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Ministero dell'Università e della Ricerca

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PIANO NAZIONALE DI RIPRESA E RESILIENZA

Enhancing structural safety management of existing bridges: from efficient risk-informed procedures to cutting-edge technologies



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DICATECH - POLIBA
Via E. Orabona 4
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11:30-13:30

FEUP - Faculty of Engineering of the University of Porto
Building G – Room G129
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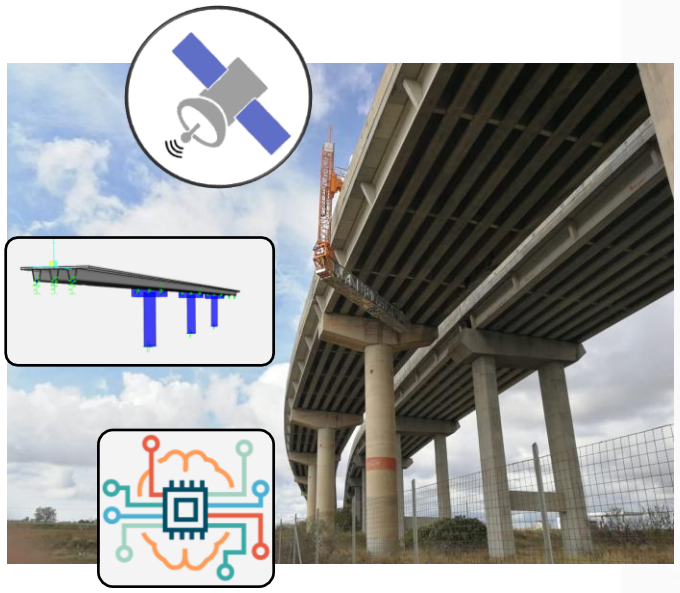

Abstract

Recent bridge collapse events in Italy have highlighted the vulnerability of these structures, which form critical components of national transport infrastructure networks. Following the collapse of the Polcevera viaduct in Genoa in 2020, the approach to managing the safety of existing bridges has undergone major changes, driven by new regulatory frameworks and the introduction of preventive procedures based on simplified risk assessments and structural monitoring. This seminar will discuss ongoing research developments at the Polytechnic University of Bari in the field of bridge and viaduct safety, with reference to recent regulatory advancements in Italy. Among the different research lines presented, particular attention will be given to the use of satellite interferometry–based monitoring techniques for bridges, which can be applied both at a network scale and to individual structures. In addition, the seminar will present recent methodologies for assessing the seismic risk of existing viaducts accounting for knowledge-based uncertainties, and for analysing the fragility of prestressed reinforced concrete decks affected by tendon corrosion and traffic loads.

Short CV

Andrea Nettis was born in 1992 in the province of Bari, in Puglia (Italy). He graduated in 2017 in Building Engineering–Architecture with a thesis on the seismic assessment of mixed steel and reinforced concrete buildings at the Polytechnic University of Bari. In 2021, he completed his Ph.D. in Structural Engineering at DICATECH, Polytechnic University of Bari, with a dissertation on the seismic risk assessment of existing bridge portfolios, combining innovative methods for the collection of knowledge data. During his Ph.D., he carried out research collaborations with the Polytechnic University of Valencia and the University College London. Currently, Andrea Nettis is a researcher at DICATECH of the Polytechnic University of Bari and an adjunct lecturer in structural design courses. His research focuses on innovative procedures for the structural and seismic risk assessment of existing bridges and viaducts, considering the use of artificial intelligence techniques and satellite data.

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