

Program, Thursday, 14/9/17

08.00–18.00	Registration Desk open and upload of presentations at conference presentation rooms	Room 1
08.30–10.00	Keynote sessions	
08.30–09.10	Keynote Prof. S. Kono Efforts to develop resilient reinforced concrete building structures in Japan	
09.10–09.50	Keynote Prof. O. Rabinovitch Dynamic modeling challenges in strengthening existing structures with advanced composites	
09.50–10.00	ISHMII information by W. Habel	
10.00–10.30	Coffee break	

10.30–12.30

Session 9 Room 1

Co-chair: Czaderski, C. and Keller, T.
Session 25 years of CFRP in construction
19 20 Years of CFRP in Kentucky's Bridges <i>Harik, I., Peiris, A.</i>
201 Long-term applications of CFRP prestressing in Canada <i>Green, M.F.</i>
17 Long term behavior of epoxy adhesives and FRP's for strengthening of concrete <i>Czaderski, C., Meier, U.</i>
275 Impact of Professor Urs Meier in application of CFRP composites in structural strengthening in Iran <i>Najafi, J.</i>
28 Fatigue and durability of laminated carbon fibre reinforced polymer straps for bridge suspenders <i>Terrasi, G.P., Baschnagel, F., Gao, J., Meier, U., Widmann, R.</i>
83 Post-tensioned CFRP strap elements for civil engineering applications <i>Keller, T.</i>
139 Experimental investigation of time – dependent shear deformation in RC beams strengthened with CFRP straps <i>Jin, F., Lees, J.M.</i>
110 Behaviour of Prestressed CFRP Anchorages under Freeze-Thaw Cycle Exposure <i>Harmanci, Y.E., Michels, J., Chatzi, E.</i>

Session 10 Room 2

Co-chairs: Feltrin, G. and Nöther, N.
Session SHM
42 Optimisation of structural health monitoring system topology based on the value of information concept <i>Omenzetter, P.</i>
64 Smart Bridge – Way into practice <i>Dabringhaus, S., Hindersmann, I.</i>
76 Bridge pier and embankment foundation real time scour monitoring system development <i>Lin, Y.-B., Chang, K.-C., Gu, M.-H., Lin, X., Lai, J.-S.</i>
79 Development of FBGS-systems for Monitoring Purposes of large Timber Structures <i>Franke, S., Schiere, M., Müller, A.</i>
102 The use of drilling tests to assess the strength of building materials: Review of existing methods and a proposed new technique <i>Alyamac, K.E., Olek, J.</i>
103 Estimation of concrete strength combining rebound hammer and Windsor probe test methods <i>Alyamac, K.E., Ulucan, Z.C., Ulas, M.A., Tas, Y.</i>
115 Monitoring the flow of asphalt mixtures compacted on two different rough surfaces <i>Ghafoori Roozbahany, E., Partl, M.N., Guarin, A.</i>
101 Non-Contact Laser Ultrasonics based Monitoring of Civil Infrastructure <i>Majhi, S., Mukherjee, A., Karaganov, V., Uy, B.</i>

Session 11 Room 3

Co-chairs: Harmanci, Y.E., Chatzi, E. and Dertimanis, V.K.
Session Vibration based SHM
114 Monitoring of bridge vibrations with image-assisted total stations <i>Ehrhart, M., Kalenjuk, S., Lienhart, W.</i>
117 High Spatial Density Vibrational Measurements via 3D-Particle Tracking Velocimetry <i>Harmanci, Y.E., Gülan, U., Zimmermann, M., Chatzi, E., Holzner, M.</i>
121 A basic research for track maintenance with track facility daily monitoring data <i>Uno, T., Okada, K., Aoki, K., Saito, Y.</i>
143 Anomaly detection of bridges under vehicle induced vibration by means of Bayesian inference <i>Goi, Y., Kim C.-W.</i>
145 Energy harvesting from earthquake for vibration-powered wireless sensors <i>Quaranta, G., Trentadue, F., Maruccio, C., Marano, G.C.</i>
149 Monitoring of cable stayed bridges and its integration from the design stage – Case studies <i>Meng, N., Islami, K., O'Suilleabhain, C.</i>
162 Usefulness of ambient-vibration measurements for seismic assessment of existing structures <i>Reuland, Y., Abi Radi Abou Jaoude, A., Lestuzzi, P., Smith, I.F.C.</i>
257 Improved Structural Health Monitoring of the DLR Warton Road Bridge using Digital Image Correlation <i>Winkler, J., Hendy, C.</i>

Session 12 Room 4

Co-chairs: Ilki, A. and Kono, S.
Session Damage control, strengthening
60 Nonlinear Modeling of Bar Buckling and Rupture in RC Columns Under Cyclic Loads <i>Girgin, S.C., Moharrami, M., Koutromanos, I.</i>
104 Seismic Behavior of Precast Hollow-Core FRP-Concrete-Steel Column having Socket Connection <i>Abdulazeez, M.M., ElGawady, M.A.</i>
151 SCF in FRP strengthened tubular T-joints under brace axial loading, in-plane bending and out-of-plane bending moments <i>Hosseini, A.S., Bahaari, M.R., Lesani, M.</i>
160 Review of Methods for Reinforced Concrete Column Retrofit <i>Sichko, A., Sezen, H.</i>
161 Evaluation of Retrofit Methods for Reinforced Concrete Beams <i>Sichko, A., Sezen, H.</i>
170 Cyclic response of FRP-to-concrete adhesive joints: effect of the shape of bond-slip model <i>Martinelli, E., Zhou, H., Fernando, D.</i>
178 Experimental evaluation of the developed reinforcement system in FASSTbridge project <i>Chataigner, S., Benzarti, K., Gemignani, G., Calderon, I., Birtel, V., Lehmann, F., Brugiolo, M., Pintero, I.</i>
179 Use of polymer flexible joint between RC frames and masonry infills for improved seismic performance <i>Kwiecien, A., Kisiel, P., Gams, M., Korelc, J., Viskovic, A., Rousakis, T.</i>

12.30–14.00 Lunch

Program, Thursday, 14/9/17

14.00–15.30

Session 13 Room 1

Co-chairs:
Czaderski, C. and Keller, T.

Session 25 years of CFRP in construction

- 307 **Recent contributions from UMinho and Empa on durability issues of flexural strengthening of RC slab with EB CFRP laminates**
Sena-Cruz, J., Michels, J., Correia, L., Silva, P., Fernandes, P., Faça, P.M., Czaderski, C., Harmanci, Y., Gallego, J.M.
- 34 **Flexural strengthening of reinforced concrete beams using externally bonded FRP laminates prestressed with a new method**
Yang, J., Haghani, R., Al-Emrani, M.
- 89 **Design of CFRP pre-stressed double-tee girders and experimental behavior under service load**
Spadea, S., Rossini, M., Nanni, A.
- 225 **Torsional behavior of hollow - core FRP - concrete - steel bridge columns**
Anumolu, S., Abdelkarim, O.I., Abdulazeez, M.M., Gheni, A., ElGawady, M.A.
- 278 **Effects of loading rate on the behaviour of CFRP strengthened steel members**
Kadhim, M.M.A., Wu, Z., Cunningham, L.S.
- 93 **Experimental and numerical study on the bond slip laws of adhesively bonded FRPs**
Sedlmair, R., Stempniewski, L., Walendy, B.

Session 14 Room 2

Co-chairs: Ghorbani-Tanha, A.K. and Feltrin, G.

Session SHM

- 84 **Capabilities and challenges of distributed Brillouin sensing in geotechnical applications**
Nöther, N., von der Mark, S.
- 85 **Miniature Fiber Optic Sensors: from Human to Structural Health Monitoring**
Inaudi, D., Blin, R.
- 86 **Distributed Sensors for Underground Deformation Monitoring**
Belli, R., Inaudi, D.
- 119 **An Innovative Deformation-Based System for Monitoring the Structural Safety of Stay-Cables**
Bimschas, M., Kaufmann, W.
- 123 **Study on monitoring technology focused on reinforcement cable for a fail-safe system**
Toyota, Y., Hirose, T., Ono, S., Shidara, K.
- 132 **Dynamic identification-model updating-seismic performance assessment of stone arch bridges**
Soyoz, S., Karcioglu, E., Aytulun, E., Kaynardag, K., Pelvan, S.C., Karadeniz, A.

Session 15 Room 3

Co-chairs: Harmanci, Y.E., Chatzi, E. and Dertimanis, V.K.

Session Vibration based SHM

- 261 **Vibration-based structural performance assessment via output only sub-Nyquist/compressive wireless sensor data**
Gkoktsi, K., Dertimanis, V., Chatzi, E.N., Giaralis, A., Klis, R.P.
- 183 **Potential of detecting dynamic motion by analysing SNR of GPS satellite signals**
Peppas, I., Psimoulis, P., Meng, X.
- 193 **Vibration-based damage identification in railway concrete sleepers**
Janeliukstis, R., Kaewnuen, S., Clark, A., Rucevskis, S.
- 166 **Remote vibration monitoring for scour detection of a railway bridge**
Kim, C.-W., Kawabe, D., Kitagawa, S., Shinoda, M., Nakamura, T., Yao, H.
- 211 **Structural Damage Diagnosis with Time-Varying Loads Using Convolutional Neural Network**
Gulgec, N.S., Takac, M., Pakzad, S.N.
- 233 **Utilization of wavelet-based damage-sensitive features for structural damage assessment of steel braced frames**
Hwang, S.-O., Lignos D.G.

Session 16 Room 4

Co-chairs:
Michels, J. and Kotynia, R.

Session Damage control, strengthening

- 263 **Experimental behavior of a severely damaged RC beam-column joint repaired with FRCM composites**
Faleschini, F., Gonzales-Libreros, J., Hofer, L., Snned, L.H., Pellegrino, C.
- 181 **Experimental Study on the Bond-Slip Behaviour of CFRP Laminates Bonded on RC Tension Members**
Bischof, P., Gomer, A., Lötscher, D., Mata Falcón, J., Kaufmann, W.
- 190 **Performance of RC Slabs Strengthened with Mechanically Fastened Composites**
Ibrahim, W.
- 191 **Construction case and development for the upper surface strengthen method of bridge RC slab**
Komori, W., Kobayashi, A., Abe, T.
- 240 **Assessment of axial behavior of HPFRCC members externally confined with FRP sheets**
Demir, U., Sahinkaya, Y., Ispir, M., Ilki, A.
- 230 **Flexural Response of RC Beams Strengthened using UHPFRC Panels Epoxied to the Sides**
Al-Osta, M.A., Rahman, M.K., Isa, M.N., Baluch, M.H.

15.30–16.00 Coffee break

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16.00 – 17.30

Session 17 Room 1

Co-chairs: Kinzo Kishida, K.,
Osman, A. and Shahverdi, M.

**Session Performance and
damage assessment**

- 32 **An edge cracked frame finite element for analysis of cracked structures and inverse crack detection**
Rezaiee-Pajand, M., Gharaei-Moghaddam, N., Arabshahi, A.
- 96 **Numerical simulation of micro-crack identification in pipes with nonlinear guided waves**
Guan, R., Lu, Y., Duan, W., Wang, X.
- 105 **Nonlinear Analysis of Hollow-Core Composite Building Columns**
Abdulazeez, M.M., ElGawady, M.A.
- 301 **Cement composites with graphite, graphite oxide and graphite - like for applications in sensors**
Santos Mendonça, M.G., Borin Barin, G., de Almeida, T.S., Barreto, L.S.
- 124 **Probability based comparison of retrofit methods for existing nonductile concrete frames**
Miano, A., Sezen, H., Jalayer, F., Prota, A.
- 125 **Punching Shear and Critical Shear Crack Theory in existing Column-Supported RC Slabs**
Arslantürkoglu, S., Bärtschi, R.

Session 18 Room 2

Co-chairs: Omenzetter, P. and
Helmerich, R.

Session SHM

- 133 **Structural health monitoring of airfield pavements using distributed fiber-optics sensing**
Rabaiotti, C., Hauswirth, D., Fischli, F., Facchini, M., Puzrin, A.
- 134 **Exploring the solution space in error-domain model falsification using classification algorithms**
Pai, S.G.S., Smith, I.F.C.
- 148 **Elastic-wave-based Imaging System for Detecting Voids in Concrete Structures**
Tong, J.-H.
- 150 **Structural health monitoring of a "Stary most" bridge in Bratislava with novel FBG technology**
Salat, T., Lowy, P., Patassy, G.
- 159 **Application of distributed optical measurements to structural concrete experiments**
Haefliger, S., Mata-Falcon, J., Kaufmann, W.
- 169 **Pre and Post Retrofit behaviour of an existing Railway Open web Steel Girder bridge**
Singh, S.K., Dhang, N.

Session 19 Room 3

Co-chairs: Harmanci, Y.E.,
Chatzi, E. and Dertimanis, V.K.

Session Vibration based SHM

- 16 **Identification of Structural Damage in Hybrid Bridge Truss Girders Using Relative Wavelet Entropy**
Morawej, M., El-Badry, M.
- 56 **Non-contact vibration measurement of cables in a cable - stayed bridge by consumer - grade camera**
Xu, Y., Brownjohn, J.
- 65 **Dynamic effects of cable rupture in a tensegrity structure**
Sychterz, A.C., Smith, I.F.C.
- 74 **Comparative Study of Damage Detection in Symmetric and Asymmetric Buildings**
Wang, Y., Thambiratnam, D.T., Chan, T.H.T., Nguyen, A.
- 100 **Detecting damage in concrete beams using Bi-coherence of vibration data**
Ahmed, F., Ahsan, R.
- 108 **Deterioration Sensitive Feature using Enhanced AR Model Residuals**
Monavari, B., Chan, T.H.T., Nguyen, A., Thambiratnam, D.P.

Session 20 Room 4

Co-chairs:
Frigione, M. and El-Hacha, R.

**Session Damage control,
strengthening**

- 62 **Bond behaviour of NSM CFRP strips with innovative high-strength self-compacting cementitious adhesive (IHSSC-CA) made with graphene oxide**
Al-Saadi, N.T.K., Mohammed, A., Al-Mahaidi, R.
- 63 **Assessing the effectiveness of cementitious adhesive made with graphene oxide used in NSM CFRP applications**
Mohammed, A., Al-Saadi, N.T.K., Al-Mahaidi, R.
- 206 **Stress - strain Response of Steel - FRP Confined Concrete Columns Determined by DIC**
Carlioni, C., Santandrea, M., Ravazdezh, F., Sneed, L.
- 212 **Effect of FRCM properties on masonry out of plane strengthening**
Ramaglia, G., Lignola, G.P., Prota, A., Fabbrocino, F.
- 214 **Retrofit of corroded reinforced concrete buildings to improve their seismic capacity**
Bossio, A., Lignola, G.P., Prota, A., Mandredi, G., Fabbrocino, F.
- 283 **An Experimental Study on Effects of Lap-Spliced Joint on Structural Behavior of RC Columns**
Pul, S., Senturk, M.