

1. Record Nr.	UNINA9910822323503321
Autore	Toptygin Igor N.
Titolo	Electromagnetic phenomena in matter : statistical and quantum approaches // Igor N. Toptygin
Pubbl/distr/stampa	Weinheim, Germany : , : Wiley-VCH Verlag GmbH & Co., , 2015 2015
ISBN	3-527-41316-2 3-527-69347-5 3-527-41180-1 3-527-41318-9
Descrizione fisica	1 online resource (722 pages) : illustrations
Disciplina	537.0151
Soggetti	Electromagnetism - Mathematics Electromagnetism - Measurement
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Fundamental Constants and Frequently Used Numbers XVII -- ; 1. Equations of Steady Electric and Magnetic Fields in Media -- ; 2. Electrostatics of Conductors and Dielectrics -- ; 3. Stationary Currents and Magnetic Fields in Media -- ; 4. Quasi-Stationary Electromagnetic Field -- ; 5. Maxwell Equations for Alternating and Inhomogeneous Fields -- ; 6. Propagation of Electromagnetic Waves -- ; 7. Coherence and Nonlinear Waves -- ; 8. Electromagnetic Oscillations in Finite Bodies -- ; 9. Interaction of Charged Particles with Equilibrium and Nonequilibrium Media -- ; Appendix: Turbulence and Its Description with the Aid of Correlation Tensors.
Sommario/riassunto	Modern electrodynamics in different media is a wide branch of electrodynamics which combines the exact theory of electromagnetic fields in the presence of electric charges and currents with statistical description of these fields in gases, plasmas, liquids and solids; dielectrics, conductors and superconductors. It is widely used in physics and in other natural sciences (such as astrophysics and geophysics, biophysics, ecology and evolution of terrestrial climate), and in various technological applications (radio electronics, technology

of artificial materials, laser-based technological processes, propagation of bunches of charges particles, linear and nonlinear electromagnetic waves, etc.). Electrodynamics of matter is based on the exact fundamental (microscopic) electrodynamics but is supplemented with specific descriptions of electromagnetic fields in various media using the methods of statistical physics, quantum mechanics, physics of condensed matter (including theory of superconductivity), physical kinetics and plasma physics. -- Publisher's website.
