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Experimental Validation of Algorithms for Wave Propagation Modeling in 2D and 3D Structures Based on the Spectral Element Method

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The aim of this paper is an experimental validation of developed 2D and 3D spectral elements applied for Lamb wave modeling in thin-walled isotropic and orthotropic structures. Lamb waves are generated in a plate specimen by using a piezoelectric actuator. Experimental measurements are carried out using 3D laser vibrometry. Very good agreement between numerical results and experimental measurements are observed both in terms of signals as well as in the wave field pattern. Due to the fact that both numerical calculations and laser vibrometry measurements provide information about the entire wave field. New damage index is proposed based on energy of propagating waves.

Ключевые слова:

Содержание.

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