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EUROPEAN CONFERENCE ON NON-DESTRUCTIVE TESTING

SPECIAL SESSION

Integration of Non-Destructive Testing into Building Information Models for Civil Structures and Infrastructures

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OBJECTIVE AND TOPICS: Concrete and masonry structures, whether part of modern infrastructure or heritage assets, require reliable diagnostic and monitoring tools to ensure safety and durability. This need is especially critical for regular inspections and for post-event assessments following catastrophic events such as floods, earthquakes or fires. In this context, Non-Destructive Testing (NDT) approaches offer unique capabilities to detect damage, characterize material degradation, and evaluate structural integrity in a truly non-destructive manner.

This Special Session highlights methodological and technological advances in in-situ NDT for concrete and masonry, with a focus on their integration into next-generation assessment frameworks. Topics of interest include fracture and damage evolution analysis, material characterization, sensor network design, and hybrid approaches combining NDT with numerical simulations. Emphasis will be given to applications involving digital twin platforms, artificial intelligence, and physics-informed machine learning for data interpretation and predictive modelling.

Case studies, methodological innovations, and interdisciplinary contributions are especially encouraged. The session aims to foster exchange between researchers and practitioners to advance the broader implementation of NDT in intelligent, data-driven structural diagnostics and decision-making.

Contributions are invited on (but not limited to) the following areas:

- In-situ Non-Destructive Testing (NDT) methods for concrete and masonry structures
- Post-catastrophic event inspections (e.g., floods, earthquakes, extreme weather events)
- Regular inspection and maintenance strategies supported by NDT
- Sensor network design and deployment for structural health monitoring
- Hybrid approaches combining NDT with numerical simulations and predictive models
- Integration of NDT data into Building Information Models (BIM) and Digital Twins
- Artificial intelligence and physics-informed machine learning (PIML) for NDT data interpretation
- Interdisciplinary approaches for intelligent, data-driven diagnostics and decision-making NDT

All the instructions for paper submission are included in the conference website: https://www.ecndt2026.org