过程系统工程

基于渐近理论的两阶段过程辨识方法

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摘要

提出了一种基于渐近理论的两阶段过程辨识方法：先用高阶模型得到无偏估计和频域方差；然后通过OE模型与MDL定阶法进行降阶处理。它将多变量模型结构辨识转换为易于实现的单变量问题，同时通过模型频域方差进行模型验证，解决了传统多变量辨识方法的阶次估计及模型验证难的问题。采用多通道测试信号，测试时间短，对装置生产影响小。应用实例表明了算法的有效性。

关键词

两阶段辨识　渐进理论　阶次估计　模型评价

分类号

Two-stage method for system identification based on asymptotic theory

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Abstract

A two-stage method for system identification based on asymptotic theory was proposed.Firstly, an unbiased estimation and its frequency variance were obtained by the high-order ARX model.Then each sub model was reduced by the OE structure and MDL criterion.It translated multivariable model structure selection into a simple SISO problem and realized model validation through frequency variance, which resolved the difficult problem of model order selection and model validation for the multivariable system.The use of multivariable test signal reduced time for plant test and disturbance to operation.The application results were given to demonstrate the effectiveness of the identification method.

Key words

two-stage method　asymptotic theory　order selection　model validation

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