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Investigation on Wave Behaviour at Defects in 2D Composite Structures Using Spectral Finite Elements in the Time Domain

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The understanding of the propagation behaviour of high frequency elastic waves (Lamb waves) in thin-walled layered structures is a very important basis of structural health monitoring (SHM) in large-scale constructions.

This paper deals with the numerical simulation of the wave propagation using the spectral finite element method (SFEM) in the time domain. In the following, this method is explained and investigations in a 7-ply composite consisting of unidirectional layers and twill weaves are presented. In this context, the employed delamination model obtained by node separation is compared with a delamination model made up of contact elements.

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Ключевые слова:

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