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6. Interpretation of the Quantum Rules6.1 The Sommerfeld-Wilson Quantization Conditions; 6.2 de Broglie's Wave Interpretation; 7. Sommerfeld's Model for Non-Relativistic Electrons; 7.1 Assumptions of the Model; 7.2 Results of the Model for Non-Relativistic Hydrogen Atoms; 7.3 The Eccentricity; 8. Quantum Mechanics of Hydrogenic Atoms; 8.1 Quantization; 8.2 Quantum Mechanical Relation Between |A| and L; 8.3 Pauli's Hydrogenic Realization of so(4); 8.4 so(4) and the Spectrum of Hydrogenic Atoms; 9. The Schrodinger Equation and the Confluent Hypergeometric Functions
12. Sommerfeld's Derivation of the Relativistic Energy Level Formula12.

| Sommario/riassunto | The solution of the Dirac equation for an electron in a Coulomb field is systematically treated here by utilizing new insights provided by supersymmetry. It is shown that each of the concepts has its analogue in the non-relativistic case. Indeed, the non-relativistic case is developed first, in order to introduce the new concepts in a familiar context. The symmetry of the non-relativistic model is already present in the classical limit, so the classical Kepler problem is first discussed in order to bring out the role played by the Laplace vector, one of the central concepts of the whole book. |