

Physical Separation '19

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[#PhysicalSeparation19](https://twitter.com/PhysicalSeparation19)

Wednesday 12th June

16.30-18.00 Welcoming wine and cheese function and pre-registration (accompanying guests welcome)

Thursday 13th June

08.00 Registration desk opens. Tea, coffee and fruit juice

08.55 Welcome to Cornwall
B.A. Wills (MEI, UK)

09.15 *Technical Session 1*
Chairmen: D. Alexander (Anglo American, UK) and N.G. Cutmore (CSIRO Mineral Resources, Australia)

09.15 **Keynote Lecture: What's cooking in mining?**
S. Kingman (University of Nottingham, UK)

09.45 **High-temperature permittivity measurements of selected industrially relevant minerals and ores**
E.R. Bobicki (University of Toronto, Canada) and C.A. Pickles (Queen's University, Canada)

10.00 **High-temperature microwave properties and phase transitions of ultramafic nickel ores**
J. Forster, D. Boucher and E.R. Bobicki (University of Toronto, Canada)

10.15 Coffee, tea

11.00 **An improvement on grindability of copper porphyry ore by a correct selection of microwave-treatment's location in comminution circuit**
H. Gholami, B. Rezai, A. Mehdilo (Amirkabir University of Technology, Iran), A. Hassanzadeh, M. Rudolph (Helmholtz-Institute Freiberg for Resource Technology, Germany), M.J. Behjat (Sarcheshmeh Copper Mine, Iran)

11.15 **Investigating the microwave heating behaviour of pyrrhotite tailings**
M. Goldbaum, R. Elliott, J. Forster, Y. Maham and E.R. Bobicki (University of Toronto, Canada)

- 11.30 **Gangue rejection in practice - the implementation of Grade Engineering® at the Minera San Cristobal Site**
B. Adair, L. Keeney (CRC ORE, Australia) and D. King (Minera San Cristobal, Bolivia)
- 11.45 **Enhancing grade engineering through rock breakage by high-speed collisions**
R.A.F. Lage, C. Antonio and V. Jokovic (JKMRC, Australia)
- 12.00 **Energy-efficient comminution and coarse particle liberation of Au-Ag-Zn-Pb ores from Fresnillo's Cienega Mine, Mexico, by VeRo Liberator® technique**
G. Borg (PMS GmbH, Germany and Martin Luther University Halle-Wittenberg, Germany), O. Scharfe, F. Scharfe (PMS GmbH, Germany), P.G. Jimenez and S. Gomez (Fresnillo plc, Mexico)
- 12.15 **Continuous electric pulse fragmentation of incinerator bottom ash: two years of industrial operation**
D.B. Parvaz, A. Weh and F. von der Weid (SELFRAG AG, Switzerland)
- 12.30 **Enhancing early coarse gangue rejection through controlled multistage precise impact breakage**
B.S. Agbenuvor, C. Antonio, V. Jokovic and R. Morrison (JKMRC, Australia)
- 12.45 Lunch
- 14.00 *Technical Session 2*
Chairmen: D. Amariei (COREM, Canada) and B. Adair (CRC ORE, Australia)
- 14.00 **Pre-concentration at crushing sizes for low-grade ores processing – ore macro texture characterization and liberation assessment**
R. Sousa (National Laboratory of Energy & Geology, and University of Porto, Portugal), A. Futuro, A. Fiúza (University of Porto, Portugal) and M.M. Leite (National Laboratory of Energy and Geology, Portugal)
- 14.15 **Bulk ore sorting using magnetic resonance sensing**
P.J. Coghill, N.G. Cutmore, D.G. Miljak (CSIRO Mineral Resources, Australia), C. Beal and A.S. Broesder (RFC Ambrian Limited, Australia)
- 14.30 **Latest Developments and experience on TOMRA X-Ray Sorting Machines with a focus on coal**
J.-M. Bergmann (TOMRA Sorting GmbH, Germany)
- 14.45 **Using advanced block modelling techniques to provide dynamic, high-resolution economic assessment of the impact of ore sorting on a complex world class deposit**
J. McFarlane, D. Tucker (Mining Plus UK Ltd., UK) and K. Bartram (Steinert GmbH, Germany)
- 15.00 **A novel approach for sensor based sorting performance determination**
E. Gülcan (Hacettepe University, Turkey)
- 15.15 Coffee, tea
- 16.00 **New revolutionary X-ray sorting technology based on high sensitivity detection system**
J. Kolacz (Comex Polska, Poland)
- 16.15 **Affinity of Dual Energy X-ray Transmission Sensors on minerals bearing heavy rare earth elements**
M.M. Veras (Federal Institute of Amapá, Brazil), C.R. Born, A.K. Ferreira, A.C.B. Neto, C.O. Petter (Federal University of the Rio Grande do Sul, Brazil), C.H. Sampaio (Universitat Politècnica de Catalunya Barcelona Tech, Spain), A.S. Young (University of Utah, USA) and A. Szewczuk (COMEX AS, Poland)
- 16.30 **Boosting the efficiency of ore sorting using ML on SWIR sensor data**
L. Tuşa, M. Kern, M. Khodadadzadeh, R. Gloaguen and J. Gutzmer (Helmholtz Institute Freiberg for Resource Technology, Germany)

16.45 Using electrically heated screen decks for producing narrow sub-millimetre fractions

B.I. Pålsson (Luleå University of Technology, Sweden) and J. Bucht (LKAB, Sweden)

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

Friday 14th June

08.15 Registration desk opens. Tea, coffee and fruit juice

09.00 *Technical Session 3*

Chairmen: C. Ihle (Advanced Mining Technology Center and Universidad de Chile, Chile) and P.B. Kowalczyk (Norwegian University of Science & Technology, Norway)

09.00 **Can the performance of semi-inverted hydrocyclones be similar to fine screening?**

V. Jokovic, R. Morrison and D. Alexander (JKMRC, Australia)

09.15 **Mini-hydrocyclone design optimisation – the effect of conical height on the separation of fine particles**

P.R. Brito-Parada, H. Brookes and D. Vega-Garcia (Imperial College, UK)

09.30 **Development of a coupled DEM-SPH method to simulate complex fluid flows inside hydrocyclones**

A. Eslamian, C. Peng and E. Monaco (ESS Engineering Software Steyr GmbH, Austria)

09.45 **Correlations for hydrocyclone performance from CFD for application in process modelling**

M.P. Schwarz, T. Song, T. Yang, J. Zhou and Q. Wang (BGRIMM Technology Group, China, State Key Laboratory of Process Automation in Mining & Metallurgy, China, and Beijing Key Laboratory of Process Automation in Mining & Metallurgy, China)

10.00 **Innovative gravity separation for sustainable utilization of mineral resources**

P. Zhang (Florida Industrial and Phosphate Research Institute, USA), W. Xiao and D. Zhang (Hubei Gezhi Mineral Materials Co. Ltd., China)

10.15 **Gravity separation in the Reflux™ Classifier in the presence of slimes**

J.L. Carpenter, J. Zhou, S.M. Iveson and K.P. Galvin (University of Newcastle, Australia)

10.30 Coffee

11.15 **Enhanced recovery of zircon using a Reflux Classifier with an inclined channel spacing of 3 mm**

K.P. Galvin, J. Zhou, J. Sutherland, S. Iveson (University of Newcastle, Australia)

11.30 **Effect of electrostatic interactions in the separation of magnetite and silica in aqueous media using enhanced gravity concentration**

K.L.D. Baladad and H.D. Mendoza (University of the Philippines Diliman, Philippines)

11.45 **Gravity processing of a complex tungsten skarn with a Falcon concentrator**

Y. Foucaud, I.V. Filippova (Université de Lorraine, France), Q. Dehaine (Université de Lorraine, France and Camborne School of Mines, UK) and L.O. Filippov (Université de Lorraine, France and National University of Science & Technology, Russia)

12.00 **A particle-based approach to simulation of spiral concentrators incorporating autoSEM characterisation**

C.P. Bergmann (Mintek, South Africa), N. Naudé and J. de Villiers (University of Pretoria, South Africa)

12.15 **Novel jamming mechanism for dry separation of particles by density**

D. Kumar, S. Iveson and K. Galvin (University of Newcastle, Australia)

- 12.30 **Investigation of particle motion in fluidized bed using PEPT**
O. Kökkılıç, D. Boucher, R. Langlois, K.E. Waters (McGill University, Canada) and T. Leadbeater (University of Birmingham, UK, and University of Cape Town, South Africa)
- 12.45 Lunch
- 14.00 *Technical Session 4*
Chairmen: K. Galvin (University of Newcastle, Australia) and E.R. Bobicki (University of Toronto, Canada)
- 14.00 **Processing of a rare-earth ore by gravity and magnetic concentration**
C. Marion, R. Li, J. Paris, O. Kökkılıç, M. Lepage, K.E. Waters (McGill University, Canada), T. Grammatikopoulos (SGS, Canada), and N.A. Rowson (Master Magnets, UK)
- 14.15 **Up-grading of Cr in stainless steel slag and ferrochromium slags by magnetic and density separation**
F. Kukurugya, P. Nielsen and L. Horckmans (VITO - Flemish Institute for Technological Research, Belgium)
- 14.30 **Upgrading nickel in laterite ores by physical separation methods**
S. Farrokhpay and L. Filippov (Université de Lorraine, France)
- 14.45 **Feasibility of gravity and magnetic separation for Yxsjöberg historical tungsten ore tailings**
J. Mulenshi, P. Khavari and J. Rosenkranz (Luleå University of Technology, Sweden)
- 15.00 **Recovery of niobium minerals from slimes by gravity and magnetic separation**
R. Li, C. Marion, M. R. Lepage, O. Kökkılıç, K.E. Waters (McGill University, UK) and N. Rowson (Master Magnets, UK)
- 15.15 Coffee, tea
- 15.45 **Investigation of magnetic separation of a pyrometallurgically pre-treated lateritic nickel ore**
K.M. Hahn and H. Wotruba (RWTH Aachen University, Germany)
- 16.00 **Possibilities and limitations in wet processing of fine incinerator bottom ash**
J. Boehnke (Sepro Mineral Systems Corp., Canada) and G. Stockinger (Brantner Oesterreich GmbH, Austria)
- 16.15 **Numerical modelling of heat assisted lamellar settling**
C. Reyes (Advanced Mining Technology Center, Chile) and C. Ihle (Advanced Mining Technology Center and Universidad de Chile, Chile)
- 16.30 **The lessons filtered dry stack tailings can learn from paste thickening**
P. Ainsworth (Paterson & Cooke (UK) Ltd)
- 16.45 Closing remarks
- 17.00 Cornish cream tea/coffee and overview of Cornish Mining History from B.A. Wills
- 18.00 Coaches leave Maritime Museum for Wheal Peavor (accompanying guests welcome)