# <<现代控制理论与分析>>

### 图书基本信息

书名: <<现代控制理论与分析>>

13位ISBN编号:9787508484211

10位ISBN编号:7508484215

出版时间:2011-3

出版时间:水利水电出版社

作者:王杰,陈陈 编著

页数:201

版权说明:本站所提供下载的PDF图书仅提供预览和简介,请支持正版图书。

更多资源请访问:http://www.tushu007.com

## <<现代控制理论与分析>>

### 内容概要

本书将现代控制理论方法与电力工程实践紧密结合,主要介绍了控制系统的状态空间表达式、控制系统状态空间表达式的解、线性系统的能控性与能观性、稳定性与Lyapunov方法、线性定常系统的综合、最优控制等。

本书既可作为高等学校电气工程和自动化专业学生、教师的教学用书,也可作为从事相关专业技术研究人员的参考用书。

## <<现代控制理论与分析>>

#### 书籍目录

#### Introduction

- O.1 Development of control theory
- 0.2 Structural requirements and control features of the system
  - 0.3 Nonlinear control in power system
  - 0.4 The main content of modern control II~eory

Chapter 1 State-space expression of control system

- 1. 1 The basic concepts
- 1.2 The simulation structure diagram of state:space expression
  - 1.3 The construction of state-space expression
- 1.4 The construction of state-space expression from transfer function
- 1.5 Transfer function and transfer function matrix from transfer function to state e
  - 1.6 State-space expression of composite system
  - 1.7 Linear transformation
  - 1.8 State-space expression of discrete system

Exercise

Chapter 2 The solution of state-space expression of control system

- 2.1 Solution of homogeneous state equation of linear time-invariant system
  - 2.2 Matrix exponent
  - 2.3 Homogeneous solution of time-varying system
  - 2.4 State transfer matrix
- 2.5 Solution of linear continuous system non-homogeneous state equation
  - 2.6 Solution of discrete-time system state equation
  - 2.7 Discretization of continuous time-state-space

expression

Exercise

Chapter 3 Controllability and observability of linear system

- 3.1 Controllability of time-invariant discrete system
- 3.2 Controllability of time-invariable continuous system
  - 3.3 Observability of time-invariant system
- 3.4 Controllability and observability of linear time-varying system
- 3.5 The dual relation of controllability and observability
- 3.6 Structural decomposition of linear time-invariant system
  - 3.7 Relation of controllability, observability and transfer

## <<现代控制理论与分析>>

#### function matrix

3.8 Controllability standard and observability

#### standard

3.9 System realization

Exercise

### Chapter 4 Stability and Lyapnnov method

- 4.1 The basic concept of stability
- 4.2 The basic idea of Lyapunov function
- 4.3 Lyapunov function stability method
- 4.4 Asymptotic stability
- 4.5 Some common construction method of Lyapunov

#### function

- 4.6 Vector Lyapunov function
- 4.7 Application of Lyapunov methods in linear system
- 4.8 Lyapunov method in Hamilton system

Exercise

### Chapter 5 Synthesis of linear time-invariant system

- 5.1 Definition and property of state feedback
- 5.2 Pole assignment
- 5.3 System stabilization problem
- 5.4 System decoupling problem
- 5.5 State observer

Exercise

#### Chapter 6 Optimal control

- 6.1 Summary
- 6.2 Variational methods of solving optimal control
- 6.3 Hamilton function
- 6.4 Phorcha problem
- 6.5 Minimum principle
- 6.6 Dynamic programming
- 6.7 Linear quadratic optimal control problem

Exercise

# <<现代控制理论与分析>>

### 版权说明

本站所提供下载的PDF图书仅提供预览和简介,请支持正版图书。

更多资源请访问:http://www.tushu007.com