

Hosting Institutions:



Politecnico
di Torino



3rd INTERNATIONAL CONFERENCE ON RESILIENCE, EARTHQUAKE ENGINEERING AND STRUCTURAL HEALTH MONITORING

Venues:

*Castello del Valentino, Politecnico di Torino
Joint Research Centre, Ispra*

TORINO-ISPRA, Italy



24-27 June, 2024

Endorsed by:



SCIENTIFIC PROGRAMME

Monday 24 June 2024

Castello del Valentino · Politecnico di Torino

18.30 Welcome cocktail.

Tuesday 25 June 2024

Castello del Valentino · Politecnico di Torino

8.30 Registration.

9.00 **Keynote** · Constitutive Modelling under Earthquake Loading. *Michele Barbato, USA*

Resilience Assessment

Organized by *A. Cardoni, G. P. Cimellaro*

How Much Resilience Is Enough for Safety? *Igor Kirillov, Slovenia*

Enhancing Community Resilience: a Neighbourhood- Scale Index for Disaster Preparedness and Recovery in New Zealand.

9.45 *Megan Boston, New Zealand*

11.00

Resilience Focused Investigations of Industrial Facilities after the February 6, 2023 Turkiye Earthquakes. *Derya Deniz, Turkiye*

A Stochastic Post-disaster Recovery Model for the Healthcare Urban Community of Naples, Italy. *Fabrizio Aloschi, Italy*

11.00 **Coffee break**

Seismic Risk and Reliability Analysis

Earthquake Early Warning-based Semi-Active Isolators. *Ting Yu Hsu, Taiwan*

Influence of Atmospheric Corrosivity on the Seismic Fragility of Low-code Steel Frame Structures. *Devang Bipinchandra Lad, UK*

Reliability Index Estimation for Existing Viaducts. *Alberto Contardi, Italy*

A Component-Based Approach for Seismic Risk and Resilience Assessment of Typical Highway Bridges. *Yilmaz Taner, Turkiye*

11.30

13.00

Evaluating the Seismic Reliability of Modular Building in Earthquake-Prone Regions Exposed to Repeated Earthquakes.

Said Elias Rahimi, Germany

Contribution of Seismic Isolation Bearing Design to Seismic Toughness of Frame-Shear Wall Structure Based on FEMA P-58.

Wen Bai, China

Tying Facades of Masonry Buildings: Preliminary Experimental Results on Fuse-Based Solutions. *Eugenia Verrigni Petrei Castelli, Italy*

13.00 **Lunch**

14.00 **Keynote** · Optimizing the Placement of Elastic Springs to Mitigate the Pounding Effect on Adjacent Buildings.

Baki Ozturk, Turkiye

Sustainable Approaches in Optimum Design of Structural Systems and Optimal Identification of Control Devices

Organized by *R. Cucuzza, M. Movahedi Rad, R. Di Bari, M. Domaneschi, G. Marano*

Design of Steel Exoskeletons for the Seismic Retrofit of Existing Reinforced Concrete Buildings.

Jana Candelaria Olivo Garcia, Italy

Preliminary Study on the Optimal Calibration of High Damping Rubber Bearings. *Santiago Londono, Italy*

14.45

16.00

Sustainable Design of Steel Frames Based on Topological Optimization Considering Geometrical and Material

Nonlinearities. *Majid Movahedi Rad, Hungary*

Integration of Risk Assessment in Life Cycle Analyses for Sustainable and Resilient Built Environment: a Review. *Roberta Di Bari, UK*

Integration of Life Cycle Assessment in Structural Optimisation of Steel Structures. *Raffaele Cucuzza, Italy*

16.00 **Coffee break**

Algorithms for Structural Health Monitoring

On the Investigation of Statistical Alignment Performance for Enhancing Damage Identification across a Population of Heterogeneous Shear Structures. *Giulia Delo, Italy*

SJ-AD Algorithm for Damage Detection of Cable-stayed Bridge. *Miriam De Luca, Italy*

Hierarchical Variational Approach for Domain Translation in Unseen Damaged Mooring Systems. *Hamed Fathnejat, Spain*

Dynamic Characterization of the Consistory Building in Comune di Sant'Agapito, Italy: Ambient Vibration Testing, Data Analysis, and Finite Element Validation. *Jose Carlos Jimenez, Spain*

16.30

18.30

Dynamic Monitoring as Premise for Seismic Safety of Art Collections. *Stefania Viti/Francesco Trovattelli - Italy*

Proof of concept for a spectral graph structural monitoring tool. *Vincenzo Fioriti, Italy*

Data Driven Nonlinear Modelling and Model Frequency Analysis for Rapid Risk Assessment of Building Structures after Earthquakes. *Zi-Qiang Lang, UK*

Preliminary Considerations on the Effects of Thermal Actions on SHM of Highway Overpass. *Rebecca Asso, Italy*

Global Monitoring of RC Beams under Shear-Flexure Interaction using Long-Gauge Optic Sensors. *Bing Li, Singapore*

Wednesday 26 June 2024

Castello del Valentino • Politecnico di Torino

8.30 Registration.

9.00 **Keynote** • Advancing Seismic Resilience: Insights and Innovations from Recent New Zealand Earthquakes and Future Research Directions. *Alessandro Palermo, USA*

Physical and Social Resilience of Infrastructures Under Multi Hazard Scenarios (Technical Session)

Organized by *J. Palma, D. Antunes*

Towards a New Taxonomy of Infrastructures: Implications for Disaster Response and Resilience. *J. Palma, Portugal*

9.45

11.00

Integrated Approaches to Resilience: Psychosocial Support and Crisis Governance Strategies. *Nils Vandenbroucke, Hugo Marynissen, Belgium*

A Two Step Machine Learning Approach for the Estimate of Climate Change Impacts on the Veneto Coastal Area. *Margherita Maraschini, Italy*

Multi-criteria Holistic Framework Including the Social Dimension for Infrastructure Management. *Dalila Antunes, Portugal*

11.00 **Keynote** • Reliability of RC Bridges with Ageing Effects under Climate Changes. *Luigi Di Sarno, Italy*

Resilience Assessment

Organized by *A. Cardoni, G. P. Cimellaro*

Field Observations and Technical Investigations for Hospital Network of Hatay Province after the 2023 Turkiye Earthquake Sequence. *Derya Deniz, Turkiye*

11.30

13.00

Spatial Insights for Building Resilience: Bridging Scales with GIS, BIM, and Territorial Digital Twin in Multi-Hazard Assessment. *Francesca Maria Ugliotti, Italy*

A Novel Urban-Resilience Framework Through Post-Conflict Reconstruction. *Jean Piers Chavez, Spain*

Improving of the Decision-Making Process Towards Climate Change Adaptation in Transport Infrastructures. *Iñaki Beltran, Spain*

Novel Approach on Performance Based Seismic Design. *Azer Kasimzade, Azerbaijan*

13.00 **Lunch**

Technical Session on the Messina Strait Bridge

Organized by G. P. Cimellaro, A. Cardoni

14.00 **Keynote** • The Seismotectonic and Seismic Hazard of the Messina Strait. *Carlo Doglioni, Italy*

16.00 **Keynote** • Messina Bridge: a Challenge for the Future. *Enzo Siviero, Italy*

Discussion.

Coffee break

Keynote • The Milestone Achieved in the Field of Long Span Suspension Bridges Thank to the Case of Messina Bridge.

16.15 *Piero D'Asdia, Italy*

18.15 **Keynote** • The Strait of Messina Bridge: Design Aspects Related to Wind Effects and Train Runnability. *Giorgio Diana, Italy*

Discussion.

Thursday 27 June 2024

Joint Research Centre • *Ispra*

8.00 Travel to Ispra.

10.30 JRC registration.

11.00 **Visit of the Europa Science Experience Building.**

11.40 **Visit of JRC laboratories.**

12.50 *Lunch*

Repair and Retrofit of Structures

Interventions against Out-of-plane Mechanisms in Units Belonging to Masonry Structural Aggregates. *Giovanni Franco, Italy*

14.00 Seismic Performance Evaluation and Retrofit of Two Liquid Storage Tank in High Seismic Region. *Bulent Erkmen, Turkiye*

15.30 Analysis of the Ultimate Limit State Behavior of R Members in Bending Strengthened with GFRP Rebars. *Mattia Mairone, Italy*

Influence of Reducing the Maximum Size of Coarse Agregates on Destructive and Non-Destructive Measurements Used for the Evaluation of Ordinary Concrete. *Narmane Fodil, Algeria*

Dynamics of Concrete, Steel and Masonry Structures

The Effect of Damping on Dynamic Punching Shear Assessment in Sudden Column Removal. *Maria Liapopolou, UK*

Research on Vertical Floor Amplification Factor Characteristic of Chinese Buildings. *Junwu Dai, China*

15.30 Mesoscale Modeling of Concrete under Dynamic Conditions. *Cristoph Grunwald, Germany*

16.30 Structural Health Monitoring of Cultural Heritage: Analysis of the Structural Response of the Tower of Moletta to Concerts. *Adel Bali, Algeria.*

16.30 **Announcement of the 4th ICONREM Conference and Closing Ceremony.**

17.00 *Aperitif.*

18.00 Return to Turin.

COMMITTEE

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- Gian Paolo Cimellaro (*Chair*) • *Politecnico di Torino, Italy*
 Alessandro Cardoni • *Politecnico di Torino, Italy*
 George Tsionis • *Joint Research Center, Belgium*
 Melissa de Iuliis • *Sapienza University of Rome, Italy*
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INFORMATION

Venues

Castello del Valentino, June 24-25-26 • Pedestrian access at viale Pier Andrea Mattioli, 39.

Joint Research Centre - JRC, June 27 • Bus transfer will be provided. Meeting point at 7:45 at the Castello del Valentino. 8.00 a.m. departure for Ispra - Return at 6.30 p.m. from Ispra.

Instructions for presenters

Speakers are required to be in the meeting room at least 10 minutes before their session begins. Sessions are tightly scheduled, the allotted time for presentation (10 minutes) must be strictly observed.

Secretariat desk

Tuesday 25 June: 8:00 a.m. to 7:00 p.m. • **Wednesday 26 June: 8:00 a.m. to 8:00 p.m.**

With the unrestricted support of:



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Torino • 24-27 June, 2024



Conference Organiser:

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