



## Contents

To the Memory of S.E.Frish .....	13
A.M.Prokhorov	
Excitation Energy Transfer Processes in Metal Vapours .....	15
E.Kraulinya	
Experimental Determination of Electronic Transition Probabilities and the Lifetimes of the Excited Atomic and Ionic States .....	33
N.P.Penkin	
The Development of Ideas of V.Fock in Atomic Physics .....	65
Yu.N.Demkov	
The Multiconfiguration Hartree-Fock Method for Atomic Levels and Transition Probabilities .....	77
Ch.F.Fisher	
Peculiarities of the Theoretical Investigation of the Spectra of Many-Electron Atoms and Multiple-Charged Ions .....	92
Z.B.Rudzikas	
Relativistic Perturbation Theory for Atoms and Ions .....	111
M.A.Braun and L.N.Labovsky	
Ionization and Excitation of Atomic Shells by Electron Impact in Semiclassical Approximation .....	133
M.A.Braun and V.I.Ochkur	
Spectroscopy of Multicharged Ions in Laboratory Plasma .....	159
L.A.Vainstein, V.A.Boiko, E.Ya.Kononov	
Mesic Atomic and Mesic Molecular Processes in the Hydrogen Isotope Mixtures .....	182
L.I.Ponomarev	

Determination of the Lamb Shift ( $H, n=2$ ) in the "Atomic Interferometer" Method .....	207
Yu.L.Sokolov	
Spectroscopy of Negative Ions .....	223
J.S.Risley	
Threshold Behaviour of Elementary Atomic Processes .....	249
M.Gailitis	
Quasi-Resonance Processes in Atomic Collisions .....	267
E.E.Nikitin and B.M.Smirnov	
Correlated Transitions in Atom with Two Inner-Shell Vacancies .....	289
V.V.Afrosimov and A.P.Shergin	
Optical Pumping Investigation of Atomic Interactions .....	308
R.A.Zhitnikov	
The Role of Atomic and Molecular Processes in the Computing Modeling of Gas Lasers .....	335
K.Smith and S.A.Roberts	
Molecular Formation and Destruction in the Interstellar Medium .....	368
H. van Regemorter, A.Giusti Suzor, E.Roueff	
Laser-Photochemical Dissociation of Small Molecules: Calculation of Isotope Effects with Respect to Dissociation Probabilities .....	383
H.Johansen, K.Johst	
Decay of Atomic Polarization Moments .....	410
M.I.Dyakonov, V.I.Perel	
Alignment of Excited Atoms in a Gas Discharge .....	423
M.P.Chaika	
Applications of Anticrossing Spectroscopy .....	435
H.J.Beyer and H.Kleinpoppen	

Resonant Interaction of Atom with Intense Radiation Fields .....	462
M.L.Ter-Mikaelian, M.A.Sarkissian	
Investigation of Collisions by Nonlinear Spectroscopy Methods .....	493
S.G.Rautian	
Quantum Beats .....	521
E.B.Alexandrov	
Selective Multistep Laser Action upon Atoms and Molecules .....	535
N.V.Karlov	
Laser Detection of Single Atoms .....	565
V.I.Balikin, G.I.Bekov, V.S.Letokhov, V.I.Mishin	
Coherent Phenomena in Superhigh Resolution Spectroscopy .....	585
V.P.Chebotayev	
Laser Spectroscopy in Molecular Beams .....	612
W.Demtröder	
Spectroscopic and Ionization Properties of Atomic Rydberg States .....	626
S.Feneuille and P.Jacquinot	
Observation of Parity-Nonconservation in Atomic Transition .....	648
L.M.Barkov, M.S.Zolotorev	
Parity Non-Conservation in Atomic Bismuth .....	653
P.E.G.Baird	
Index .....	663