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| |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | [SAIMM-General-Logo(large).jpg](www.saimm.co.za) |  | | |  |  | | --- | --- | |  |  | |  |  |  |  |  | | --- | --- | --- | --- | | |  |  |  | | --- | --- | --- | | |  | | --- | |  | |  | |  |  |  |  | | --- | --- | --- | | |  |  | | --- | --- | | **SAIMM** **Journal Volume 117 No. 6  - June 2017** |  | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | **CONTENTS**  [**Journal Comment: We have a problem?**](http://communications.saimm-mail.com/servlet/link/33595/223237/65918484/4104046) ***by R .Paul*** [**President’s Corner – The modern mining professional – a mining CEO’s perspective**](http://communications.saimm-mail.com/servlet/link/33595/223237/65918484/4104047) ***by C. Musingwini*** [**Global Mining Standards and Guidelines Group (GMSG)**](http://communications.saimm-mail.com/servlet/link/33595/223237/65918484/4104048) ***by H. Ednie*** |  | | |  |  | | --- | --- | | [journal_june(2).png](http://communications.saimm-mail.com/servlet/link/33595/223237/65918484/4104049) |  | |  |  |  |  | | --- | --- | --- | | |  |  | | --- | --- | | **PAPERS OF GENERAL INTEREST**  [**Near-surface wave attenuation (kappa) of Far West Rand micro-events**](http://communications.saimm-mail.com/servlet/link/33595/223237/65918484/4104050)[***By M.B.C. Brandt***](http://communications.saimm-mail.com/servlet/link/33595/223237/65918484/4104051) The near-surface wave attenuation factor k (kappa), which describes the attenuation of seismic waves with distance in the upper 1–3 km of the Earth, was determined for the Far West Rand gold mining area using mining-induced seismic data. The aim was to derive a mining-related k value that will be useful for calculating moment magnitude, Mw, for S-waves using the seismograms recorded by the National Seismograph Network.   [**Activity-based risk management for the acquisition of electronic mine safety equipment**](http://communications.saimm-mail.com/servlet/link/33595/223237/65918484/4104052)[***By G.P.R. van der Merwe, J.E.W. Holm, and A.J. Hofmann***](http://communications.saimm-mail.com/servlet/link/33595/223237/65918484/4104053) A proposed new approach is presented to perform relativistic comparisons between alternative operational risk management solutions by taking into account the impact of each operational activity on overall system performance. The approach is applied to a specific case study of the deployment of safety systems in underground mining, taking into account conflicting objectives.   [**Strapping of pillars with cables to enhance pillar stability**](http://communications.saimm-mail.com/servlet/link/33595/223237/65918484/4104054)[***By L.R. Alejano, J. Arzu'a, U. Castro-Filgueira and F. Malan***](http://communications.saimm-mail.com/servlet/link/33595/223237/65918484/4104055) The authors investigated the strapping of pillars by conducting laboratory tests on cabled rock specimens. The results demonstrate the value of steel cabling and mesh wrapped around pillars to improve stability.  [**Molecular modelling of tantalum in an aqueous phase**](http://communications.saimm-mail.com/servlet/link/33595/223237/65918484/4104056)[***By M.J. Ungerer, C.G.C.E. van Sittert, D.J. van der Westhuizen, and H.M. Krieg***](http://communications.saimm-mail.com/servlet/link/33595/223237/65918484/4104057) The separation mechanism of tantalum and niobium using solvent extraction is not fully understood. The aqueous phase during solvent extraction was investigated by studying periodic systems of Ta, as a metal and in salt form, when it is in contact with H2O and H2SO4.   [**Determination of magnitude completeness from convex Gutenberg-Richter graphs in the central portion of the Kiirunavaara mine**](http://communications.saimm-mail.com/servlet/link/33595/223237/65918484/4104058)[***By M. Svartsjaern and A. Eitzenberger***](http://communications.saimm-mail.com/servlet/link/33595/223237/65918484/4104059) Seismic records from the Kiirunavaara mine footwall were analysed to determine the event origin mechanisms and minimum magnitude cut-off. The results show a correlation between shear-slip seismic events and volumes experiencing high differential stresses in the lower part of the footwall.   [**Comparison of the effect of particle size on the flotation kinetics of a low-rank coal using air bubbles and oily bubbles**](http://communications.saimm-mail.com/servlet/link/33595/223237/65918484/4104060)[***By Y. Liao, Y. Cao, C. Liu, Y. Zhao, and G. Zhu***](http://communications.saimm-mail.com/servlet/link/33595/223237/65918484/4104061) Flotation tests were conducted on size fractions of +500, -500+250, -250+125, -125+74, and -74-tm using oily bubbles and conventional air bubbles. The results showed that oily bubble flotation resulted in a lower ash content and higher combustible recovery than air bubble flotation.   [**The geoscience education pipeline in South Africa: Issues of skills development, equity and gender**](http://communications.saimm-mail.com/servlet/link/33595/223237/65918484/4104062)[***By A. Cameron and G. Drennan***](http://communications.saimm-mail.com/servlet/link/33595/223237/65918484/4104063) The reasons for the demographic shift in class composition are documented, and the role played by employment equity legislation and corporate social investment strategies considered. The findings indicate a need for a curriculum adjustment to meet the changing needs of industry, as well as more rigorous selection criteria for bursars.   [**Direct block-support simulation of grades in multi-element deposits: application to recoverable mineral resource estimation at Sungun porphyry copper-molybdenum deposit**](http://communications.saimm-mail.com/servlet/link/33595/223237/65918484/4104064)[***By S.A. Hosseini, O. Asghari, and X. Emery***](http://communications.saimm-mail.com/servlet/link/33595/223237/65918484/4104065) Direct block-support sequential co-simulation was used to construct a set of alternative outcomes of the copper and molybdenum grades on block support over the deposit, with the aim of removing current limitations of conventional techniques for determining recoverable mineral resources.   [**The needle penetration test for predicting coal strength**](http://communications.saimm-mail.com/servlet/link/33595/223237/65918484/4104066)[***By S. Kahraman, A.S. Aloglu, B. Aydin, and E. Saygin***](http://communications.saimm-mail.com/servlet/link/33595/223237/65918484/4104067) Point load and the needle penetration index (NPI) tests were carried out on coal specimens. The point load indexes were converted to uniaxial compressive strength (UCS) values, and the UCS and NPI values evaluated using regression analysis. A strong linear relationship was found between the two parameters, indicating that the UCS  of the coal can be predicted from the NPI.   [**Synthesis of 3-hydroxy-2-naphthyl hydroxamic acid collector: flotation performance and adsorption mechanism on bastnaesite**](http://communications.saimm-mail.com/servlet/link/33595/223237/65918484/4104068)[***By Z. Yang, W. Wu, and X. Bian***](http://communications.saimm-mail.com/servlet/link/33595/223237/65918484/4104069) 3-hydroxy-2-naphthyl hydroxamic acid (H2O5) was synthesised and its efficiency as a collector for bastnaesite investigated. H2O5 was found to exhibit a superior collecting performance compared with direct flotation recovery of bastnaesite. The adsorption of H2O5 was associated with the types and concentrations of hydrolysis products of rare earth cations on the surface of bastnaesite.   [**In-pit crusher location as a dynamic location problem**](http://communications.saimm-mail.com/servlet/link/33595/223237/65918484/4104070)[***By M. Paricheh, M. Osanloo, and M. Rahmanpour***](http://communications.saimm-mail.com/servlet/link/33595/223237/65918484/4104071) The main parameters affecting the location of an in-pit crushing and conveying (IPCC) system are reviewed and examples given of how they are applied to the problem of a dynamic location-relocation exercise. A facility location model was developed and is implemented for the Sungun copper mine in Iran, and the number and the exact times of relocations of the IPCC units determined. |  | |  |  |  |  |  | | --- | --- | --- | --- | | |  |  |  | | --- | --- | --- | | |  | | --- | |  | |  | |  |  |  |  | | --- | --- | --- | | |  |  | | --- | --- | | For more information regarding the SAIMM Journal please contact:   **Kelly Matthee** Journal Co-Ordinator Telephone: +27 11 834 1273  l  Facsimile: 086 585 2901 E-mail: [kelly@saimm.co.za](mailto:kelly@saimm.co.za) l  Website: [www.saimm.co.za](http://www.saimm.co.za) |  | |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | |  | | --- | |  | | |  |  |  | | --- | --- | --- | | [1495046882_square-twitter.png](http://communications.saimm-mail.com/servlet/link/33595/223237/65918484/4104072) | [1495046880_square-facebook.png](http://communications.saimm-mail.com/servlet/link/33595/223237/65918484/4104073) | [1495046889_linkedin.png](http://communications.saimm-mail.com/servlet/link/33595/223237/65918484/4104074) | | |  | | --- | |  | | |