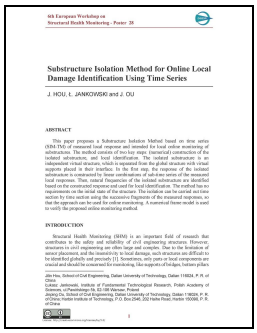

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Substructure Isolation Method for Online Local Damage Identification Using Time Series

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This paper proposes a Substructure Isolation Method based on time series (SIM-TM) of measured local response and intended for local online monitoring of substructures. The method consists of two key steps: (numerical) construction of the isolated substructure, and local identification. The isolated substructure is an independent virtual structure, which is separated from the global structure with virtual supports placed in their interface. In the first step, the response of the isolated substructure is constructed by linear combinations of sub-time series of the measured local responses. Then, natural frequencies of the isolated substructure are identified based on the constructed response and used for local identification. The method has no requirements on the initial state of the structure. The isolation can be carried out time section by time section using the successive fragments of the measured responses, so that the approach can be used for online monitoring. A numerical frame model is used to verify the proposed online monitoring method.

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Ключевые слова:

Содержание