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反馈线性化飞行控制的应用问题研究

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RESEARCH ON APPLICATION PROBLEMS OF LINEARIZATION VIA FEEDBACK FLIGHT CONTROL TECHNIQUE

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摘要

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摘要 分析了反馈线性化飞行控制的奇异摄动降阶条件, 讨论了外环解耦矩阵的奇异域和跟踪误差, 建立了操纵面冗余时分配偏转指令的原则。用过失速转弯等机动进行了数值仿真验证。

关键词:

Abstract: For the ever popular linearization via feedback flight control technique, order reducing conditions are discussed according to the singular perturbation theory, singular regions of the outer loop decoupling matrix for various command modes are determined; tracking errors of commonly used control formats are analyzed; three controls deflection command apportioning strategies are proposed when the controls are redundant. Numerical simulations on the post stall turn and other maneuvers verify the analysis results.

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