

Traffic load effects on bridges: analysis and response

ABSTRACT:

The representativeness of arch bridges currently in operation in the road and railway network infrastructure and the growing need for expansion, higher capacity and new requirements for people and freight mobility are issues of major importance, which justify the necessity to implement calibrated and validated tools for the assessment of the bridge structural condition under traffic loads.

This Special Session aims to present the latest developments in research, innovations and new approaches related to the structural assessment of arch bridges under traffic loads, identification of defects related to traffic action and application of effective mitigation measures for the bridge safety. Theoretical, experimental and computational investigations (or a combination of these) are welcome to be presented and discussed. Methodologies and procedures for effective calibration of numerical models based on experimental campaigns and case studies used to demonstrate the elaborated methods are within the session objectives.

The Special Session also invites contributions on the following topics: interaction between various components (bridge, vehicle, road/track-bridge, soil), linear and nonlinear response under static and dynamic loading, resonance effects, structural health monitoring including data-driven approaches, applications in high-speed railways, resilience of the structure, among others.

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