AfriRock International Symposium—Programme

Pre-Conference
2 October 2017
07:30–17:00
Dr Nick Barton and Prof. John Cosgrave Workshop
Meeting Room 2.64-2.66

COMMISSION MEETINGS
08:30–10:30
Design Methodology (Meeting Suite 1.51)
10:30–12:30
Testing Methods (Meeting Suite 1.51)
08:30–10:30
Petroleum Geomechanics (Meeting Suite 1.52)
10:30–12:30
Preservation of Ancient Sites (Meeting Suite 1.53)
10:30–12:30
Radioactive Waste Disposal (Meeting Suite 1.55)
10:00–12:00
Asian Council Meeting (Meeting Suite 1.71)
13:00–19:00
ISRM Council Meeting (Meeting Suite 2.24-2.46)
17:00–19:00
Welcome Network Cocktail & Conference Registration

Conference Day 1—Plenary Ballroom East
3 October 2017–Tuesday
08:00–08:35
Registration and early morning refreshments
08:30–08:45
Emergency Procedures—CTICC
OPENING CEREMONY
08:35–08:40
Opening Address

SUPPORT DESIGN—BALLROOM EAST
Session Chair: C. Li
13:30–13:45
Support method for underground engineering in rock hard with high geostress: a case study of the Bahletan hydropower project, China
Q. Jiang*, A.T. Feng†, G. Fan†, Y. Fan†, J. Xul and H. Chen†, *Institute of Rock and Soil Mechanics, Chinese Academy of Sciences and ¤China Three Gorges Project Corporation, China
14:00–14:15
Parameters required for the design of rock support in high-stress rock masses
C.C. Li Norwegian University of Science and Technology (NTNU), Norway
14:15–14:30
Stable span re-design and support optimization for a shallow hard-rock bord-and-pillar mine on the Great Dyke: the case of Unki Mine, Zimbabwe
O. Mandingaiga and C. Musa, Anglo American, Unki Mines, Zimbabwe
14:30–14:45
Improving mining efficiencies by means of a new support design at Unisel Gold Mine, Welkom, South Africa
P.M. Coets, Brentley, Lucas and Associates Mining Consultants, South Africa
14:40–14:55
Numerical simulation of fully grouted rockbolts by considering nonlinear bond-slip behaviour
S. Ma, Z. Zhao and W. Nie, Nanyang Technological University, Singapore
15:00–15:15
Mining with crush pillars
M. du Plessis* and D.F. Malan*, *Lornmin Platinum, Marikana and ¤University of Pretoria, South Africa
15:15–15:30
Use of plastic composites as friction rockbolt materials
E. Komurlu and A. Kesimad, Karadeniz Technical University, Turkey
15:30–15:45
Preliminary investigation of the effect of areal shape on pillar strength J. Maritz, University of Pretoria, South Africa
15:45–16:00
Mid Afternoon Refreshments

SURFACE MINING SLOPE STABILITY—BALLROOM EAST
Session Chair: R. Armstrong
16:00–16:15
Slope design considerations for shallow open pit mines: a case study at Mamatwan Mine, Northern Cape Province, South Africa
S.N. Epiga and S.M. Ruprecht, University of Johannesburg, South Africa
16:15–16:30
Identification of potential rock wedge controlled rockfalls using ground-based LIDAR Techniques: A case study in Eastern Taiwan
M-C. Tsao and T-T. Wang, *National Taiwan University, Taiwan
16:30–16:45
Optimization of slope design in saprolites at Kansanshi
T.O. Moore, First Quantum Minerals Limited, Zambia
16:45–17:00
Techniques for measuring three-dimensional displacement vector using ground-based interferometric synthetic aperture radar
C. Thomson*, N. Coll* and L. Leoni†, *Hexagon Mining. South Africa and ¤Geoscope part of Hexagon, Italy
17:00–17:15
Ojikoto gold mine – a case study in pit slope design
O. Pillay, R. Armstrong, and P.J. Terbrugge, SRK Consulting, South Africa
17:15–17:30
A holistic open pit mine slope stability index using artificial neural networks
M. Fakir and M. Ferentinou, *University of Johannesburg, South Africa
17:30–17:45
The significance of identifying potential failure mechanisms from conceptual to design level for open pit rock slopes
C. Romer* and M. Ferentinou, *University of KwaZulu-Natal and ¤University of Johannesburg, South Africa
17:45–18:00
Investigation of failures associated with a major shear zone in the Main Pit 3 West, at Leibeng Diamond Mine, Lesotho
N. Lelu*, E.D.C. Hingston† and N. Lehatsho*, *Leibeng Diamonds, Lesotho and ¤University of KwaZulu-Natal, South Africa
16:45–16:00
ISRM Advisory Forum—Meeting Room 1.43 and 1.44

SEISMICITY—MEETING ROOM 2.41–2.46
Session Chair: F. Esrich
13:30–13:45
Relating seismic source mechanisms to damage phenomena in platinum mines of the western Bushveld Complex
G. van Aswegen, Consultant, Mine Seismology, South Africa
13:45–14:00
Observational studies in South African mines to mitigate seismic risks: challenges and achievements
R.J. Durheim*, H. Ogawara†, M. Nakataki†, Y. Yabe†, M. Noshi†, H. Moriya†, A. Chichiwicz†, T. Sato†, H. Kawakata†, A. Matsu†, T. Kigma†, V.Z. Bivra†, A.K. Ward†, L. Ribeiro†, M.S. Matos† and M. Megado*, *the SATREPS Team, *University of the Witwatersrand, South Africa, †Ristumeiren University, Japan, ‡The University of Tokyo, Japan, †Tokoku University, Japan, ‡Waseda University, Japan, †Council for Geoscience, South Africa, ‡AIMST, Japan, *CSIR, South Africa, †Seismogen CC, South Africa
14:00–14:15
Investigations of rockburst propensity of artificial samples containing different aggregates
A. Klammer, C. Peitrini, M. Lagger, M. Bühlme, and W. Schubert, Graz University of Technology, Austria
14:15–14:30
Microseismic events for slope stability analysis – a case study at an open pit mine
X. Luo*, M. Salvori†, P. Dight, and J. Duan*, *CSIRO Energy and ¤University of Western Australia, Australia
14:30–14:45
Excavation-induced seismicity: mechanism and implications
W. Wu, Z. Zhao*, and K. Duan*, *Nanyang Technological University, Singapore and ¤Tsinghua University, China
14:45–15:00
Early access microseismic monitoring using sensors installed in long boreholes
15:00–15:15
Drilling into seismogenic zones of M 2.0 – M 5.5 earthquakes from deep South African gold mines (DSes): establishment of research sites
H. Ogawara†, R.J. Durheim*, Y. Yabe†, T. Ito†, G. van Aswegen†, M. Grobbelaar†, A. Funston†, A. Ishida†, H. Ogawara†, S. Mngadi†, M.S.D. Manzi†, M. Ziegel†, A.K. Ward†, G. Hofmann†, P. Mayer†, M. Boettcher†, P. Dight†, W. Ellsworth†, B. Liebenberg†, N. Wechsler†, T. Onstott†, N. Berset†, and the DSeis Team, *Ristumeiren University, Japan, †University of the Witwatersrand, South Africa, ‡Tokoku University, Japan, †Institute of Mine Seismology Ltd South Africa, *Council for Geoscience, South Africa, ‡Fukada Geology Institute, Japan, †ETH Switzerland, *Seismogen CC, South Africa, ‡Seismogen AS, South Africa, †Seismogen CC, South Africa, ‡Seismogen AS, South Africa, †Seismogen CC, South Africa, ‡University of New Hampshire, USA, ‡University of Western Australia, Australia, *Stanford University, USA, †Independent Consultant *Tel Aviv University, Israel, South Africa, and ‡Princeton University, USA
15:15–15:30
Location and source mechanism of a microseismic event in a mine using a single seismogram
R.A. Lynch*, S. Jachinski†, B. Brigna†, and S. Moolla*, *Institute of Mine Seismology, Australia, †University of Tasmania, Australia, ‡University of KwaZulu-Natal, South Africa
15:30–15:45
Calibration of modelled seismicity in South African mines using a potency-based method
J. Gerber and S. Köhler, *Institute of Mine Seismology, South Africa
15:45–16:00
Mid Afternoon Refreshments
Session Chair: T. Butler
16:00–16:15
Technology transfer for minimizing seismic risk in South Africa’s platinum mines
F. Esrich*, J.W.L. Hanekom†, and J. Bowler†, *SIM Mining Consultants, †Middot Mining Consultants, Pretoria, and ‡Simulated Training Solutions, South Africa
16:15–16:30
Microseismic monitoring and stability analysis of the deep underground caverns at Lianghekou hydropower station, southwest China
A. Li*, F. Dai†, Z. Zhou†, C. Sha†, and N. Xu†, *Sichuan University and ‡Powerchina Chengdu Engineering Corporation Limited, China
Conference Day 2—Plenary Ballroom East

07:30–08:30  Registration & early morning refreshments
08:30–08:35  Emergency Procedures - CTICC
08:35–08:40  Opening Address J. Maritz, President, SANIRE
08:40–09:10  Keynote Session: Stress measurements for underground powerhouses—three recent cases
   L. Lamas*, M. Espada*, B. Figueredo, and J. Muraita, "National Laboratory for Civil Engineering—LNEC, Portugal, 1Uppsala University, Sweden
09:10–09:20  Sponsor Presentation IDS GEORADAR SRL
09:20–09:35  Mid Morning Refreshments

UNDERGROUND MINING—BALLROOM EAST

Session Chair: P. Couto
09:35–09:50  An empirical and numerical approach to quantifying raisebore-hole stability
   Y. Rajpal* and J.W.L. Hanekom†, "Middneck Consulting (Pty) Ltd and University of Pretoria, South Africa
09:50–09:55  Reassessing continuous stope closure data using a limit equilibrium displacement discontinuity model
   D.F. Malan and J.A.L. Napier, University of Pretoria, South Africa
10:05–10:20  Rockburst prevention via destress blasting of competent roof rocks in hard coal longwall mining
   P. Konicek* and J. Schreiber, "Institute of Geonics of the CAS and GreenGas, Inc., Czech Republic
10:20–10:35  A study of multi-rein pillar extraction in the Ventersdorp Contact Reef
   J.C. Esterhuysen and D.F. Malan, "Sibanye Gold and University of Pretoria, South Africa
10:35–10:50  A tool for the evaluation of departmental effectiveness
   K. Balt† and T.R. Stacey, "Advisian, Worley Parsons Group, Sub-Sahara Africa and University of the Witwatersrand, South Africa
10:50–10:55  Estimation of closure by the timber pack assessment method, and comparison to modelled elastic convergence
   H. Yilmaz and O. Rakumakoe†, "University of the Witwatersrand, Mponeng Gold Mine, AngloGold Ashanti, South Africa
11:05–11:20  Time-dependent failure of open stopes at Target Mine
   P.J. Le Roux and K.R. Brentley, Bentley, Lucas and Associates, South Africa
11:50–12:00  Sponsor Presentation: Sandvik
Lunch

TUNNELS, CAVERNS and DAMS—BALLROOM EAST

Session Chair: L. Lamas
13:20–13:35  Microseismicity-based feedback analysis of the stability of deep underground caverns at the Houziyan hydropower station, China
   B. Li†, Z. Zhou†, C. Sha†, N. Xu†, and F. Dai†, "College of Water Resources and Hydropower, Sichuan University and Powerchina Chengdu Engineering Corporation Limited, P.R. China
13:35–13:50  Cautious blast design and practice in close proximity to a railway tunnel and residential buildings
   H.A. Bilgir‡, Y. Dagsaar‡, and B. Kunturk‡, "Middle East Technical University, Turkey, Curtin University, Australia and Poljany Energy Coal Mine, Turkey
13:50–14:05  Failure mechanism of karst cave wall during tunnelling
   J. Wang, Y. Deng, L. nbo Wu, X. Liu, Y. o. Yin, and W. Liu, Tongji University, China
14:05–14:20  Geotechnical design refinement in parallel with construction - Boschkop Abstraction Works, South Africa
   A.T.M. Morgan, Geol Engineering, South Africa
14:20–14:35  Afternoon Refreshments

INVESTIGATION TECHNOLOGY—MEETING ROOM 2.41–2.46

Session Chair: S. Read
09:35–09:50  The determination of crustal stress orientation based on the borehole geometric shape using panoramic stereopair imaging technology
   C. Wang, X. Zou, and Z. Han, Chinese Academy of Sciences, China
09:50–10:05  The Sub Surface Profile: a giant leap for ground penetrating radar
   A. Pienaar, Reutech Mining, South Africa
10:05–10:20  Rock failure modes under uniaxial compression and indirect tension
   A. Basu, Indian Institute of Technology Kharagpur, India
10:20–10:35  Innovative technologies for monitoring underground excavations during construction and usage
   A. Carri, L. Ciapponi, R. Savi, and A. Segalin, University of Parma, Italy
10:35–10:50  An acoustic approach to the estimation of rock mass state and prediction of induced seismology parameters: theory, laboratory experiments, and case study
   L.A. Nazarova, L.A. Nazarov, V.I. Shkuratnik, M.I. Prolasov, and P.V. Nikoleno, Russian Academy of Science, Russia
10:50–11:05  Experimental studies of variably saturated flow from a horizontal discontinuity to the vertical with and without an intersection
   B.R. Jones†, L.B. Brouwers†, M.A. Dippensläiter, and J.L. Van Rooy†, "GasGe Consulting (Pty) Ltd, South Africa, Fugro Middle East, United Arab Emirates, and University of Pretoria, South Africa
11:05–11:20  Design of an in situ testing device for the backfill of mechanized driven tunnels in hard rock
   M. Lagger, M.R. Herztung, and W. Schubert, Graz University of Technology, Austria
11:20–11:35  Analytical and experimental investigation of the hard rock indentation process
   S. Souissi and E. Hamdi, Université de Tunis El Manar, Tunisia
11:35–11:50  Characterizing microtremor signals of a slope with deep-seated gravitational deformation
   Y.C. Chiu, P.C. Lo, and T.T. Wang, National Taiwan University of Technology, Taiwan
11:50–12:05  Progress of brittle microfracturing in crystalline rocks under cyclic loading conditions
   E. Ghazvinian* and M.S. Diederichs†, "Mine Design Engineering, and Queen’s University, Canada
12:05–12:20  InSAR monitoring for mines: an integrated approach
   D. Colombeli, F. Belotti†, F. Pasini†, A. Jonson†, and I. du Toit†, "InSitu RF Ltd, South Africa
12:20–13:20  Lunch

EARLY CAREER FORUM—MEETING ROOM 2.41–2.46

Session Chairs: E. Quadro and M. Hee
   C. Madzore, Anglo American - Unki, Zimbabwe
13:35–13:50  Rock engineering considerations for the mining method at Kinsenda Mine
   T. Kabaso, Motorex-Kinsenda, Zambia
13:50–14:05  Jointed pillar numerical analysis
   T. Chindecdza, Walcourtwater, Zimbabwe
14:05–14:20  Pillar design back analysis on 14F Merensky bord and pillar mining
   B. Tafi, Implats, South Africa
14:20–14:35  Afternoon Refreshments
14:35–14:50  Support strategies to safely and effectively develop through the Elandsdrift Fault Zone
   E. Munsamy, Lonmin, South Africa
14:50–15:05  The influence of pillar shape on pillar design and rock strength structural control
   M. Mariba, Glencore Coal, South Africa
15:05–15:20  An investigation into a stress induced large scale hangingwall instability at shallow mining depth on the Merensky Reef
   X. Lottering, Lonmin, South Africa
15:20–15:35  The sacrificial support concept - an alternative method to enhance safety in rockbursting environments
   A. Mudau, University of the Witwatersrand, South Africa
Conference Day 3—Plenary Ballroom East

5 October 2017—Thursday

07:30-08:30 Registration & early morning refreshments
08:30-08:35 Emergency Procedures - CTICC
08:35-08:40 Opening Ceremony

NUMERICAL MODELLING—BALLROOM EAST

Session Chair: F. Malan
09:45-10:00 A multi-objective hybrid prediction model of slope deformation based on fuzzy optimization algorithm J.B. Zhu and C. Li, Yangtze River Scientific Research Institute, China
10:00-10:15 Benchmarking of debris flow experimental tests using combined finite-discrete element method, FEMDEM K. Vagnozzi, A. M. Ferro*, J. L. Shao, and C. Li, University of Turin, Italy and Imperial College of London, UK
10:15-10:30 Numerical model calibration: process or luck? J.W.L. Hanke*, R. C. Othias, Midland Consulting (Pty) Ltd and University of Pretoria, South Africa
10:30-10:45 Modelling salt rock dissolution in the foundation of a large dam C. Vibert*, J. Schliffe*, and V. Liabud*, *Tractebel-Coyne et Belier, France and †University of Liège, Belgium
10:45-11:00 Calibration of a numerical model for bore-and-fool mining D.P. Roberts, CSIR/AngloGold Ashanti, South Africa
11:00-11:15 Comparison of empirical and 3D discrete numerical methods to estimate subsidence over longwall coal faces I. Pérez-Rey*, L. R. Alejano*, and P. Velasco*, University of Vigo and †Iberico Consulting Group, Spain
11:15-11:30 Characterization and numerical modelling of standard and cabled-striped pillars in a haemaitic mine L.R. Alejano*, U. Castro-Figuera*, I. Pérez-Rey*, F. García-Bastante*, and J. Azuá*, University of Vigo, Spain and †Universidad Católica del Norte, Chile
11:30-11:45 Numerical simulation of hydraulic fracturing process in mixed ground J. Wang*, Y. Deng*, X. Li*, H. Peng*, Y. Wu*, L. Wu*, Z. Wu*, †Forti University, †State Key Laboratory for Geo Mechanics and Deep Underground Engineering, †CCC Key Laboratory of Environment Protection & Safety in Foundation Engineering of Transportation and, †East China Architectural Design & Research Institute, China
11:45-12:00 Geotechnical characterization and revision of the pillar design for a hard-rock roof and pillar mine J. Walls* and P. Mupuz*, †SRK Consulting and ‡JWel Geotechnical (Pty) Ltd, South Africa
12:00-12:15 A remote sensing approach for the derivation of numerical modelling input data: insights from the Hope Slide, Canada D. Donati*, D. Stead*, M-A. Brideau*, University of Turin, Italy and evolving fractures in rock I.S. Oweis*, G. Gartenberg, †Seoul National University, Korea and ‡Halliburton, Egypt
12:15-12:30 Discrete element modelling of rock-cutting experiments under confining pressure N. Gonze* and J-P. Thibault*, University of Mons, Belgium
12:30-12:33 Lunch

UNDERGROUND MINING—BALLROOM EAST

Session Chair: O. Mandinga
13:30-13:45 Assessment of the potential to extract hard rock strike pillars to improve overall extraction ratio K.B. Le Bron*, P.S. Piper*, and C. Juddie*, †MLB Consulting, †Groundwork Consulting and †Gosolindle, South Africa
13:45-14:00 Coal pillar stooping – assessing the stability of snooks S.Z. Pezhi*, K.B. Le Bron* and C.A. Sela*, Glencore Coal and †MLB Consulting, South Africa
14:00-14:15 Review of remnant mining practices in South African gold mines T. Rangaswamy* and Y. H. Yilmaz, Midland Consulting and †University of the Witwatersrand, South Africa
14:15-14:30 Geotechnical input into shaft sinking on the Platreef Project A. Cooper, A. Brila, A. Mboongwa, F. Freddieckis, and T. Hudson, Ivanplats (Pty) Ltd, South Africa
14:30-14:45 Fundamental understanding of underground pillar design processes and methods J.W.L. Hanke*, †Midland Consulting (Pty) Ltd and †University of Pretoria, South Africa
14:45-15:00 Performance evaluation of the Paoabo central pillar at Chirano Gold Mines in Ghana E.O. Mensah* and J.J. Ran*, †Kynos Chirano Gold Mines Ltd, Ghana and ‡Kynos Gold Corporations, Canada
15:00-15:15 Slope performance assessment at the Goldcorp Elenoir mine using bivariate analysis S. Guido**, M. Grenon**, and P. Germains**, †Goldcorp-Elenoir Mine and, †Université Laval, Canada
15:15-15:30 Design of a stopping sequence at deeper horizons for a lead-zinc mine in a sheared rock mass J.L. Panthar*, C.P. Verma*, S. Dutta*, and A. Jha*, †CSR-Central Institute of Mining Fuel Research and †Nordzinutica Limited, India
15:30-15:45 Coal pillar stooping – partial extraction of coal pillars ensuring panel stability K.B. Le Bron*, L. Sekwete*, and D. Snyman*, †MLB Consulting and ‡Exaro, South Africa
15:45-16:00 Afternoon Refreshments

PLENARY CLOSING CEREMONY
16:00-16:15 Best paper and Young Participant’s Awards W.C. Joughin, Conference chairperson and ISR M VP for Africa
16:30-16:45 The ISR M VP for Africa 2018 ISR M International Symposium in Singapore

M. du Plessis
08:40-09:10 Keynote Session: How rock mechanics can help oil well drilling – Latest developments S. Fontours, PUC-Rio, Brazil
09:10-09:20 Sponsor Presentation: Reutech
09:20-09:30 Sponsor Presentation: Optron
09:30-09:45 Mid Morning Refreshments

GEOTECHNICAL INVESTIGATIONS—MEETING ROOM 2.41—2.46

Session Chair: M. Cowcad
09:45-10:00 Geomechanical evaluation-enabled stimulation optimization of a tight gas reservoir in Egypt M. Saleh*, A. Abdel-Meguid*, B. Crane*, S. Squires*, and L. Matzár*, Khalida Petroleum, Egypt, †Halliburton, Egypt and ‡Halliburton, United States
10:00-10:15 Experience gained from in situ stress measurements conducted in Southern Africa during the past ten years M.F. Handley*, P.S. Pipher*, H. Kato† and T. Clements*, †Consultant, ‡Groundwork Consulting, †Groundwork Consulting, South Africa and ‡3D-Geomechanics, Japan
10:15-10:30 Advanced information on rock mass properties in large open pits by analysing production drill rig parameters in real time P.S. Pipher*, K. Bro*, and P. Martenssen*, †Groundwork Consulting, South Africa and ‡Rockima Systems, Sweden
10:30-10:45 Unravelling the structural mysteries of the ‘Bermuda Triangle’ at Lonmin’s Saffty Shaft A.G. Hartzenberg*, M. du Plessis*, and A.E.W. Friesel*, Lonmin Platinum, Mankana and †Terra Explora, South Africa
10:45-11:00 The influence of geological structures – an often-overlooked but important aspect affecting the stability of operating mines G.C. More O’Ferrall* and M. du Plessis†, †First Quantum Minerals Limited, Zambia and ‡Lonmin Platinum, Mankana, South Africa
11:00-11:15 Development of a rock mass quality model for an open pit mine M. Morales*, K.K. Panthi*, and K. Bodsetak*, †Norwegian University of Science and Technology (NTNU) and †The Mining Company, Norway
11:15-11:30 Experimental study on hydraulic conductivity of a rock joint S.-B. Choi, H.-Y. Jeong, S. Lee, and S. Jeon, Seoul National University, Korea
11:30-11:45 Geological and hydrogeological reference conditions for rock engineering: an example for grading design at Aspö Hard Rock Laboratory, Sweden A. Fransson* and J. Petersson*, †Chalmers University of Technology and Consulting Geologist, Gothenburg, Sweden
11:45-12:00 Active ultrasonic imaging and interfacial characterization of stationary and evolving fractures in rock F. Pourahmadian† and B.G. Guziná†, †University of Colorado Boulder and †University of Minnesota, USA
12:00-12:15 Application of rock mass classification and blastability index for improving wall control at a hard-rock mine in Botswana G. Segesho and T. Zvarivadza, University of the Witwatersrand, South Africa
12:15-12:30 Lunch

Session Chair: J. Walls
13:45-14:00 An investigation on the relationships between the petrographic, physical and mechanical characteristics of sandstones from Newspaper Member of the Natal Group using self-organizing maps M. Ferentinou*, U. of the Witwatersrand, South Africa
14:00-14:15 Collection and processing of geotechnical data as part of a stopping panel span optimization study at an eastern Bushveld Complex platinum mine J.J. Gardner*, L.U. Bronkhorst†, and N.L. Ayres*, †Impala Platinum Limited and ‡Marula Platinum Mine, South Africa
14:15-14:30 A petrogeologic and geotechnical investigation of the stope parting between the Alfred seam and the Guss seam in the Magdalena Colliery, Dundee, South Africa T. Kemen*, E.D.C. Hingston*, and S. Mthalli*, †University of KwaZulu-Natal and ‡Buffalo Coal Ltd, South Africa
14:30-14:45 A case study: Remediation of abandoned mines for residential development I.S. Oweis*, G. Gartenberg†, and L. Oweis*, †Owes Engineering Inc and ‡The Falcon Group, United States

PETROLEUM—MEETING ROOM 2.41—2.46

Session Chair: S. Fontours
14:45-15:00 Hydraulic fracturing in plastic-deformed low-permeability reservoirs Y. Wang and F. Karaulanis†, †Petro-Geotech Inc., Canada and ‡Petro-Geotech Inc., Greece
15:00-15:15 Simulating fractured reservoirs by a coupled two phase dual porosity model Y. Wang, Petro-Geotech Inc., Canada
15:15-15:30 Stability of large underground rock caverns for crude oil storage operated below atmospheric pressure N. Gatelier and H.D. Nguyen, GeosciLok-Entrepresse, France
15:30-15:45 Borehole stability and sand production in gas reservoirs E. Papamichos*, †Aristotle University of Thessaloniki, Greece and SINTEF Petroleum Research, Greece, Norway
15:45-16:00 Afternoon Refreshments