

CONTENTS

Acknowledgements	xxii
Preface and Guided Tour	xxv
1 Wave – particle Duality	1
2 Basic Features of Bonding	19
3 Schrodinger Equation and Variation Principle	39
4 Chemical Bonding and the Pauli Principle	85
5 The Periodic Table and Simple Molecules	117
6 Bonding Described By Hybrid and Molecular Orbitals	140
7 Molecules with Electron Systems	163
8 Absorption and Emission of Light	204
9 Nuclei: Particle and Wave Properties	278
10 Intermolecular Forces and Aggregates	333
11 Thermal Motion of Molecules	356
12 Energy Distribution in Molecular Assemblies	408
13 Internal Energy $u$ , Heat $q$ , and Work $w$	450
14 Principle of Entropy Increase	469
15 Entropy $S$ and Heat $q_{rev}$	492
16 Criteria for Chemical Reactions	517

17	Chemical Equilibrium	545
18	Reactions in Aqueous Solution and in Biosystems	579
19	Chemical Reactions in Electrochemical Cells	600
20	Real Systems	627
21	Kinetics of Chemical Reactions	663
22	Organized Molecular Assemblies	732
23	Supramolecular Machines	794
24	Origin of Life	880
	Glossary	922
	Appendices	928
	Further Reading	937
	Index	955