

1. Record Nr.	UNINA9910957719203321
Autore	Landau L. D
Titolo	Mechanics // by L.D. Landau and E.M. Lifshitz ; translated from the Russian by J.B. Sykes and J.S. Bell
Pubbl/distr/stampa	Elsevier Science & Technology, 1982
ISBN	1-299-40289-5 0-08-050347-0
Edizione	[3rd ed.]
Descrizione fisica	1 online resource (199 p.)
Collana	Course of theoretical physics ; ; v. 1
Altri autori (Persone)	LifshitzE. M SykesJ. B BellJ. S
Disciplina	530
Soggetti	Mechanics, Analytic
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Translation of Mekhanika by E.M. Lifshitz. Reprinted 1978, 1982, 1984, 1986, 1987, 1988, 1989, 1991, 1996, 1997, 2003, 2004, 2005.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Front Cover; Mechanics; Copyright Page; Table of Contents; L.D. Landau-a biography; Chapter 1. The Equations of Motion; 1. Generalised co-ordinates; 2. The principle of least action; 3. Galileo's relativity principle; 4. The Lagrangian for a free particle; 5. The Lagrangian for a system of particles; Chapter 2. Conservation Laws; 6. Energy; 7. Momentum; 8. Centre of mass; 9. Angular momentum; 10. Mechanical similarity; Chapter 3. Integration of the Equations of Motion; 11. Motion in one dimension; 12. Determination of the potential energy from the period of oscillation 13. The reduced mass14. Motion in a central field; 15. Kepler's problem; Chapter 4. Collisions Between Particles; 16. Disintegration of particles; 17. Elastic collisions; 18. Scattering; 19. Rutherford's formula; 20. Small-angle scattering; Chapter 5. Small Oscillations; 21. Free oscillations in one dimension; 22. Forced oscillations; 23. Oscillations of systems with more than one degree of freedom; 24. Vibrations of molecules; 25. Damped oscillations; 26. Forced oscillations under friction; 27. Parametric resonance; 28. Anharmonic oscillations 29. Resonance in non-linear oscillations30. Motion in a rapidly oscillating field; Chapter 6. Motion of a Rigid Body; 31. Angular

velocity; 32. The inertia tensor; 33. Angular momentum of a rigid body; 34. The equations of motion of a rigid body; 35. Eulerian angles; 36. Euler's equations; 37. The asymmetrical top; 38. Rigid bodies in contact; 39. Motion in a non-inertial frame of reference; Chapter 7. The Canonical Equations; 40. Hamilton's equations; 41. The Routhian; 42. Poisson brackets; 43. The action as a function of the co-ordinates; 44. Maupertuis' principle
45. Canonical transformations 46. Liouville's theorem; 47. The Hamilton-Jacobi equation; 48. Separation of the variables; 49. Adiabatic invariants; 50. Canonical variables; 51. Accuracy of conservation of the adiabatic invariant; 52. Conditionally periodic motion; Index

Sommario/riassunto

Devoted to the foundation of mechanics, namely classical Newtonian mechanics, the subject is based mainly on Galileo's principle of relativity and Hamilton's principle of least action. The exposition is simple and leads to the most complete direct means of solving problems in mechanics. The final sections on adiabatic invariants have been revised and augmented. In addition a short biography of L D Landau has been inserted.
