<<经典力学>>

图书基本信息

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前言

The first edition of this text appeared in 1950, and it was so well received thatit went through a second printing the very next year. Throughout the next threedecades it maintained its position as the acknowledged standard text for the intro-duciory Classical Mechanics course in graduate level physics curricula through-out the United States, and in many other countries around the world. Some majorinstitutions also used it for senior level undergraduate Mechanics. Thirty yearslater, in 1980, a second edition appeared which was "a through-going revision ofthe first edition ?
' The preface to the second edition contains the following state-ment: "I have tried to retain, as much as possible, the advantages of the first editionwhile taking into account the developments of the subject itself, its position in thecurriculum, and its applications to other fields." This is the philosophy which hasguided the preparation of this third edition twenty more years later. The second edition introduced one additional chapter on Perturbation Theory,and changed the ordering of the chapter on Small Oscillations. In addition it addeda significant amount of new material which increased the number of pages byabout 68%. This third edition adds still one more new chapter on Nonlinear Dy-namics or Chaos, but counterbalances this by reducing the amount of material inseveral of the other chapters, by shortening the space allocated to appendices, byconsiderably reducing the bibliography, and by omitting the long lists of symbols.Thus the third edition is comparable in size to the second.

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内容概要

《经典力学》（影印版）（第3版）是美国哥伦比亚大学HerbertGoldstein编著。
（ClassicalMechanics）是一本有着很高知名度的经典力学教材，长期以来被世界上多所大学选用。
本影印版是2002年出版的第3版。
与前两版相比，第3版在保留基本经典力学内容的基础上，做了不少调整。
例如，增加了混沌一章；引入了一些对新研究问题的方法的讨论，例如张量、群论的等；对于第二版中的一些内容做了适当的压缩和调整。

作者简介

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章节摘录

插图：Suppose acharged particle drifts in the direction ofincreasing B；by Eq.（12.117），the kinetic energy of rotation increases.As the total kinetic energy iS conserved.the kinetic energy of longitudinal drift，along the lines of force must de.crease.Eventually,the drift velocity goes to zero and the motion reverses in direction.If it can be arranged that B eventually increases in the other direction.the charged particle will remain confined，drifting back and forth between the two ends——tlle principle 0f the SO-called mirror confinement.The mirror principle is used to contain hot plasmas for thermonuclear energy generation.The complete story iS of course more complicated.but the significance Of the adiabatic invari.ance Of M is clearly demonstrated.We have seen that almost all phenomena of small oscillations about steady.state or steady motion can be described in terms of harmonic oscillators.In con.sequence.there iS a good deal of practicalinterest in questions of the invariance Of J for a harmonic oscillator under slow，and not SO slow，variations of a parameter.The study of oscillations in charged particle accelerators，for example，has led to a number of new insights.It has been possible to sketch here only the highlights of the subject of adia.batic invariants.The ramifications of the field go into many areas of classical and quantum physics and of mathematics.

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