

Paper Presentation Schedule

MONDAY 12.9.2016

Opening Session (KH – LS)

09:00 **Keynote Speaker:** Innovative and controversial support for rockbursting conditions Stacey, T.R.

Session 1: Numerical Modeling 1 – Support (KH - LS)

10:00	Advanced 3DEC bolt model for simulation of ground support performance in highly fractured and bulked rock masses	Bouzeran, L.; Furtney, J.; Hazzard, J.; Lemos, J.V.; Pierce, M.
10:20	Three dimensional numerical modelling of the deep Alborz tunnels with composite liners in squeezing condition	Molladavoodi, H.; Bazidehno, H.
10:40	Discrete element modelling of steel wire mesh and rockbolt plate	Xu, C.; Tannant, D.D.
11:00	Numerical modelling of dynamic response of underground openings under blasting based on field tests	Yi, C.P.; Nordlund, E.; Nyberg, U.; Shirzadegan, S.; Zhang, P.

Session 2: Seismic/Dynamic Issues 1- Rock Mass (KH – LS)

12:30	Keynote Speaker: Rock support in a Cut & Fill mine –from the operational perspective of of a mine manager	Haugen, S.
13:00	Failure mechanism related to accelerating creep of rock triggered by dynamic disturbance	Zhu, W.; Li, S.; Niu, L.; Wang, Q.; Wei, J.
13:20	Integrating microseismic and 3D stress monitoring with numerical modeling to improve ground hazard assessment	Tonnellier, A.; Bigarré, P.; Bouffier, C.; Fjellström, P.; Mozaffari, S.; Nyström, A.; Renaud, V.
13:40	In-situ dynamic testing of rock support at LKAB Kiirunavaara mine	Shirzadegan, S.; Nordlund, E.; Zhang, P.

Session 3: Ground Support Testing 1 –Rebar Bolts (KH – LS)

15:15	Keynote Speaker: Rock Support : Degradation and Failure	Hadjigeorgiou, J.
15:45	Strain of steel rebar vs rock bolt elongation on a laboratory stand	Korzeniowski, W.B.; Herezy, Ł.; Skrzypkowski, K.
16:05	Critical embedment length of fully grouted rebar bolts	Li, C.C.; Høien, A.H.; Kristjansson, G.
16:25	An Optical sensor for capturing the three-dimensional bending of bolts	Forbes, B.; Hyett, A.J.; Vlachopoulos, N.

TUESDAY 13.9.2016

Session 4: Ground Support Testing 2 – Panels and Cables (KH – LS)

08:00	Keynote Speaker: Cost increase, causes and improvements for underground roads and railway	Lundman, P.
08:30	A follow up to the behaviour of cable bolts in shear; Experimental study and mathematical modelling	Aziz, N.; Mirza, A.; Nemcik, J.
08:50	Parametric study of cable bolt performance under axial loading in medium strength synthetic rock	Li, D.; Hagan, P.C.; SAYDAM, S.
09:10	Drop testing of concrete panels and welded wire mesh at LKABs Kiirunavaara mine	Swedberg, E.; Krutrök, B.

Session 5: Seismic/Dynamic Issues 2- Support (KH – OB)

08:30	Scattering of SH-waves by a shallow circular lined tunnel with an imperfect interface	Yi, C.P.; Johansson, D.; Nyberg, U.
08:50	Establishment of experimental sites in three Swedish mines to monitor the in-situ performance of ground support systems associated with mining-induced seismicity	Zhang, P.; Boskovic, M.; Dineva, S.; Hasen-Haug, J.; Marklund, P.; Mozaffari, S.; Nordlund, E.; Nyström, A.; Töyrä, J.; Woldemedhin, B.
09:10	Local seismic systems for study of the effect of seismic waves on rock mass and ground support in Swedish underground mines (Zinkgruvan, Garpenberg, Kiruna)	Dineva, S.; Mihaylov, D.; Hansen-Haug, J.; Nyström, A.; Woldemedhin, B.

Nordic Speaker Session - Session 6: Risk-Based Support Design (KH – LS)

10:00	Nordic Speaker: Rock support in the Malmberget Mine	Töyrä, J.
10:20	Nordic Speaker: Ground Support Practices and Challenges in Finnish Underground Metal Mines	Lappalainen, P.J.; Lamberg, M.J.
10:40	Nordic Speaker: Rock support in the Boliden mines	Marklund, P.; Sandström, D.; Nyström, A.
11:00	Real-time risk assessment and ground support optimisation in underground mines	K. Mishra, R.; Janiszewski, M.; Ritala, F.; Siren, T.; Uotinen, L.
11:20	A risk-based approach to ground support design	Joughin, W.C.; Mpunzi, P.; Muaka, J.J.M.; Sewnun, D.; Wesseloo, J.

10:00 – 11:40 Session 7: Support Response (KH – OB)

10:00	Comparison between dynamic ground support methods (dynamic bolting)	Näsi, J.; Harju, H.
10:20	Methodology for stability analysis of entry-type underground excavations	Burgos, L.; Delonca, A.; Vallejos, J.A.
10:40	Sensor techniques to monitor installation and status of rock bolts	Gustafsson, L.K.K.A.
11:00	Production-blast-induced crosscut performance in a weak biotite schist- a comparison of three high-deformation bolt types	Jones, T.H.
11:40	An instrumentation project to investigate the response of a ground support system to stoping induced deformation	Sweby, G.J.; Dight, P.M.; Gamble, N.; Potvin, Y.

Nordic Speaker Session - Session 8: Case Studies – Tunneling (KH – LS)

13:00	Nordic Speaker: The Stockholm bypass project - past present and future	Lindström, B.
13:20	Nordic Speaker: Tunneling challenges in young volcanic rocks in Iceland	Geir, S.
13:40	Nordic Speaker: Tunnelling methodology for difficult rock mass conditions in Deep Subsea Tunnels	Nilsen, B.
14:00	Grouting and excavation support in Doha - Simple but challenging	Turner, R.; Kulmer, R.; Raja, S.U.
14:20	Tunnelling and reinforcement in heterogeneous ground - A case study	Lope Álvarez, D.; Bertilsson, R.; Eriksson, M.; Mas Ivars, D.; Sjöberg, J.

Session 9: Case Studies - Mining(KH – OB)

13:00	Ground support practice at Glencore's Nickel Rim South Mine - With a link to seismic monitoring data	Simser, B.; Butler, T.
13:20	Mining in extreme squeezing conditions at the Henty mine	Roache, B.
13:40	A case study review of the double fatality coal burst at Austar Colliery in NSW, Australia in April 2014	Hebblewhite, B.; M. Galvin, J.
14:00	A numerical modelling case study - correlation of ground support instrumentation data with a three dimensional inelastic model	Sweby, G.J.; Dight, P.M.; Potvin, Y.

Session 10: Support Design Applications (KH – LS)

15:10	Investigations of hard coal mine roadways stability in stratified rock	Małkowski, P.; Majcherczyk, T.; Niedbalski, Z.
15:30	Pipe umbrella system- Dimensioning and design	Strømsvik, H.; Andersson, H.; Grø, E.
15:50	Optimisation of gateroad support at the depth more than 1000 m in hard coal mines	Lubosik, Z.; Prusek, S.; Walentek, A.; Wrana, A.
16:10	Selection of ground support for mining drives based on the Q-System	Potvin, Y.; Hadjigeorgiou, J.
16:30	Methodology for incorporating new elements of support for the mine design in El Teniente mine	Muñoz J., A.; Rojas V., E.; Zepeda A., R.

Session 11: Numerical Modeling 2 – Ground Movement (KH – OB)

15:10	The contact problem of the supported circular cylindrical underground opening in elastic rock	Exadaktylos, G.E.; Stavropoulou, M.S.
15:30	Rock bolt behaviour in stress-fractured ground - A FE analysis using zero-thickness interface elements and fracture-based constitutive laws	Fornia, A.; Carol, I.; Eberhardt, E.; Garolera, D.; K. Kaiser, P.
15:50	The use of elastic superposition as part of a multi-tiered probabilistic ground support design approach	Wesseloo, J.
16:10	Experimental and numerical analysis of face pressure in EPB shield in East-West lot of line 7, Tehran subway	Maboudi, V.; Molaei, F.; Rahimi, S.; Siavoshi, H.
16:30	Ground Support Modelling involving Large Ground Deformation: Simulation of Field Observations – Part 1 AND Simulation of Conceptual Cases – Part 2	Saiang, D.; Nordlund, E.

WEDNESDAY 14.9.2016

Session 12: Rock Slope Stabilization (KH – LS)

08:00	Keynote Speaker: Tunnel design considering rock mass and shotcrete time-dependent properties	Celestino, T.B.
08:30	Photogrammetric calculation of JRC for rock slope support design	Sirkiä, J.; Iakovlev, D.; Kallio, P.; Uotinen, L.K.T.
08:50	Remediation of large scale structures in open pit mining	Bergman, A.
09:10	A proposed workflow for slope stabilization projects	Botsialas, K.
09:30	Building a structural model for assessing potential pit slope failure - a case of a Norwegian mine	Morales, M.; Botsialas, K.; Holmøy, K.H.; Panthi, K.K.

Session 13: Ground Support – Theory and Advancement (KH – LS)

10:20	Keynote Speaker: Some aspects on ground behaviour and rock support challenges in difficult ground, from a Scandinavian perspective	Sturk, R.
10:50	Dynamic twisted rockbolt for underground excavation in deep mine conditions	Pytel, W.; Mertuszka, P.; Szeptun, K.
11:10	An experimental study to investigate the interaction of backfill and rock mass	Moser, A.; Ladinig, T.; Wagner, H.; Wallner, F.
11:30	Laboratory Investigation of Rock-Shotcrete Deboning Due to Ice Growth using Acoustic Emission	Manali, G.; Dineva, S.; Nordlund, E.
11:50	Theoretical investigation of the effect of stress on the performance of support systems based on Rock Mass Rating (RMR) support recommendations	Karakaplan, E.; Başarir, H.; Wesseloo, J.

Session 14: Ground Support – Applications (KH – LS)

13:15	Strategic use of urban underground space	Knights, M.
13:45	Quality assessment of backfill performance for an underground iron mine in Turkey	Yardimici, A.G.; Guner, D.; Karpuz, C.; Ozturk, H.; Tutluoglu, L.
14:05	Scale effect of thin spray-on liners for pillar reinforcement	Guner, D.; Ozturk, H.
14:25	Fibre reinforced spray concrete- Minimum performance requirement to meet safety needs	De Rivaz, B.
14:45	Ground support and reinforcement system remediation at the Cethana Power Station, Tasmania, Australia	Hills, P.B.; Liang, M.; S. Pennington, D.; Weller, J.