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强度自适应智能复合材料结构

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MART COMPOSITE STRUCTUREW OF SELF-ADAPTIVE STRENGTH

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摘要 提出在复合材料中埋入形状记忆合金丝、光纤阵列组成的强度自适应复合材料结构与系统。提出能够改变结构应力分布的形状记忆合金丝的布置方案; 检测复合材料损伤及大应变位置的光纤阵列和神经网络; 以及控制激励形状记忆合金丝动作的系统和实验方案。

关键词: 智能结构 复合材料 强度 自适应控制

Abstract: The composite structure and system of self-adaptive strength which consists of shape memory alloy wires and optic fibers are proposed. The distribution of the SMA wires to change the stress distribution of the structure, the optic fiber array and the neural network to detect the damage and large strain magnitude and the system of controlling the SMA excitation are introduced.

Keywords: smart structures composites materials strength adaptive contral

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