

Contents

Part I Ph	notons and Atomic Continua	
	eation and Ionization er (With 4 Figures)	2
	on Dynamics Within the Stretched Hydrogen Atom waves. By J.E. Bayfield (With 4 Figures)	8
	l Atomic Physics and S.M. Susskind (With 3 Figures)	13
	Ionization a Chaotic Phenomenon? With 4 Figures)	22
	Hydrogen in Presence of dc and ac Fields and D. Humm (With 6 Figures)	28
	Laser-Induced Tunnel Ionization With 8 Figures)	36
	or Continuum States ad P. Spizzo (With 3 Figures)	47
Photon One-Elec	s in Multiphoton Ionization: Application to Two- ctron Ionization of Xenon and G. Wendin (With 4 Figures)	55
States to a Singl	ntum Beats from Coupling of Two Atomic Bound e Autoionizing State N.K. Rahman (With 3 Figures)	62
Electric Field Ef	fects on Structure in the Continuum r, E.B. Saloman, and J.W. Cooper (With 8 Figures)	68
Part II A	bove-Threshold Ionization	
	d Ionization with Linear and Circular Polarizations G. Petite, and P. Agostini (With 3 Figures)	78

Resonances in Multiphoton Ionisation By H.B. van Linden van den Heuvell, H.G. Muller,		
and M.J. van der Wiel (With 2 Figures)		
Theoretical Models for Above-Threshold Ionization in Atomic Hydrogen. By Y. Gontier and M. Trahin (With 3 Figures)		
Non-Perturbative Theory of Above-Threshold Ionization By H.R. Reiss (With 4 Figures)		
By G.P. Arrighini, N. Durante, and C. Guidotti (With 1 Figure)	111	
Multiphoton Absorption Above the Ionization Threshold By R. Shakeshaft	118	
Part III Molecules in Laser Fields		
Bound-Continuum Transitions of Na ₂ Studied by Doppler Photofragment Spectroscopy By G. Gerber and R. Möller (With 9 Figures)	126	
Mechanism of Laser Induced Decomposition of Gaseous Polyatomic Molecules. By E. Borsella, L. Caneve, A. Giardini-Guidoni, and A. Mele (With 7 Figures)	134	
Coupled Equations and the Bloch-Nordsieck Representation for Molecules. By A.D. Bandrauk	143	
The Franck-Condon Principle. By J. Tellinghuisen (With 4 Figures)		
Part IV Atomic Collisions in Laser Fields		
Reactive Collision Dynamics of the Collision System Mg+H ₂ Using Far Wing Laser Scattering. By A.M. Lyyra, P.D. Kleiber, K.M. Sando, and W.C. Stwalley (With 5 Figures)	158	
Laser Pulse-Induced Molecular Collisions: Effect of the Temporal Width of the Pulse. By HW. Lee and T.F. George		
Charge Transfer in Collisions and in Complexes Involving Excited Atoms. By W. Kamke, E.E.B. Campbell, R. Witte, B. Kamke, H. Schmidt, Z. Wang, H.U. Kiefl, and I.V. Hertel (With 9 Figures).	171	
Laser-Induced Charge Transfer in Ion-Atom Collisions By L.F. Errea, L. Méndez, and A. Riera (With 6 Figures)	178	

By D. Cubaynes, J.L. Picqué, G. Spiess, J.M. Bizau, B. Carré, F. Roussel, and F.J. Wuilleumier (With 4 Figures)	186	
Laser-Assisted Ionization in the He*(2 ¹ S, 2 ³ S) + He(1 ¹ S) Collision System. By P. Monchicourt, P. Pradel, D. Dubreuil, and J.J. Laucagne (With 6 Figures)		
Energy Transfer Collisions in Laser-Excited Mixtures of Alkali Vapors. By S. Abdullah, M. Allegrini, S. Gozzini, and L. Moi (With 2 Figures)	214	
The Far Wing Behaviour of the LICET Lineshape By A. Bambini and P.R. Berman (With 2 Figures)	220	
High-Resolution Lineshape Study of a LICET Process in the Far-Wing. By M. Matera, M. Mazzoni, R. Buffa, S. Cavalieri, and E. Arimondo (With 4 Figures)	227	
Collisionally Aided Coherent Emission at an Optical Frequency By E. Giacobino and P.R. Berman (With 5 Figures)	233	
Part V Electronic Collisions in Laser Fields		
Close-Coupling Solution of Radiative e-H ⁺ Scattering in a Laser Field. By L. Dimou and F.H.M. Faisal (With 5 Figures)	240	
Electron-Proton and Electron-Hydrogen Atom Collisions in the Presence of a Radiation Field. By A. Maquet		
Electron Scattering in Intense, High-Frequency Laser Fields By M. Gavrila, J.Z. Kaminski, and M.J. Offerhaus (With 3 Figures)	255	
Applications of Generalized Coherent States By J. Bergou, S. Varró, and F. Ehlotzky	265	
High Intensity Effects in Multiphoton Free-Free Transitions By S. Bivona, R. Daniele, G. Ferrante, and F. Trombetta (With 4 Figures)	270	
New Results for Perturbative Calculations of Free-Free Scattering By E.J. Robinson and C. Chang	281	
Index of Contributors	289	