

TABLE OF CONTENTS

PREFACE	v
ACKNOWLEDGEMENT	vi
On the History of the so-called WKB-Method from 1817 to 1926 N. FRÖMAN and P.O. FRÖMAN	1
Semiclassical Methods in Chemical Dynamics W.H. MILLER	9
ELASTIC AND INELASTIC PROCESSES	
Low-Energy Atomic and Molecular Collisions J.P. TOENNIES	29
Inner-Shell Coulomb Ionization E. MERZBACHER	49
Variational Methods in Inner-Shell Ionization M. KLEBER	65
Nuclear Elastic Scattering P. BRAUN-MUNZINGER	85
Absorptive Potentials G. POLLAROLO	87
Coulomb Excitation Th.W. ELZE	101
Semiclassical Functional-Integral Methods for Few and Many-Body Systems S. LEVIT	119

REARRANGEMENT COLLISIONS

Nuclear Transfer Reactions A. WINTHER	137
Semiclassical Aspects of Transfer Reactions P.D. BOND	151
Transfer Involving Deformed Nuclei J.O. RASMUSSEN, M.W. GUIDRY and L.F. CANTO	167
The Theory of Electron Capture J.S. BRIGGS	183
Electron Capture from the K-Shell: Experimental C.L. COCKE	205
Observation of the Thomas Peak E. HORSDAL	227
WKB Approximations D.M. BRINK	241
COMPLEX COLLISIONS	
Nuclear Transport-Phenomena in Low-Energy Heavy-Ion Collisions J.R. HUIZENGA and W.U. SCHRÖDER	255
Friction in Nuclear Dynamics W.J. SWIATECKI	281
Fusion Reactions at Low Energy M. BECKERMAN	315
Uniform Approximations and Condon Reflection Effects M.S. CHILD	333
A Semiclassical Approach to Molecular Energy-Transfer G.D. BILLING	339
Multiple Electron Capture R. MANN	347
WKB Approach to Nonseparable Wave Equations U. FANO	367

The Phase-Space Representation of Quantum Mechanics and the Bohr-Heisenberg Correspondence Principle J.P. DAHL	379
Quantum Phase-Space Distributions and Quantum Transport-Theory F. ZACHARIASEN	395
PENETRATION OF ATOMIC PARTICLES THROUGH MATTER	
The Barkas Effect and other Higher-Order Z_1 - Contributions to the Stopping Power H.H. ANDERSEN	409
Heavy-Ion Stopping H. GEISSEL	431
Semiclassical Description of Scattering by Atoms and by Atomic Strings J.U. ANDERSEN	463
INDEXES	
AUTHOR INDEX	483
SUBJECT INDEX	485