

CONTENTS

| | |
|--|------|
| Preface | ix |
| Brief Technical Notes | xi |
| Philosophical and Historical Introduction | xvii |
| I. Nuclear and Electronic Motion | |
| On the Quantum Theory of Molecules <i>M. Born and R. Oppenheimer</i> <i>Ann. Phys. (Leipzig)</i> 84 , 457 (1927) | 1 |
| On the Behaviour of Eigenvalues in Adiabatic Processes <i>J. von Neumann and E. Wigner</i> <i>Phys. Z.</i> 30 , 467 (1929) | 25 |
| On the Theory of Non-adiabatic Chemical Reactions <i>F. London</i> <i>Z. Phys.</i> 74 , 143 (1932) | 32 |
| On the Theory of the Interaction Between Electronic and Nuclear Motion for Three-Atomic, Bar-Shaped Molecules <i>R. Renner</i> <i>Z. Phys.</i> 92 , 172 (1934) | 61 |
| II. Theory of Atoms | |
| On the Ground State of the Helium Atom <i>E. A. Hylleraas</i> <i>Z. Phys.</i> 48 , 469 (1929) | 81 |
| A New Calculation of the Energy of Helium in the Ground State as Well as the Lowest Term of Ortho-helium <i>E. A. Hylleraas</i> <i>Z. Phys.</i> 54 , 347 (1929) | 104 |

| | |
|---|-----|
| The Ionisation Potentials of Atomic Configurations with Two Electrons | 122 |
| <i>E. A. Hylleraas</i> | |
| <i>Naturwissenschaften</i> 17 , 982 (1930) | |

| | |
|---|-----|
| On the Ground State Term of the Two-Electron Problem of H^- , He, Li^+ , Be^{++} , etc. | 124 |
| <i>E. A. Hylleraas</i> | |
| <i>Z. Phys.</i> 65 , 209 (1930) | |

III. Theory of the Chemical Bond

| | |
|--|-----|
| Interaction Between Neutral Atoms and Homopolar Binding According to Quantum Mechanics | 140 |
| <i>W. Heitler and F. London</i> | |
| <i>Z. Phys.</i> 44 , 455 (1927) | |

| | |
|---|-----|
| On the Quantum Theory of Homo-polar Valence Numbers | 156 |
| <i>F. London</i> | |
| <i>Z. Phys.</i> 46 , 455 (1928) | |

| | |
|--|-----|
| On the Electronic Terms of the Hydrogen Molecule | 175 |
| <i>E. A. Hylleraas</i> | |
| <i>Z. Phys.</i> 71 , 739 (1931) | |

IV. Spectroscopy

| | |
|--|-----|
| On the Interpretation of Some Appearances in the Molecular Spectra | 199 |
| <i>F. Hund</i> | |
| <i>Z. Phys.</i> 36 , 657 (1926) | |

| | |
|---|-----|
| On the Interpretation of Molecular Spectra. I | 214 |
| <i>F. Hund</i> | |
| <i>Z. Phys.</i> 40 , 742 (1927) | |

| | |
|--|-----|
| On Radiationless Quantum Jumps | 235 |
| <i>G. Wentzel</i> | |
| <i>Z. Phys.</i> 43 , 524 (1927) | |

| | |
|--|-----|
| Lifetimes from Resonance Phenomena | 241 |
| <i>E. Fues</i> | |
| <i>Z. Phys.</i> 43 , 726 (1927) | |

| | |
|---|-----|
| On the Interpretation of Molecular Spectra. III | 254 |
| <i>F. Hund</i> | |
| <i>Z. Phys.</i> 43 , 805 (1927) | |

| | |
|--|-----|
| On the Interpretation of Band Spectra. II <i>R. de L. Kronig</i> <i>Z. Phys.</i> 50 , 347 (1928) | 273 |
| On the Structure of the Spectra of Two-Atomic Molecules According to Quantum Mechanics <i>E. Wigner and E. E. Witmer</i> <i>Z. Phys.</i> 51 , 859 (1928) | 287 |
| On the Structure of Multiplet <i>S</i> -States in Diatomic Molecules. I <i>H. A. Kramers</i> <i>Z. Phys.</i> 53 , 422 (1929) | 312 |
| On the Structure of Multiplet <i>S</i> -States in Diatomic Molecules. II <i>H. A. Kramers</i> <i>Z. Phys.</i> 53 , 429 (1929) | 318 |
| On the Spontaneous Decomposition of Two-Atomic Molecules <i>R. de L. Kronig</i> <i>Z. Phys.</i> 62 , 300 (1930) | 326 |
| V. Intermolecular Interactions | |
| On the Ratio of the van der Waals Forces and the Homo-polar Binding Forces <i>R. Eisenschitz and F. London</i> <i>Z. Phys.</i> 60 , 491 (1930) | 336 |
| On the Theory and System of Molecular Forces <i>F. London</i> <i>Z. Phys.</i> 63 , 245 (1930) | 369 |
| On Some Properties and Applications of Molecular Forces <i>F. London</i> <i>Z. Phys. Chem.</i> B11 , 222 (1930) | 400 |
| On Simple Gas Reactions <i>H. Eyring and M. Polanyi</i> <i>Z. Phys. Chem.</i> B12 , 279 (1931) | 423 |
| VI. Approximative Methods | |
| On the Quantum Theory of the Double Bond <i>E. Hückel</i> <i>Z. Phys.</i> 70 , 204 (1931) | 452 |