

CONFERENCE PROGRAM

June 25 – 27, 2025

Under the patronage of:



ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA | DIPARTIMENTO
DI ARCHITETTURA



ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA | DEPARTMENT
OF CIVIL, CHEMICAL,
ENVIRONMENTAL, AND
MATERIALS ENGINEERING

Under the support of:

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INNOVATIVE AND SAFE BUILDING TECHNOLOGIES

EDILTECO
group

Conference Location

School of Engineering and Architecture

Via Umberto Terracini 28, 40131, Bologna

<https://maps.app.goo.gl/2bKnBMN1affjGDPZA>

(44.514670, 11.319678)

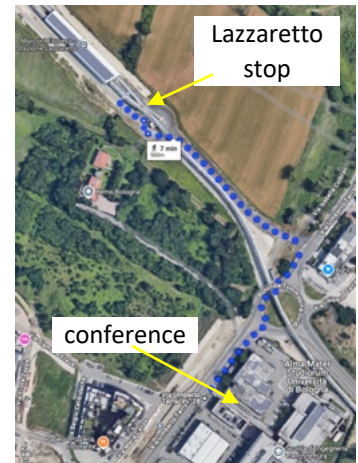


How to Reach the MuRiCo8 Conference Venue

From Bologna Guglielmo Marconi Airport (BLQ)

Marconi Express + 7min Walk: Take the **Marconi Express** monorail from the airport to **Lazzaretto** - ⌚ Travel time: 7 minutes - 💰 Ticket: €12.80 one-way:

<https://www.marconiexpress.it/en/travelling/stations-and-connections/>

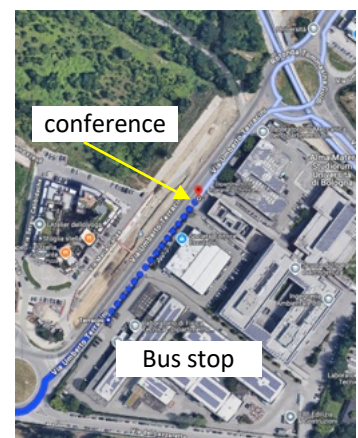


From Bologna Centrale train station:

Option A – Bus: Take **Bus 35** (direction “Santa Viola”) and get off (after 11 stops) at **Terracini** stop - Walk 4 minutes to the venue - ⌚ Total time from station: 20-25 minutes - 💰 Bus ticket: €2.30 on-board (coins or credit cards).

Option B – Taxi: Taxi from the train station to the venue - ⌚ 10 minutes - 💰 €10–15.

Option C – Walk: Walk from Bologna Centrale to Via Terracini (2.1 km) - ⌚ 25-35 minutes.



General program

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|----------------------|-------|-------|---|--|
| Wednesday June 25 | 12:00 | 13:00 | Welcome Aperitivo & Registration | |
| | 13:00 | 13:40 | Opening Ceremony – Award Ceremony | |
| | 13:40 | 14:20 | Plenary Lecture (Room TA01) Prof. Angelo di Tommaso | |
| | 14:20 | 16:00 | Room TA01 - MS05 | |
| | 16:00 | 16:40 | Coffee break | |
| | 16:40 | 18:20 | Room TA01 - MS05 | |

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|---------------------|-------|-------|--|------------------|
| Thursday June 26 | 09:00 | 09:20 | Registration | |
| | 09:20 | 10:00 | Plenary Lecture (Room TA01) Prof. Daniel V. Oliveira | |
| | 10:00 | 11:00 | Room TA01 - MS03 | Room TA02 – MS04 |
| | 11:00 | 11:40 | Coffee break | |
| | 11:40 | 13:20 | Room TA01 - MS03 | Room TA02 – MS04 |
| | 13:20 | 14:20 | Lunch | |
| | 14:20 | 15:00 | Plenary Lecture (Room TA01) Prof. Eva Coisson | |
| | 15:00 | 16:00 | Room TA01 - MS01 | Room TA02 – MS06 |
| | 16:00 | 16:40 | Coffee break | |
| | 16:40 | 17:40 | Room TA01 - MS01 | Room TA02 – MS06 |
| | 20:00 | 23:00 | Gala dinner | |

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|-------------------|-------|-------|--|----------------|
| Friday June 27 | 9:20 | 10:20 | Room TA01 - MS02/GS | Room TA02 - GS |
| | 10:20 | 11:00 | Coffee break | |
| | 11:00 | 11:40 | Technical Lecture (Room TA01) Ing. Matteo Olivan | |
| | 11:40 | 12:20 | Room TA01 - MS02/GS | Room TA02 - GS |
| | 12:20 | 12:40 | Conference closure (TA01) | |

Detailed program

DAY 1 - Wednesday - June 25, 2025

| | | |
|-------|-------|---|
| 12:00 | 13:00 | Welcome Aperitivo & Registration |
| 13:00 | 13:40 | Opening Ceremony – Award Ceremony |
| 13:40 | 14:20 | Plenary Lecture (Room TA01) Prof. Angelo di Tommaso <i>Emeritus Academy of Science in Bologna</i> APPROPRIATE COMPOSITE TECHNIQUES FOR STRUCTURAL PROTECTION OF ARCHITECTURAL HERITAGE |

Room TA01 - MS05

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|-------|-------|---|
| | | MS05 - NEW FRONTIERS IN SUSTAINABLE VEGETAL AND MINERAL TRM: EXPERIMENTAL INSIGHTS AND ADVANCED MODELLING Chair: M. Corradi, G. Misseri, F. Roscini |
| 14:20 | 14:40 | GFRP-reinforced masonry ring beams for existing buildings: a case study Riccardo Vetturini, Antonio Borri, Marco Corradi, <u>Emanuela Speranzini</u> |
| 14:40 | 15:00 | Sustainable retrofitting of masonry structures using natural fibre reinforced composites: a study on fibre-matrix bond performance <u>Santinon, Davide</u> ; Zampieri, Paolo; Pellegrino, Carlo; Gonzalez-Libreros, Jaime; Sas, Gabriel |
| 15:00 | 15:20 | Experimental Performance Evaluation of a Hemp-Based FRCM system Meglio, Emilia; <u>Formisano, Antonio</u> |
| 15:20 | 15:40 | Experimental properties of flax- and jute-based textile reinforced mortar systems for structural strengthening of masonry walls <u>Lombardi, Rosario</u> ; Paolillo, Bruno; Sellitto, Eduardo; Pepe, Marco; Agnetti Stefano; Martinelli, Enzo |
| 15:40 | 16:00 | Shear capacity of calcarenite masonry walls reinforced by TRM: a comparison between Jute and synthetic textiles performances Hyseni, Alba; Di Leto, Marielisa; <u>Caggegi, Carmelo</u> ; Micelli, Francesco; La Mendola, Lidia |
| 16:00 | 16:40 | Coffee break |

Room TA01 - MS05

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| 16:40 | 17:00 | Structural performance of novel nanocomposite-impregnated hemp textile reinforced mortars <u>Abbass, Ali</u> ; Oliveira, Daniel V, Lourenço, Paulo B; Paiva, Maria C |
| 17:00 | 17:20 | Debonding failure domains of Natural Textile Reinforced Mortar (NTRM) systems <u>Misseri, Giulia</u> ; Roscini, Francesca |
| 17:20 | 17:40 | Tensile behaviour of aged flax reinforcements for NTRM systems <u>Roscini, Francesca</u> ; Imperatore, Stefania; Rezaei, Nasrin; Nerilli, Francesca; Ferracuti, Barbara |
| 17:40 | 18:00 | Role of textile coating in the tensile behavior of a flax fiber-reinforced cementitious matrix (FRCM) composites Veronica Bertolli, Salah Ahmed Mohammed Al-gamal, Giulia Fava, Andrea Nobili, <u>Tommaso D'Antino</u> |
| 18:00 | 18:20 | Composite behaviour of an innovative CRM system with a bio-based matrix suitable for integrated seismic and energy renovation of masonry buildings <u>Penazzato, Luca</u> ; Illampas, Rogiros; Oliveira, Daniel V. |

DAY 2 - Thursday - June 26, 2025 (am)

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| 09:00 | 09:20 | Registration |
| 09:20 | 10:00 | Plenary Lecture (Room TA01) Prof. Daniel V. Oliveira <i>University of Minho</i> MASONRY AND COMPOSITE MATERIALS: CAN WE DO BETTER? CONTRIBUTIONS FROM THE UMINHO |

Room TA01 - MS03

Room TA02 – MS04

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| | | MS03 - COMPOSITE MATERIALS IN ARCHITECTURAL HERITAGE CONSERVATION: LESSONS LEARNED FROM EXPERIENCE Chairs: A. Ugolini, L. Ferrari | MS04 - ADVANCES IN THE INVESTIGATION OF BOND-DOMINATED PROBLEMS OF ORGANIC AND INORGANIC COMPOSITES APPLIED TO MASONRY STRUCTURES Chairs: F. Focacci, D'Antino, C. Carloni, L. Bednarz |
| 10:00 | 10:20 | Assessment of the Effectiveness of Composite Material Interventions in the Strengthening of Historic Churches: Comparative Analysis of Emilian Case Studies damaged by seismic events Coisson, Eva; Ferrari, Lia; <u>Zanazzi, Elena</u> | Influence of Silicate Compounds on the Bond Strength of Ceramic Materials in Historic Structures and Their Role in Heritage Conservation <u>Lukasz Bednarz</u> ; Magdalen Piechówka-Mielnik; Krzysztof Atykow; Magdalena Napiórkowska-Atykow; Michał Krupa; Gabriela Wojciechowska |
| 10:20 | 10:40 | Consolidating Stone Architectural Heritage: A Spatio-Temporal Analysis of Restoration Practices at the Pitti Palace in Florence Quagliarini, Enrico; Mariotti, Chiara; Ruggieri, Paola; <u>Ceppetelli, Alessandro</u> | ECC/FRCM-confinement of concrete columns: understanding the symbiosis interaction between fabric and matrix Cascardi, Alessio; Verre, Salvatore; <u>Micelli, Francesco</u> ; Aiello, Maria Antonietta |
| 10:40 | 11:00 | I materiali compositi per un complesso caso di riparazione post-sismica: il santuario dell'Icona Passatora vicino Amatrice <u>De Cesaris, Fabrizio</u> | Different test setups to investigate the bond behavior of FRCM systems <u>Rebecca Grazzini</u> , Giulia Misseri, Chiara Casini, Luisa Rovero |
| 11:00 | 11:40 | Coffee break | |

Room TA01 - MS03
Room TA02 – MS04

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| 11:40 | 12:00 | Seismic Retrofitting of Masonry Churches in Emilia-Romagna After the 2012 Earthquake: A Comparative Study of Composite Materials and Construction Techniques Ottoni, Federica; Libro, Antonino; Letizia, Bartolomeo; <u>De Cola, Francesca</u> | Bond Behaviour of SRG Masonry Joints with Anchors <u>Focacci, Francesco</u> ; D'Antino, Tommaso; Carloni, Christian |
| 12:00 | 12:20 | Reinforced plaster: 'yes' or 'no'? Not a matter of taste, but a matter of dialectics in protective action <u>Ambrogio Keoma</u> ; Tomba Francesca | Experimental investigation on tensile and bond properties of innovative thermal-based composite materials Valerio Alecci, Francesco Focacci, Stefano Galassi, Dora Pugliese, <u>Gianfranco Stipo</u> , Antonio Nanni, Mario De Stefano |
| 12:20 | 12:40 | Preservation and enhancement of masonry arch bridges: restoration strategies Bruno, Domenico; Olivito, Renato S., <u>Micieli Alfredo</u> | Use of composite reinforced mortar (CRM) systems to strengthen existing masonry structures <u>D'Antino, Tommaso</u> ; Bertolli, Veronica; Focacci, Francesco; Calabrese, Angelo Savio; Carloni, Christian; Colombi, Pierluigi |
| 12:40 | 13:00 | Sustainable and Reversible Strengthening of Historic Monument Churches in Romania Using Composite Materials <u>Marius Mosoarca</u> ; Traianus Popovici; Gigi Olariu; Anthimos S Anastasiadis; Cristian Gaina | Full-scale prototype for the building of a stone arch using a new patented methodology <u>Cascardi, Alessio</u> ; Lamuraglia, Roberto; Micelli, Francesco; Aiello, Maria Antonietta |
| 13:00 | 13:20 | | Experimental investigation on the valorization of a novel eco-bio-based insulation material from masonry waste and diss fibers Ksouri Mohammed; <u>Abahri Kamilia</u> ; Abdelmadjid Lasledj |

DAY 2 - Thursday - June 26, 2025 (pm)

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| 13:20 | 14:20 | Lunch |
| 14:20 | 15:00 | Plenary Lecture (Room TA01) Prof. Eva Coisson University of Parma THE USE OF COMPOSITES IN ARCHITECTURAL RESTORATION: THEORETICAL AND PRACTICAL LESSONS LEARNED FROM THE 2012 EMILIA EARTHQUAKE |

Room TA01 - MS01

Room TA02 – MS06

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| | | MS01 - ADVANCED COMPUTATIONAL MODELS FOR MASONRY AND COMPOSITE STRENGTHENING SYSTEMS Chairs: A.M. D'Altri, E. Grande | MS06 – VIBRATION-BASED ASSESSMENT, SHM AND NDT OF MASONRY STRUCTURES: ADVANCES AND APPLICATIONS Chairs: M. Betti, F. Clementi, S. Kamali |
| 15:00 | 15:20 | Structural analysis and conservation strategies for the church of Santa Maria di Piazza in Ostra Vetere (Italy): assessing seismic damage and restoration approaches Monni, Francesco; <u>Clementi, Francesco</u> | Simplified parametric structural model for masonry porticoes and bridges <u>Alahmad, Wael</u> ; Quqa, Said; Gentilini, Cristina; Ugolini Andrea |
| 15:20 | 15:40 | Natural aging of GFRP-reinforced masonry: Experimental insights from six years of exposure Ramirez, Rafael; <u>Zahedi, Mehdi</u> ; Ghiassi, Bahman; Lourenço, Paulo B.; Oliveira, Daniel V. | SHM for Historic Masonry: Long-Term Data from the Dome of Santa Maria del Fiore Marafini, Francesca; Zini, Giacomo; Barontini, Alberto; Mendes, Nuno; <u>Betti,</u> <u>Michele</u> ; Bartoli, Gianni |
| 15:40 | 16:00 | On the mechanical performance of composite reinforced mortar systems for the strengthening of masonry structures: tensile and diagonal compression tests <u>Zahedi, Mehdi</u> ; Azimi, Nima; Abbass, Ali; Oliveira, Daniel V. | Structural health monitoring of a masonry railway bridge: a hybrid unsupervised-supervised approach <u>Kamali, Soroosh</u> ; Ghini, Emma; Sciallo, Luca; Di Felice, Marco; Silvestri, Stefano; Vecchi, Andrea; Mauro, Alberto; Polimanti, Giulia; Marzani, Alessandro |
| 16:00 | 16:40 | Coffee break | |

Room TA01 - MS01

Room TA02 – MS06

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| 16:40 | 17:00 | Damaging block-based modelling of masonry structures: Recent applications also considering composites strengthening systems <u>D'Altri, Antonio Maria</u> ; Chipantaci, Alejandro; Castellazzi, Giovanni; de Miranda, Stefano | Cost-Effective Vibration Monitoring for Anomaly Detection and Localization in Existing Structures Di Giosaffatte, Martina; Schiavoni, Mattia; Bianconi, Francesca; Standoli, Gianluca; Roscini, Francesca; <u>Clementi, Francesco</u> |
| 17:00 | 17:20 | A Three-Dimensional Macroelement for the Seismic Assessment of Strengthened Masonry Piers Christian Salvatori, Andrea Penna, Alessandro Galasco, <u>Gabriele Guerrini</u> | Decoding the Dynamic Behavior of Twin Church Bell Towers Through Ambient Vibration Analysis Gianluca Standoli, Francesca Bianconi, Mattia Schiavoni, Martina Di Giosaffatte, Francesco Monni, Francesca Roscini, <u>Francesco Clementi</u> |
| 17:20 | 17:40 | | Structural Analysis and Retrofitting of Historic Masonry Vaults through a BIM to FEM approach <u>Francesco Trovatielli</u> , Barbara Pintucchi, Nicola Zani, Marco Tanganelli |

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| 20:00 | 23:00 | Gala Dinner Cantina Bentivoglio (Via Mascarella, 4/b, 40126 Bologna BO) |
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The gala dinner is scheduled to take place at **Cantina Bentivoglio** in Bologna, a venue renowned for its jazz tradition. On the evening of the dinner, **live music by Dorvilly**, an Italian jazz musician, will be performed **outdoors on the street** in front of the restaurant. Dorvilly is a pianist, singer, and harmonica player originally from Puglia, who has lived in Verona and is now based in Bologna. He is known for a sound deeply rooted in the blues, enriched by influences from funk, soul, 1970s rock, and psychedelia.



DAY 3 - Friday - June 27, 2025

Room TA01 - MS02/GS

Room TA02 – GS

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| | | MS02 - DURABILITY AND SUSTAINABILITY OF FRCM SYSTEMS FOR MASONRY STRENGTHENING Chairs: C. Mazzotti, F. Ferretti | GS - GENERAL SESSION Chairs: C. Gentilini, L. Ombres |
| 09:20 | 09:40 | Long-Term Effects of Alkaline Environments on Basalt Fibers <u>Canestri, Matteo</u> ; Ferretti, Francesca; Mazzotti, Claudio | Experimental characterisation and numerical validation of NFRCM for strengthening masonry <u>Thatikonda, Nandini Priya</u> ; Baraldi, D.; Boscato, G.; Cecchi, A. |
| 09:40 | 10:00 | Strengthening of Irregular Stone Masonry Columns with FRCM Systems: Experimental Assessment and Analytical Validation <u>Micieli Alfredo</u> , Mauro Matteo, Mazzuca Pietro, Luciano Ombres | Aging of historical masonry towers: the Garisenda case study <u>Stefano Invernizzi</u> , Giuseppe Lacidogna, Angelo Di Tommaso, Pedro Marin Montanari |
| 10:00 | 10:20 | Effectiveness of different coating treatments on the durability of flax textiles <u>Tommaso Baroni</u> , Francesca Ferretti, Marco Pavesi, Claudio Mazzotti | Critical approach to the use of composite materials for the strengthening of historic masonry building, between restoration and structural safety Gonzato, F.; Indelicato, D.; <u>Ussia, Gianluca</u> ; Zuppiroli M.; Borri, A. |
| 10:20 | 11:00 | Coffee break | |
| 11:00 | 11:40 | Technical Lecture (Room TA01) Ing. Matteo Olivan GRID SLAB REINFORCEMENT BY FRCM SYSTEM - THE CASE STUDY OF "PALAZZO CITTERIO" IN MILAN Di Prisco M.; Colombo I.G.; Radice L.; Amigoni C.; Giacomini G.; Bressan M.; Olivan M. | |
| 11:40 | 12:00 | Crack Pattern Evolution in Textile-Reinforced Mortars: A Durability-Based Study under Acidic Aging <u>Nima Azimi</u> , Daniel V. Oliveira, T. D'Antino, K. Schollbach, P.B. Lourenço | Mechanical Performance of CEB Masonry Reinforced with BFRP Net <u>Baldelli, Jacopo</u> ; Boscato, Giosuè; Baraldi, Daniele; Cecchi, Antonella |
| 12:00 | 12:20 | | Combined Seismic and Energy Upgrading of Existing Reinforced Concrete Building Envelopes <u>Christiana Filippou</u> ; Oliveira V. Daniel; Bournas A. Dionysios; Lourenço B. Paulo |
| 12:20 | 12:40 | Conference closure (Room TA01) | |

PLENARY LECTURERS***Prof. Angelo Di Tommaso***

Emeritus Professor, Scientiarum Academia Bononiensis.

Former Full Professor of Structural Engineering at the University of Bologna and IUAV University of Venice. Consultant for the Italian Ministry of Culture / Regional Directorate of Emilia-Romagna (2012 and 2022) for earthquake-damaged monuments. Member of the Scientific Committee (2010–2014) for the “Stability of the Ghirlandina Tower in Modena” (UNESCO World Heritage Site). Conducted structural vulnerability assessment of the Civic Tower of Ravenna (2012). Member of the Technical-Scientific Committee (2018–2023) for

the “Stability of the Garisenda Tower” in Bologna. Member of the High Surveillance Committee for the UNESCO World Heritage Site of the City of Modena (since 2018).

***Prof. Daniel V. Oliveira***

Daniel Oliveira is a Civil Engineer and Associate Professor at the University of Minho. His main research interests are related to traditional and heritage masonry and earthen structures, including seismic analysis and repair and strengthening techniques. He has contributed to over 50 projects and supervised more than 120 PhD and MSc students. He has authored more than 300 publications.

***Prof. Eva Coïsson***

Eva Coïsson, civil engineer, is Full Professor of Architectural Restoration at the University of Parma, where she carries out research activities aimed at the conservation of historic structures, through the diagnosis and analysis of their stability. She is the Director of the Interdepartmental Center for the Construction, Conservation and Regeneration of Buildings and Infrastructures (CICCREI), the Vice-Director of the Study Center and Archive of Communication (CSAC), and the Director's Delegate for Didactics in the Department of Engineering and Architecture.

AICO technical partners:



About AICO

Established in 1996, the **Italian Association for Fibrous Composites in Construction (AICO)** is the first Italian organization promoting research and innovation in composite materials for the construction industry. With strong academic roots, its initial technical headquarters was at the **University of Bologna** (now DICAM).

AICO is a non-profit organization that fosters collaboration between academia and professionals to advance knowledge and the application of fibrous composites.

About MuRiCo conference

Organized by AICO (*Associazione Italiana Compositi per le Costruzioni*, established in 1996, www.aico-compositi.it), the Conference is hosted by the University of Bologna – ALMA MATER STUDIORUM.

The aim of the MuRiCo Conference is to showcase and review the latest advancements in the modeling, testing, design, control, and health monitoring of masonry structures strengthened with composite materials. The conference focuses on composite materials made of continuous fibers embedded in polymeric or cementitious matrices, applied as strengthening techniques for masonry. Key topics include seismic vulnerability mitigation, durability, and the influence of temperature, among others.

Past Editions: **Venice:** 2000, 2004, 2009 (hosted by Università IUAV di Venezia) - **Ravenna:** 2014 (hosted by the University of Bologna) - **Bologna:** 2017, 2019 (hosted by the University of Bologna) - **Online:** 2021 (hosted online by the University of Bologna)





