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Damage Detection of Composite Structure Using Independent Component Analysis

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This paper studies the application of independent component analysis (ICA) to structural health monitoring (SHM). The ICA technique is used to extract features from measurement sensors of a smart composite structure. To enhance information about damage, we propose a new damage detection methodology, based on the analysis of a symmetric matrix obtained from the mixing matrix. The subspaces associated to the symmetric matrix are used to define a damage index (DI). Furthermore, we propose a bound associated to this DI and decision on the state of the structure is taken. Experimentation on a composite smart structure shows the performance of the proposed approach.

Ключевые слова:

Содержание.

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