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基于子结构消元法的柔性结构主动控制的研究

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ACTIVE CONTROL RESEARCH ON FLEXIBLE MECHANISMS BASED ON SUBSTRUCTURAL CONDENSATION METHOD

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摘要 由结构动力系统的微分方程出发，建立了主动控制的数学模型，在计算结构力学与最优控制模拟关系的基础上，采用结构力学中的子结构消元法和混合能概念建立了一套时段消元公式，进而对Ｒｉｃｃａｔｉ代数方程进行了有效的求解，从而给出了一套柔性结构主动控制的研究方法。

关键词： 柔性结构 Riccati方程 子结构消元法

Abstract: From the differential equation of a structural dynamic system, the mathematical model of active control is established, then based on the analogies between computational structural mechanics and optimal control, the substructural condensation method and mixed energy concept in structural mechanics are used, further a set of time interval condensation formulas are obtained, finally Riccati equation can be solved effectively. With the help of the above solution, a kind of method for the active control of flexible mechanisms is given.

Keywords: flexible mechanisms Riccati equation substructural condensation method

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