

论文与报告

Euler-Bernoulli梁的非线性耗散边界反馈镇定

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摘要

讨论具有非线性耗散边界反馈的Euler-Bernoulli梁的镇定问题. 首先利用非线性半群理论和能量摄动方法,证明了文中所给出的非线性耗散边界反馈控制可以镇定闭环系统的能量,并导出了闭环系统的能量衰减速度. 然后用例子说明文中所给出的非线性耗散边界反馈控制具有较强的实用性.

关键词 [Euler-Bernoulli梁](#) [非线性边界反馈镇定](#) [非线性半群](#) [能量摄动法](#)

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Nonlinear Dissipative Boundary Feedback Stabilization of Euler-Bernoulli Beam

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Abstract

The stabilization problem of Euler-Bernoulli beam via nonlinear boundary dissipative feedback is considered. Firstly, by virtue of nonlinear semigroup theory and energy-perturbed method, it is shown that the vibration of the beam under the proposed control action decays exponentially or in negative power of time. Then, some examples are given to show that the nonlinear boundary control considered in this paper is efficient and practical.

Key words [Euler-Bernoulli beam](#) [nonlinear boundary feedback control](#) [nonlinear C0 semigroups](#) [exponential stability](#) [multiplier method](#)

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