

短文

离散系统区域极点/协方差等价实现一种代数方法

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摘要

提出了离散随机系统的模型简化新方法: 区域极点/协方差等价实现方法. 即构造降阶模型, 使其匹配给定的区域极点和稳态协方差值, 在暂态性能和稳态性能这两个重要方面近似于给定的满阶模型. 文中证明了满足要求的降阶模型的存在性, 并直接给出了降阶模型的解析表达式, 最后提供了说明性的数值例子.

关键词 [离散时间系统](#) [模型简化](#) [随机系统](#) [近似理论](#)

分类号

An Algebraic Approach to Regional Pole and Covariance Equivalent Realizations for Discrete-Time Systems

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Abstract

In this paper, a new approach for model reduction for discrete-time stochastic systems, which is called regional pole and covariance equivalent realization method, is presented. The major idea of the proposed approach is to construct the reduced-order models which match both the specified regional pole and steady-state covariance value. The resulting reduced-order models will approximate the full-order models in the two important aspects, i. e., transient and steady-state performances. The existence of desired reduced-order models is proved and the analytical expression of these models is also given. Finally, this paper provides an illustrative example.

Key words [Discrete-time systems](#) [model reduction](#) [stochastic systems](#) [approximation theory](#)

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