DAMAGE IDENTIFICATION USING DIANA-MATLAB INTERFACE FOR DYNAMIC MODEL UPDATING

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ABSTRACT

The present paper aims damage assessment of masonry structures in an early stage. Two replicates of historical constructions were built in virgin state, one arch with 1.5 m span and one shear wall of 1 m^2. Afterwards, progressive damage was applied and sequential modal identification analysis was performed in each damage stage, aiming at finding adequate relations between changes in dynamical behaviour and internal crack growth.

One powerful tool for the damage identification process is the model updating techniques to tune numerical models to the real dynamic behaviour of structures. The paper presents one interface using Diana and MatLab to update numerical models using the least squares method. Both geometry and/or material properties can be selected as updating parameters. In the interface Diana runs in batch mode and in the end user obtains the updating parameters following the qualitatively results to evaluate the performance of the analysis.