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非线性动态逆系统在飞行控制系统应用中的几个问题研究

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STUDY ON PROBLEMS OF NONLINEAR DYNAMIC INVERSION APPLICATION TO FLIGHT CONTROL SYSTEM

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摘要

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摘要

对非线性动态逆方法在飞行控制系统应用中的理论问题进行了研究, 采用Singh算法证明了当前两种主要设计算法的等价性; 并用逆系统的方法重新给出了非线性动态逆的解耦结构, 这种结构的优点有利于工程上的应用和理解; 在Singh算法意义下, 得到了飞行控制系统设计中常用的一阶形式逆系统的定义和有关性质。

关键词: 非线性动态逆 逆系统 解耦 飞行控制系统

Abstract:

Some theoretical problems in the application of nonlinear dynamic inversion method to flight control systems are studied. Singh's algorithm is used to show the equivalence of the two current main design algorithms, and the decoupling construction of the nonlinear dynamic inversion is regained by the method of inverse system, whose advantages are beneficial to engineering application and interpretation. In the sense of Singh's algorithm, the definition and related features of the first order inverse system are obtained, which are often used in designing flight control systems.

Keywords: nonlinear dynamic inversion inverse system decouple flight control system

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