

Double Reduced-order Optimal Pole Assignment of Decentralized Actuator Singularly-perturbed Systems

以二次減階取得分散驅動式殊異擾動系統之最佳化極點

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Abstract

The problem of the optimal pole assignment of decentralized actuator singularly-perturbed systems is considered. If the system is n order with s - slow state variables and f - fast state variables, and the system has m - subsystem control inputs ($m < s$). An algorithm is developed to find optimal poles assignment by the m -order system. An m - order system is used to assign the remaining m eigenvalues in such a way that the original decentralized singularly-perturbed system satisfies linear quadratic criterion. The process is done by two procedures of order reduction.

Key words: Order reduction; Optimal pole assignment; Decentralized; Actuator; Singularly perturbed systems