Contents

1	Intr	oduction	1
2	Eler 2.1 2.2 2.3 2.4	nents of General PhysicsFundamental Physical ConstantsElements and IsotopesPhysical UnitsConversional Factors in Formulas of General Physics	5 5 6 7
3	Phy	sics of Atoms and Ions	21
	3.1	Properties of Hydrogen and Helium Atoms and Similar Ions	21
	3.2	Quantum Numbers of Light Atoms	26
	3.3	Lowest Excited States of Inert Gas Atoms	32
	3.4	Parameters of Atoms and Ions in the Form of Periodical	
		Tables	33
4	Rate	es of Radiative Transitions and Atomic Spectra	61
	4.1	Dipole Radiation of Atomic Particles	61
	4.2	Selection Rules for Radiative Transitions in Atomic Particles	63
	4.3	Radiation of Lowest Excited States of Inert Gas Atoms	64
	4.4	Absorption Parameters and Broadening of Spectral Lines	65
5	Phy	sics of Molecules	103
	5.1	Interaction Potential of Atomic Particles at Large Separations	103
	5.2	Energetic Parameters of Diatomic Molecules	106
	5.3	Coupling Schemes in Diatomic Molecule	107
	5.4	Potential Curves and Correlation of Atomic and Molecular	
		States	110
	5.5	Polyatomic Molecules	112
6	Eler	nentary Processes in Gases and Plasmas	139
	6.1	Parameters of Elementary Processes in Gases and Plasmas	139
	6.2	Collision Processes Involving Ions	141

	6.3 6.4	Elastic Collisions of Electrons with Atoms		
7	Tra	nsport Phenomena in Gaseous Systems	161	
	7.1	Transport Coefficients of Gases	161	
	7.2	Ion Drift in Gas in External Electric Field	164	
	7.3	Electron Transport in Gases	169	
8	Con	clusion	183	
Aj	Appendix A: Spectra and Diagrams			
Re	References			
In	Index			