

《微分方程用的对称和积分方法》

图书基本信息

书名：《微分方程用的对称和积分方法》

13位ISBN编号：9787506271899

10位ISBN编号：7506271893

出版时间：2004-11

出版社：世界图书出版公司

作者：George W.BlumanStephen C.Anco

页数：419

版权说明：本站所提供下载的PDF图书仅提供预览和简介以及在线试读，请支持正版图书。

更多资源请访问：www.tushu000.com

《微分方程用的对称和积分方法》

内容概要

The present book includes a comprehensive treatment of dimensional analysis. There is a full discussion of aspects of Lie groups of point transformations (point symmetries), contact symmetries, and higher-order symmetries that are essential for finding solutions of differential equations. No knowledge of group theory is assumed. Emphasis is placed on explicit algorithms to discover symmetries and integrating factors admitted by a given differential equation and to construct solutions and first integrals resulting from such symmetries and integrating factors. This book should be particularly suitable for applied mathematicians, engineers, and scientists interested in how to find systematically explicit solutions of differential equations. Almost all examples are taken from physical and engineering problems including those concerned with heat conduction, wave propagation, and fluid flow.

《微分方程用的对称和积分方法》

书籍目录

Preface Introduction 1 Dimensional Analysis , Modeling , and Invariance 1.1 Introduction 1.2 Dimensional Analysis: Buckingham Pi-Theorem 1.2.1 Assumptions Behind Dimensional Analysis 1.2.2 Conclusions from Dimensional Analysis 1.2.3 Proof of the Buckingham Pi-Theorem 1.2.4 Examples 1.3 Application of Dimensional Analysis to PDEs 1.3.1 Examples 1.4 Generalization of Dimensional Analysis: Invariance of PDEs Under Scalings of Variables 1.5 Discussion 2 Lie Groups of Transformations and Infinitesimal Transformations 2.1 Introduction 2.2 Lie Groups of Transformations 2.2.1 Groups 2.2.2 Examples of Groups 2.2.3 Group of Transformations 2.2.4 One-Parameter Lie Group of Transformations 2.2.5 Examples of One-Parameter Lie Groups of Transformations 2.3 Infinitesimal Transformations 2.3.1 First Fundamental Theorem of Lie 2.3.2 Examples Illustrating Lie's First Fundamental Theorem 2.3.3 Infinitesimal Generators 2.3.4 Invariant Functions 2.3.5 Canonical Coordinates 2.3.6 Examples of Sets of Canonical Coordinates 2.4 Point Transformations and Extended Transformation(Prolongations) 2.4.1 Extended Group of Point Transformations: One Dependent and One Independent Variable3 Ordinary Differential Equations(ODEs)4 Partial Differential Equations(PDEs)ReferencesAuthor IndexSubject Index

《微分方程用的对称和积分方法》

精彩短评

- 1、这本书有一定的参考价值，但比起Olver的书就稍微逊色了一些
- 2、书名很诱人，但是深度不够。书中的对称和几何的方法明显没有GTM的李群及其在微分方程中应用那本书写的具体有深度。

《微分方程用的对称和积分方法》

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:www.tushu000.com