Experimental vibration analysis of the pedestrian bridge accessing Civita di Bagnoregio

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Summary

The paper summarizes the results of the experimental tests carried out on the pedestrian bridge accessing Civita di Bagnoregio. Most of the structural elements were in bad condition. All the external beams were damaged, the phenomenon being amplified by the combined action of rain and wind. Several cracks could be seen in the columns, where the concrete cover was spliced, and the reinforcement bars were uncovered. The attention was focused on the tallest five piers, which had shown an irregular behavior in a previous experimental campaign. The results of the new experimental vibration analysis showed that the bridge structural behaviour was quite similar to what we could expect. Under ambient vibrations, the structure behaved as a whole, formed by the piers linked at their tops by means of the beams.

Keywords: pedestrian bridges, experimental vibration analysis, structural health monitoring, structural identification.