

CONTENTS

Foreword	vii
I. FEW-BODY SYSTEMS	
High Precision Calculations for Two-Electron Atoms <i>G. W. F. Drake</i>	3
Hyperspherical Coordinate Approach to Coulomb Three-Body Systems <i>C. D. Lin</i>	14
Finite Element Analysis of Three-Body Systems: Bound and Continuum States <i>J. Botero</i>	23
The Fully Correlated Two-Electron Problem on a Numerical Lattice <i>D. R. Schultz</i>	42
Two-Dimensional Resonances in Coulomb Few Body System and Theory of Electron Energy and Angular Distribution <i>S. Y. Ovchinnikov and J. H. Macek</i>	51
Large-Scale Atomic CI: New Results <i>C. F. Bunge and O. Jitrik</i>	58
Relativistic Atomic CI: A Variational Principle <i>R. Jauregui, C. F. Bunge and E. Ley-Koo</i>	72
II. ELECTRON TRANSFER	
Laser Studies of Electron Transfer Dynamics Near the Matching Velocity <i>N. Andersen</i>	83

Measurements of State Selective Electron Capture in Collisions with H Atoms	94
<i>H. B. Gilbody</i>	
Case Studies of Correlated Electron Transitions in Slow Atomic Collisions	109
<i>W. Fritsch</i>	
Transfer-Excitation Followed by Molecular Dissociation	119
<i>S. E. Corch, H. F. Busnengo, R. D. Rivarola and J. H. McGuire</i>	
III. NEGATIVE IONS	
Correlated States of Few-Electron Atomic Negative Ions	131
<i>D. J. Pegg</i>	
Modeling Multiphoton Measurements on Relativistic H^- and other Fast Atomic Beams	144
<i>E. P. MacKerrow and H. C. Bryant</i>	
He ⁻ 1s2p ² 4pe Shape Resonance Revisited: Details of Its Properties and a Precise Electron Affinity for He 2 ³ S	164
<i>C. W. Walter, J. A. Seifert and J. R. Peterson</i>	
Photodetachment of Negative Ions	176
<i>K. L. Bell, K. A. Berrington and C. A. Ramsbottom</i>	
IV. THRESHOLD PHENOMENA	
Threshold Photodouble Ionization in Atoms and Molecules	189
<i>G. C. King</i>	
Fragmentation of Few-Body Coulomb Systems	200
<i>J. S. Briggs</i>	
Orthodoxy and Heresy in Two-Electron Atomic Systems	213
<i>M. S. Lubeil</i>	
The Wannier Threshold Law and Top-of-Barrier Motion	227
<i>J. H. Macek, S. Y. Ovchinnikov and S. V. Passovets</i>	

V. COLLISIONAL IONIZATION

Double and Single Ionization of He and H ₂ by Slow Protons and Antiprotons	243
<i>M. Kimura, I. Shimamura and M. Inokuti</i>	
Simultaneous Ionization and/or Excitation in Few Body Collisions: Electron-Electron Interactions	247
<i>S. T. Munson</i>	
Role of the Electron-Electron Interaction in Cusp-Electron Production for Ions Colliding with Argon Targets	258
<i>J. A. Tunis</i>	
Cold Target Recoil Ion Momentum Spectroscopy	269
<i>K. Ullmann, V. Mergel L. Spielberger, T. Vogt, U. Meyer, R. Dorner, O. Jagutzki, M. Unverzagt, I. Ali, J. Ullrich, W. Schmitt, R. Moshammer, C. L. Cocke, T. Kambara, Y. Awaya and H. Schmidt-B&king</i>	

VI. COLLISION PHENOMENA

Complex Formation in Electron-Ion and Ion-Atom/Molecule Collisions	291
<i>G. H. Dunn</i>	
Correlated Motion of 4p and 3p Electrons of Ar ⁺ Formed in Collisions	304
<i>D. H. Jaecks, B. W. Moudry and O. Yenen</i>	

Two- and Three-Body Dynamics Governing Collisions of Rydberg Atoms with Neutral Targets	313
<i>I. I. Fabrikant</i>	

VII. RECOMBINATION

Semiclassical-Classical Path Hybrid Theory of Direct Electron-Ion Dissociative Recombination and a Proposal for $e^- + H_3^+$ Recombination	329
<i>M. R. Flannery</i>	

Rydberg State Formation in H_3^+ Recombination F. B. Yousif, M. Rogelstad and J. B. A. Mitchell	343
Recombination of Electrons with Singly-Charged Ions W. G. Graham	352
Radiative Dielectronic Recombination and Correlated Transition Vertices Y. Hahn	360
Recent Storage Ring Results for Ionization and Recombination of Highly Charged Ions A. Müller	372
VIII. PHOTOIONIZATION	
Electron Correlations in Inner-Shell Photoionization of Alkali-Atoms F. J. Wuilleumier, L. Journel, D. Cubaynes, J.-M. Bizau, B. Rouvelliou, S. Al Moussalami, L. Vo Ky and Zi W. Liu	385
Inter-Shell Photoionization Studies of Atoms, Excited Atoms and Ions with Laser-Generated Plasmas E. T. Kennedy, J. T. Costello and J.-P. Mosnier	406
Gauge Variation of MBPT Amplitudes for Double Ionization J. H. McGuire, L. Nagy, J. Wang and M. Ya. Amusia	424
High-Resolution Photoionization Study of Double-Excitation Resonances in Helium M. Domke, K. Schulz, G. Kaindl and D. Wintgen	439
IX. SPECIAL TOPICS	
Non-Perturbative Approximation for the Evaluation of the Time Evolution Operator of a Forced Parametric Oscillator J. A. Recamier and R. Jduregui	451
Electron Imaging Study of Multiphoton Ionization of Neon H. Helm and M. J. Dyer	468
Closed Orbits and Recurrences in Atomic Spectra: Patterns of Trajectories in Integrable Systems J. Gao and J. B. Delos	474

Energy Distribution of H⁺ and H⁻ from the Polar
Dissociation of H₃⁺

483

*I. Alvarez, I. Domínguez, C. Cisneros, J. de Urquijo
and H. Martinez*

New Results in Atomic Physics at the Advanced Light Source
F. S'chlachter

490