

Final Workshop Program

Resiliency of Urban Tunnels and Pipelines

Sponsors



Supporters



Background

Tunnels and pipelines 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 and pipelines 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

We conduct a workshop with 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 and pipelines 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.

Sep 1 2016
ASCE Bechtel Center
www.asce-bechtel-center.org

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 and pipelines
- Robust design of tunnels and pipelines
- 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 **Bilal Ayyub**, co-chair

University of Maryland, Email: ba@umd.edu

Professor **Hongwei Huang**, co-chair

Tongji University, Email: huanghw@tongji.edu.cn

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 31 st , 2016: Registration				
Time	Topic	Duration	Room	Speakers
6:00 - 9:00 pm	Registration, Discussion and non-host Dinner (in the hotel)	180		
Sep 1 st : Workshop				
Time	Topic	Duration	Room	Speakers
8:30 - 8:40	Welcome and Introduction	5		Prof. M. Beer Prof. B. Ayyub Prof. HW Huang
	Opening remarks	5		
Technical Presentations				
8:40 - 9:20	Monitoring for risk control of tunnels and pipelines - I	40		Prof. YF Zhang University of Maryland, US Dr. Loic Galisson, Soldata Group, US
9:20 - 10:00	Monitoring for risk control of tunnels and pipelines - II	40		
10:00 - 10:40	Robust design of tunnels and pipelines	40		Prof. C. H. Juang Prof. S. Atamturktur Clemson University, US
10:40 - 10:50	Break	10		
10:50 - 11:30	Modeling and management of uncertainty - I	40		Dr. K. Zuev, CALTECH, US Prof. Günther Meschke, Ruhr University Bochum, German
11:30 - 12:10	Modeling and management of uncertainty - II	40		
12:10 - 12:15	Breakout sessions: Knowledge gaps & research needs	5		Prof. M. Beer
12:15 - 12:20	Group photo	5		
12:20 - 13:30	Lunch	60		
13:30 - 15:30	Breakout 1. Monitoring for risk control of tunnels and pipelines			Chair: Prof. HW Huang Prof. YF Zhang
	<i>Phase 1. Broad scope brainstorming</i>	40		
	<i>Phase 2. Prioritization and selections</i>	40		
13:30 - 15:30	Breakout 2. Robust design of tunnels and pipelines			Chair: Prof. CH Juang Prof. S. Atamturktur
	<i>Phase 1. Broad scope brainstorming</i>	40		
	<i>Phase 2. Prioritization and selections</i>	40		
13:30 - 15:30	Breakout 3. Modeling and management of uncertainty			Chair: Prof. M. Beer Prof. B. Ayyub
	<i>Phase 1. Broad scope brainstorming</i>	40		
	<i>Phase 2. Prioritization and selections</i>	40		
13:30 - 15:30	<i>Phase 3. Report preparation</i>	40		
	Break	10		
	15:40 - 16:55	Summaries: Joint session		
<i>Breakout 1. Monitoring for risk control of tunnels and pipelines</i>		15+10		
<i>Breakout 2. Robust design of tunnels and pipelines</i>		15+10		
<i>Breakout 3. Modeling and management of uncertainty</i>		15+10		
16:55 - 17:10	Post workshop plans and adjournment	15		Prof. M. Beer
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Recommended Hotel: www.SheratonReston.com/ASCE (Sheraton Reston)				

Discussion Director
Prof. Brian Phillips