


2021 Symposium

Transportation Infrastructure Innovations for Durability and Resilience

Day 1 Monday December 6, 2021

Themes: Durability and Materials, Transportation Infrastructure, Natural Hazards and Extreme Events. Note: All times are Pacific Standard Time. Please adjust your schedule accordingly

Time	Track 1	
7:00-7:15 PT	Welcome from Dr. Xianming Shi, Director of TriDurLE	
7:15 - 8:15	<p>Moderator: Dr. Chris Pantelides</p> <p>Keynote Speaker Bijan Khaleghi, P.E. "Intervention and rehabilitation of transportation infrastructure through advanced materials, technologies and construction methodologies with a focus on bridges and tunnels"</p> <p>Keynote Speaker John Siekmeier, P.E. "Enhancing Resilience through Performance Based Asset Management"</p>	
8:15 - 8:45 PT	Track 1 Student Posters 1-5	Track 2 Student Posters 6-10
8:45 – 10:15 PT	<p>Track 1-1: Durable and Sustainable Concrete Materials</p> <p>1. Jing Zhong, Dong Lu Graphene oxide nano-engineers the interfacial transition zone on fine aggregate in cement composite</p> <p>2. Liang Fan, Zhipeng Li, Xianming Shi Resistance of ordinary Portland cement concrete to freeze/thaw damage in presence of chloride brines</p> <p>3. Richard Rogers Concrete pavement sustainability & long-term performance</p> <p>4. Xijin Zhang, Xudong Fan, Min Li, Anna Samia, Xiong Yu Fungal-mediated self-healing for durable concrete</p>	<p>Track 2-1: Advances in Pavement and Overlays</p> <p>1. Rulian Barros, Hakan Y, Salma S Performance prediction model for flexible pavements in Mississippi using neural networks</p> <p>2. Yong Deng, Xue Luo, Hang Wang Backcalculation of damage density of in-service asphalt</p> <p>3. Upul Attanayake, Neal Berke Performance of thin epoxy overlays applied on concrete</p>
10:15 – 10:45 PT	<p>Sponsor/Strongtie Moderator: Dr. Chris Pantelides</p> <p>Alex Daddow Strengthening of the I-90 Homer M. Hadley Floating Bridge</p>	 <p>Thank you for your Sponsorship!</p>
10:45-10:50	Break	Break

10:50 – 11:20	Student Posters 11-16	Student Posters 17-21
11:20 – 1:00 PT Track 1 Moderator: Dr. Jenny Liu Track 2 Moderator: Dr. Mostafa Tazarv	Track 1-2: Advances for Durable and Sustainable Asphalt Pavement 1. Yong Deng, Xianming Shi Predictive models for asphalt pavement rutting in Idaho: neural networks coupled with particle swarm optimization 2. Jenny Liu Characterization of highly polymerized Alaskan asphalt 3. Yizhuang David Wang Development of healing model and simplified characterization test procedure for asphalt concrete 4. Balamurugan Subramanian Catalytic regeneration of reclaimed asphalt binder 5. Kun Zhang Recycling of olive pomace as a natural additive to antioxidant performance of asphalt paving materials	Track 2-2: Advances for Durable Concrete Structures 1. Xianming Shi, Zhipeng Li Effects of nanomaterials on engineering performance of a silicate-based sealer for cementitious composite 2. Sayal Shrestha, Chris Pantelides Seismic performance of corroded RC columns built using accelerated bridge construction 3. Mostafa Tazarv, Kwangee Won, Youjeong Jang, Kallan Hart, Evan Greenaway Post-earthquake serviceability of RC columns using computer vision 4. Xianming Shi, Zhipeng Li, Zhen Lei Durability of CFRP-wrapped concrete in cold regions: A laboratory evaluation of montmorillonite nanoclay-siloxane epoxy adhesive
1:00-1:15	Coffee Break and Sponsor Information	
1:15 – 2:15 PT Track 1 Moderator: Dr. Jialuo He Track 2 Moderator: Dr. Xiong (Bill) Yu	Track 1-3: Novel Concrete Mixtures 1. Jialuo He, Xianming Shi A durable self-healing concrete using urea-formaldehyde microcapsules and PVA microfibers 2. Z. Zhang, Fengjiang Qin, Jin Di Use of high strength, high ductility engineered cementitious composites (ECC) to enhance the flexural performance of reinforced concrete beams 3. Zhipeng Li, Xianming Shi Laboratory investigation into improving the freezing/thawing resistance of a graphene oxide modified fly ash geopolymer concrete	Track 2-3: Interdisciplinary Approaches to Durability and Resilience of Civil Infrastructure 1. MD Tanvir Ashraf, Kakan Dey, Xianming Shi Current practices in infrastructure durability and life extension: A systematic literature review, challenges, and opportunities 2. Tobby Lie, Farnoush Banai-Kashni Bridge deterioration forecasting tool using neural networks 3. Xudong Fan, Xijin Zhang, Xiaowei Wang, Xiong Yu Resilience-informed road network recovery under flooding hazard
2:15 – 3:15 PT Track 1 Moderator: Dr. Yue Li Track 2 Moderator: Dr. Catherine Armwood	Track 1-4: Damage Evaluation and Resilient Civil Infrastructure 1. Mohd Mezanur Rahman, Nur Yazdani, Eyosias Beneberu, Khadiza Binte Jalal Evaluation and load rating of an impact damaged steel girder bridge 2. Bo Xu, Xiaowei Wang, Yue Li Probabilistic data-driven model for moment-curvature relationship of corroded bridge columns using Bayesian inference-based averaging method 3. Amir Golalipour Progress toward more resilient infrastructures	Track 2-4: Innovations for Reliable Transportation Infrastructure 1. Muhammad Saeed Zafar Additive manufacturing of engineered cementitious composites for transportation infrastructure applications 2. Mohammad Minhajur Fatigue life analysis of reinforced concrete beams strengthened with composites 3. Seyed Hooman Ghasemi Assessment of the post-earthquake traffic flow capacity of a highway bridge using a reliability-based approach
3:15 – 3:30 PT	Closing Day 1	

Day 2 Tuesday December 7, 2021

Themes: Condition Monitoring, Corrosion, Transportation Infrastructure

Time	Track 1	
7:00 – 7:15 PT	Welcome: Dr. Xianming Shi, Director of TriDurLE	
7:15 – 8:15 PT	<p>Moderator: Dr. Yail Jimmy Kim</p> <p>Keynote Speaker Dr. Kelvin Wang “AI for Pavement Evaluation: Status and Future”</p> <p>Keynote Speaker Dr. Jason Weiss “Predicting Durability Performance Using Thermodynamic Modeling and Innovative Performance Testing”</p>	
8:15 – 10:15 PT	<p>Track 1-5: Corrosion and Infrastructure Implications</p> <p>1. Francisco Presuel-Moreno, Kazi Hoque, Angel Rosa-Pagan Long-term corrosion propagation monitoring of carbon and steel rebars embedded in concrete</p> <p>2. Jun Wang, Yail J. Kim Advanced modeling of bridge columns subjected to corrosion damage</p> <p>3. Pierre-Philippe Beaujean, Francisco Presuel-Moreno, Mathew Brogden Poro-elastic modeling and acoustic response of corroded rebars in reinforced concrete using high frequency ultrasonics</p> <p>4. Fulin Qu, Wengui Li Comparing chloride-binding capacity of cement – GGBFS-NS mixtures in seawater, MaCl₂ and MgCl₂ solutions</p> <p>6. Mehdi Honarvar Nazari, Xianming Shi Reducing the corrosion of transportation infrastructure</p>	<p>Track 2-5: Advances in Multimodal Transportation Infrastructure</p> <p>1. Wesley Marshall, Nicholas Coppola Evaluating sidewalk infrastructure and prioritizing investment studies</p> <p>2. Michael McDonagh Innovative UHPC mixing and placing techniques for repair of three Illinois bridges</p> <p>3. Luna Al Hasani, Jisoo Park, Jason Brown, Yong Cho, Russell Gentry, Kimberly Kurtis Predicting and evaluating the thermal performance of a mass concrete abutment wall</p> <p>4. Mohamed Ashour Inundated collapsible soil-induced downdrag on pile foundations</p> <p>5. Adam Phillips, Chris Motter Experimental testing of steel jacket and FRP retrofitted bridge columns</p> <p>6. Michael McDonagh, Joseph Siriganano UHPC repair of steel columns in the walnut tunnel in Philadelphia</p>
10:15 – 11:15 PT	<p>Sponsor Tran-SET Presentations</p> <p>1. Ibrahim Elnaml Development of a cost effective high modulus asphalt</p> <p>2. William Toledo, Andres Alvarez, Craig Newton, Brad Weldon Effects of substrate texture and moisture conditions on ultra-high performance concrete overlay bond strength</p> <p>3. Seyedsalch Mousavinezhad, Judit Garcia, William Toledo, Craig Newton Durability testing of concrete containing natural pozzolan as a supplementary cementitious material</p>	 <p>Thank you for your sponsorship!</p>

11:15 – 12:15 PT Moderator: Dr. Xianbiao Hu	Track 1-6: Performance Monitoring and Transportation Infrastructure 1. Xianbiao Hu, Qing Tang Analyzing the impact of autonomous maintenance technology to transportation infrastructure capacity for condition monitoring and performance management 3. Xingyu Wang, Hong Pan, Zi Zhang, Xi Chen, Zhibin Lin Enhanced metallic transportation structures	
12:15 – 12:30 PT	Closing announcements/ poster and outstanding presentation awards	

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