

Breakthroughs in Tunneling



Colorado School of Mines
Golden, Colorado USA

in conjunction with

TBM: Tunnel Business



A Three-Day Tunneling Short Course
September 23–25, 2009
Colorado School of Mines, Golden Colo.

Colorado School of Mines, in conjunction with *TBM: Tunnel Business Magazine* and Microtunneling Inc., presents Breakthroughs in Tunneling – a three-day Short Course that will cover all aspects of conventional and mechanized tunnel design and construction in hard rock, soft ground and soils.

Presented by international experts in the tunneling community, this one-of-a-kind Short Course provides in-depth, specialized instruction not offered anywhere else in the world. The Short Course benefits anyone involved in the multi-billion dollar global tunneling sector.

The course subjects will be presented by prominent international experts from industry and academia. The course attendees will receive CEUs for attending the course. This course is highly recommended for technical and management professionals from owners, engineers, contractors, consulting firms and anyone else involved in tunneling and underground construction.

Course Directors

Dr. Levent Ozdemir, Professor, Colorado School of Mines

Timothy Coss, President, Microtunneling Inc.

Both Ozdemir and Coss are widely recognized in the tunneling and microtunneling sector. Dr. Ozdemir has spent more than 30 years as a Professor at the Colorado School of Mines where he has taught and carried out research in mechanical tunneling and underground construction. Coss' company provides equipment, product support and engineering services for state-of-the-art tunneling and microtunneling projects across the globe for the past 23 years.

The two also serve as course directors for the successful and long-running Microtunneling Short Course. With more than 1,700 students from 25 countries attending over the last 17 years, the Microtunneling Short Course is recognized as the world's leading educational venue for microtunneling.

Registration

Registration is available online through www.tunneling.com. For additional information, visit the website or contact the Colorado School of Mines Office of Special Programs and Continuing Education at (303) 273-3321.

Golden, Colo.

Located near Denver, in the foothills of the Rocky Mountains, Golden, Colo., is centrally located for a wealth of activities and attractions. Attractions in the immediate vicinity include the Coors Brewery plant tours, the Buffalo Bill Gravesite and Museum, and the Colorado Railroad Museum. Golden lies just 15 miles from Denver, which offers even more diverse attractions. The Rocky Mountains provides a wealth of opportunities for hiking, biking and more.

Getting There

Golden is located about 45 miles east of Denver International Airport. Rental cars and shuttles are available from the airport. A complete list of transportation providers with contact information is available on the airport website at <http://flydenver.com>.

Lodging

There are several hotels available in the immediate vicinity of the School of Mines Campus. For a full list of hotels, visit the Chamber of Commerce website at <http://www.goldenochamber.org/QuickLinks/lodging.asp>.

TUNNELING SHORT COURSE 2009

Colorado School of Mines

September, 23-25, 2009

Course Directors: Levent Ozdemir and Timothy Coss

WEDNESDAY, September 23rd.

7:30AM – 8:00AM	Registration
8:00AM – 8:15AM	Opening Remarks – Levent Ozdemir, Ph.D., P.E., Professor, Colorado School of Mines
8:15AM – 9:15AM	Site Investigations – Greg Raines, P.E., National Tunneling Practice Leader, MWH, Montgomery Watson Harza
9:15AM – 9:45AM	Geotechnical Baseline Reports – Randy Essex, Executive Vice President, Hatch Mott MacDonald
9:45AM – 10:00AM	Coffee Break
10:00AM – 10:30AM	Risk Assessment – Bob Goodfellow, P.E., Director of Tunneling for East Region, Black & Veatch
10:30AM – 11:15AM	Selection of Excavation Method – Gary Brierley, Ph.D, P.E., President and COO, Brierley Associates
11:15AM – 11:45AM	Design for High Water Inflows – Bill Hansmire, Senior Vice President, PB
11:45AM – 12:30PM	Lunch
12:30PM – 1:15PM	Shaft Design and Construction – Glenn Boyce, Ph.D., P.E., Senior Associate, Jacobs Associates
1:15PM – 2:00PM	Tunnel and Ground Support Design – David Caiden, Principal, Arup
2:00PM – 2:45PM	NATM Design and Construction – Victor Romero, Principal, Jacobs Associates
2:45PM – 3:00PM	Coffee Break
3:00PM – 3:45PM	Pipe Umbrella and Roof Bolts – Franz Walchshofer, Regional CEO, South America, Alwag-DSI
3:45PM – 4:30PM	Drill and Blast Tunneling – Bill Warfield, Product Manager Ground Engineering Products, Atlas-Copco
4:30PM – 5:15PM	Roadheader Tunneling – Bruno Reumueller, Vice President, Product Line Management, Sandvik



THURSDAY, September 24th.

8:00AM – 8:30AM	Tunneling Through Difficult Ground – Don Deere, P.E., P.G., Chairman of the Board, Deere & Ault
8:30AM – 9:15AM	Hard Rock TBMs – Brian Khaligli, Chief Engineer, Robbins
9:15AM – 10:00AM	EPB Machines – Werner Burger, Chief Engineer, Herrenknecht
10:00AM – 10:15AM	Coffee Break
10:15AM – 11:00AM	Slurry Shield Machines – Werner Burger, Chief Engineer, Herrenknecht
11:00AM – 11:45AM	Predicting Groundwater Inflows – Jack Raymer, Chief Tunnel Geologist, Jordan Jones & Goulding
11:45AM – 12:15PM	Guidance and Monitoring of Tunneling Machines – Nod Hackston, International Sales Manager, VMT-Gmbh
12:15PM – 1:00PM	Lunch
1:00PM – 1:30PM	Machine Excavation in Bouldery Ground – Steven Hunt, Principal, CH2M Hill
1:30PM – 2:00PM	TBM Production and Cutter Life – Levent Ozdemir, Ph.D., P.E., Professor, Colorado School of Mines
2:00PM – 2:45PM	Segmental Concrete Liners – Jon Hurt, Design Manager, Arup
2:45PM – 3:00PM	Coffee Break
3:00PM – 3:30PM	Overview of Underground Grouting – Ray Henn, Principal, Lyman-Henn Inc
3:30PM – 4:00PM	Jet and Compaction Grouting – Joe Harris, Denver Branch Manager, Hayward Baker
4:00PM – 4:45PM	Probe Drilling and Pre-excavation Grouting – Knut Garshol, Vice President-Americas, BASF
4:45PM – 5:15PM	Consolidation and Contact Grouting – Brad Crenshaw, District Manager, Nicholson
7:00PM	Banquet – Banquet Speaker TBA

FRIDAY, September, 25th.

8:00AM – 8:45AM	Tunnel Utilities – Brian Fulcher, Project Manager, JF Shea
8:45AM – 9:15AM	Slurry Separation and Handling – Ben Clark, Sales, Derrick Equipment
9:15AM – 10:00AM	Microtunneling – Timothy Coss, President, Microtunneling Inc.
10:00AM – 10:15AM	Coffee Break
10:15AM – 11:00AM	Tunnel Costing and Scheduling – Jim Peregoy, President, Peregoy Construction
11:00AM – 11:30AM	Construction Management – Tom Peyton, IS Manager, PB
11:30AM – 12:00PM	Dispute Resolution – Ray Henn, Principal, Lyman-Henn
12:00PM – 12:45PM	Lunch
12:45PM – 1:15PM	Case History-NATM Tunnels – Devil's Slide Tunnel, Kiewit
1:15PM – 1:45PM	Case History-Hard Rock TBM Tunnels – Ohbayashi
1:45PM – 2:15PM	Case History-EPB Tunnels-LA – Traylor
2:15PM – 2:45PM	Case History-Slurry Shield Tunnels, Portland CSO – Kiewit
2:45PM – 3:15PM	Case History-Large Diameter TBM Tunnels – Vinci
3:15PM	Closing Remarks and Adjourn – Levent Ozdemir, Ph.D., P.E., Professor, Colorado School of Mines