

Structural Faults & Repair /Euro-Bridge-2018, Radisson Blu Hotel, 80 High Street, Royal Mile, Edinburgh EH1 1TH - **Programme: V1.5** (updated on 7th May 2018)

Day 0: Monday 14th May 2018

18.30 - 20.00 Ice Breaker with BBQ Food + Beer + Malt Whisky tasting + soft drinks – Exhibition Hall, St Giles Suite, Radisson Blu Hotel, 80 High Street, Royal Mile, Edinburgh EH1 1TH

Day 1: Tuesday 15th May 2018

0815 – 09.00: Registration & Coffee - Exhibition Hall

09.00 Conference Opening & Chair: Prof Mike Forde, FEng, FRSE, FAcI, University of Edinburgh

Lecture Room 'A': [Keynote Papers:](#)

COMPLETION OF THE QUEENSFERRY CROSSING, Lawrence Shackman, Transport Scotland, Glasgow, UK
TOWARDS INTERNATIONAL SPECIFICATIONS FOR LONG-SPAN BRIDGES, Dr Khaled Mahmoud, BTC Inc, New York NY, USA
CONCRETE: INNOVATIVE TECHNOLOGIES FOR TUNNEL INFRASTRUCTURE MONITORING, Prof Tomoki Shiotani, ITIL Laboratory, Kyoto University, Japan
THE ART OF ARCHES, Dr Man-Chung Tang, TY Lin International Inc, San Francisco CA, USA

11.30 – 12.00 Coffee – Exhibition Hall

12.00 - 13.00

Lecture Room 'A'

Chairs: Prof AE Long & Dr H Tabatabai

[Long-Span Bridges-1](#)

- IMAGE DATA FOR BRIDGE TRAFFIC LOAD MONITORING ON FORTH ROAD BRIDGE, R Mckinstry, E Angus, Amey Consulting, South Queensferry, E J Obrien, A Micu, A Malekjafarian, Univ College Dublin, Ireland, M Lydon, Queen's Univ Belfast, UK
- TRESFJORD BRIDGE –HUMAN FRIENDLY & TRAFFIC EFFICIENT STRUCTURE, K Dahl, AAM Tønnessen, L Toverud, Multiconsult ASA, Oslo, Norway
- STRUCTURAL EVALUATION OF HISTORIC ROEBLING SUSPENSION BRIDGE, I Harik Univ of Kentucky, Lexington, & CC Choo, California State Univ, Fresno, USA

Lecture Room 'B'

Chairs: Prof M Corradi & Prof J Adam

[Extending the Life of Buildings & Civil Structures-1](#)

- ASSESSMENT OF RC BUILDING STRUCTURES UNDER CONSTRUCTION SUBJECTED TO SUDDEN REMOVAL OF SHORING ELEMENTS, J Adam, M Buitrago, P A Calderón, ICITECH, Univ Poli de València, Spain, J Sagasetta, Univ of Surrey, Guildford, UK
- AN EXPERIMENTAL INVESTIGATION OF THE USE OF LIQUID POLYMERS FOR REPAIRING STRUCTURALLY DAMAGED TIMBER BEAMS, M Corradi, Univ Perugia, Italy, A Hawkins, I Osofero, Univ of Aberdeen, UK
- FRP CONFINEMENT OF HIGH-ASPECT RATIO CONCRETE COLUMNS, C Kolyvas, Fyfe/Fibrwrap, Wellingborough, UK & T Triantafillou, Univ of Patras, Greece

13.00 – 14.00 Lunch – Exhibition Hall, St Giles Suite

14.00 - 15.30: Parallel Sessions

Lecture Room 'A'

Chairs: Prof I Harik & C Hendy

[Long-Span Bridges-2](#)

- TRESFJORD BRIDGE – FOUNDATION OF MAIN SPAN ON 40M CAISSON ON SOIL SEABED, K Dahl, L Toverud, D.E. Brekke Multiconsult ASA, Oslo, Norway
- IMPROVED STRUCTURAL ASSESSMENTS USING PARTIAL FACTOR REDUCTION, C Hendy, L Man, R Mitchell, Atkins, Epsom, H Takano, Highways England, Guildford, UK
- HARNESSING OPEN SOURCE BIG DATA TECHNOLOGY TO TRANSFORM SHM FROM DATA LOGGING INTO DECISION SUPPORT INFORMATION, A Scullion, James Fisher Testing Services, Bristol, UK

[Concrete Bridges-1](#)

- FULL-SIZE FIELD TEST OF PRESTRESSED CONCRETE T-BEAM BRIDGE, S Ensink, C v.d. Veen, D Hordijk, TU-Delft Netherlands, E Lantsoght Univ San Francisco de Quito, Ecuador, H v.d. Ham, Ministry of Infr & Env, Utrecht, & A de Boer, Consultant, Arnhem, Netherlands
- FLEXIARCH- CASE HISTORIES, Prof AE Long & D McPolin, Queen's Univ Belfast, A Gupta, Macrete Ireland, Toomebridge, UK

Lecture Room 'B'

Chairs: Prof K Harries & S Hold

[Extending the Life of Buildings & Civil Structures-2](#)

- EFFECTIVENESS OF STRENGTHENING APPROACHES FOR EXISTING EARTHEN CONSTRUCTION, KF Abdulla, LS Cunningham, Univ of Manchester & M Gillie, Univ of Warwick, Coventry, UK
- INTIMATELY-BONDED LINING SYSTEMS FOR REPAIR OF BURIED INFRASTRUCTURE, K Harries, Univ of Pittsburgh, USA /Univ of Bath, UK, M Tomlinson, Buckhurst Plant Hire, UK, M Sweriduk, HDR, Pittsburgh, USA & D Warren, Warren Environmental, Carver MA, USA
- CARBON FIBRE STRING–SIMPLE SOLUTION FOR VARIOUS STRUCTURAL STRENGTHENING CHALLENGES, A Baier, Sika Services AG, Zurich, Switzerland
- STRENGTHENING OF HYBRID STEEL-CONCRETE SHEAR WALLS USING HIGH PERFORMANCE STEEL FIBRE REINFORCED CEMENTITIOUS COMPOSITE, Viorel Constantin Todea, Valeriu Augustin Stoian, Sorin-Codruț Floruț, Daniel Dan, Univ Timisoara, Romania

15.30 – 16.00 Tea – Exhibition Hall

16.00 - 17.30: Parallel Sessions

Lecture Room 'A'

Chairs: Dr Man-Chung Tang, Dr Khaled Mahmoud & Chris Hendy

[Open Discussion Forum:](#)

[Long-Span Bridges](#)

[led by:](#)

[Dr Man-Chung Tang, TY Lin International Inc, San Francisco CA, USA](#)

[Dr Khaled Mahmoud, BTC, New York, NY USA](#)

[Chris Hendy, Atkins, Epsom, UK](#)

Lecture Room 'B'

Chairs: Prof C Gentile & Prof A Saisi

[Conservation of Structures](#)

- A REVIEW OF THE UTILIZATION OF STAINLESS STEEL FOR SEISMIC REINFORCEMENT OF HISTORIC MASONRY STRUCTURES, M Corradi, A Di Schino, Univ of Perugia, Italy
- BEHAVIOUR OF MASONRY CROSS VAULTS SUBJECTED TO SOIL SETTLEMENTS, PA Calderón, B Torres, JJ Moragues, J M Adam, ICITECH, Univ Poli de València, Spain

19.00 pm "Civic Reception & Awards Ceremony" - ALL Delegates & Exhibitors Invited

Sponsored by Elsevier Ltd: “Construction and Building Materials”

at The City Chambers, 253 High St, Royal Mile, Edinburgh EH1 1YJ:

ALL Delegates & Exhibitors Invited

Day 2: Wednesday 16th May 2018

08.15: Registration & Coffee - Exhibition Hall

09.00 – 11.00 Lecture Room 'A': Keynote Papers:

THEORETICAL DEVELOPMENT OF IMPACT-ECHO & ACOUSTIC EMISSION FOR VISUALIZED NDT OF SIBIE & SIGMA, M Ohtsu, ITIL lab., Kyoto University, Japan
STRUCTURAL CONDITION ASSESSMENT OF AN ANCIENT TOWER, Prof C Gentile, Prof A Saisi, Politecnico di Milano, Italy
MANAGING SCOTLAND’S TRUNK ROAD BRIDGE STOCK, Dr Hazel McDonald, Chief Bridge Engineer, Transport Scotland, Glasgow, UK

11.00 – 11.30 Coffee – Exhibition Hall

11.30 - 13.00

Lecture Room 'A'

Chairs: Prof M Ohtsu & Prof T Suzuki

NDT of Concrete

- FATIGUE FAILURE EVOLUTION OF RC SLABS ACCELERATED BY WATER INFILTRATION BASED ON ELASTIC WAVE VELOCITIES WITH 3D AE TOMOGRAPHY, T Shiotani, H Asaue, Kyoto Univ, S Fukumoto, IHI Inspection & Instrumentation Co., Ltd., Tokyo, Y Tanaka, Univ of Tokyo, T Maeshima, NIPPO Corp, Fukushima, Japan
- DEVELOPMENT OF CONCRETE DAMAGE ESTIMATION SYSTEM “I-DECAT” BASED ON AE PARAMETER ANALYSIS, T Suzuki, Niigata Univ,& Y Shimamoto, Kitasato Univ, Aomori, Japan
- EVALUATION OF CRACKING DAMAGE IN SERVICE STRUCTURE USING AE ENERGY PARAMETERS, Y Shimamoto, Kitasato Univ, Aomori & T Suzuki, Niigata Univ, Japan
- ON-SITE MONITORING OF CHLORIDE ATTACK IN A PRESTRESSED CONCRETE BRIDGE IN SERVICE, Y Shimma, K Matsuyama, T Sonoda, Nippon Koei Co.,Tokyo, & M Ohtsu, Kyoto Univ, Japan

Lecture Room 'B'

Chairs: Dr T Hamilton & Dr L Canning

Concrete Bridges-2

- BRIDGE REFURBISHMENT USING A LIGHTWEIGHT SEMI-CONTINUOUS CONCRETE DECK, L Canning & B Lawal-Shekon, Jacobs UK Ltd, Manchester, UK
- LABORATORY EVALUATION OF THIN POLYMER OVERLAYS FOR BRIDGE DECKS, H Tabatabai & A Nabizadeh, Univ of Wisconsin-Milwaukee, USA
- OVERVIEW OF SURVIVAL ANALYSIS TECHNIQUES FOR PROBABILISTIC ASSESSMENT OF BRIDGE SERVICE LIFE, H Tabatabai, A Nabizadeh, Univ of Wisconsin – Milwaukee & M A Tabatabai, Meharry Medical College, Nashville, TN, USA
- REMEDICATION OF POST-TENSIONING TENDONS CONTAINING DEFECTIVE GROUT, S Patil, E Torres, H R Hamilton, Univ of Florida, Gainesville, & C Freeman, Florida DOT, Tallahassee, USA
- SHEAR & ANCHORAGE FAILURE OF SCALE PRESTRESSED CONCRETE I-GIRDERS & SCALE BRIDGE SECTION, C Murray, Univ of Arkansas, Fayetteville, AR & R Floyd, Univ of Oklahoma, Norman, OK, USA

13.00-14.00: Lunch – Exhibition Hall

14.00 - 15.30: Parallel Sessions

Lecture Room 'A'

Chairs: Dr L Sadowski & B Andrews

Extending the Life of Concrete + CFRP & GFRP

- USE OF ULTRA HIGH STRENGTH FIBRE REINFORCED CONCRETE TO REPAIR STRUCTURES, G Stanford, Freyssinet Ltd, Telford, UK
- USE OF GFRP BARS TO REINFORCE AN ELEVATED SLAB SUBJECT TO VIBRATORY LOADS & SEVERE CHEMICAL ATTACK, B Andrews, P Plemic, Wiss, Janney, Elstner Assoc, Northbrook, IL, USA
- EXAMINATION OF THE LONG-TERM CARBONATION PERFORMANCE THE CONCRETE COVERED WITH THE ELASTIC COAT WHICH RECEIVED HEAT DETERIORATION: LONG TERM CURING PERFORMANCE, M Sugiyama, Hokkai Gakuen Univ, Sapporo, Japan
- IDENTIFICATION OF THE LEVEL OF ADHESION IN LAYERED SYSTEMS MADE OF CEMENT COMPOSITES IN A MULTI-SCALE APPROACH, L Sadowski, Wroclaw Univ of Sci & Tech, Poland
- STRENGTHENING OF BRIDGES WITH ADVANCED COMPOSITE SYSTEMS, C Kolyvas, Fyfe/Fibrwrap, Wellingborough, UK

Lecture Room 'B'

Chairs: Dr D Pearson-Kirk & G Rapaport

Concrete Bridges-3

- IDENTIFICATION & MANAGEMENT OF HIGH RISK P-T BRIDGES, D Pearson-Kirk, I Motyl, G Probert & M Reed, WSP, Exeter, UK
- IMPROVED STRUCTURAL ASSESSMENTS ASSISTED BY DIGITAL IMAGE CORRELATION, C Hendy, J Winkler, Atkins, Epsom, UK
- IMPROVING MANAGEMENT OF BRIDGES – BENEFITS OF CONDITION MONITORING, D Pearson-Kirk & Y Hernandez-Diez, WSP, Exeter, M Price, Leeds, City Council, Leeds & J Malinowski, WSP, Leeds, UK
- HOW ONE STATE AGENCY IN USA IS BEGINNING TO INTEGRATE GROUND PENETRATING RADAR & INFRARED THERMOGRAPHY INTO THEIR BRIDGE DECK CONDITION ASSESSMENTS, N Martino, Roger Williams Univ, Bristol, RI, USA
- P-T. BRIDGES TENDON DUCTS EVALUATION WITH NDT & INVASIVE INVESTIGATIONS, G Rapaport, Ramboll Finland Oy, Kuopio, Finland

15.30 – 16.00 Tea – Exhibition Hall

16.00 - 17.30: Parallel Sessions

Lecture Room 'A'

Chairs: Prof J B Mander & Prof N Martino

Concrete Bridges-4 & COMPOSITE BRIDGES

- BRIDGING GAP WITH FRP COMPOSITES, J Drewett, M Richardson, Lifespan Structures, Mitcham, UK
- STRUCTURAL STRENGTHENING OF BRIDGES WITH ADVANCED COMPOSITE SYSTEMS, C Kolyvas, Fyfe/Fibrwrap, Wellingborough, UK
- DEVELOPMENT AND APPLICATIONS OF HYBRID COMPOSITE PLATES (HCP) FOR THE RETROFITTING OF RC STRUCTURES, Dr E Esmaeeli, Queen’s Univ of Belfast, UK (Nugget Presentation)

Steel Bridges

- INTERNAL REDUNDANCY OF BUILT-UP STEEL BRIDGE MEMBERS SUBJECTED TO COMPONENT FRACTURE, R Connor, F Bonachera, J Lloyd, Purdue Univ, West Lafayette, & M Hebdon, Virginia Tech, Blacksburg, USA
- REMAINING FATIGUE LIFE ANALYSIS FOR RIVETED STEEL RAILWAY BRIDGES, J B Mander, P Pradeep Kumar, Texas A&M Univ, College Station, USA

Lecture Room 'B'

Chair: Professor Mike Forde

Elsevier Editorial Board Meeting – “Construction & Building Materials” (IF = 3.169):

Board Members + Interested Delegates Invited.

Board Members:

Prof Mike Forde
Prof Masayasu Ohtsu
Prof Kent Harries
Prof Dimitris Aggelis

Prof Jose Adam
Prof Antonella Saisi
Prof Marco Corradi
Prof P.A.M. Basheer

Interested Delegates are invited to attend as “friends”

Social Event - *OPTIONAL* – tickets: £87 + VAT may be purchased at www.structuralfaultsandrepair.com

19.30 for 20.00: Conference Banquet

The Royal Scots Club, 29-31 Abercromby Place, Edinburgh EH3 6QE

OPTIONAL - tickets may be purchased at www.structuralfaultsandrepair.com or queries@ecspublications.com

Day 3: Thursday 17th May 2018

08.30: Registration & Coffee - Exhibition Hall

09.00 – 11.00 Lecture Room 'A': Keynote Papers:

ARE ALKALI ACTIVATED SLAG CONCRETES SUITABLE FOR REINFORCED CONCRETE STRUCTURES IN CHLORIDE ENVIRONMENTS?
K Yang, Univ of Leeds, UK, Q Ma, Kunming Univ, China, Sreejith Nanukuttan, QUB, Belfast, Yun Bai, UCL, UK, C Yang, Chongqing Univ, China & M Basheer, Univ of Leeds, UK

HIDDEN DEFECTS IN BRIDGES, D Pearson-Kirk, WSP, Exeter, UK

FLEXIARCH - PRECAST CONCRETE ARCH BRIDGE CONSTRUCTION,
Prof AE Long & S Nanukuttan, Queen's Univ Belfast, A Gupta, Macrete Ireland, Toomebridge, UK

11.00 – 11.30 Coffee – Exhibition Hall

11.30 - 13.00

Lecture Room 'A'

Chairs: Ms E Carrick Utsi & Prof Tomoki Shiotani

NDT of Structures-1

- THE GEOPHYSICAL IMPLICATIONS OF THE GPR INVESTIGATION OF THE SHAKESPEARE FAMILY GRAVES, E Carrick Utsi, EMC Radar Consulting, Haddenham, UK
- EFFECTIVE METHODS OF ELASTIC WAVE EXCITATION FOR AE TOMOGRAPHY IN DAM AGE EVALUATION OF CONCRETE SLAB, N Okude, T Shiotani, H Asaue & T Nishida, Kyoto Univ, T Yasuzato, West Nippon Expressway Company Limited, Osaka, Japan
- FRESH CONCRETE MONITORING BY NDT, D Aggelis, E Dzaye, Vrije Univ Brussel, Belgium & G De Schutter, Gent Univ, Belgium
- IDENTIFICATION OF DUCTS IN A PC BRIDGE UNDER CONSTRUCTION & DRILLED HOLES OF CHEMICAL ANCHOR BY SIBIE, Y Nagai, Kajima Co.,Ltd., Tokyo, & M Ohtsu, Kyoto Univ, Japan
- PROBING OF STEEL REINFORCED CONCRETE SPECIMENS BOTH BY RADAR & ULTRASONIC METHODS, H Rhim, Yonsei Univ, Seoul, Korea
- ULTRASONIC INVESTIGATION ON THE EFFECTIVENESS OF CRACK REPAIR IN CONCRETE, R Pinto, F Souza, Federal Univ of Santa Catarina, Florianopolis, Brazil

Lecture Room 'B'

Chairs: Dr K Mahmoud & M Grantham

Case Studies of Structural Faults

- ON SITE INSPECTION OF A REINFORCED CONCRETE STRUCTURE DETERIORATED DUE TO CORROSION BY MEANS OF ACOUSTIC EMISSION AND OTHER TECHNIQUES, C Van Steen, H Nassar, E Verstrynge, KU Leuven, Belgium & F Zhang, Y Yang, TU Delft, The Netherlands
- WWII MILITARY DEFENCE WALL IN JERSEY CI GIVEN AN EXTENDED LIFE & NEW INFRASTRUCTURE FUNCTION AS A FLOOD ALLEVIATION ASSET- RAISING THE HEIGHT OF AN EXISTING SEA WALL, S Hold, Steve Hold Consulting Ltd, Cowbridge, UK

Bridges - Nugget Presentations

- PROCESSING BIG DATA FROM THE FORTH ROAD BRIDGE USING A TERRA-CORRELATOR, H Chong, D Xu, I Main, M Mineter, R De Bold, MC Forde, Univ of Edinburgh, C Gair, Transport Scotland, Glasgow, P Madden & E Angus, Amey Consulting, South Queensferry, UK, C Ho, Univ Massachusetts, Amherst, MA, USA
- ANALYSING TEMPERATURE & STRAIN SENSORS FROM THE QUEENSFERRY CROSSING, K Sidaoui, R Whillis, T Reynolds, H-K Chai, R De Bold, MC Forde, Univ of Edinburgh, C Gair, Transport Scotland, Glasgow, O Riches, A Mountjoy, Arup, Edinburgh, UK, C Ho, Univ Massachusetts, Amherst, MA, USA
- STEEL BRIDGE RESEARCH, INSPECTION, TRAINING AND ENGINEERING CENTER AT PURDUE UNIVERSITY, , R Connor, J Lloyd, Purdue University, S-BRITE Center, West Lafayette, IN, USA
- PROBABILITY OF DETECTION STUDY FOR VISUAL INSPECTION OF STEEL BRIDGES, RJ. Connor, LE Campbell, LR Snyder, JM. Whitehead, Purdue Univ, S-BRITE Center, West Lafayette, IN, USA

13.00-14.00: Lunch – Exhibition Hall

14.00 - 15.30: Parallel Sessions

Lecture Room 'A'

Chairs: Prof H Rhim & Prof P.A.M. Basheer

NDT of Structures-2

- MULTISCALE ANALYSIS OF CREEP DAMAGE IN HISTORICAL MASONRY BY MEANS OF ACOUSTIC EMISSION & MICROCT, E Verstrynge, D van Gemert, M Wevers KU Leuven, Leuven, Belgium
- SIMULATION INVESTIGATION OF ELASTIC WAVE VELOCITY & ATTENUATION TOMOGRAPHY USING RAIN-INDUCED EXCITATIONS, K Hashimoto, T Shiotani, N Okude, Kyoto Univ, Japan & C Granier, Imdm-Infra Consulting, Vevey, Switzerland & K Watabe, H Takamine, Toshiba Corp, Kanagawa, Japan
- APPLICATION OF LASER INDUCED BREAKDOWN SPECTROSCOPY FOR THE CHEMICAL INVESTIGATION OF CONCRETE INFRASTRUCTURE, G Wilsch, C Gottlieb, S Millar, T Günther, N Sankat, BAM, Berlin, Germany
- NDT FRACTURE MODE CHARACTERIZATION IN MASONRY COMPONENTS MADE WITH DIFFERENT MORTARS, G Livitsanos, D van Hemelrijck, D Aggelis, Vrije Univ Brussel, Belgium, N Shetty, E Verstrynge, M Wevers, KU Leuven, Belgium
- VIBRATION MEASUREMENT ON SLENDER HISTORIC STRUCTURES BY RADAR INTERFEROMETRY, C Gentile, A Saisi, Poli di Milano, Italy
- AE EVALUATION OF STEEL-CONCRETE BOND STRENGTH INDUCED WITH CORROSION DAMAGE, Y Gao, V Page, H K Chai, M C Forde, Univ of Edinburgh, UK & J Dong, Sichuan Univ, Chengdu, China

Lecture Room 'B'

Chairs: Prof D Zonta & Dr D Pearson-Kirk

Bridge Scour

- VULNERABILITY ASSESSMENT OF MASONRY ARCH BRIDGES UNDER SCOUR HAZARD, E Tubaldi, Univ Strathclyde, Glasgow, L Macorinl, B Izzuddin, Imperial College, London, UK
- USING BAYESIAN NETWORKS FOR ASSESSMENT OF UNDERWATER SCOUR FOR ROAD & RAILWAY BRIDGES, A Maroni, E Tubaldi, J Douglas, N Ferguson, D Zonta, Univ of Strathclyde, Glasgow, H McDonald, D Walker, Transport Scotland, Glasgow, E Greenoak, C Green, Network Rail Scotland, Glasgow, UK

Composite Bridges

- CHARACTERISATION OF DIFFERENT MATERIALS & CONSTRUCTIVE TECHNIQUES OF HERITAGE BRIDGES IN NORTHERN ITALY, D Foppoli & E Moretta, Foppoli Moretta e Assoc s.r.l., Tirano, Italy
- ELLAND ROAD BRIDGE REPLACEMENT: HERITAGE AND COMMUNITY ENGAGEMENT, Jorge Linares Francés, Arcadis, Birmingham, UK

15.30 – 16.00 Tea – Outside Lecture Rooms

16.00 - 17.30: Parallel Sessions

Lecture Room 'A'

Chair: Prof Tomoki Shiotani & Secretary: Prof Dimitrios Aggelis

Rilem Committee: TC-IAM

Damage Assessment in Consideration of Repair/ Retrofit-Recovery in Concrete and Masonry Structures by Means of Innovative NDT

All Committee Members + Observers (Friends)