



BEI-2023

Bridge Engineering Institute Conference

July 17-20, 2023

Rome, Italy

Final Program



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The Bridge Engineering Institute, An International Technical Society

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Conference Organization

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Mark Williams (USA)
Takashi Yamane (Japan)
Zhiwen Zhu (China)

Overview of Conference Program

| Monday, July 17 | | |
|------------------------|-------------------|----------|
| Time | Event | Location |
| 5:00 to 7:00 pm | Registration | Foyer |
| 5:30 to 7:00 pm | Welcome Reception | Manzoni |

| Tuesday, July 18 | | |
|-------------------------|---|-----------------|
| Time | Event | Location |
| 8:45 to 9:00 am | Opening Ceremony | Loyola |
| 9:00 to 9:45 am | Plenary Speech I (Issam Harik) | Loyola |
| 9:45 to 10:30 am | Plenary Speech II (John Myers) | Loyola |
| 10:30 to 11:00 am | Coffee Break | Ariosto |
| 11:00 to 12:00 pm | Parallel Session A-1 (Materials and Performance I) | Loyola |
| | Parallel Session A-2 (Modeling and Advanced Analysis I) | Saba |
| 12:10 to 1:20 pm | BEI Lunch | Manzoni |
| 1:30 to 2:30 pm | Parallel Session A-3 (Materials and Performance II) | Loyola |
| | Parallel Session A-4 (Modeling and Advanced Analysis II) | Saba |
| 2:30 to 3:00 pm | Coffee Break | Ariosto |
| 3:00 to 5:20 pm | Parallel Session A-5 (Monitoring and Failure) | Loyola |
| | Parallel Session A-6 (Corrosion and Durability) | Saba |
| 7:00 to 8:30 pm | BEI Meeting | Invitation Only |

Overview of Conference Program

| Wednesday, July 19 | | |
|---------------------------|--|-------------|
| Time | Event | Location |
| 8:30 to 9:15 am | Plenary Speech III (Antonio Nanni) | Manzoni |
| 9:15 to 10:00 am | Plenary Speech IV (Takashi Yamane) | Manzoni |
| 10:00 to 10:30 am | Coffee Break | Ariosto |
| 10:30 to 11:50 am | Parallel Session B-1 (Modeling and Advanced Analysis III) | Manzoni |
| | Parallel Session B-2 (Performance Evaluation I) | Saba |
| 11:50 to 1:30 pm | Lunch | On Your Own |
| 1:30 to 2:30 pm | Parallel Session B-3 (Ultra-High Performance Concrete) | Manzoni |
| | Parallel Session B-4 (Performance Evaluation II) | Saba |
| 2:30 to 3:00 pm | Coffee Break | Ariosto |
| 3:00 to 5:00 pm | Parallel Session B-5 (Earthquake, Dynamics, and Optimization) | Manzoni |
| | Parallel Session B-6 (Experimental Techniques I) | Saba |
| 5:30 to 7:30 pm | BEI Dinner | Ariosto |

Overview of Conference Program

| Thursday, July 20 | | |
|--------------------------|---|----------|
| Time | Event | Location |
| 9:00 to 10:00 am | Parallel Session C-1 (Wind, Vibration, and Aerodynamics) | Manzoni |
| | Parallel Session C-2 (Experimental Techniques II) | Saba |
| 10:00 to 11:20 am | Parallel Session C-3 (Field Testing) | Manzoni |
| | Parallel Session C-4 (Environmental Effects) | Saba |
| 11:30 to 11:45 am | Closing Ceremony | Manzoni |

Conference Information

Registration

Registered attendees may pick up their name badges and other necessary materials from the information desk in the conference venue.

Administration Desk

BEI staff will be available at the administration desk during the conference (July 17 to 20, 2023).

Official Language

English is the official language of the conference.

Proceedings

Accepted papers are published in the Proceedings of BEI-2023. Attendees can download electronic copies from the conference webpage. Because BEI is a non-profit organization and is committed to the advancement of state-of-the-art knowledge, the Proceedings are available for free.

Name Badges and Tickets

Only registered attendees with name badges will be permitted to attend the BEI-2023 functions. Tickets will be required for all functional activities such as Welcome Reception, BEI Lunch, and Gala Dinner. It is noted that BEI will not reissue a ticket if one loses it.

Welcome Reception

The Welcome Reception of BEI-2023 will be held at Manzoni from 5:30 to 7:00 pm, July 17, 2023. Cocktails, wine, non-alcohol beverages, and Hors D'oeuvres will be provided to registered attendees and invited personnel. A cash bar may be available for those who need.

Coffee Breaks

All attendees can join coffee breaks during the intermission of parallel sessions.

BEI Lunch

Plated course meals will be served to registered attendees and invited personnel.

BEI Dinner

Plated course meals will be served to registered attendees and invited personnel.

Internet

Wi-Fi will be available in the conference venue for free.

Award Events

Selected individuals will be congratulated with award certificates during the BEI lunch.

Disclaimer

The Bridge Engineering Institute, An International Technical Society, will do its very best to accommodate the need of all attendees. However, the Institute denies any responsibilities and accepts no liability whatsoever for any circumstance related to this conference.

Plenary Speakers (alphabetical order)



Professor Issam E. Harik, Ph.D.
University of Kentucky, USA

Since joining the University of Kentucky in August 1982, Dr. Harik has directed or codirected research on more than 120 funded projects. Dr. Harik has directed or is currently directing the research of 55 Post Docs/visiting professors/scholars, 100 graduate students, 70 undergraduate students, and 24 high school students. Dr. Harik currently serves as a member of engineering societies and 4 committees; he chaired the Transportation Research Board Committee on Structural FRP (AFF80) from 2009 to 2015 and is a Council Member of the International Institute for Fiber Reinforced Polymer Composites in Construction and a member of the International Advisory Committee - Bridge Engineering Institute. He has organized, co-organized, and chaired national and international conferences, workshops, and technical sessions. Dr. Harik has authored or co-authored more than 360 technical publications.

Plenary Speakers (alphabetical order)



Professor John J. Myers, Ph.D., P.E.
Missouri University Science and Technology, USA

Dr. John J. Myers is Professor of Structural Engineering in the department of Civil, Architectural and Environmental Engineering at Missouri University of Science and Technology and is Deputy Director of the Missouri Center for Transportation Innovation. He served as Associate Dean for Academic Affairs in the College of Engineering and Computing from 2015 to 2019. Dr. Myers has been a member of the Missouri S&T faculty since 1999. He holds Ph.D. and M.S. degrees in civil engineering from the University of Texas at Austin and a bachelor's degree in architectural engineering from Pennsylvania State University. He previously served as the college's acting vice provost and dean. Dr. Myers oversees all curriculum and instruction in the College of Engineering and Computing along with development and implementation of strategic planning related to academic programs. He establishes plans for faculty development and recruitment as well as program development and also leads efforts in the development and implementation of the college's recognition and award structure.

Plenary Speakers (alphabetical order)



Professor Antonio Nanni, Ph.D., P.E.
University of Miami, USA

Dr. Antonio Nanni, President of the American Concrete Institute (ACI), is a structural engineer interested in construction materials, their structural performance, and field application. His interests are in the field of buildings and civil infrastructure sustainability, monitoring and renewal. He is the Co-Director of two federally funded centers: NSF Industry/University Cooperative Research Center (I/UCRC) for the Integration of Composites into Infrastructure (CICI); and, US DOT University Transportation Center on Research on Concrete Applications for Sustainable Transportation (RE-CAST). In the past 30 years, he has obtained experience in concrete and advanced composites based systems as the principal investigator of projects sponsored by federal and state agencies, and private industry. Over the course of this time, his constant efforts in materials and structures research have impacted the work of several technical committees in the US and abroad. Dr. Nanni is the Editor-in-Chief of the ASCE Journal of Materials in Civil Engineering and serves on the editorial board of other technical journals. He has advised over 60 graduate students pursuing MSc and PhD degrees, and published over 200 and 310 papers in refereed journals and conference proceedings, respectively, in addition two co-authoring two books. Dr. Nanni has maintained a balance between academic and practical experience and has received several awards including: 2014 IIFC Medal, International Institute for FRP in Construction; ASCE 2012 Henry L. Michel Award for Industry Advancement of Research; and, Engineering News-Record Award of Excellence for 1997, (Top 25 Newsmakers in Construction). He is a registered PE in Italy, FL, PA, MO, and OK.

Plenary Speakers (alphabetical order)



Mr. Takashi Yamane, P.E.
Kyokuto Kowa Corporation, Japan

Takashi Yamane is the President of Kyokuto-Kowa Corporation, a prestressed concrete bridge construction company in Japan. He has been a registered Professional Engineer in Japan since 2006. He graduated from Kure National College of Technology and joined Kyokuto-Kougyo Corporation (formerly Kyokuto-Kowa Corporation) in 1980. Mr. Yamane earned a master's degree in civil engineering from the University of Nebraska, Lincoln, in 1995. His work experience includes design and construction of various types of prestressed concrete bridges, such as box girder bridges with a balanced cantilever construction, cast-in-place hollow slab bridges with span-by-span construction, and composite I-section girder bridges. Mr. Yamane led the engineering department and sales department of the company before becoming president. He had been a member of the Japan Prestressed Concrete Contractors Association, and chaired the committee on design guidelines for precast/prestressed concrete splice-girder bridges. He has published many technical papers and patents in the bridge engineering field.

Conference Venue

Roma Eventi-Fontana di Fontana Trevi

Address: Piazza Della, Pilotta, 4-00187, Roma, Italia

Phone: 39-06-6701-5176

Public Transportation (Bus)

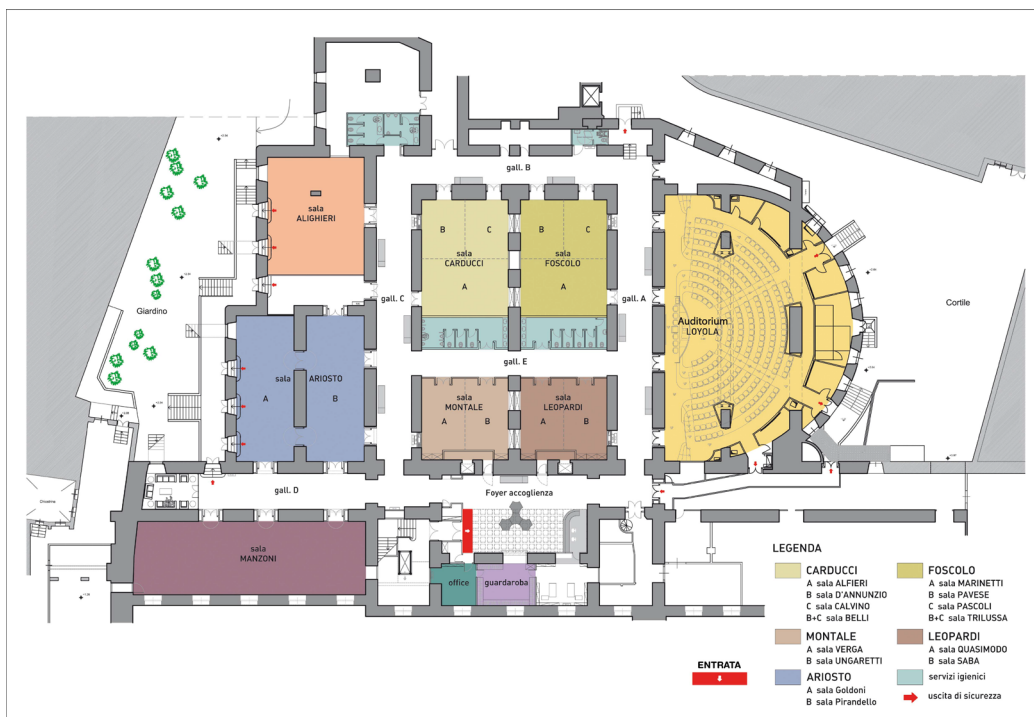
- Exit from Termini railways station on Piazza dei Cinquecento
- Take the Bus number 40 Express (departures every 5 min.) for 3 stops and get off in Piazza Venezia
- Turn left into piazza SS. Apostoli, go along for 50 mt. and turn right on via del Vaccaro that, after 40 mt., leads Piazza della Pilotta
- The Congress Center is on the high side of Piazza della Pilotta, inside the Pontificia Gregoriana University

Public Transportation (Metro)

- Inside the Termini railways station take the Metro A for 2 stops and get off at BARBERINI stop (then keep on walking for about 800 mt. until piazza della Pilotta)
- Otherwise take the Metro B for 1 stop and get off at CAVOUR stop (then walking for about 1.2 km)

Walking distance

- Exit from Termini railways Station on Piazza dei Cinquecento
- Follow the road towards Piazza della Repubblica and turn left on via Nazionale
- Go along for about 500 mt. until largo Magnanapoli and follow the road straight ahead until the road changes name and becomes via IV Novembre
- Come down via IV Novembre for 100 mt.
- Turn right under the arch in via della Pilotta that, after 30 mt., leads Piazza della Pilotta



Technical Program

Monday, July 17

| General | | Location: Manzoni |
|-----------------|--------------------------------|-------------------|
| 5:00 to 7:00 pm | Registration/Welcome Reception | |

Tuesday, July 18

| General | | Location: Loyola |
|------------------|---|------------------|
| 8:45 to 9:00 am | Opening Ceremony Moderated by Yail Jimmy Kim , University of Colorado Denver, USA | |
| 9:00 to 9:45 am | Plenary Speech I: Issam Harik , University of Kentucky, USA Moderated by Yail Jimmy Kim , University of Colorado Denver, USA | |
| 9:45 to 10:30 am | Plenary Speech II: John Myers , Missouri University S&T, USA Moderated by Vanissorn Vimonsatit , Macquarie University, Australia | |

| Break | | Location: Aristo |
|-------------------|--------------|------------------|
| 10:30 to 11:00 am | Coffee Break | |

| Parallel Session A-1 (Materials and Performance I) | | Location: Loyola |
|---|---|------------------|
| <i>Chair: Yuji Yamada</i> , Yamaguchi University, Japan | | |
| 11:00 to 11:20 am | Bond Strength Evaluation of Grout Materials for Closure Pour of Precast Concrete Bridge Deck Panels Zhifu Yang | |
| 11:20 to 11:40 am | Quality of Lamination Structure Made by 3D Printing under Different Lamination Conditions Yuji Yamada, Tomoko Fukuyama, Yunmi Kim, Hiroharu Kamada, and Dhruva Katpady | |
| 11:40 to 12:00 pm | Experimental Investigation of the Effect of Debonding on PSC Girders Shambhavi Dube and Durgesh C. Rai | |

| Parallel Session A-2 (Modeling and Advanced Analysis I) | | Location: Saba |
|--|---|----------------|
| <i>Chair: Issam Harik</i> , University of Kentucky, USA | | |
| 11:00 to 11:20 am | Unseating of Bridge Decks- Codal Provisions and Fragility Analysis Shambhavi Dube, Nirav Thakkar, and Durgesh C. Rai | |
| 11:20 to 11:40 am | Modelling of Bend Corners of FRP Reinforcement for Concrete Structures Considering Material Anisotropy Yuanzhang Yang and Weijian Zhao | |
| 11:40 to 12:00 pm | Water Pressure Variation on Porous Calcium-Silicate-Hydrates Using Molecular Dynamics Shota Takinami, Ryo Yoshida, and Ryo Kobayashi | |

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| Lunch | | Location: Manzoni |
| 12:10 to 1:20 pm | BEI Lunch Moderated by Vanissorn Vimonsatit , Macquarie University, Australia | |

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| Parallel Session A-3 (Materials and Performance II) | | Location: Loyola |
| <i>Chair: Yongcheng Ji</i> , Northeast Forestry University, China | | |
| 1:30 to 1:50 pm | Investigation of Nitrogen Oxide Removal of Cementitious Materials containing TiO ₂ Byoungsun Park, Suji Woo, Young Cheol Choi, and Sung-Won Yoo | |
| 1:50 to 2:10 pm | Electromechanical Response of Smart Repair Material with Carbon Black Based on Rapid Setting Cement Tae Uk Kim, Min Kyoung Kim, Lai Thanh Tu, and Dong Joo Kim | |
| 2:10 to 2:30 pm | Analysis of Flexural-Bond Behavior of Beams Reinforced with CFRP Dongkyu Lim and Myoungsung Choi | |

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| Parallel Session A-4 (Modeling and Advanced Analysis II) | | Location: Saba |
| <i>Chair: Shin-Tai Song</i> , National Chung-Hsing University, Taiwan | | |
| 1:30 to 1:50 pm | Real Imperfections of Longitudinally Stiffened Plates Compared to the Proposed Imperfections in EN 1993-1-5 N. Thomas, A. Weinhuber, M. Mensinger, C. Holst, and J. Ndogmo | |
| 1:50 to 2:10 pm | Use of Steel Orthotropic Box Girders for Light Weight Long Span Bridges- Analysis and Design of Pedestrian Bridge in Dubai Tharun John Joseph, Anirudh Desai, Koyya Satyanarayana, Bogdan Barbulescu, and Kannaw Shrivatsa | |
| 2:10 to 2:30 pm | Analytical Study of Fracture Behavior of Post-Tension Anchorage Zone Using FEM Kyun-Tae Lee, Jun-Mo Yang, and Jin-Kook Kim | |

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| Break | | Location: Aristo |
| 2:30 to 3:00 pm | Coffee Break | |

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| Parallel Session A-5 (Monitoring and Failure) | | Location: Loyola |
| <i>Chair: Mi G. Chorzepa</i> , University of Georgia | | |
| 3:00 to 3:20 pm | The Diagnosis Method for Neutralization of Concrete Using Microorganisms China Kuratomi, Atsushi Teramoto, So Fujiyoshi, and Fumito Maruyama | |
| 3:20 to 3:40 pm | Evaluation Method for Grouting Condition in Post-tensioned PC Bridges Considering Directive Propagation Properties of Elastic Waves in the Wide-Range Ultrasonic Testing (WUT) T. Kinoshita, Y. Sako, K. Fukushima, and I. Yoshitake | |

| Parallel Session A-5 (Monitoring and Failure) | | Location: Loyola |
|---|--|------------------|
| 3:40 to 4:00 pm | Prestressing Force Distribution in Post-Tensioned I-Girder Bridges Measured Using Smart Strands Se-Jin Jeon, Sang-Hyun Kim, Sung Yong Park, and Sung Tae Kim | |
| 4:00 to 4:20 pm | Evaluation of Salt Resistance of Three-Component Cement Concrete by Unsteady Electrophoresis Test Kohei Kanaoka and Tatsuya Nukushina | |
| 4:20 to 4:40 pm | Over Torque Test Method to Assess the Concrete Strength Kenji Tada, Tatsuki Hatakeyama, and Tetsuya Ohmura | |
| 4:40 to 5:00 pm | Detection of Cable Section Loss in Cable-Stayed Bridge with Electromagnetic Sensor I. Kwahk, C. Joh, J.-Y. Choi, K.-Y. Park, and J.-H. Lee | |
| 5:00 to 5:20 pm | Past, Present and Future Trends in Bridge Engineering in U.S. Atorod Azizinamini | |
| Parallel Session A-6 (Corrosion and Durability) | | Location: Saba |
| <i>Chair: Yongcheng Ji</i> , Northeast Forestry University, China | | |
| 3:00 to 3:20 pm | Visualization of the Effect of Steel Corrosion Cracks on Shear Deformation inside Mortar Using X-ray CT Takayuki Fumoto, Koshiro Maekawa, Shintaro Kikuchi, and Yuta Yamada | |
| 3:20 to 3:40 pm | A Change in the Failure Mode and Decrease in the Strength of RC Slabs due to the Progress of Frost Damage Hiroshi Hayashida | |
| 3:40 to 4:00 pm | Experimental Performance of Lightweight Aggregate Concrete due to Freezing and Thawing Sangwoo Kim, Sardorbek Rustamov, and Jinsup Kim | |
| 4:00 to 4:20 pm | Rust Evaluation of Weathering Steel Bridges by Optical Spectra in the Visible and Near-Infrared Regions Ryuichi Inoue, Rina Hasuike, Hirokazu Furuki, and Toshihiko Aso | |
| 4:20 to 4:40 pm | Study of Water Absorption Properties in Actual Structure Concrete Based on Pore Structure N'da Yacoub Bouadou, Peter Kuiru Macharia, Lai Lai Mon, and Ryo Yoshida | |
| 4:40 to 5:00 pm | Effect for Inhibiting Galvanic Corrosion of Aluminum Alloy Bridge and Guard Railings Yoshito Itoh and Tatusya Kawabata | |
| 5:00 to 5:20 pm | Detection of Defects in Prestressed Concrete Bridge Box Girders Using GPR Image Reconstruction Wael Zatar, Hien Nghiem, and Hai Nguyen | |
| General | | Invitation only |
| 7:00 to 8:30 pm | BEI Meeting | |

Wednesday, July 19

| General | | Location: Manzoni |
|------------------|--|-------------------|
| 8:30 to 9:15 am | Plenary Speech III: Antonio Nanni , University of Florida, USA Moderated by Steve Nolan , Florida Department of Transportation, USA | |
| 9:15 to 10:00 am | Plenary speech IV: Takashi Yamane , Kyokuto Kowa Corporation, Japan Moderated by Isamu Yoshitake , Yamaguchi University, Japan | |

| Break | | Location: Aristo |
|-------------------|--------------|------------------|
| 10:00 to 10:30 am | Coffee Break | |

| Parallel Session B-1 (Modeling and Advanced Analysis III) | | Location: Manzoni |
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| <i>Chair: Vanissorn Vimonsatit</i> , Macquarie University, Australia | | |
| 10:30 to 10:50 am | A Data-Driven Method for Predicting the Temperature Response of Composite Bridges Based on Deep Learning Technology Yanjia Wang, Dong Yang, and Francis T.K. Au | |
| 10:50 to 11:10 am | A Mesoscale Probabilistic Fatigue Crack Initiation Model for Steel Bridges Based on the Modified Fine and Bhat Theory Fei Jiang, You-Liang Ding, Kang Yang, and Xiao-Nan Zhang | |
| 11:10 to 11:30 am | Finite Element Analysis Model of Prestressed Concrete Girder through Nonlinear Material Properties Correction of Strand Do-Yeon Kim, Young-Ji Park, Jin-Woong Choi, Young-Jin Kim, Il-Young Jang, Seong-Kyum Kim | |
| 11:30 to 11:50 am | Parametric Analysis on the Optimal Dimensions of Swage Sleeve for CFRP Multi-rod Anchorage System Jae-Yoon Kang, Woo-Tai Jung, Jiyoung Kim and Seung-Hyeon Hwang | |

| Parallel Session B-2 (Performance Evaluation I) | | Location: Saba |
|---|--|----------------|
| <i>Chair: Steve Nolan</i> , Florida Department of Transportation, USA | | |
| 10:30 to 10:50 am | Evaluation of the National Bridge Inventory (NBI) to Predict Bridge Deterioration in Missouri, USA Glenn Washer, John J. Myers, and Mohammed Hammed | |
| 10:50 to 11:10 am | Assessment of Live Load Carrying Capacity of Prestressed Concrete Bridge: a Case Study Shin-Tai Song and Yiching Lin | |
| 11:10 to 11:30 am | Strategic Asset Management of Locally Owned Bridges Mi G. Chorzepa | |
| 11:30 to 11:50 am | Safety Analysis of Wind Barriers on the Bridge under the 400 km/h High-Speed Trains Loading of Slipstreams Dianyi Guo, Yunfeng Zou, Xuhui He, and Haobo Liang | |

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| Lunch | | On your own |
| 11:50 to 1:30 pm | Lunch | |

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| Parallel Session B-3 (Ultra-High Performance Concrete) | | Location: Manzoni |
| <i>Chair: Isamu Yoshitake</i> , Yamaguchi University, Japan | | |
| 1:30 to 1:50 pm | Titanium Alloy Reinforced Ultra-High Performance Concrete (TARUHPC): A Next Generation of Advanced Materials for Civil Infrastructure Mahesh Acharya, Jared Cantrell, Luis Bedrinana, and Mustafa, Mashal | |
| 1:50 to 2:10 pm | Design of Ultra-High Performance Concrete Bridges Benjamin Graybeal and Rafic Helou | |
| 2:10 to 2:30 pm | Seismic Retrofit of Precast and Cast-in-Place Piers Using Ultra High-Performance Concrete (UHPC) K. Hogarth, Manish Acharya, Arya Ebrahimpour, and Mustafa Mashal | |

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| Parallel Session B-4 (Performance Evaluation II) | | Location: Saba |
| <i>Chair: John Myers</i> , Missouri University of S & T, USA | | |
| 1:30 to 1:50 pm | Platform and Bigdata-Driven Bridge Smart Maintenance Techniques K.-T. Park, K. Jeong, J. Kim, K.-S. Kim, B. Kim, and D. Seo | |
| 1:50 to 2:10 pm | Transporting heavy weight cargo, diagnosis philosophy, and a case study Daniel Elmaleh and Yehonatan Pestes | |
| 2:10 to 2:30 pm | Application of Automatic Welding Robot in Integrated Construction of Bridge Pile Foundation Liangjun Hu, Xiaoli Sun, and Jun Yang | |

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| Break | | Location: Aristo |
| 2:30 to 3:00 am | Coffee Break | |

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| Parallel Session B-5 (Earthquake, Dynamics, and Optimization) | | Location: Manzoni |
| <i>Chair: Xuhui He</i> , Central South University, China | | |
| 3:00 to 3:20 pm | Experimental Evaluation on Seismic Behavior of Precast Concrete Walls with Developed Vertical Joints for Enhanced Shear Strength Kyo Young Moon, Sung Jig Kim, and Chunho Jang | |
| 3:20 to 3:40 pm | Seismic Performance of Precast Segmental Bridge Columns with Resettable Sliding Joints: Joint Responses and Simulation Feng Liang, Yingqi Liu, and Francis T.K. Au | |
| 3:40 to 4:00 pm | Effects of Vertical Ground Motions on the Response of Long-Span Prestressed Bridges Hsiao-Hui Hung, Chang-Wei Huang, and Yi-Hui Lu | |

| Parallel Session B-5 (Earthquake, Dynamics, and Optimization) | | Location: Manzoni |
|--|--|-------------------|
| 4:00 to 4:20 pm | Seismic Performance Assessment of Wall Piers Supported by Pile Foundation Shin-Tai Song and Wen-Li Huang | |
| 4:20 to 4:40 pm | Bridge structure finite element model updating method based on intelligent optimization algorithms and Kriging meta-model Mei Liu, Hang Wang and Shengqin Yuan | |
| 4:40 to 5:00 pm | Hybrid Testing of CFST Columns in Rigid-Frame Bridges Subjected to Horizontal and Vertical Ground Motions Riadh Al-Mahaidi, Javad Hashemi, and Ali Al-Attraqchi | |
| Parallel Session B-6 (Experimental Techniques I) | | Location: Saba |
| <i>Chair: Masahide Matsumura, Kumamoto University, Japan</i> | | |
| 3:00 to 3:20 pm | Flexural Behavior of 3D-Printed Beam Members In-Hwan Yang, Quang-The Bui, Jihun Park, Jungwoo Lee, and Changbin Joh | |
| 3:20 to 3:40 pm | ELSS Joint: Development of Semi-Rigid Joint for Joining Precast Prestressed Concrete Slabs in Japan Mohammad Emran Nasery, Tatsuhiko Mimoto, Nobuaki Sakurai | |
| 3:40 to 4:00 pm | Horizontal-Vertical Ratio for Concrete Pumping Pipe Ki-Yeol Kim, Young-Jin Kim, and Myoung-Sung Choi | |
| 4:00 to 4:20 pm | Failure Mode and Adhesive Strength of Single Lap Joint of GFRP Laminated Plates with Different Fiver Volumes Bonded by a Low Elastic Adhesive Masahide Matsumura, Sumitaka Inoue, Hiroki Iwata, and Yuto Anan | |
| 4:20 to 4:40 pm | Structural Behavior of Precast Concrete Beam-Column Joints Jaehyung Heo, Donglk Shin, Yeon Je Choi, Dong-Hwan Kim, Hyeong-Gook Kim, Kil-Hee Kim, and Jung-Yoon Lee | |
| 4:40 to 5:00 pm | Bending Tests of GFRP Sandwich Panel Using a Rigid Polyethylene Core Hiroki Iwata, Sumitaka Inoue, and Masahide Matsumura | |
| BEI Dinner | | Location: Aristo |
| 5:30 to 7:30 pm | Gala Dinner Moderated by Xuhui He , Central South University, China | |

Thursday, July 20

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| Parallel Session C-1 | | Location: Manzoni |
| (Wind, Vibration, and Aerodynamics) | | |
| <i>Chair: Xuhui He</i> , Central South University, China | | |
| 9:00 to 9:20 am | | Considering Different Bolt Pre-Tightening Zhuole Shu, Pengru Deng, Hanfeng Wang, and Xuhui He |
| 9:20 to 9:40 am | | Influence of Spacing on Aerodynamic Interference of Parallel Rail-Cum-Road Bridges with Twin Separated Parallel Girders Jing He, Yunfeng Zou, Xuhui He, and Lulu Liu |
| 9:40 to 10:00 am | | Fatigue of Steel Anchor Box on Cable-Stayed Bridges Considering Thermal and Vortex-Induced Vibration under Random Traffic Flows Zhiwen Zhu, Shuang Yan, Federico Accornero, and Yichun Deng |
| Parallel Session C-2 | | Location: Saba |
| (Experimental Techniques II) | | |
| <i>Chair: Vanissorn Vimonsatit</i> , Macquarie University, Australia | | |
| 9:00 to 9:20 am | | Diaphragm Wall Mono-Shaft as an Economical Time Saving Bridge Deep Foundation Yoni Pestes and Daniel Elmaleh |
| 9:20 to 9:40 am | | Performance Comparison of Nonlinear Dampers for Suppressing Vortex-Induced Vibration of Flexible Bluff Structures Jingwei Zhang, Xiaojun Wei, and Xuhui He |
| 9:40 to 10:00 am | | Control the Torsional Flutter of a Rectangular Plate with Flexible Membrane at its Leading Edge Ziqiang Zhang, Hanfeng Wang, Zhiwei Liu, and Chi Zhang |
| Parallel Session C-3 | | Location: Manzoni |
| (Field Testing) | | |
| <i>Chair: Isamu Yoshitake</i> , Yamaguchi University, Japan | | |
| 10:00 to 10:20 am | | Development of Elevated Road and Rail Projects in Singapore Hooi Leng Phua |
| 10:20 to 10:40 am | | Structural Behavior of a 40+ Year Old PSC-I Concrete Bridge According to its Internal Tendon Loss in the Central Part Yeonghun Seong and Hyunjoong Kim |
| 10:40 to 11:00 am | | Development of Pre-Tension Method for On-Site Production of Prestressed Concrete Girders with Span Length between 20 m to 50 m Dong-Woo Seo, Sangki Park, Ki-Tae Park, Hyun-Ock Jang, Yeon-Woo, Shin |
| 11:00 to 11:20 am | | Field Measurement Study on Wind Characteristics at the Bridge Site of Plateau Deep-Cut Canyon Xinghui Kang, Yunfeng Zou, Xuhui He, and Longan Li |

| Parallel Session C-4 (Environmental Effects) | | Location: Saba |
|--|---|-------------------|
| <i>Chair: Atsushi Teramoto</i> , Hiroshima University, Japan | | |
| 10:00 to 10:20 am | Temperature-Induced Variation in Geometric Characteristics of Existing Cracks in Double-Box Girders of Concrete Cable-Stayed Bridge Xujia Liu, Youliang Ding, Hanwei Zhao, Chunfeng Wan, and Fangfang Geng | |
| 10:20 to 10:40 am | Mechanism of Control Method for the Alkali-Silica Reaction and Delayed Ettringite Formation Expansion Using Artificial Lightweight Aggregate Atsushi Teramoto and Moka Tanabe | |
| 10:40 to 11:00 am | Utilizing Pressurized Injection of Lithium Nitrite in Treating Alkali-Silica Reaction and Salt Damage in Concrete Structures Shohei Notsu, Tatsuya Kitada, Son Van Nguyen, and Kazunori Era | |
| 11:00 to 11:20 am | Concrete Structure Damage Analysis of the Anchoring End of Wind Barriers of High-Speed Railway Bridge under Wind Load of Train Haobo Liang, Yunfeng Zou, Xuhui He, and Dianyi Guo | |
| General | | Location: Manzoni |
| 11:30 to 11:45 pm | Closing Ceremony Moderated by Isamu Yoshitake , Yamaguchi University, Japan | |

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