

THEMED SESSION

From Data to Decisions: the role of Digitalization in Bridge Integrity Management

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DESCRIPTION



Bridge infrastructure worldwide is facing increasing demand due to aging assets, increasing traffic loads, and the effects of climate change. At the same time, advances in digital technologies are reshaping the possibilities for structural assessment and management, offering new opportunities to ensure the safety, resilience, and sustainability of bridge integrity management. This Special Session will focus on the role of digitalization in enhancing bridge integrity management across the entire lifecycle. Key themes include innovative sensing for structural monitoring, integration of heterogeneous data sources, application of artificial intelligence and machine learning for condition assessment, development of digital twins, and decision-support frameworks for maintenance and resilience planning. The session will bring together researchers, practitioners, and infrastructure owners to discuss cutting-edge methodologies, challenges and pathways for translating digital innovations into integrity management strategies. By showcasing both academic advances and real-world applications, the session aims to create a platform for exchanging insights into current developments, evaluating successful applications, and identifying challenges and future directions on how digitalization can contribute to safer, smarter, and more sustainable bridge infrastructure.

ABSTRACT SUBMISSION DEADLINE
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