



Код: 10927

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Damage Detection and Precise Localization via a Vibration Based Functional Model Method—Application to a 3D Truss Structure

Дрезден, Германия, 2012 год

8 стр; формат: 23,5 x 16 см; библиографический список: 6 единиц

The goal of this study is the development of a statistical time series method for both damage detection and precise localization. The method is based on the postulation of Vector Functionally Pooled Autoregressive with exogenous excitation (VFP-ARX) models, where the operating parameter vector consists of three components, each one corresponding to a single dimension of the three dimensional space. The method essentially constitutes an extension of a simpler version working on a single dimension and recently introduced by the last two authors and their collaborators. The effectiveness of the method is experimentally assessed via several damage cases in a 3D truss structure and single-excitation single-response vibration signals.

Доклад. 6-я Европейская конференция по мониторингу технического состояния сооружений, 2012. Редакция Кристиана Боллера.

Ключевые слова:

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