

Numerical Model for Passive Monitoring of Laminated Structure

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Abstract

Finite element model of an airfoil segment made of laminated glass fiber composite is created. The model is calibrated using data from experimental tests, namely the modal characteristics and vibrations measured with laser sensors in selected locations. Passive monitoring method is applied for the reconstruction of impact in unknown location. The location and time variation of impact force is obtained using transfer-based functions approach. The dedicated overdetermined and ill-posed inverse problem is solved using Tikhonov regularization. The interpolation of transfer-based functions is used to increase the accuracy of the reconstruction.

References

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