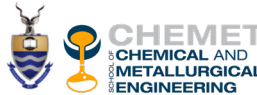


THE UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG, MINTEK AND THE SOUTHERN AFRICAN INSTITUTE OF MINING AND METALLURGY ARE HOSTING A CONFERENCE ON:

MINE-IMPACTED WATER FROM WASTE TO RESOURCE

FROM RESEARCH TO IMPLEMENTATION:
CONSIDERING MINE-IMPACTED WATER AS A RESOURCE

FREE ONLINE CONFERENCE



Preliminary Programme

Tuesday—10 November 2020

Session 1: Sustainable treatment technologies

Session Chair, **S. Ndlovu**, *University of the Witwatersrand South Africa*

- 10:00–10:05 Welcome and Introduction
S. Ndlovu, *University of the Witwatersrand, South Africa*
- 10:05–10:25 Keynote: Structural and environmental properties of coal combustion products for cemented paste backfill applications
C. Pardesi¹, C. Sheridan¹, and J. Burgess², ¹*The University of the Witwatersrand, South Africa* and ²*Isle Utilities, United Kingdom*
- 10:25–10:40 Treatment of iron-rich acid mine water for the recovery of drinking water, pigment and Na₂SO₄
L. Letjiane, *Tshwane University of Technology, South Africa*
- 10:40–10:55 Performance evaluation of freeze crystallization for removal of water and sodium sulphate from mine wastewater
P.M. Ramothole¹, J.P. Maree^{2,3}, M.S. Onyango¹, and A. Adeniyi¹, ¹*Tshwane University of Technology*, ²*University of Limpopo* and ³*ROC Water Technologies, South Africa*
- 10:55–11:05 **Comfort break**
- 11:05–11:25 Keynote: Should irrigation with mine-impacted water be considered part of the long-term strategy to manage acid mine drainage in the Witwatersrand Goldfields?
J.G. Annandale, H.M. du Plessis, P.D. Tanner and S.N. Heuer, *University of Pretoria, South Africa*
- 11:25–11:40 Sulphate removal technologies for the treatment of mine impacted water
M. van Rooyen and P.J. van Staden, *South Africa*
- 11:40–11:55 The application of coal discards for acid mine drainage neutralization
S. Mxinwa¹, E.D. Deenanath¹, S.W. Robertson¹, S. Ndlovu² and P. Basson¹, ¹*Mintek* and ²*University of the Witwatersrand, South Africa*
- 11:55–12:30 **Panel discussion and Q & A**
- 12:30 **Closing**

Thursday—12 November 2020

Session 2: Value recovery

Session Chair, **K. du Preez**, *Mintek, South Africa*

- 10:00–10:05 Welcome and Introduction
K. du Preez
- 10:05–10:25 Keynote: Mine-Impacted water: from waste to resource
A.N.C. Clay, S. Joubert, and N.N. Moeketsi, *EY Minvest, South Africa*
- 10:25–10:40 Synthesis of nanosized rare earth oxide particles from purified acid mine drainage solution using

ultrasonic spray pyrolysis method
G. Alkan¹, S. Stopic², C. Dittrich³, G.S. Simate⁴, S Ndlovu⁴, and B. Friedrich², ¹*DLR, Cologne, Germany, former IME2, ²RWTH Aachen University, Aachen, Germany, ³MEAB Chemie Technik GmbH, Aachen and ⁴University of the Witwatersrand, South Africa*

- 10:40–10:55 Carbonation as a potential method for liquid mine waste beneficiation
T. Grewar and D. Shai, *Mintek, South Africa*
- 10:55–11:05 **Comfort Break**
- 11:05–11:20 Ashes for AMD remediation with value added resource recovery
K.K. Kefeni and B.B. Mamba, *University of South Africa, South Africa*
- 11:20–11:35 Recovery of Rare Earth Elements (REE) from Acid Mine Drainage (AMD) passive treatment systems – A review
G.Dube, V.R.K. Vadapalli, and M. Malatji, *Council for Geoscience, South Africa*
- 11:35–11:50 Economic evaluation of the recovery of poly-alumino-ferric sulphate coagulant from acid mine drainage
B. Mwewa, S. Ndlovu, and G. Simate, *University of the Witwatersrand, South Africa*
- 11:50–12:30 **Panel Discussion and Q and A**
- 12:30 **Closing**

Tuesday—17 November 2020

Session 3: Mine Closure Practices and Legislation

Session Chair, **M. van Rooyen**, *Mintek, South Africa*

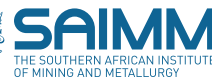
- 10:00–10:05 Welcome and Introduction
- 10:05–10:25 Keynote: Efficient mine water conservation and demand management: An overview as per guidelines
G.R. Pretorius, *OMI Solutions, South Africa*
- 10:25–10:40 Best practice guidelines for irrigation with mine-impacted waters
S.N. Heuer, J.G. Annandale, and P.D. Tanner, *University of Pretoria, South Africa*
- 10:40–10:50 **Comfort Break**
- 10:50–11:05 Guidance for attaining regulatory approval of irrigatio as a large scale, sustainable use of mine water
G. Pocock and L. Coetzee, *Waterlab (Pty) Ltd, South Africa*
- 11:05–11:20 Are pitlakes an environmentally sustainable closure option for South african coal mines
A. Johnstone, *GCS, South Africa*
- 11:20–11:50 **Panel Discussion and Q and A**
- 11:50 **Closing**

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Thursday—19 November 2020

Session 4: Case Studies

Session Chair, **C. Simate**, *University of the Witwatersrand, South Africa*

- 10:00–10:05 Welcome and Introduction
- 10:05–10:25 Keynote: Mapping of hazardous mine waste using multispectral remote sensing technology: A case study of Brumadinho dam failure, Brazil
I. Atif, F.T. Cawood, and M.A. Mahboob, *University of the Witwatersrand, South Africa*
- 10:25–10:40 Acid mine drainage (AMD) contamination at Odagbo Coal Mine in Kogi state, Nigeria: A proposal for extensive prediction and remediation approach (EPRA)
T.I. Ojonimi¹, O.I. Cornelius², and T.P. Chanda³,
¹University of Jos, Nigeria, ²University of Bristol, United Kingdom and ³The Copper Belt University, Zambia
- 10:40–10:55 Groundwater Impact from an Underground Coal Gasification Geo-reactor
L. Mokhahlane, *University of the Witwatersrand, South Africa*
- 10:55–11:05 **Comfort Break**
- 11:05–11:25 Keynote: Acid mine drainage prediction – the role of mineralogy
D. Chetty, O. Bazkho, V. Govender, and S. Ramatsoma, *Mintek, South Africa*
- 11:25–11:40 Assessment of mine water contamination and evaluation of retention mechanisms of inorganic contaminants in a natural wetland system: A case study in Mpumalanga Emalahleni abandoned coal mine site
K.P. Makhado¹, M.W. Gitari¹, R. Mudzielwana¹, O.U. Izevbekhai¹, R. Thobakgale¹, A. Shumba, and G.M. Dube²,
¹University of Venda, ²Council for Geoscience, South Africa
- 11:40–11:55 Waste treatment and disposal of mine impacted waste waters from an AngloGold Ashanti gold mine
S. Hareeparsad, P. Wille, and C. Mutambanengwe, *Golder, AngloGold Ashanti, South Africa*
- 11:55–12:30 **Panel Discussion and Q and A**
- 12:30 **Closing**

Tuesday—24 November 2020

Session 5: Student Session

Session Chair, **B. Xakalashé**, *Mintek, South Africa*

- 10:00–10:05 Welcome and Introduction
B. Xakalashé
- 10:05–10:25 Keynote: Remediation of acid mine-impacted water by advanced oxidation process
S.J. Baloyi and C.M. Masuku, *Mintek, Purdue University, South Africa*
- 10:25–10:40 Beneficiation of recycled process water at DRDGold's ERGO Plant and evaluating its effect on gold recovery
A. Narain, H. Potgieter, G. Rencken, and J. Smith, *University of the Witwatersrand, South Africa*
- 10:40–10:55 Stability of solid residue after integral treatment of acid mine drainage
N. Petronijević¹, D.R. Ivšić², S. Stanković³, M. Sokić¹, Ž. Kamberović⁴, A. Onjia⁴, and Z. Striković⁵
¹Institute for Technology of Nuclear and Other Mineral Raw Materials, Serbia, ²University of Belgrade, Serbia, ³Bundesanstalt für Geowissenschaften und Rohstoffe, Deutschland, ⁴University of Belgrade, Serbia and ⁵PUC Belgrade Waterworks and Sewerage, Serbia
- 10:55–11:05 **Comfort Break**
- 11:05–11:20 Toxicity and acid generation potential of sulfidic mine waste based on resuspension and leaching tests
J. Helser and V. Cappuyns, *Department of Earth and Environmental Science, Research Centre for Economics and Corporate Sustainability*
- 11:20–11:35 Removal of trace concentrations of heavy metals from simulated dilute mine streams via ion and precipitate flotation
P. Xanthopoulos, K. Binnemans, and K.U. Leuven, *Celestijnenlaan, Belgium*
- 11:35–11:55 Waste to resource related opportunities through high-sulphur coal discards accelerated bioleaching
M. Gcayiya, J.R. Amaral Filho, A. Kotsiopoulos, M. Smart, and S.T.L. Harrison, *University of Cape Town, South Africa*
- 12:30–12:40 **Announcement of Winner – Student Presentation**
- 12:40 **Closing**