

The Norwegian Method of Tunneling (NMT)

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WEDNESDAY MARCH 20th at NOON in BB125
- Lunch Provided -

Key concepts and features behind the Norwegian Method of Tunneling (NMT) include the use of: (1) “design as you go” procedure, (2) “wet and flexible” construction, and (3) “expect the unexpected” flexible contracting system. A background is provided in the development of NMT and how this method evolved in the light of different large Norwegian underground construction projects. The Q-system, the backbone of the NMT, is discussed in detail, including how Q-logging and mapping of rock masses are performed and used in the design of excavations in rocks. Another important component of the NMT is the use of the Distinct Element Method (DEM) as implemented in the computer programs UDEC (Universal Distinct Element Code) and 3DEC (Three-Dimensional Distinct Element Code) in the validating tunnel design. The presentation will illustrate the use of Q, NMT and UDEC in the geologic mapping, design and verification of the Shimizu Tunnel #3 in Japan.



Dr. Marte Gutierrez is the J. R. Paden Distinguished Professor at the Department of Civil and Environmental Engineering, Colorado School of Mines. He was Post-doctoral Fellow, Senior Engineer and Program Leader at the Norwegian Geotechnical Institute, and Associate Professor/Professor at Virginia Tech. He has held visiting professorship and researcher positions in China, Chile, France, Japan and South Korea. He has been involved in major tunnel construction projects in China, Japan, Norway, South Korea and UK, and in the study of the potential use of the Kimballton Mine in western Virginia as a site for DUSEL (Deep Underground Science and Engineering Laboratory). He was the recipient of the 2011 Geotechnical Research Medal from UK’s Institute of Civil Engineers.

