

<<经典力学的数学方法>>

图书基本信息

书名：<<经典力学的数学方法>>

13位ISBN编号：9787506200905

10位ISBN编号：7506200902

出版时间：1999-11

出版单位：世界图书出版公司

作者：V.I.Arnold

页数：516

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>

<<经典力学的数学方法>>

内容概要

Many different mathematical methods and concepts are used in classical mechanics: differential equations and phase flows, smooth mappings and manifolds, Lie groups and Lie algebras, symplectic geometry and ergodic theory. Many modern mathematical theories arose from problems in mechanics and only later acquired that axiomatic-abstract form which makes them so hard to study.

<<经典力学的数学方法>>

书籍目录

Preface Preface to the second edition Part I NEWTONIAN MECHANICS Chapter 1 Experimental facts 1. The principles of relativity and determinacy 2. The galilean group and Newton ' s equations 3. Examples of mechanical systems Chapter 2 Investigation of the equations of motion 4. Systems with one degree of freedom 5. Systems with two degrees of freedom 6. Conservative force fields 7. Angular momentum 8. Investigation of motion in a central field 9. The motion of a point in three-space 10. Motions of a system of n points 11. The method of similarity Part II LAGRANGIAN MECHANICS Chapter 3 Variational principles 12. Calculus of variations 13. Lagrange's equations 14. Legendre transformations 15. Hamilton's equations 16. Liouville's theorem Chapter 4 Lagrangian mechanics on manifolds 17. Holonomic constraints 18. Differentiable manifolds 19. Lagrangian dynamical systems 20. E. Noether's theorem 21. D'Alembert's principle Chapter 5 scillations 22. Linearization 23. Small oscillations 24. Behavior of characteristic frequencies 25. Parametric resonance Chapter 6 Rigid bodies 26. Motion in a moving coordinate system 27. Inertial forces and the Coriolis force 28. Rigid bodies 29. Euler's equations. Poinso't's description of the motion 30. Lagrange's top 31. Sleeping tops and fast tops Part III HAMILTONIAN MECHANICS Chapter 7 Differential forms 32. Exterior forms 33. Exterior multiplication 34. Differential forms 35. Integration of differential forms 36. Exterior differentiation Chapter 8 Symplectic manifolds 37. Symplectic structures on manifolds 38. Hamiltonian phase flows and their integral invariants6 39. The Lie algebra of vector fields 40. The Lie algebra of hamiltonian functions Chapter 9 Canonical formalism Chapter 10 Introduction to perturbation theory Appendix Index

<<经典力学的数学方法>>

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:<http://www.tushu007.com>