

2017 National ABC Conference – Pre-Conference Workshops

W-11: Accelerated Bridge Construction in Seismic Regions

Wednesday, December 6, 2017 – 1:00 p.m. to 5:00 p.m.

Introduction:

This workshop provides an opportunity for exchange of the latest information in research and implementation of ABC in seismic regions. Devising connections that can accommodate inelastic cyclic deformations and are readily constructible is the primary challenge for ABC in seismic regions. Ductile behavior is desirable under earthquake loadings for both the longitudinal and transverse directions of the bridge. The workshop demonstrates technologies for delivering bridge construction projects in weeks, rather than months, for reducing congestion, improving safety and increasing the quality of highway bridges in seismic regions.

Workshop Organizer:

Bijan Khaleghi, Ph.D., P.E., Washington State Department of Transportation

Program:

1:00 p.m.	Welcome and Introduction to Workshop	Moderator – Bijan Khaleghi, Ph.D., P.E.
1:10 p.m.	SDCL for ABC Application in Seismic Areas	Atorod Azizinamini, Ph.D., P.E.
1:35 p.m.	NCHRP ABC/PBES Research Project Updates	Waseem Dekelbab, Ph.D., P.E.
2:00 p.m.	“Better-Faster-Cheaper. Can we please have all three?”	John Stanton, Ph.D.
2:25 p.m.	Research, Design, and Construction of California ABC Column-to-Cap & Girder-to-Cap Connections	Tom Ostrom, P.E.
2:50 p.m.	<i>Break</i>	
3:00 p.m.	Design of Accelerated Construction Connections for Concrete Filled Tubes	Dawn Lehman, Ph.D., P.E.
3:25 p.m.	Low-Damage Hybrid Precast Concrete Segmental Bridge Columns	Pinar Okumus, Ph.D.
3:50 p.m.	Seismic Characteristics of Jointless Bridges	Phil Yen, Ph.D., P.E. / Bruno Biseghella, Ph.D.
4:15 p.m.	ABC Using Innovative Materials, Design and Construction Methods	M. “Saiid” Saiidi, Ph.D., P.E.
4:40 p.m.	An Accelerated Construction Method for Bridge Substructures	Sri Sritharan, Ph.D.
5:00 p.m.	Adjourn	

Speakers & Bios, W-11: Accelerated Bridge Construction in Seismic Regions

Bijan Khaleghi, Ph.D., P.E., S.E., Bijan.Khaleghi@wsdot.wa.gov (**Organizer & Moderator**)

Bijan is State Bridge Design Engineer with Washington State Department of Transportation, and adjunct faculty at Saint Martin's University. Before his current position, Bijan was the Concrete Specialist and senior structural engineer for WSDOT Bridge and Structures office. He received his Master and Doctor of Engineering degrees from the National Institute of Applied Sciences, France. Bijan is a member of AASHTO Technical Committees T-8 Movable Bridges, T-10 Concrete, and T-20 Roadway Tunnels. He is Chair of the PCI Seismic Subcommittee and is a member of PCI and ASBI Bridge Committees; TRB Committees AFF30 Concrete, AFF50 Seismic, and International Road Association, PIARC. Bijan has authored papers on prestressed concrete and seismic design, and has won numerous PCI and ASCE, TYLin awards.

Atorod Azizinamini, Ph.D., P.E., aazizina@fiu.edu

Atorod is Professor and Chair of the Civil and Environmental Engineering Department and Director of the ABC-UTC at FIU. He has carried out a number of research studies in the earthquake engineering field in both bridge- and building-related topics. His current research studies include development of economical steel bridge systems suitable for seismic areas in conjunction with ABC. Atorod was part of U.S. research team during the U.S.-Japan cooperative work in earthquake engineering. He has published extensively and routinely gives keynote talks on bridge engineering topics in the U.S. and abroad. He is a registered professional engineer.

Bruno Briseghella, Ph.D., bruno@fzu.edu.cn

Bruno is Distinguished Professor and Dean of the College of Civil Engineering of Fuzhou University (Fujian, China) and Founding Director of the "Sustainable and Innovative Bridge Engineering Research Center." He graduated with Bachelor's and Master's Degrees from Padova University (Padova, Italy) and a Ph.D. from Trento University (Trento, Italy). His main research activities have been focused on bridge and structural design, integral abutment bridges, earthquake engineering, durability, monitoring, retrofit of bridges, and steel and steel-concrete structures, both from the theoretical and experimental point of view. He has published more than 150 scientific papers in international journals and conferences.

Waseem Dekelbab, Ph.D., P.E., WDeKelbab@nas.edu

Waseem is Senior Program Officer with the Transportation Research Board's National Cooperative Highway Research Program (NCHRP). He manages (i.e., from project initiation to closeout) more than 40 bridge and structure research projects (\$15 million) sponsored by the American Association of State Highway and Transportation Officials (AASHTO) related to design and specifications, safety and security, construction, new materials, inspection, maintenance, repair and strengthening, testing and instrumentation, and asset management and performance measures.

Dawn Lehman, Ph.D., P.E., delehman@uw.edu

Dawn is a Professor of Civil and Environmental Engineering at the University of Washington. Her research focuses on experimental and analytical investigation of components and systems for performance-based seismic design, evaluation and retrofit. In addition to over a decade of research on concrete filled tubes (CFTs), she has extensively researched steel brace frames, concrete walls, sustainable, low-cement concretes, and nonductile concrete frames. She has published extensively on all of these subjects. Her research results have been implemented in various design codes, manuals and provisions.

Pinar Okumus, Ph.D., pinaroku@buffalo.edu

Pinar is an Assistant Professor of Civil Engineering at the University at Buffalo, the State University of New York. The focus of her research is understanding the behavior of reinforced and prestressed concrete

structures under service and extreme loads. Her work to date covered investigating nonlinear behavior of prestressed concrete, large-scale testing with advanced materials for seismic resiliency, accelerated bridge construction, in-situ testing and analytical modeling to develop design and analysis methods for resilient, durable, sustainable and rapidly constructed structures. She obtained her M.S. and Ph.D. degrees at University of Wisconsin, Madison and her B.S. degree at Middle East Technical University in Turkey.

Tom Ostrom, P.E., tom.ostrom@dot.ca.gov

Tom Ostrom is State Bridge Engineer and Deputy Division Chief of Structure Policy and Innovation at Caltrans. He has held various positions in bridge design, geotechnical engineering, and engineering management at Caltrans over the past 29 years. In his current position, Tom provides statewide direction and control of all bridge and structure standards. He is responsible for implementation of structure policies, specifications, criteria and procedures and leads the Caltrans structures seismic safety program and bridge quality management program. Previously, Tom managed the Office of Earthquake Engineering, Analysis and Research, where his responsibilities included the Caltrans seismic research program, earthquake engineering policy, and bridge engineering software.

M. "Saiid" Saiidi, Ph.D., P.E., saiidi@unr.edu

Saiid is Professor of Civil Engineering at the University of Nevada, Reno; Director of the Center for Advanced Technology in Bridges and Infrastructure (CATBI); and Co-Director of the Accelerated Bridge Construction Center. He served as the Chairman of the Civil Engineering Department for eight years and as the Director of Undergraduate Research at the Vice President for Research Division for six years. Saiid has published more than 500 technical papers and reports. He has received numerous awards including the Outstanding Researcher Award, Lemelson Innovation Award, Established Innovator Award, and University of Illinois Distinguished Alumnus Award.

John Stanton, Ph.D., stanton@uw.edu

John is Professor of Civil Engineering at the University of Washington, Seattle, where he has taught and conducted research for 39 years, specializing in Structural Engineering. He holds degrees from Cambridge University (UK), Cornell, and UC Berkeley, and worked in structural design practice in England, France, and Canada before joining the University of Washington. His research interests are broad, but many are associated with precast and prestressed concrete. Ongoing projects include creep and camber prediction, lateral buckling, UHPC, and elastomeric bearings.

Sri Sritharan, Ph.D., sri@iastate.edu

Sri is the Wilkinson Chair Professor in the College of Engineering at Iowa State University. His research expertise includes earthquake-resistant design of structures, precast structural systems, soil-foundation-structure interaction, and ultra-high performance concrete. Sri has been engaged in ABC related work for many years. He is an active member of several professional societies and organizations including the American Concrete Institute (ACI), Precast/Prestressed Concrete Institute (PCI), and TRB. He is the immediate past chair of ACI's Committee on Earthquake-Resistant Concrete Bridges.

Phil Yen, Ph.D., P.E., pyen@iabee.org

Phil is the chairperson of the newly formed International Association of Bridge Earthquake Engineering (IABEE). His professional experience includes: highway engineer, research program manager, senior research structural engineer, and principal bridge engineer of the Federal Highway Administration since 1992. Phil was named "The Engineer of the Year 2000" for a highway agency. He received many outstanding awards from the agency including an Engineering Excellence Award in 1999. He was nominated to receive the award of the top U.S. Seismic Engineers of the 20th century. He recently received the distinguished alumni award from National Taipei Science and Technology University and a high level Superior Achievement Award from a highway agency in October 2009.