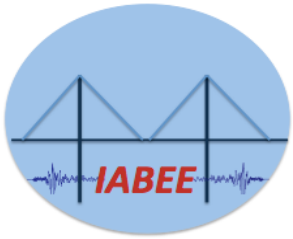
The 3rd International Bridge Seismic Workshop

October 2-3, 2019

Seattle, Washington, USA



International Association
Bridge Earthquake Engineering

INTERNATIONAL ASSOCIATION OF BRIDGE EARTHQUAKE ENGINEERING (IABEE), USA

BRIDGE AND STRUCTURE OFFICE - WASHINGTON STATE DEPT. OF TRANSPORTATION, WA, USA

COLLEGE OF CIVIL ENGINEERING - TONGJI UNIVERSITY, SHANGHAI, CHINA

DEPARTMENT OF CIVIL ENGINEERING - UNIVERSITY OF WASHINGTON, SEATTLE, WA, USA

Phil Yen, Organizer

Dawn Lehman, UW & Bijan Khaleghi, WSDOT Chairs

October 2, 2019

Plenary Session I - Keynote Lectures (8:30-12:10) *HUB 250*

Concurrent Session I (13:30-17:30)

Session I A - Seismic Design Track	*HUB 214*
Session I B - Seismic Analysis/Assessment	*HUB 340*
Session I C - Seismic Retrofitting & Ground Motion	*HUB 337*

October 3, 2019

Plenary Session II - Keynote Lectures (8:30-12:10) *HUB 250*

Concurrent Session II (13:30-17:30)

Session II A - Seismic Design	*HUB 214*
Session II B - Seismic Performance Testing/Assessment	*HUB 332*
Session II C - Seismic Retrofitting & Mitigation Measures	*HUB 337*

October 2, 2019	Presenting Title & Presenter

Plenary Session I (Keynote Lectures)

1. ***Re-Visiting Earthquake Resistant Design of Bridges***

   – ***Gian Michele Calvi,*** *Professor of the IUSS Pavia, Italy, and Adjunct Professor at the North Carolina State University*

2. ***Seismic Design Requirements and Construction Challenges of Lifeline Essential and Critical Bridges***

   – ***Bijan Khaleghi,*** *PhD, PE, SE State Bridge Design Engineer, Washington State Department of Transportation*

3. ***Seismic Damage Mechanism and Control of Long-Span Bridges***

   – ***Jianzhong Li,*** *Ph.D. Deputy Dean of the college of civil engineering of Tongji University and the Director of Tongji's Multi-Functional Shake Table at Jiading Campus, Shanghai, China.*

4. ***State DOT Seismic Resiliency Assessment Process and Mitigation Program***

   – ***Bruce Johnson,*** *PE, SE, Former State Bridge Engineer,*

   Oregon Department of Transportation

5. ***Current PEER (Pacific Earthquake Engineering Center) Research Supported by the California Transportation Systems Research Program***

   - Dawn E. Lehman *(Incoming Chair of PEER Institutional Board and PEER Researcher, Professor of Civil & Environmental Engineering)* & *Khalid Mosalam, Taisei Professor of Civil Engineering, Director of the Pacific Earthquake Engineering Research Center, UC Berkeley*

Concurrent Session IA - Seismic Design Track

1. ***Smart shear keys to prevent bridge girders from falling off during earthquakes and tsunami*** *– Genda Chen, Missouri University of Science and Technology, Rolla, USA*
2. ***Connections for resisting longitudinal seismic loads in bridges made with pretensioned concrete girders*** *– John Stanton, University of Washington, USA*
3. ***Effect of design details on seismic response of RC bridge columns under long duration ground motions*** *– Mohamed A. Moustafa, Univ. of Nevada, Reno, USA*
4. ***Longitudinal deck joints between concrete girders made using UHPC*** *– Paolo Calvi / John Stanton, University of Washington, USA*
5. ***The seismic design of SR99 Tunnel in Washington State, -*** *Yang Jiang, Bridge & Tunnel Group, HNTB, USA*
6. ***Shaking table tests of RC columns with a low-cost sliding pendulum system under bi-directional excitations*** *– Hiroki Yamaguchi, Waseda University, Tokyo Japan*

Concurrent Session IB - Seismic Analysis/Assessment

1. ***Optimal Decision-Making for Improving Bridge Resilience*** *- Jerry Shen, FHWA Bridge and Structures Office DC*
2. ***Shaking table test study on collision effect of small radius curve bridge under near-fault ground motion*** *- Chiyu Jiao, Beijing Urban Transportation Infrastructure Engineering Technology Research Center, Beijing, China*
3. ***AASHTO ABC Guide Specifications, Seismic Design Requirements for Connections****, Greg Banks; PE, SE, Project Manager, WSP*

4. ***Seismic design of a long-span continuous steel truss bridge*** – *Yan (Helen) Xu, Tongji University, Shanghai, China*
5. ***Seismic Assessment of Concrete Balanced-System Bridges*** *- Daniele Malomo Modelling and Structural Analysis Konsulting (Mosayk Ltd), Pavia, Italy*
6. ***Development of the dead weight compensation system to improve the anti-catastrophe performance of a viaduct*** – *Akihiro Toyooka , Railway Technical Research Institute, Japan*
7. ***A New Seismic Design Method of Simply Supported Girder Bridges for Very Rare Ground Motions in the Transverse Direction*** *- Tianbo Peng, Tongji University, Shanghai, China*

Concurrent Session IC - Seismic Retrofitting & Ground Motion

1. ***Study on follow-up processing of crossing-fault hualien bridge damaged by the 0206-Hualien-Earthquake 2018*** – *Yu-Chi Sung, National Taipei University of Technology, Taipei, Taiwan*
2. ***3-D ground-motion simulations of magnitude 9 earthquakes on the cascadia subduction zone*** *- Art Frankel, U.S. Geological Survey, Seattle WA USA*
3. ***Earthquakes and Seismic Design for Bridges in Virginia*** – *Junyi Meng, Assistant State Structure and Bridge Engineer, Virginia DOT*
4. ***Seismic behavior of curved bridge subjected to near-fault ground motions*** – *Shuichi Fujikura, Utsunomiya University, Japan*
5. ***UHPC jacket retrofitting of reinforced concrete bridge piers with low flexural reinforcements*** –*Teng Tong, Southeast University, Nanjing, China*
6. ***The effect of ground deformation and strong ground motion on the damage of a continuous curve viaduct damaged by near-fault ground motion*** *- Gakuho Watanabe, Yamaguchi University, Japan.*
7. ***Comparative assessment of seismic collapse risk for non-ductile and ductile girder bridges*** *- Libo Chen, Fuzhou University, Fuzhou China.*

October 3, 2019	**Presenting Title & Presenter**

Plenary Session II (Keynote Lectures)

1. ***Performance-Based Seismic Design of Bridges - What Is It and How Will It Change Design Practice?***

   – Lee Marsh, *PhD PE Deputy Director – America's Technical Excellence Center, WSP*
2. ***Capacity- Based Inelastic Displacement Spectra for Reinforced Concrete Bridge Columns Subjected to Far-Field and Near-Fault Ground Motions***

   - Kuo-Chun Chang, *A Distinguished Professor of the Department of Civil Engineering of National Taiwan University (NTU), Taiwan*
3. ***Effects of Cascadia subduction zone M9 earthquakes on bridges***

   - Marc Eberhard, *University of Washington, USA*
4. ***Failure Mechanism of the Furyo Daiichi Bridge in the 2016 Kumamoto Earthquake***

   – Kenji KOSA, *Professor Emeritus, Kyushu Institute of Technology, Kitakyushu, Japan* ***&*** *Technical Advisor, Hanshin Expressway Technology Center, Osaka, Japan*
5. ***Concrete Filled Steel Tubes for Accelerated Bridge Construction and Enhanced Structural Performance***

– ***Dawn E. Lehman*** *Dept. of Civil Engineering, University of Washington, USA*

6. ***Seattle Waterfront Construction Update –***

- Angie Brady *Deputy Director, Office of the Waterfront and Civic Projects, City Gov. of Seattle*

Concurrent Session IIA - Seismic Design

1. ***Advances in vibration-based structural health monitoring of bridges*** *– David Lau/ Serge Desjardins, Ottawa-Carleton Bridge Rese arch Institute, Carleton University, Ottawa Canada.*
2. ***Effects of prestressed tendon layouts on seismic fragility of precast segmental bridge columns*** *– Yuye Zhang, Nanjing University of Science and Technology, China*
3. ***Hysteretic cyclic testing of self-centering precast segmental RC bridge columns under diagonal loads*** *– Junfeng Jia, Beijing University of Technology, Beijing, China*
4. ***Unilateral cyclic loading tests on repaired 0.2-scale RC column models using strain-hardening fiber-reinforced cement-based composites*** *- Koji Kinoshita, Department of Civil Engineering, Gifu University, Japan*
5. ***Seismic risk analysis and hybrid simulation for function separation bridge*** *- Ji Dang, Saitama University, Japan*
6. ***Development of hybrid simulation method and its application on bridges and other infrastructures*** *- Cheng-Yu Yang, Tongji University, Shanghai, China.*
7. ***Trial design study on earthquake resilient highway bridge with tall piers*** *– Zhehan Cai, Fuzhou University, China*

Concurrent Session IIB - Seismic Performance Testing/ Assessment

1. ***Effect of skew on support length demands of bridges with seat-type abutments*** *– Suiwen Wu/ Ian Buckle, University of Nevada, Reno, USA*
2. ***Testing of a low damage multi-joint rocking pier using the multi-performance design concept*** *– Royce Liu/Alessandro Palermo, University of Canterbury, Christchurch NZ*
3. ***Rapid post-earthquake safety evaluation of a suspension bridge using fragility curves and strong motion data*** *– Roy A. Imbsen, Imbsen Consulting, USA*
4. ***Analysis on seismic response of deep-water composite bridge piers considering fluid-structure interaction*** *– Qiuhong Zhao, Tianjin University, Tianjin, China*
5. ***Effect of underground beam on seismic damage of railway rigid frame viaduct*** *- Meguru Onodera, Railway Technical Research Institute, Japan.*
6. ***Experimental study on seismic behavior of integral abutment-pile-soil under low-cycle pseudo-static test*** *– Fuyun Huang, Fuzhou University, China*
7. ***Component-level analysis of bridges structures under extreme wave loading*** *- Michael Motely, Associate Professor, Department of Civil & Environmental Engineering, University of Washington*

Concurrent Session IIC - Seismic Retrofit and Mitigation Measures

1. ***Seismic mitigation and design of single pylon cable-stayed bridge*** *– Qiang Han, Beijing University of Technology, China*
2. ***Boeing access road bridge seismic retrofit*** *- Hana D'Acci, Jacobs Engineering, USA.*
3. ***Strain limits and plastic hinge lengths for displacement-based seismic design of circular bridge columns*** *- Chad Goodnight, WSP*
4. ***Geologic Risk in Washington*** *– Corina Forson, Chief Hazards Geologist, Washington Geological Survey.*

5. ***Bayesian updating based model for the hydrodynamic added mass of the rectangular*** - *Kai Wei, Department of Bridge Engineering, Southwest Jiaotong University, Chengdu, China*
6. ***Scour stability evaluation of bridge pier considering fluid-solid interaction*** – *Tzu-Kang Lin, National Chiao Tung University, Hsinchu, Taiwan*
7. ***The NHERI Post-Disaster Rapid Response Research (RAPID) Facility: Tools for bridge engineering - Jeffery Berman****, Professor of Civil & Environmental Engineering and Operations Director, NHERI RAPID Facility at the University of Washington*