

<<偏微分方程导论Introduction>>

图书基本信息

书名：<<偏微分方程导论Introduction to partial differential equations>>

13位ISBN编号：9783540225515

10位ISBN编号：354022551X

出版时间：2004-11

出版时间：Springer Verlag

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页数：392

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内容概要

This book teaches the basic methods of partial differential equations and introduces related important ideas associated with the analysis of numerical methods for those partial differential equations.

Standard topics such as separation of variables , Fourier analysis , maximum principles , and energy estimates are included.

Numerical methods are introduced in parallel to the classical theory.

The numerical experiments are used to illustrate properties of differential equations and theory for finite difference approximations is developed.

Numerical methods are included in the book to show the significance of computations in partial differential equations and to illustrate the strong interaction between mathematical theory and the development of numerical methods.

Great care has been taken throughout the book to seek a sound balance between the analytical and numerical techniques.

The authors present the material at an easy pace with well-organized exercises ranging from the straightforward to the challenging.

In addition , special projects are included , containing step by step hints and instructions , to help guide students in the correct way of approaching partial differential equations.

The text would be suitable for advanced undergraduate and graduate courses in mathematics and engineering.

Necessary prerequisites for this text are basic calculus and linear algebra.

Some elementary knowledge of ordinary differential equations is also preferable.

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