

Rock Engineering in Norway and Development Trend of Underground Rock Support

Dr. Charlie C. Li

The Norwegian University of Science and Technology (NTNU)

WEDNESDAY, November 19th at NOON in BB W210

- Lunch Provided -



Underground stadium 90 x 60 x 25 m



Rockburst at depth

The first part of the presentation is about the utilization of underground spaces in Norway, which include hydropower plants, civil facilities (stadium, railway stations, storage caverns), subsea tunnels as well as road / railway tunnels. The second part is about the recent development of rock support design in high stress rock masses, particularly in deep mines. Instability issues, a new concept for rock support design and concrete measures to combat instabilities are covered in the presentation.



Dr. Charlie C. Li is professor of rock mechanics for civil and mining engineering at the Norwegian University of Science and Technology (NTNU) in Norway. He received his BSc and MSc in geological engineering in China, and his PhD in mining rock mechanics in Sweden. He has a long experience in both research and engineering practice in mining and underground construction, approximately 20 years in academic institutions and 4 years as a mining engineer in a deep mine in Sweden. He has been appointed as professor in rock mechanics at NTNU since 2004. He is a member of the Norwegian Academy of Technological Sciences.

Dr. Li's research interests are stability analysis and stabilization of underground spaces, particularly in high stress rock masses. He has promoted to taking into account the energy transfer between the rock mass and the support system in rock support design. He invented the innovative energy-absorbing rock bolt D-Bolt based on the concept of energy transfer. The rock bolt was quickly accepted by the mining industry and is now used in deep mines world widely, for instance in Sweden, Canada, USA, Chile, Australia and South Africa. Dr. Li has been also involved in the design, excavation and stability analysis of large scale underground spaces, for instance two hydropower underground caverns in Himalayas.

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