

VENUE:
Politecnico di Milano
Polo Territoriale di Lecco Via
Gaetano Previati 1/c Lecco,
Italy

<http://cacrcs.cte-eventi.com>

CACRCS DAYS 2025

ORGANIZED BY



COLLEGIO
DEI TECNICI DELLA
INDUSTRIALIZZAZIONE
EDILIZIA



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THE INTERNATIONAL
FEDERATION
FOR STRUCTURAL
CONCRETE

FIFTH EDITION

2025 • Lecco - June 30 / July 3

CAPACITY ASSESSMENT OF CORRODED REINFORCED CONCRETE STRUCTURES: FROM RESEARCH TO DAILY ENGINEERING EVALUATION

WITH THE SUPPORT OF



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CAPACITY ASSESSMENT OF CORRODED REINFORCED CONCRETE STRUCTURES

TOPIC

The **CACRCS DAYS 2025 5th edition** will focus on practical engineering applications achieved through consolidated research on corroded reinforced concrete and prestressed concrete structures. The workshop will cover a range of topics, starting with the definition of corrosion damage indicators and analysis of material characteristics, moving on to the evaluation of the structural behaviour of corroded members, and concluding with the prediction of the remaining service life of corroded structures and intervention strategies. Case studies on the assessment of deteriorated structures are of particular interest.

Since 2019, the Workshop has attracted participation from experts in the capacity assessment of corroded reinforced concrete structures.

The workshop is open to young researchers, experts, and practitioners.

During the **CACRCS DAYS**, professional engineers will have the opportunity to connect with a community of experts who can assist in practical problem-solving and decision-making procedures for the assessment, interventions and maintenance of existing structures. Additionally, a Round Table discussion will be scheduled to stimulate debate on the analysis of available codes and guidelines for the evaluation of deteriorating existing structures affected by corrosion, as well as identify gaps and future research areas based on the contributions submitted to this workshop.

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ORGANIZING COMMITTEE

Coordinators: **Beatrice BELLETTI** (University of Parma), **Dario CORONELLI** (Politecnico di Milano), **Marco DI PRISCO** (Politecnico di Milano)

Olha Palii (University of Parma)

Anna Magri, Ludovica De Cobelli (CTE)

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millo Nuti (Università degli Studi Roma Tre), **Antonino Recupero** (University of Messina), **Claude Rospars** (University Gustave Eiffel),

Peter Tanner (IETcc-CSIC), **Francesco Tondolo** (Politecnico di Torino), **Tamon Ueda** (Shenzhen University)

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REINFORCED CONCRETE STRUCTURES**



The venue of the
CACRCS DAYS 2025 will be the
Politecnico di Milano
Polo Territoriale di Lecco
Via Gaetano Previati 1/c, Lecco, Italy
<http://cacrcs.cte-eventi.com>

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PROGRAM

Special sessions are organised during the workshop. Authors are invited to kindly select the session at which they will present their papers. Each session will include both research and engineering applications focussing on what is needed for the evaluation of corroded structures. **CACRCS DAYS 2025** includes a Round table to promote discussions. The workshop offers didactic material for engineers, practitioners, scientists, concrete technologists, researchers, and academics to further knowledge about corrosion of reinforced concrete structures.

Monday, June 30th

OPENING OF THE WORKSHOP

- Welcome & Introduction
- OPENING
- KEY-NOTE LECTURES
Joost Walraven (Em. TU Delft, Delft, The Netherlands)
Capacity assessment of existing structures according to fib Model code 2020
- LUNCH

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

- KEY-NOTE LECTURES
Edoardo Proverbio (University of Messina, Messina, Italy)
Corrosion in PT Tendons: Review of Estimation & Forecasting Models
Carmen Andrade (CIMNE – UPC, Barcelona, Spain)
Effect of local climate in the concrete degree of water saturation and on the corrosion rate
- PRESENTED PAPERS
- COFFEE BREAK
- PRESENTED PAPERS
- CLOSING OF THE 1st DAY

Tuesday, July 1st

OPENING OF THE 2nd DAY

S2) ANALYTICAL AND NUMERICAL MODELS FOR THE CAPACITY ASSESSMENT

OF CORRODED RC BEAMS, PC BEAMS AND BRIDGE DECKS COMPONENTS

- KEY-NOTE LECTURES
Antonino Recupero (University of Messina, Messina, Italy)
Prestressing Concrete in Italian Bridges: Seventy years of light and shadows in a winning challenge
Chao Jiang (Tongji University, Shanghai, China)
Corrosion-induced failure mode change and bearing capacity degradation of RC beams
- PRESENTED PAPERS
- COFFEE BREAK
- PRESENTED PAPERS
- LUNCH

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
Stavroula Pantazopoulou (York University, Toronto, ON, Canada)
Modelling Parameters for Members with Corroded Bars in Seismic Assessment of Existing Structures
Mehdi Kashani (University of Southampton, Southampton, United Kingdom)
Recent Advances in Modelling Nonlinear Seismic Performance of Corrosion-Damaged RC Bridges
- PRESENTED PAPERS
- COFFEE BREAK
- PRESENTED PAPERS
- CLOSING OF THE 2nd DAY

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Wednesday, July 2nd

OPENING OF THE 3rd DAY

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

- KEY-NOTE LECTURES

Marco di Prisco (Politecnico di Milano, Milan, Italy)

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

- PRESENTED PAPERS

- COFFEE BREAK

- PRESENTED PAPERS

- LUNCH

S5) VERIFICATION METHODS FOR CORRODED STRUCTURES

- KEY-NOTE LECTURE

Alan O'Connor (Trinity College Dublin, Dublin, Ireland)

Probabilistic Assessment of Existing Bridges

Alfred Strauss (University of Natural Resources and Life Science, Vienna, Austria)

Quality control in concrete construction

Mitsuyoshi Akiyama (Waseda University, Tokyo, Japan)

and **Dan M. Frangopol** (Lehigh University, Bethlehem, USA)

Probabilistic prediction of the residual service life of corroded structures

- PRESENTED PAPERS

- COFFEE BREAK

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

- KEY-NOTE LECTURES

Javier Sanchez (Institute Edoardo Torroja, Madrid, Spain)

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

Mauro Dolce (University Federico II, Naples, Italy)

Research on the deterioration of infrastructures in the Reluis project: visual inspections and experimental tests

- PRESENTED PAPERS
- CLOSING OF THE 3rd DAY

Thursday, July 3rd

OPENING OF THE 4th DAY

S7) UPGRADING OF DETERIORATED STRUCTURES BY REACTIVE AND PROACTIVE INTERVENTIONS

- KEY-NOTE LECTURES

José Matos (University of Minho, Guimarães – Portugal)

The implementation of reactive and proactive interventions towards increasing the resilience of RC structures

- PRESENTED PAPERS

- COFFEE BREAK

S8) CASE STUDIES

- KEY-NOTE LECTURES

Mario Petrangeli e Luigi Fieno (MPA, Roma, Italy)

Corrosion effects of post-tensioned strands on the safety of highway viaducts

The case study of mountain viaducts

Joan Ramon Casas (UPC-BarcelonaTech, Barcelona, Spain)

Capacity assessment assisted by proof loading

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

- LUNCH

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

- AWARDS • CONCLUSION OF THE WORKSHOP
- CLOSING OF THE WORKSHOP

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CALL FOR ABSTRACTS

The **CACRCS DAYS** welcome all contributions related to the behaviour of reinforced concrete, fibre reinforced concrete and prestressed concrete structures damaged by corrosion, with both numerical and experimental approaches, and including some recommendations for the daily engineering evaluation of corroded structures.

You can submit abstracts and papers to the website of the **CACRCS** event: <http://cacrcs.cte-eventi.com>

PAPER SUBMISSION

Authors willing to present their work at the **CACRCS DAYS 2025** are invited to kindly submit an abstract in accordance with the sessions of the workshop. Papers (8 pages long) will be reviewed and will be included in the Proceedings of the Workshop if they will be accepted. The Authors of the paper will be invited to submit a full manuscript to a Special Issue of Structural Concrete. The submission of full manuscripts will undergo the usual peer-review process of Structural Concrete.

In order to promote and facilitate the transfer of knowledge from Research to Daily Engineering Evaluation, the template for extended abstracts contains a paragraph dedicated to a description of the use of the presented results in engineering applications. The template for abstracts and extended abstracts is available on the **CACRCS** website (<http://cacrcs.cte-eventi.com>).

IMPORTANT DATES

ABSTRACT SUBMISSION	15.07.2024	ABSTRACT ACCEPTANCE NOTIFICATION	30.07.2024
PAPER SUBMISSION	31.11.2024	PAPER ACCEPTANCE	31.12.2024
FINAL VERSION OF THE PAPER SUBMISSION	01.02.2025	AUTHOR'S REGISTRATION	01.02.2025
PRESENTATION SUBMISSION	15.06.2025	ATTENDEES' REGISTRATION	30.06.2025
FULL MANUSCRIPT SUBMISSION FOR A SPECIAL ISSUE OF STRUCTURAL CONCRETE			30.11.2025

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SPONSORS

Companies interested in supporting the event can contact us by e-mail to cacracs@cte-eventi.com.

SPONSOR FEES € 1500 + VAT including

- Conference registration of 1 person.
- Registration of additional attendees at reduced fee of **€ 300** each.
- Display of the logo (in alphabetic order for each sponsoring) on program, and all advertising documents delivered by the conference organizing committee.

AWARDS

Awards will be conferred to the most outstanding paper presented by a young researcher and to the most excellent paper presented in the workshop.

REGISTRATION FEES

are VAT exempted and include participation to the workshop, gala dinner and electronic proceedings.

Standard fee € 600,00 (including **CTE** membership)

Reduced fee for Young People € 530,00 (valid only for people aged <30 years and including **CTE** membership)

Reduced fee for CTE fib Member € 500,00 (valid only for **CTE**, **fib**, Member 2025)

You will register directly from the **CACRCS website** (<http://cacracs.cte-eventi.com>)

and make the payment by credit card or bank transfer to **CTE**

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Name Surname – CACRCS 2025

CTE – Bank Intesa San Paolo IBAN IT59C0306909606100000113883 BIC SWIFT: BC IT IT MM

PROFESSIONAL CREDITS - CFP: 3+3+3+3 CFP will be requested to CNI only for Italian Engineers

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For more information about the event, please visit the internet website:

<http://cacracs.cte-eventi.com>
www.cte-it.org