Final Workshop Program

Resiliency of Urban Tunnels

Sep 1 2016
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Background

Tunnels have become a major critical component of our industrialized societies. However, their operation and maintenance is largely realized through heuristic approaches rather than a structured risk-based approach. The current research and practice in engineering risk is subjected to a key deficiency: while lots of efforts have been exerted on risk assessment, a little has been done for risk control including resilience of underground structures, thus resulting in unexpected economic losses. An application-oriented method for dynamic risk control is of great necessity for the safety of the underground and lifeline projects. As a particular technical challenge this approach needs to combine elements from structural engineering and systems engineering. Moreover, it needs to include a large monitoring component, and it needs to be dynamic to account for rapid changes in system states and conditions. In operating such ever growing infrastructure systems, the risk associated with the structural safety of shield tunnels has become a focus of the government and the public in the world. Since this situation does not only apply to one country or society but is a global problem, it can be addressed best with joint forces.

Objectives

This workshop convenes selected researchers in the areas of geotechnical, structural and systems risk from around the world in order to identify a structured research agenda for the development of a dynamic risk control approach. This workshop is supposed to cumulate in the development of large-scale research proposals by the attendees, which are all synchronized. On this basis a mechanism of resilience for urban shield tunnels could be developed very efficiently and within a short time. Consequently, the risk associated with the structural safety could be controlled and high cost effectiveness can be achieved.

Important Dates

- 20th Jul, 2016: required for-free online registration at http://jsform.com/f/zlramk
- Reserve your room as soon as possible at www.SheratonReston.com/ASCE (Sheraton Reston)
- Aug 31st - Sep 1st , 2016 workshop (Aug 31st for registration)

Discussion Topics

- Monitoring for risk control of tunnels
- Robust design of tunnels
- Modeling and management of uncertainty

Workshop Outcome

(i) State-of-the-art ASCE-Publications within the research topic areas;
(ii) Agenda for large-scale joint research proposals for international cooperation.

Registration and Fees

No fees
Required online registration at
http://jsform.com/f/zlramk
No later than 20th Jul, 2016

Organizers and Contacts

Professor **Michael Beer**, Lead
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Professor **Hongwei Huang**, co-chair
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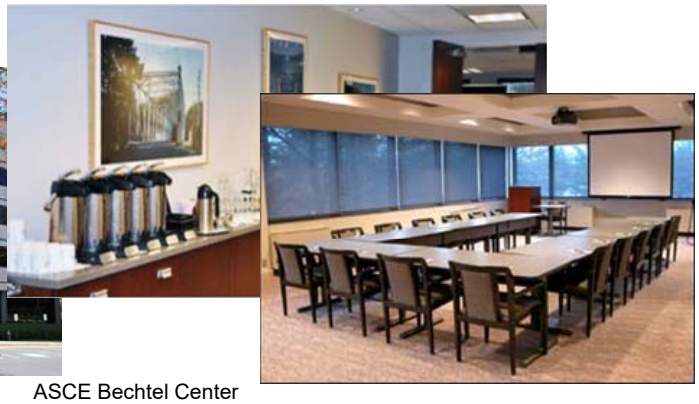
Professor **Brian Phillips**, Discussion Director
University of Maryland, Email: bphilli@umd.edu

Workshop Venue

ASCE Headquarters
ASCE Bechtel Center
1801 Alexander Bell Drive
Reston, VA 20191
(800) 548-2723

Recommended hotel:
www.SheratonReston.com/ASCE
11810 Sunrise Valley Dr., Reston VA 20191, 703-620-9000



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Final Workshop Agenda

Evening of Aug 31st , 2016: Registration					
Time	Topic	Duration	Room	Speakers	
6:00 - 9:00 pm	Registration, Discussion and Hosted Dinner (Vinifera Bistro, Westin Hotel adjacent to the Sheraton Reston Hotel)	180			
Sep 1st :Workshop					
Time	**Topic**	**Duration**	**Room**	**Speakers**	
8:30 - 8:40	Welcome			Prof. B. Ayyub and Prof. C. Schwartz	
	Opening remarks			Prof. M. Beer and Prof. H.W. Huang	
	Technical Presentations				
8:40 - 9:10	Enhancing Civil Infrastructure Resilience with Integrated Structural Health Monitoring	30		Prof. Y.F. Zhang University of Maryland, US	
9:10 - 9:40	Monitoring for risk control of tunnels - II	30		Dr. L. Galisson, Soldata Group, US	
9:40 - 10:10	Robust design of tunnels	30		Prof. C. H. Juang Prof. S. Atamturktur Clemson University, US	
10:10 - 10:40	The Decision Aids for Tunneling - Principle and Applications	30		Prof. H. Einstein, MIT, US	
10:40 - 10:50	**Break**	10			
10:50 - 11:20	Modeling and management of uncertainty - I	30		Dr. K. Zuev, CALTECH, US	
11:20 - 11:50	Modeling and management of uncertainty - II	30		Prof. G. Meschke, Ruhr University Bochum, German	
11:50 - 12:20	Issues affecting tunnel resiliency - an owner's perspective	30		Mr. B. Bergeson, Federal Highway Administration Mr. B. Wolfe, Maryland Transportation Authority	
12:20 - 12:30	Breakout sessions: Knowledge gaps & research needs	5		Prof. M. Beer	
12:30 - 12:40	Group photo	5			
12:40 - 13:30	**Lunch**	60			
13:30 - 15:30	**Breakout 1. Monitoring for risk control of tunnels**			Chair: Prof. H.W. Huang Prof. Y.F. Zhang	Discussion Director Prof. B. Phillips
	Phase 1. Broad scope brainstorming	40			
	Phase 2. Prioritization and selections	40			
	Phase 3. Report preparation	40			
13:30 - 15:30	**Breakout 2. Robust design of tunnels**			Chair: Prof. C.H. Juang Prof. S. Atamturktur	
	Phase 1. Broad scope brainstorming	40			
	Phase 2. Prioritization and selections	40			
	Phase 3. Report preparation	40			
13:30 - 15:30	**Breakout 3. Modeling and management of uncertainty**			Chair: Prof. M. Beer Prof. B. Ayyub	
	Phase 1. Broad scope brainstorming	40			
	Phase 2. Prioritization and selections	40			
	Phase 3. Report preparation	40			
15:30 - 15:40	**Break**	10			
15:40 - 16:55	Summaries: Joint session				
	Breakout 1. Monitoring for risk control of tunnels	15+10		Prof. H.W. Huang	
	Breakout 2. Robust design of tunnels	15+10		Prof. C.H. Juang	
	Breakout 3. Modeling and management of uncertainty	15+10		Prof. B. Ayyub	
16:55 - 17:10	Post workshop plans and adjournment	15		Prof. M. Beer	