

ORGANIZED BY



# fibCACRCS 2025

FIFTH EDITION

## DETAILED FINAL PROGRAM

### Monday, June 30th

9:00 (\*CET) **OPENING OF THE WORKSHOP**

\*Central European Time

#### Welcome & Introduction

9:15 **B. Belletti, D. Coronelli, M. di Prisco**, Event Coordinators

9:45 **Enrico Nusiner**, CTE President

10:00 **Luc Taerwe**, Editor-in-Chief of Structural Concrete

10:10 **Gianluca Cangemi**, General Director at Toto Costruzioni Generali

10:20 **Massimo Damasio**, Owner and Project Manager at Exemplar

10:30 **Marco Magistrali**, Products specialist at Mapei S.p.A

10:40 **Íria Doniak**, *fib* President

#### 11:00-11:30 Coffee Break

#### • OPENING KEY-NOTE LECTURES

11:30 **Joost Walraven** (Em. TU Delft, Delft, The Netherlands)

*Capacity assessment of existing structures according to fib Model code*

12:00 **Rade Hajdin** (Infrastructure Management Consultants GmbH, Zurich, Switzerland / University of Belgrade, Serbia)

*Bridge Management Systems – The next generation*

#### S1) DAMAGE INDICATORS OF CORROSION IN RC, SFRC AND PC MEMBERS AND MODELS FOR DETERIORATED MATERIALS

#### • KEY-NOTE LECTURES

12:30 **Edoardo Proverbio** (University of Messina, Messina, Italy)

*Corrosion in PT Tendons: Review of Estimation & Forecasting Models*

#### 13:00-14:00 LUNCH

14:30 **Carmen Andrade** (CIMNE – UPC, Barcelona, Spain)

*Effect of local climate in the concrete degree of water saturation and on the corrosion rate*

#### • PRESENTED PAPERS

15:00 **Giglio M.\*, Di Vita C.P., Proverbio E.**

*Corrosion induced damage evaluation on post-tensioned reinforced concrete structures*

15:15 **Russo N., Redaelli E., Lollini F.\***

*Electrochemical and gravimetric measurement of corrosion rate of steel bars in carbonated concrete*

15:30 **Belletti B., Bernardi P., Sirico A.\*, Zanotto F., Balbo A., Malcevski A.**

*Bond performance for uncorroded and corroded steel reinforcement in biochar-added concrete*

15:45 **Martens C.\*, Caspeepe R., Verstrynge E.**

*Exploring the Effects of Mechanical Cracking on the Corrosion Rate in Reinforced Concrete*

ORGANIZED BY



# fibCACRCS 2025

FIFTH EDITION

Tuesday, July 1<sup>st</sup>

16:00 Imperatore S\*, Nerilli F., Monsef Ahmadi H., Monteleone C., Capozzoli L., De Martino G., Salvia G., Di Gennaro D., Vasanelli E.

*Novel NDT methodologies for identifying corrosion damage in reinforced concrete structures*

16:15-16:45 Coffee Break

16:45 Coronelli D., Rosati G.\*

*Calculation of resistance for corroded strands with localized pits*

17:00 Bolzoni F.\*, Brenna A., Beretta S., Diamanti M.V., Paterlini L., Ormellesse M., Pedefferri M.P.

*Reinforced concrete structures affected by chloride induced corrosion: effect of preventative methods on service life*

17:15 Imperatore S.\*, Monteleone C.

*Corrosion assessment and mechanical characterization of naturally corroded reinforcements*

17:30 Sirico A., Palii O., Ravasini S.\*, Belletti B., Sánchez J.

*Pitting morphology of prestressing strands subjected to naturally chloride environment*

17:45 Flores Ferreira K.\*, Rampini M.C., Zani G., Russo N., Lollini F., Scaccabarozzi D., Zappa E., di Prisco M.

*The effects of artificial corrosion on reinforced concrete structures: experimental campaign on small-scale beam specimens*

18:00 (\*CET) CLOSING OF THE 1<sup>st</sup> DAY

9:00 (\*CET) OPENING OF THE 2<sup>nd</sup> DAY

**S2) ANALYTICAL AND NUMERICAL MODELS FOR THE CAPACITY ASSESSMENT OF CORRODED RC BEAMS, PC BEAMS AND BRIDGE DECKS COMPONENTS**

• KEY-NOTE LECTURES

9:00 Antonino Recupero (University of Messina, Messina, Italy)

*Prestressing Concrete in Italian Bridges: Seventy years of light and shadows in a winning challenge*

9:30 Chao Jiang (Tongji University, Shanghai, China)

*Corrosion-induced failure mode change and bearing capacity degradation of RC beams*

• PRESENTED PAPERS

10:00 Ferche A., Habibi S., Vecchio F.\*

*Modelling of Corroded Rebar in Concrete Members: Scratching the Surface*

10:15 de la Fuente A., Oller E., Todisco L., Sosa P.M., Ruiz G., Martínez F., Ribas C., Rodriguez J., Andrade C.

*ESTRUCOR: The Spanish research network on structural assessment of concrete structures*

10:30 Mezera A.\*, Holý M., Řeháček S.

*Assessment of Actual Conditions of Posttensioned Cables for Reliability Analysis of Existing Bridges*

ORGANIZED BY



# fibCACRCS 2025

## FIFTH EDITION

10:45 **Granata M.F.\***, **La Mendola L.**

*Influence of partial bond and degradation on post-tensioned prestressed girders*

[11:00-11:45 Coffee Break](#)

11:45 **Anghileri M.\***, **Biondini F.**

*Experimental validation of non linear structural analysis of RC/PC beams under shear failure*

12:00 **Rinaldi Z.**, **Di Carlo F.**, **Meda A.**

*Analytical modelling strategies comparison to predict the structural behaviour of corroded reinforced concrete beams*

12:15 **Spinella N.\***, **Rossi P.P.**, **Messina D.**, **Recupero A.**

*Modelling at different levels of complexity of RC beams with corroded reinforcing steel*

12:30 **Granata M.F.\***, **Colajanni P.**

*Structural behaviour of old reinforced concrete bowstring bridges affected by corrosion*

12:45 **Galano S.**, **Losanno D.**, **Parisi F.\***

*Finite element analyses on the flexural response of post-tensioned concrete bridge girders with corroded tendons in different grouting conditions*

[13:00-14:00 LUNCH](#)

14:00 **Torabian Isfahani F.**, **Vittone M.**, **Nava G.**, **Beltrami C.**

*Corrosion rate assessment of bridge deck post-tension cables with different environmental/maintenance and exposure scenarios*

14:15 **Di Carlo F.**, **Molaioni F.**, **Stella A.\***, **Talledo D.A.**

*Analysis of flexural behaviour of corroded RC beams through experimental tests with DIC*

### S3) ANALYTICAL AND NUMERICAL MODELS FOR THE CAPACITY ASSESSMENT OF CORRODED RC COLUMNS, BRIDGE PIERS AND VERTICAL MEMBERS OF STRUCTURES AND INFRASTRUCTURES

#### • KEY-NOTE LECTURES

14:30 **Stavroula Pantazopoulou** (York University, Toronto, ON, Canada)

*Modelling Parameters for Members with Corroded Bars in Seismic Assessment of Existing Structures*

15:00 **Mehdi Kashani** (University of Southampton, Southampton, United Kingdom)

*Recent Advances in Modelling Nonlinear Seismic Performance of Corrosion- Damaged RC Bridges*

#### • PRESENTED PAPERS

15:30 **Michelini E.**, **Dudziak S.\***, **Ravasini S.**, **Belletti B.**

*Capacity assessment of corroded reinforced concrete frames subjected to differential ground settlements*

[15:45-16:30 Coffee Break](#)

16:30 **Ruta D.**, **Bernardini D.\***, **Cardone D.**

*On the influence of the choice of the steel degradation law on the modeling of corroded Reinforced Concrete structures*

16:45 **Santarsiero G.**, **Masi A.**, **Gaetano R.**, **Picciano V.\***

*Seismic behaviour of simply supported reinforced concrete bridges with corroded piers*

17:00 **Coronelli D.\***, **Martinelli L.**

*Bridge piers load and deformation capacity: tests and numerical modelling*

ORGANIZED BY



# fibCACRCS 2025

FIFTH EDITION

17:15 **Zucca M., Stochino F., Vecchi E., Crespi P.**

*On the seismic performance of existing RC motorway viaducts subject to corrosion effects*

17:30 **Poeta A., Scozzese F., Micozzi F., Dall'Asta A.**

*Influence of degradation uncertainties on seismic risk of reinforced concrete bridge pier: preliminary investigation*

18:00 (\*CET) **CLOSING OF THE 2<sup>nd</sup> DAY**

19:00 **GALA DINNER**

Wednesday, July 2<sup>nd</sup>

9:00 (\*CET) **OPENING OF THE 3<sup>rd</sup> DAY**

**S4) ANALYTICAL AND NUMERICAL MODELS FOR THE CAPACITY ASSESSMENT OF CORRODED HALF JOINTS, SQUAT MEMBERS, ETC.**

• KEY-NOTE LECTURES

9:00 **Marco di Prisco** (Politecnico di Milano, Milan, Italy)

*The half-joint in the Italian bridges: residual bearing capacity and smart solutions for retrofitting*

9:30 **De-Cheng Feng** (Southeast University, Nanjing, China)

*Integrated model updating, probabilistic assessment, and digital twin of nuclear containment structures considering time-dependent corrosion effects*

• PRESENTED PAPERS

10:00 **Luyten K., Botte W., Caspeele R.**

*Effect of time-dependent degradation on the structural reliability of concrete half-joints based on strut-and-tie model calculations*

10:15 **Pizzini P\*, Di Stefano N., Facconi L., Minelli F., Plizzari G.**

*Experimental and numerical analyses of artificially corroded half-joint beams*

10:30 **Tenca P., Calcavecchia B., Luyten K., Caspeele R., Ravasini S., Bernardi P., Belletti B.\***

*Numerical assessment of the load-bearing capacity of existing bridges with dapped-end beams*

ORGANIZED BY



# fibCACRCS 2025

## FIFTH EDITION

10:45 **Martinelli P.\***, **Colombo M.**, **di Prisco M.**

*Robustness assessment of half-joint RC girder bridges under corrosion*

11:00 **Flores Ferreira K.**, **Rampini M.C.\***, **Zani G.**, **di Prisco M.**

*Analytical investigation on the structural impact of chloride-induced corrosion in reinforced concrete dapped-end beams*

[11:15-12:00 Coffee Break](#)

### S5) VERIFICATION METHODS FOR CORRODED STRUCTURES

#### • KEY-NOTE LECTURE

12:00 **Alan O'Connor** (Trinity College Dublin, Dublin, Ireland)

*Probabilistic assessment of existing bridges*

12:30 **Alfred Strauss** (University of Natural Resources and Life Science, Vienna, Austria),

**Helder F. M. Sousa** (BRISA Group, São Domingos de Rana, Portugal)

*Quality management in concrete structures – from construction throughout the lifetime*

[13:00-14:00 LUNCH](#)

14:00 **Mitsuyoshi Akiyama** (Waseda University, Tokyo, Japan), **Dan M. Frangopol** (Lehigh University, Bethlehem, USA)

*Probabilistic prediction of residual service life of corroded concrete structures*

14:30 **Lollini Federica** (Politecnico di Milano, Milan, Italy)

*Durability design of tunnels: present and future*

#### • PRESENTED PAPERS

15:00 **Baldassari A.**, **Piemonti A.**, **Plizzari G.**, **Conforti A.\***

*Influence of pitting corrosion on the flexural behavior of reinforced concrete beams*

15:15 **Vescovi M.\***, **Belletti B.**, **Ferretti D.**, **Pagliari F.**

*Experimental tests on bond-slip of corroded post-tensioning strand*

### S6) MONITORING AND DIGITAL TWINS FOR THE PREDICTION OF THE RESIDUAL SERVICE LIFE OF CORRODED STRUCTURES

#### • KEY-NOTE LECTURES

15:30 **Javier Sanchez** (Institute Edoardo Torroja, Madrid, Spain)

*Monitoring corrosion in reinforced concrete structures: case studies, results, analysis and outputs*

16:00 **Mauro Dolce** (University Federico II, Naples, Italy)

*Research on infrastructures deterioration in the ReLUIS project: visual inspections and experimental tests*

[16:30-17:00 Coffee Break](#)

#### • PRESENTED PAPERS

17:00 **Messina D.**, **Galatà C.**, **Venturi V.D.**, **Recupero A.**, **Proverbio E.**

*Analytical and experimental procedure for in situ stress measurements in prestressed concrete structures*

ORGANIZED BY



# fibCACRCS 2025

FIFTH EDITION

17:15 Jamal J.\*, Carboni B., Quaranta G., Lacarbonara W.

*Experimental assessment of corroded RC structures using non-contact techniques*

17:30 Bouteiller V., Bonnet A., Da-Silva V., Marie-Victoire E., Bouichou M., Thauvin B.,  
Queguiner R., Duros E., Villain G., Achenbach R., Raupach M.

*Assessment of chloride-induced corrosion of reinforced concrete by non-destructive testing  
and continuous monitoring*

17:45 Keßler S.\*, Köhncke M.

*Enhancing Corrosion Condition Assessment via Digital Modeling*

18:00 Fritz B.\*

*Long-term Corrosion Monitoring for Evaluating the Performance of Repair Measures*

18:30 (\*CET) CLOSING OF THE 3<sup>rd</sup> DAY

Thursday, July 3<sup>rd</sup>

9:00 (\*CET) OPENING OF THE 4<sup>th</sup> DAY

## S7) UPGRADING OF DETERIORATED STRUCTURES BY REACTIVE AND PROACTIVE INTERVENTIONS

### • KEY-NOTE LECTURES

9:00 José Matos, Hélder S. Sousa (University of Minho, Guimarães, Portugal)  
*The implementation of reactive and proactive interventions towards increasing the resilience  
of reinforced concrete structures*

9:30 Steffen Marx (Dresden University of Technology, Institute for Concrete Structures,  
DB Netz AG, Germany)  
*Forensic analysis of the Carola bridge collapse in Dresden*

### • PRESENTED PAPERS

10:00 Van Den Hende K.\*, Botte W., Matthys S., Lombaert G., Caspeele R.  
*Optimization of preventive repair strategies for a prestressed concrete girder subjected to  
chloride-induced corrosion*

10:15 Řeháček S., Citek D., Pokorný P., Krystov M., Citek A.  
*Evaluation of Inspected Bridges Built of Prestressed Standardized Precast Girders I-73 After  
40 Years of Use*

ORGANIZED BY



# fibCACRCS 2025

## FIFTH EDITION

### S8) CASE STUDIES

#### • KEY-NOTE LECTURES

10:30 **Mario Petrangeli, Luigi Fieno** (MPA, Roma, Italy)  
*Corrosion effects of post-tensioned strands on the safety of highway viaducts - The case study of mountain viaducts*

#### 11:00-11:30 Coffee Break

11:30 **Joan Ramon Casas** (UPC-BarcelonaTech, Barcelona, Spain)  
*Capacity assessment and proactive intervention in damaged bridges: two case studies*

#### • PRESENTED PAPERS

12:00 **Bernardini S.\*, Papworth F., Newby R.**  
*Investigation and repair of an immersed concrete box subject to restrained and structural cracking*

12:15 **Miceli E.\*, Gino D., Giordano L., De Iuliis M., Castaldo P., Mancini G., Deiana M.**  
*Experience from experimental testing of an existing PRC bridge beam*

12:30 **Newby R., Papworth F., Bernardini S.**  
*Residual life and repair for an existing concrete wharf*

12:45 **Khadija A., El Mendili Y., Cherkaoui M.**  
*Mechanical, and electrochemical (EIS) characterization of reinforced concrete by Natural Moroccan Pozzolan and fly ash*

#### 13:00-14:00 LUNCH

14:15 **Newby R., Papworth F., Bernardini S.**  
*Corrosion Assessment of Post-Tensioned Cables*

14:30 **Casprini E., Passoni C.\*, Haefliger S., Todisco L.**  
*Defining corrosion parameters from naturally corroded bars: the CORR-DATA database*

14:45 **Duarte N., Bairán J.M.**  
*Assessment of corroded prestressed concrete wharves in Catalan Marinas*

15:00 **Reale S., Furinghetti M., Pavese A.**  
*Experimental and Numerical Studies on the Seismic Response of a Corroded RC Bridge*

15:15 **Lollini F., Carsana M., Gastaldi M., Giannini L., Redaelli E.**  
*Experimental tests for the evaluation of the durability of a tunnel under construction*

#### 15:30-16:00 Coffee Break

16:00 **Round table on identifying the technical gaps for the structural evaluation of corroded concrete structures for future guidelines and code on short and long-term assessment of corroded structures**  
**CHAIR: Walter Kaufmann, ETH Zurich, Switzerland**

#### CLOSING CEREMONY

17:30 • AWARDS

• CONCLUSION OF THE WORKSHOP

18:00 (\*CET) CLOSING OF THE WORKSHOP

\*Centre European Time