing water in a Taylor-Couette reactor
F. Logsch, C. Glaser, H. Hintze, C. Fernandez-Rojas (Brandenburg University of Technology, Germany), M. Leiker and R. Heiduschke (P.U.S. Produktions- und Umwelt Service GmbH, Germany)

14.30 Recovery of indium, gallium and germanium from industrial wastes
M. Reiber, R. Hofmann, R. Vostal, C. Thölke and M. Bertau (Freiberg University of Mining and Technology, Germany)

14.45 Recovery and extraction of precious metals (Cu, In and Ge) from Industrial wastes
P. Dubey, T.R. Sreekrishnan, R. Jain (Indian Institute of Technology, India), K.N. Pollmann and S. Kutschke (Helmholtz Zentrum Dresden, Germany)

15.00 Recovery of Ga, In and Ge from industrial wastewater using immobilized desferrioxamine B
R. Jain (Helmholtz Institute Freiberg for Resource Technology, Germany, and Indian Institute of Technology, India), S. Fan and Katrin Pollmann (Helmholtz Institute Freiberg for Resource Technology, Germany)
15:15 Coffee

16.00 **Graphite: a critical and essential mineral for E-Mobility**  
A. Vanderbruggen and M. Rudolph (Helmholtz-Institute Freiberg for Resource Technology, Germany)

16.15 **Sewage sludge utilisation: the hunt for recoverable phosphate-phases**  
A.C. Guhl, B. Schulz and M. Bertau (Freiberg University of Mining and Technology, Germany)

16.30 **Environmental behavior of desulfurized legacy tailings and iron oxyhydroxide role in contaminant attenuation**  
A. Baatti, I. Demers and M. Kongolo (UQAT, Canada)

16.45 **Geopolymers from secondary raw materials – An economical alternative to classic concrete?**  
M. Kraft, P. Fröhlich and M. Bertau (Freiberg University of Mining and Technology, Germany)

17.00 **Valorization of marly by-product from sedimentary phosphate deposit in the synthesis of geopolymers: effect of calcination temperature on microstructure and mechanical properties**  
S. Mabroum, R. Hakkou (Mohammed VI Polytechnic University, Morocco and Cadi Ayyad University, Morocco), Y. Taha (UMP6, Morocco), M. Benzaazoua (UMP6, Morocco and UQAT, Canada) and N. Semlal (OCP SA Group, Morocco)

17.15 Conference summary and invitation to Sustainable Minerals ‘22  
A.J. Wills (MEI, UK)

17.30 Cornish cream tea  
Accompanying partners welcome

**POSTERS**

**Separation of aluminum and stainless steel scraps using vibrating mixed-size ball bed**  
K. Yoo (Korea Maritime & Ocean University, South Korea)

**Use of field-portable XRF (pXRF) for the rapid screening of gallium in smelting slags, Tsumeb, Namibia**  
B.G. Lottermoser, S. Lohmeier (RWTH Aachen University, Germany) and D. Gallhofer (University of Graz, Austria)

**Switchable biopolymers for clay mitigation in flotation and dewatering operations**  
N. Molaei and E.R. Bobicki (University of Toronto, Canada)

**Repurposing of inactive mine tailings to reduce environmental impacts and maximize value recovery – two preliminary case studies**  
L. Chapou, M. Perrin, M. Jouini, L. Coudert and I. Demers (UQAT, Canada)

**Impact of freeze-thaw and salinity on the leaching potential of flotation tailings from rare earth deposit material**  
S. Costis, J.-F. Blais, K. Mueller, E. Cecchi (INRS-ETE, Canada), L. Coudert and C.M. Neculita (UQAT-RIME, Canada)

**Alkaline leaching of nickel from electric arc dust using monosodium glutamate as lixiviant**  
E. Prasetyo (Indonesian Institute of Sciences, Indonesia)

**Selective chemical leaching of critical metals from zinc process wastes**  
A. Gupta, T.R. Sreekrishnan, Z.A. Shaikh and R. Jain (Indian Institute of Technology, India)

**Immobilization of toxic elements in red mud geopolymers**  
S. Hippmann, M. Kraft and M. Bertau (Freiberg University of Mining and Technology, Germany)

**The effect of water recycling and microbial load on the flotation of a PGM bearing ore**  
M. Smart, V. Wabtagore, K. Corin and S.T.L. Harrison (University of Cape Town, South Africa)
Effect of hydraulic residence time on microbial community dynamics within the hybrid linear flow channel reactor
T. Marais, R. Huddy and S.T.L. Harrison (University of Cape Town, South Africa)

Application of “organic aqua regia” for the artisanal small-scale gold mining process
A. Yoshimura, Y. Matsuno (Chiba University, Japan), O. Fadina and M.M. Veiga (University of British Columbia, Canada)

The role of mining engineering education for a sustainable raw materials use
A. Hutwalker, A. Binder and O. Langefeld (Clausthal University of Technology, Germany)

Two-stage froth flotation for coal recovery and desulfurization: opportunities to coal processing waste valorization
J.R. Amaral Filho, A. Kotsiopoulos, J. Broadhurst and S.T.L. Harrison (University of Cape Town, South Africa)

A simple and fast frother concentration measuring tool for control of flotation process and water reuse
H. Park and L. Wang (University of Queensland, Australia)

Acid rock drainage (ARD) prevention through biohydrometallurgical processing of pyrite from South African coal waste
M. Gcayiya, J.R Amaral Filho, A. Kotsiopoulos, M. Smart and S.T.L Harrison (University of Cape Town, South Africa)

Technologies for mapping of critical metals: applications for exploration, geometallurgy and geoenvironmental characterisation
N. Fox and A. Parbhakar-Fox (University of Queensland, Australia)

Infrared-based monitoring of kaolin calcination to increase resource efficiency
A. Guatame-Garcia and M. Buxton (Delft University of Technology, The Netherlands)

Limestone utilization efficiency in hydrometallurgical processing and acid mine drainage solution reactions
E. Hoummady, H. Lambert and C.A. du Plessis (Lhoist Research & Development, Belgium)

The interdependence of sulphide surfaces and elemental sulphur in promoting self-heating
F. Rosenblum, O. Kokkilic, J.A. Finch and K.E. Waters (McGill University, Canada)

Extraction of rare earth elements from monazite-bearing secondary raw material
L. Brückner, D. Goldmann (Clausthal University of Technology, Germany) and T. Elwert (Qingdao University, China)

Metals recovery from mining effluents by means of microbial electrolysis cells
L.F. Leon-Fernandez, H.L. Medina, L. Rodriguez, J. Villaseñor and F.J. Fernández-Morales (University of Castilla-La Mancha, Spain)

Opportunities for recovering rare earth elements as by-products of the Nb production at the Boa Vista Fresh Rock mine in Catalão, Brazil
J.L. Antoniassi, L. Pereira, J. Gutzmer, H. Kahn (Helmholtz-Institut Freiberg für Ressourcetechnologie, Germany), C. Ulsem, D. Goldmann and A.C. Silva (Technische Universität Clausthal, Germany)