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Carlo Pellegrino & Paolo Zampieri, University of Padua

Members:

Francesco Cannizzaro, University of Catania **Fabrizio Scozzese**, University of Camerino

Nicola Cavalagli, University of Perugia **Mattia Zizi**, University of Campania

ADVISORY BOARD COMMITTEE:

To be defined

LOCAL ORGANIZING COMMITTEE:

Laura Niero, University of Padua

Riccardo Piazzon, University of Padua

Davide Santinon, University of Padua

SCIENTIFIC COMMITTEE:

Carlo Pellegrino, University of Padua

Paolo Zampieri, University of Padua

Ivo Calì, University of Catania

Andrea Dall'Asta, University of Camerino

Gianfranco De Matteis, University of Campania "Luigi Vanvitelli"

Carmelo Gentile, Politecnico di Milano

Matthew Gilbert, University of Sheffield

Lorenzo Macorini, Imperial College London

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Daniel Oliveira, University of Minho

Vasilis Sahrosis, University of Leeds

Walter Salvatore, University of Pisa

Enrico Tubaldi, University of Strathclyde

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PROFESSIONAL CREDITS:

The event patronised by the CNI entitles the holder to a maximum of 12 CFP. The event was organised pursuant to Art. 4.5.4. of the TU Guidelines for Updating Professional Competence of the CNI, with accumulation of CFP valid for a maximum of 9 CFP



SEPTEMBER 12-13, 2024

ORTO BOTANICO

Via Orto Botanico 15, (PD)

Padova (Italy)

1ST INTERNATIONAL WORKSHOP ON INSPECTION, TESTING, MONITORING, ASSESMENT AND MAINTENANCE OF MASONRY ARCH BRIDGES



UNIVERSITÀ
DEGLI STUDI
DI PADOVA



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INGEGNERI
PADOVA

ORDINE
DEGLI
INGEGNERI
DELLA PROVINCIA
DI PADOVA

INTRODUCTION

Masonry arch bridges still constitute a significant portion of European rail and road infrastructures. Although they are massive structures in service since many years, masonry bridges are now supporting higher traffic loads than those originally envisaged. Their mechanical response is significantly influenced by the inherent variation of their constituent materials, the deterioration caused by weathering processes and the development of other defects, which increase over the years. In addition, also due to climate change, these historic bridges are increasingly subjected to extreme actions and pushed to new limits. It is therefore necessary to plan some activities such as monitoring (through periodic inspections, diagnostic investigations, structural health monitoring, etc.), maintenance and strengthening interventions to keep their efficiency and safe conditions.

This workshop is designed to bring together practitioners, researchers and managers involved in the assessment, design, and management of masonry arch bridges. It is organized in collaboration with FABRE, a Research Consortium for the Evaluation and Monitoring of Bridges, Viaducts and Other Structures. FABRE promotes and coordinates the participation of Consortium Universities and Research Institutions in scientific activities in the fields of Civil Engineering and Architecture, with special reference to the evaluation of bridges, viaducts, and other structures.

The workshop is intended to provide an invaluable opportunity for participants to exchange knowledge and ideas on masonry arch bridge infrastructure. It also aims to support research in this area by promoting two prizes, which will be awarded at the Workshop dinner to:

- A Researcher who has contributed significantly to masonry bridge research over the past 10 years;
- A young Researcher who has completed a PhD dissertation on masonry arch bridges in the past 5 years.

LOCATION

The Orto Botanico di Padova is a botanical garden in Padua, in the northeastern part of Italy. Founded in 1545 by the Venetian Republic, it is the world's oldest academic botanical garden that is still in its original location. The garden, affiliated with the University of Padua, currently covers roughly 22,000 square meters and is known for its special collections and historical design. Since September 2014, following the acquisition of a new area in the south of the ancient Botanical Garden, a tourist destination of great attraction, the new greenhouses of the Biodiversity Garden are open to the public: a symbolic microcosm that allows the visitor to experience the different climatic conditions and vegetation present on the Earth.

WORKSHOP PROGRAM

SEPTEMBER 12th

09:00 **Registration**

09:30 **Event welcome & Workshop introduction.**

Carlo Pellegrino & Paolo Zampieri (*University of Padova*)

WORKSHOP SESSION: "TESTING AND MONITORING"

Plenary lectures:

10:00 **Non-Destructive testing and monitoring of masonry arch bridges.**

Carmelo Gentile (*Politecnico di Milano*)

10:30 **Risk assessment and monitoring of masonry bridges exposed to scour.**

Enrico Tubaldi (*University of Strathclyde*)

11:00 **Break**

11:30 To be defined

12:00 **Laboratory testing of a full-scale masonry arch bridge.** Vasilis Sahrosis (*University of Leeds*)

Session lectures and discussion:

12:30 Filippo Ubertini/Nicola Cavalagli

(*University of Perugia*),

Fabrizio Scozzese (*Università di Camerino*),

Cristina Costa (*University of Porto*)

13:30 **Lunch**

WORKSHOP SESSION: "ASSESSMENT AND ANALYSIS"

Plenary lectures

14:30 **"Practical analysis and assessment of masonry arch bridges".** Matthew Gilbert (*University of Sheffield*)

15:00 **A 3D discrete-macro-element-method for the structural assessment of masonry bridges.**

Ivo Calìò (*University of Catania*)

15:30 **Multi-level assessment of masonry arch bridges.** Lorenzo Macorini (*Imperial College London*)

16:00 **FE limit analysis modelling of masonry arch bridges interacting with the backfill: suitability and open challenges.**

Gabriele Milani/ Yiwei Hua (*Politecnico di Milano*)

16:30 To be defined

17:00 **Break**

Session lectures and discussion:

17:00 Davide Rapicavoli (*University of Catania*)

Corrado Chisari (*University of Campania*),

Michele d'Amato (*University of Basilicata*)

Ruben Silva (*University of Porto*)

20:00 **Social dinner - Awards ceremony**

SEPTEMBER 13th

WORKSHOP SESSION: "STRENGTHENING AND MAINTENANCE"

Plenary lectures:

09:30 **Discussion on the different strengthening techniques for masonry bridges.** Paolo Zampieri (*University of Padova*)

10:00 **Masonry arch bridges: from visual inspection to structural assessment.** Gianfranco De Matteis (*University of Campania "Luigi Vanvitelli"*)

10:30 **Masonry arch bridges: from non-destructive techniques and numerical models to repair.**

Daniel Oliveira (*University of Minho*)

11:00 **Break**

Session lectures and discussion:

11:30 Francesco Cannizzaro (*University of Catania*)

12:30 **Workshop Closing Ceremony**

GIORNATA-STUDIO FABRE: VALUTAZIONE, GESTIONE, MANUTENZIONE E MONITORAGGIO DEI PONTI IN MURATURA

13:00 **Pranzo**

14:00 **Introduzione.**

Carlo Pellegrino (UNIPD, FABRE)

Walter Salvatore (UNIPD, FABRE)

14:15 (RFI)

15:30 Carlo Pellegrino (UNIPD, FABRE)

15:45 Filippo Ubertini/ Nicola Cavalagli (UNIPG, FABRE)

16:00 **Pausa caffè**

16:30 Michele Morici (UNICAM, FABRE)

16:45 Mattia Zizi (UNICAMP, FABRE)

17:00 Paolo Salandin (UNIPD, FABRE)

17:15 **Tavola rotonda** - Carlo Pellegrino, Walter Salvatore, Andrea dall'Asta

18:15 **Aperitivo finale**

REGISTRATION METHOD AND FEES

Participants must attend the event in person. Information about the procedure of the Registration and modality of fees payment for the Conference will be released soon.

Workshop Fee:	To be defined
Workshop Social Dinner	To be defined
Workshop + Giornata Fabre	To be defined
Giornata Fabre	To be defined