NANYANG TECHNOLOGICAL UNIVERSITY
Protective Technology Research Centre

SRMEG
Society for Rock Mechanics & Engineering Geology (Singapore)

Seminar on

(1) Monitoring, In-situ Testing and Computer Modeling of Underground Excavation Stability
(2) In-mine Monitoring of Ground Vibration due to Rock Blasting and Computer Simulations of Rock Blasting

By Prof CHEN Gang
Department of Mining and Geological Engineering
College of Engineering and Mines
University of Alaska Fairbanks, USA

Date: 21 December 2010, Tuesday
Time: 3:30 pm to 5:30 pm
Venue: CEE Seminar Room A
Block N1, Level B1, N1-B1b-06
School of Civil and Environmental Engineering (CEE), NTU

About the Seminar

This seminar will contain two presentations.

The ***first presentation*** focuses on the underground mining excavation stability, specifically the studies related to 1) investigation into yield pillar behavior and applications of yield pillars in ground stress control; 2) in-mine testing and modeling studies on time-dependent properties of underground weak floors; and 3) monitoring and analysis of underground mine opening creep deformations. An in-mine monitoring study was conducted in a deep underground nickel mine. The mine openings suffered severe creep deformation which became a major obstacle in mining operations. In order to provide remedies for the significant creep, an in-mine monitoring program was carried out to observe the time-dependent mine opening convergences and ground movements around mine openings. In-depth analyses were performed and suggested remedies were provided.

The ***second presentation*** describes a study which involved a monitoring program to observe and measure the ground vibration due to rock blasting. The monitoring program studied the attenuation of ground vibration in and around the mine site, and ultimately determined the vibration impact to the concerned satellite tracking station. The effects of geological discontinuities on rock fragmentation pattern and backbreak (damage to surrounding rock) during open-pit mine bench blasting were investigated with computer simulations. Useful conclusions were drawn to facilitate open-pit rock blasting designs.

About the Speaker

Dr. Gang Chen received his undergraduate diploma in mining eng from Shandong Mining Institute of China, MS in mining eng from Colorado School of Mines and Ph.D. in mining eng from Virginia Tech. He has been with the University of Alaska Fairbanks of USA since 1993 and is currently a professor of mining engineering in the Department of Mining and Geological Eng, College of Engineering and Mines. He has been teaching rock mechanics, rock blasting, mine ground control, mine plant design and other engineering courses. He has advised 14 Ph.D. and Master students as the major advisor and served on the advisory committees for another 25 graduate students. He has conducted research in rock mechanics, rock blasting and other mining eng related fields for over 25 years and has many publications from his research work. He is currently a registered professional mining engineer in the States of Alaska and Virginia.