

QUANTUM THEORY OF CHEMICAL REACTIONS

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II. Solvent Effect, Reaction Mechanisms, Photochemical Processes

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TABLE OF CONTENTS

PREFACE	vii
A. PULLMAN / The Supermolecule Approach to the Solvation Problem	1
O. TAPIA / Local Field Representation of Surrounding Medium Effects. From Liquid Solvent to Protein Core Effects	25
R. CONSTANCIEL / The Effects of a Polarizable Environment Represented by the Generalized Born Formula in Self Consistent Quantum Chemical Calculations: Application to the Study of Ambident Reactions	73
J. P. PERCHARD / Chemical Reactivity in Inert Matrices	99
M. ALLAVENA / Theory of Environmental Effects on Atoms and Molecules Trapped in Rare Gas Matrices	129
H. BERKE and R. HOFFMANN / Organometallic 1,2 Shift Type Migration Reactions	151
J. ROYER / A MO Treatment of the Regioselectivity of Nucleophilic Addition to α -Enones	169
E. KOCHANSKI / An Electrophilic Addition Reaction in Solution: $C_2H_4 + Cl_2$. Ab Initio Studies	177
A. DEDIEU, A. STRICH and A. ROSSI / Theoretical Study of a Homogeneous Catalytic Reaction: The Chlorotris-(Triphenylphosphine)Rhodium(I)-Catalyzed Hydrogenation of Olefins	193
I. G. CSIZMADIA / Energy Surfaces in Quantum Chemistry	213
O. KAHN and M. F. CHARLOT / Overlap in Binuclear Complexes: A Topological Approach of the Exchange Interaction	215
J. C. LORQUET, A. J. LORQUET and M. DESOUTER-LECOMTE / The Evolution of Electronically Excited Molecules	241
B. BIGOT / Study of Photochemical Reaction with Natural Correlation Method	251

E. M. EVLETH and E. KASSAB / Theoretical Analysis of the Role of Rydberg States in the Photochemistry of Some Small Molecules	261
G. BERTHIER / Reappraisal of the Sudden Polarization in Olefins	285
J. JOUSSOT-DUBIEN, M. LAMOTTE, R. LAPOUYADE and J. PEREYRE / Photochemical Attachment of Aliphatic Hydrocarbons to Polynuclear Aromatic Hydrocarbons (PAH) in Rigid Alkane Matrices at 77K. Evidence for a Two-Photon Process Involving an Upper Excited Triplet State	299
INDEX OF SUBJECTS	317
INDEX OF NAMES	319

PREFACE

The second volume of this treatise is concerned with three important problems:

- a) environmental effects
- b) reaction mechanisms
- c) photochemical processes

An important paper is devoted to the solvation problem. The local field representation of surrounding medium effect is analyzed and an application is made to the study of ambident reaction. A paper is devoted to the study of chemical reactivity in inert matrices and a theory of the effect of rare gas matrices on molecules is presented.

Six papers are concerned with chemical reactions mechanisms. They are related to migration reactions, nucleophilic additions and electrophilic additions, and homogeneous catalytic reactions.

Finally, some aspects of the photochemical processes are discussed. The evolution of electronically excited molecules is analyzed and the natural correlation method is presented.

The role of Rydberg states in photochemistry is suggested, we believe, for the first time. The sudden polarization in olefins is described in a critical way and a new phenomenon is presented: the photochemical attachment of aliphatic hydrocarbons to polynuclear aromatic hydrocarbons.