Ninth International Symposium on Ground Support in Mining and Underground Construction

23–25 October 2019 | The Radisson Hotel, Sudbury, Canada

EARLYBIRD REGISTRATION ENDS 6 SEPTEMBER 2019!

Following on from previous symposia, the Australian Centre for Geomechanics looks forward to hosting Ground Support 2019 in Canada. The International Ground Support Symposia have been a fundamental platform for advancing ground support excellence in mining and underground construction for over 35 years. It has been more than 25 years since this symposium was held in Canada and we are delighted to return to Sudbury!

Symposium Themes

• Rock mass classification
• Modelling and field verification
• In situ and laboratory testing
• Ground support for seismic conditions and dynamic testing
• Rockfalls and failure mechanisms
• Support design methods (mining and civil engineering)
• Risk and performance assessment
• Surface support
• Ground support corrosion
• Ground support in caving
• Analytical (non-empirical) principles and methods for shotcrete support design
• Ground support monitoring
• Ground support quality control

See inside for list of 70+ accepted abstracts!

Previous Ground Support Symposia

1st 1983 Abisko, Sweden
2nd 1992 Sudbury, Canada
3rd 1997 Lillehammer, Norway
4th 1999 Kalgoorlie, Australia
5th 2004 Perth, Australia
6th 2008 Cape Town, South Africa
7th 2013 Perth, Australia
8th 2016 Luleå, Sweden

Keynote speakers include:

Peter Andrews
VP and Group Head of Geotechnical, Gold Fields Australia Pty Ltd

Dr Mark Board
Vice President – Technical Services, Hecla Limited, USA

Frédéric Mercier-Langevin
General Manager Goldex Complex, Agnico Eagle Mines Ltd., Canada

www.groundsupport2019.com
Monitoring Performance of Ground Support Workshop
22 October 2019 | Ballroom, The Radisson Hotel | Sudbury, Canada

Workshop Overview

Two main themes will be covered during this workshop.

There will be a number of short presentations from suppliers/developers of the most recent technology relevant to the theme.

The programme will conclude with a discussion enabling participants to share their experience with the technologies previously discussed and their opinions on the topic.

This workshop will run prior to the Ninth International Symposium on Ground Support in Mining and Underground Construction.

Programme Outline*

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<td>Rock Support: degradation and failure Professor John Hadjigeorgiou, University of Toronto, Canada</td>
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<td>Theme 1: Instrumentation of reinforcement and surface support</td>
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<td>Theme 2: Use of laser surveys to monitor ground support</td>
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Programme is subject to change.

Workshop Facilitators

**Professor John Hadjigeorgiou**
Pierre Lassonde Chair in Mining Engineering
University of Toronto, Canada

Professor Hadjigeorgiou holds the Pierre Lassonde Chair in Mining Engineering at the University of Toronto. John has over 25 years of extensive mining experience from both academia and industry, having served as a technical adviser to mining operations worldwide.

**Professor Yves Potvin**
Professor of Mining Geomechanics
Australian Centre for Geomechanics, Australia

Yves joined the ACG in 1998 and was Centre director 2000-2019. He has over 35 years’ experience in rock mechanics and mine design and has had managerial positions at Mount Isa Mines, the Noranda Technology Centre and worked as a mining engineer at Noranda Mines, Gaspe Division.
KEYNOTE ADDRESS: Ground support from a corporate perspective M Board, Hecla Limited, USA
KEYNOTE ADDRESS: Ground support – a mine manager’s perspective F Mercier-Langervin, Agnico Eagle Mines Ltd., Canada
Dynamic bolt development and application in ultra deep mechanised mining R Abreu, New Concept Mining, South Africa; J Elkkar, S Potgieter, Gold Fields South Africa, South Africa; P Andrews, Gold Fields Australia Pty Ltd
Explicit discrete fracture network numerical analyses of the stability of underground stopes and effects of cablebolt support at Mine Raglan P Andrieux, T Lavoie, S Guido, A2GC, Canada; R Caumartin, Glencore Canada, Canada
Dynamic testing of a surface support system R Brändle, Geobrugg AG, Switzerland; RL Fonseca, Geobrugg Ibérica S.A., Spain
Stability assessment of initial shotcrete lining using a 2D continuum modelling approach N Behrani, S Naseri, Dalt housie University, Canada
Application of the Geological Strength Index in Peruvian underground mines: retrospective 18 years after its implementation LAM Camones, Mine Design Engineering Inc., Canada; CC Nuñez, Pan American Silver Peru, Peru
Modelling the response of reinforcement elements during dynamic loading LYM Cardona, J Vallesjos, Universidad de Chile, Chile
Challenges of mining in large deformation underground mines: CSA Mine case study B Chapula, Glencore, Australia; M Sharifzaadeh, Western Australian School of Mines, Australia
Analysis of in situ and laboratory corrosion coupons AJ Chambers, CB Sunderland, CC Clark, MJ Powers, National Institute for Occupational Safety and Health, USA
Microbiologically induced corrosion in underground mines H Chen, O Kimyon, HL Ramandi, A Crosky, S Soydam, University of New South Wales Sydney, Australia
Evolution of a dynamic support system at Vale’s Copper Cliff mine: case studies DR Chinnasane, A Brecken, R Savignac, Vale Canada Ltd, Canada
Rockbolting advances at the Vanscoy Mine, Saskatchewan T Coleman, SRK Consulting (Canada) Inc., Canada; D Neely, Nutrien Vanscoy Mine, Canada
Support design validation and the need for a multi-faceted approach L Cotesa, R Brummer, T Katsoga, B Paudel, Itasca Consulting Canada Inc., Canada
Laser-based scanning to manage geotechnical risk in deep mines DB Counter, Glencore Canada Corporation, Canada
Development of a single-pass detailed damage mapping application D Cummings-Potvin, Y Potvin, J Wesseloo, P Harris, M Heinse n Egan, S Tierney, Australian Centre for Geomechanics and The University of Western Australia, Australia; C. Ha, Australia
Technologies of geotechnical support monitoring in block caving operations T Dawn, W Conrad, M van Balkom, Canary Systems, USA
Practical methods of assessing ground control hazards in the workplace AP Dirige, Workplace Safety North, Canada
Corroded rock support issues – implementation of an investigation and rehabilitation program J Dorion, Glencore Canada Corporation, Canada
Raiseboring in difficult rock conditions C Edelbro, Itasca Consultants AB, Sweden; R Brummer, Itasca Consulting Canada, Inc., Canada; M Pierce, Pierce Engineering, USA; D Sandström, Bolden Mineral AB, Sweden; J Sjöberg, Itasca Consultants AB, Sweden
Shotcrete behavior under dynamic loads and early strength development for rapid mine development F Erismann, M Hansson, Siksa, Switzerland
Ground support challenges in arctic mining conditions V Falmagne, N St-Orge, Agnico Eagle Mines Ltd, Canada
A comparison between load distributions of support tendon conditions in the laboratory and in situ using optical fiber strain sensing B Forbes, Queen’s University, Canada; N Vlachopoulos, Royal Military College of Canada, Canada; MS Dietherichs, Queen’s University, Canada; AJ Hyett, YieldPoint Inc., Canada
Evaluation of ground support design at Eleonore Mine using bonded block model T Garza-Cruz, L Bouzeran, Itasca Consulting Group Inc., USA; M Pierce, Pierce Engineering, USA; A Jablout, M Ruest, Goldcorp Inc., Australia
About the likely performance of ground support systems submitted to dynamic loading D Gaudreau, Newmont Mining Corporation, Australia
Advanced geotechnical monitoring technology to assess ground support effectiveness L Gélinas, V Falmagne, B Bédard, Agnico Eagle Mines Ltd, Canada; O Matte, Université Laval, Canada
How convincing is the quality of our resin rebar installation? – a case study O Gibbons, CE Lee, SRK Consulting (Canada) Inc., Canada
Review of seismic and geomechanics hazard, Uchucchacua Mine, Peru CV Gonzalez, Mirarco Mining Innovation, Canada; R Beltran, Buenaventura Company, Peru
Identification of critical seismic parameters contributing to high demand on ground support element at LaRonde Mine G Sasseville, M Grenon, Université Laval, Canada; O Matte, Agricolo Eagle Mines Ltd., Canada
Forensic investigations of ground control failures J Hadjiigeorgiou, University of Toronto, Canada
The evaluation of rockbolt as rock support in underground gold mine, Pongkor, West Java, Indonesia PN Hartami, S Supriyadi, Trisakti University and Syarif Hidayatullah State Islamic University, Indonesia; L Lillian, Trisakti University, Indonesia; R Pratama, PT Aneka Tambang Tbk, Indonesia
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A framework for extracting value from ground movement and support monitoring data AJ Hyett, YieldPoint Inc., Canada; BJ Forbes, Queen’s University, Canada
A case study of design and performance of diaphragm wall braced with struts for deep excavation S Iqbal, G Dora, M Naeem, Ammico Contracting Co., Qatar
Geomechanical approach to design the lower mine’s material handling system at Eleonore Mine G Sasseville, M Grenon, Université Laval, Canada; P Morisette, Agricolo Eagle Mines Ltd., Canada
Rehabilitation and recovery methods for converged drawpoints C Kamp, New Gold Inc., Canada
Preloaded dynamic testing of rockbolts G Knox, New Concept Mining, South Africa
Ground support applications at Vale’s Coleman Mine D Landry, E Reimer, Vale Canada Limited, Canada
Evolution of the support systems and support practices in high-stress conditions at Vale’s Creighton Mine F Malek, M Yao, Vale Canada Ltd., Canada
Development and application of new artificial expandable pillars for ground support in hard rock mining Y Li, Northeastern University, China
Improvements in the numerical modelling of dynamic testing for reinforcement and retaining elements used in underground excavations E Marambio, JA Vallesjos, L Burgos, University of Chile, Chile; C Gonzalez, MIRARCO Mining Innovation, Canada
Suppression of spalling risk by confinement and engineered rock mass damage A McDonald, Golder Associates Ltd., Canada; SD McKinnon, Queen’s University, Canada
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<td>Numerical investigation of the dynamic response of a rockbolt under drop testing and real seismic loading conditions</td>
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<td>Numerical modelling and laboratory verification of new deformation-controlled rock bolt</td>
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*As of 19 March 2019. Accepted abstracts list is subject to change. For updates, please visit www.groundsupport2019.com
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Ninth International Symposium on Ground Support in Mining and Underground Construction (1925) | 23–25 October 2019

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^ Students are required to provide proof of full-time enrolment.

Ground Support 2019 Symposium Dinner*
24 October 2019
* Limited to symposium attendees and partners only.

Please notify us below of any special dietary requirements.
Diet _______________________________________________________

All full registrations will receive luncheons and refreshments. Symposium papers will be accessible at papers.acg.uwa.edu.au from 21 October 2019. If you would like a printed copy of the proceedings, please tick the box below.

Ground Support 2019 Proceedings
Softbound, full colour book
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Monitoring Performance of Ground Support Workshop (1923)
22 October 2019

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Up to 8 days before event commencement: an administration fee of AUD150/CAD155 will be charged. 7 or less days before: no refund. Non-attendance: no refund. Substitutions will be accepted at any time. The ACG reserves the right to cancel the symposium and associated events if insufficient registrations are received.