

1. Record Nr.	UNINA9911007091603321
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Titolo	Physical kinetics // by E.M. Lifshitz and L.P. Pitaevskii ; translated from the Russian by J.B. Sykes and R.N. Franklin
Pubbl/distr/stampa	Amsterdam ; ; Boston, : Elsevier, : Butterworth Heinemann, 2008
ISBN	1-280-58190-5 9786613611680 0-08-057049-6
Descrizione fisica	1 online resource (465 p.)
Collana	Course of theoretical physics ; ; v. 10
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Disciplina	500 531.113
Soggetti	Plasma (Ionized gases)
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes index.
Nota di contenuto	Front Cover; Physical Kinetics; Copyright Page; Table of Contents; PREFACE; NOTATION; CHAPTER I. KINETIC THEORY OF GASES; 1. The distribution function; 2. The principle of detailed balancing; 3. The Boltzmann transport equation; 4. The H theorem; 5. The change to macroscopic equations; 6. The transport equation for a slightly inhomogeneous gas; 7. Thermal conduction in the gas; 8. Viscosity in the gas; 9. Symmetry of the kinetic coefficients; 10. Approximate solution of the transport equation; 11. Diffusion of a light gas in a heavy gas; 12. Diffusion of a heavy gas in a light gas 13. Transport phenomena in a gas in an external field 14. Phenomena in slightly rarefied gases; 15. Phenomena in highly rarefied gases; 16. Dynamical derivation of the transport equation; 17. The transport equation including three-particle collisions; 18. The virial expansion of the kinetic coefficients; 19. Fluctuations of the distribution function in an equilibrium gas; 20. Fluctuations of the distribution function in a non-equilibrium gas; CHAPTER II. THE DIFFUSION APPROXIMATION; 21. The Fokker-Planck equation; 22. A weakly ionized gas in an electric field

23. Fluctuations in a weakly ionized non-equilibrium gas 24. Recombination and ionization; 25. Ambipolar diffusion; 26. Ion mobility in solutions of strong electrolytes; CHAPTER III. COLLISIONLESS PLASMAS; 27. The self-consistent field; 28. Spatial dispersion in plasmas; 29. The permittivity of a collisionless plasma; 30. Landau damping; 31. Permittivity of a Maxwellian plasma; 32. Longitudinal plasma waves; 33. Ion-sound waves; 34. Relaxation of the initial perturbation; 35. Plasma echoes; 36. Adiabatic electron capture; 37. Quasi-neutral plasmas; 38. Fluid theory for a two-temperature plasma 39. Solitons in a weakly dispersing medium 40. Permittivity of a degenerate collisionless plasma; CHAPTER IV. COLLISIONS IN PLASMAS; 41. The Landau collision integral; 42. Energy transfer between electrons and ions; 43. Mean free path of plasma particles; 44. Lorentzian plasmas; 45. Runaway electrons; 46. Convergent collision integrals; 47. Interaction via plasma waves; 48. Plasma absorption in the high-frequency limit; 49. Quasi-linear theory of Landau damping; 50. The transport equation for a relativistic plasma; 51. Fluctuations in plasmas; CHAPTER V. PLASMAS IN MAGNETIC FIELDS 52. Permittivity of a collisionless cold plasma 53. The distribution function in a magnetic field; 54. Permittivity of a magnetoactive Maxwellian plasma; 55. Landau damping in magnetoactive plasmas; 56. Electromagnetic waves in a magnetoactive cold plasma; 57. Effect of thermal motion on electromagnetic wave propagation in magnetoactive plasmas; 58. Equations of fluid dynamics in a magnetoactive plasma; 59. Transport coefficients of a plasma in a strong magnetic field; 60. The drift approximation; CHAPTER VI. INSTABILITY THEORY; 61. Beam instability; 62. Absolute and convective instabilities 63. Amplification and non-transparency

Sommario/riassunto

This volume is mainly concerned with a systematic development of the theory of plasmas, the authority being firmly rooted in the pioneering work of Landau. Corresponding results are also given for partially ionized plasmas, relativistic plasmas, degenerate or non-ideal plasmas and solid state plasmas.