

<<Equations in mathema>>

图书基本信息

书名：<<Equations in mathematical physics等式在数理物理学>>

13位ISBN编号：9783764365011

10位ISBN编号：3764365013

出版时间：2001-8

作者：Pohozaev, Stanislav I.

页数：206

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>

<<Equations in mathema>>

内容概要

Many physical processes in fields such as mechanics, thermodynamics, electricity, magnetism or optics are described by means of partial differential equations. The aim of the present book is to demonstrate the basic methods for solving the classical linear problems in mathematical physics of elliptic, parabolic and hyperbolic type. In particular, the methods of conformal mappings, Fourier analysis and Green's functions are considered, as well as the perturbation method and integral transformation method, among others. Every chapter contains concrete examples with a detailed analysis of their solution. The book is intended as a textbook for students in mathematical physics, but will also serve as a handbook for scientists and engineers.

<<Equations in mathema>>

书籍目录

Chapter 1. Elliptic problems 1.1 The Dirichlet problem for the Laplace equation in an annulus 1.2 Examples of Dirichlet problems in an annulus 1.3 The interior and exterior Dirichlet problems 1.4 The Poisson integral for the disc. Complex form Solution of the Dirichlet problem when the boundary condition is a rational function $R(\sin \theta, \cos \theta)$ 1.5 The interior and exterior Dirichlet problems 1.6 Boundary value problems for the Poisson equation in a disc and in an annulus 1.7 Boundary value problems for the Laplace and Poisson equations in a rectangle 1.8 Boundary value problems for the Laplace and Poisson equations in a bounded cylinder 1.9 Boundary value problems for the Laplace and Poisson equations in a ball 1.10 Boundary value problems for the Helmholtz equations 1.11 Boundary value problem for the Helmholtz equation in a cylinder 1.12 Boundary value problems for the Helmholtz equation in a disc 1.13 Boundary value problems for the Helmholtz equation in a ball 1.14 Guided electromagnetic waves 1.15 The method of conformal mappings (for the solution of boundary value problems in the plane) 1.16 The Green function method 1.17 Other methods 1.18 Problems for independent study 1.19 Answers

Chapter 2. Hyperbolic problems 2.1 The travelling-wave method 2.2 The method of selection of particular solutions 2.3 The Fourier integral transform method 2.4 The Laplace integral transform method 2.5 The Hankel integral transform method 2.6 The method of standing waves. Oscillations of a bounded string 2.7 Some examples of mixed problems for the equation of oscillations of a string 2.8 The Fourier method. Oscillations of a rectangular membrane 2.9 The Fourier method. Oscillations of a circular membrane 2.10 The Fourier method. Oscillations of a beam 2.11 The perturbation method 2.12 Problems for independent study 2.13 Answers

Chapter 3. Parabolic problems 3.1 The Fourier integral transform method 3.2 The Laplace integral transform method 3.3 The Fourier method (method of separation of variables) 3.4 A modification of the method of separation of variables for solving the Cauchy problem 3.5 Problems for independent study 3.6 Answers

References
Index

<<Equations in mathema>>

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>