

<<理工科物理学>>

图书基本信息

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## 前言

随着我国加入WTO，国际间的竞争越来越激烈，而国际间的竞争实际上也就是人才的竞争、教育的竞争。

为了加快培养具有国际竞争力的高水平技术人才，加快我国教育改革的步伐，国家教育部出台了一系列倡导高校开展双语教学、引进原版教材的政策。

以此为契机，机械工业出版社陆续推出了一系列影印版国外优秀教材，其内容涉及高等学校公共基础课，以及机、电、信息领域的专业基础课和专业课。

引进国外优秀原版教材，在有条件的学校推动和开展英语授课或双语教学的同时，自然也引进了先进的教学思想和教学方法，这对提高我国自编教材的水平，加强学生的英语实际应用能力，使我国的高等教育尽快与国际接轨，必将起到积极的推动作用。

为了做好教材的引进工作，机械工业出版社特别成立了由著名专家组成的国外高校优秀教材审定委员会。

这些专家对实施双语教学做了深入细致的调查研究，对引进原版教材提出了许多建设性意见，并慎重地对每一本将要引进的原版教材一审再审，精选再精选，确认教材本身的质量水平，以及权威性和先进性，以期所引进的原版教材能适应我国学生的外语水平和学习特点。

在引进工作中，审定委员会还结合我国高校教学课程体系的设置和要求，对原版教材的教学思想和方法的先进性、科学性严格把关，同时尽量考虑原版教材的系统性和经济性。

这套教材出版后，我们将及时地将其推荐给各高校选用，并将根据各高校的双语教学计划，举办原版教材的教师培训。

希望高校师生在使用教材后及时反馈意见和建议，使我们更好地为教学改革服务。

## &lt;&lt;理工科物理学&gt;&gt;

## 内容概要

本书的两大编写原则：就物理学的基本概念和基本原理为学生提供一个清晰、富有逻辑性的讲解；通过大量、有趣的日常生活中的真实例子加强读者对基本概念及原理的理解。

全书涵盖了经典物理学的基本内容，并简要介绍了近代物理的内容，共分6部分：牛顿力学及流体；碰撞、机械波及声学；热力学；电学和磁学；光学；相对论。

本书的整体风格是强调“易学”，注重启发性、紧密联系实际，主要特色有：

“General Problem-Solving Strategy”为读者提供了一个解答一般性题目的详尽方法，并将这种解题方法贯穿在全书的每个例题中；大约1/3的例题都包含“ What If?” 这样的问题。即在解题完成后，改变题目中的某些条件，让读者考虑各个待求量会相应地如何变化。

这有助于鼓励读者去思考例题的结果，而且也能帮助他们原理进行概念性的理解；贯穿在书中的大量的“Quick Quiz”可用来检验读者对物理概念的掌握程度；本书提供的两百多个“Pitfall Preventions”能帮助读者在学习中尽量避免常见错误和误解。

本书可作为高等院校理工科各专业的大学物理双语课教材，也可供相关教师及自学爱好者参考之用。

作者简介

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## 章节摘录

插图：This method is somewhat similar to the common practice in the legal profession of finding “ legal precedents . ” If a previously resolved case can be found that is very similar legally to the current one , it is used as a model and an argument is made in court to link them logically . The finding in the previous case can then be used to sway the finding in the current case . We will do something similar in physics . For a given problem , we search for a “ physics precedent , ” a model with which we are already familiar and that can be applied to the current problem . We shall generate analysis models based on four fundamental simplification models . The first of the four is the particle model discussed in the introduction to this chapter . We will look at a particle under various behaviors and environmental interactions . Further analysis models are introduced in later chapters based on simplification models of a system, a rigid object, and a wave . Once we have introduced these analysis models . we shall see that they appear again and again in different problem situations . When solving a problem , you should avoid browsing through the chapter looking for an equation that contains the unknown variable that is requested in the problem . In many cases , the equation you find may have nothing to do with the problem you are attempting to solve . It is much better to take this first step : Identify the analysis model that is appropriate for the problem . To do so , think carefully about what is going on in the problem and match it to a situation you have seen before . Once the analysis model is identified , there are a small number of equations from which to choose that are appropriate for that model . Therefore , the model tells you which equation(s) to use for the mathematical representation . Let us use Equation 2 . 2 to build our first analysis model for solving problems . We imagine a particle moving with a constant velocity . The model of a particle under constant velocity can be applied in any situation in which an entity that can be modeled as a particle is moving with constant velocity . This situation occurs frequently, so this model is important .

编辑推荐

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