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Low velocity impacts and damage identification with Lamb waves

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Taschenbuch. Book Condition: Neu. 220x150x6 mm. This item is printed on demand - Print on Demand Neuware - In this work an efficient thus computationally low cost FEM modeling technique of both low velocity impacts and Lamb waves propagation events, involving Piezoelectric Wafer Active Sensors (PWAS), is presented. In Chapter 1 both the excitation and sensing of Lamb waves are investigated. The PWAS modeling techniques gave excellent results, as clear from the comparisons with the experimental curves. The great advantage of this modeling is represented by the low computational cost. In Chapter 2 the outputs from PWAS, during low velocity impact events, are investigated. The experimental curves registered during impacts on both aluminum and composite plates were compared with the FEM ones, obtained by considering only geometrical variables of the sensors. In Chapter 3 a test case for damage detection in thin plates with Lamb waves is presented, thus proving the advantage of the PWAS modeling technique for SHM purposes. The substantial improvement of a fast FEM solution is the possibility to directly visualize and study the interaction of Lamb waves with the various kinds of defects/damage eventually present in thin structures such...



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