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论文

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子波分析和ART神经网络在复合材料板冲击定位中的应用

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APPLICATION OF WAVELET ANALYSIS AND ART NEURAL NETWORKS IN SMASHING LOCATION DETECTION OF COMPOSITE MATERIAL STRUCTURE

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摘要

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摘要 将子波分析和神经网络技术用于复合材料的无损监测,利用子波分析良好的时频特性从强噪声中提取特征信息。并对复合材料受到冲击时的信号进行了实验处理,提出了一种改进的自适应共振理论 (ART)神经网络结构聚类算法。实验结果表明,能实时监测复合材料受到冲击时的冲击位置和冲击大小

关键词: 子波分析 神经网络 复合材料 冲击

Abstract: This paper applies wavelet analysis and neural networks to composite materials non destructive test (NDT). Using the good time frequency characteristic of wavelet analysis, characteristic information can be picked up from high noise. An improved ART neural networks algorithm is presented. Experimental results show that applying wavelet analysis and neural networks to the damage test of composite structure can effectively detect the smashing position and intention when smashing appears.

Keywords: wa velet analy sis neural netw or ks composit e material smashing

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