

Things You Should Know

Chapters 9: Electron Spin and the Pauli Principle

Be able to define the following terms (using words, equations, or figures):

Spin angular momentum
Fermion
Pauli Principle
Spin-orbital

Boson
Permutation Operator
Sym/Antisymmetric Wave function
Bohr Correspondence Principle

Concepts and Exercises:

1. Know Pauli's additional postulates for spin angular momentum.
2. Understand why the Heisenberg Uncertainty Principle and the indistinguishability of identical particles in quantum mechanics leads to the Pauli Exclusion Principle.
3. Understand the effect the Pauli principle has on the structure of the periodic table. Be able to speculate on differences that would occur if the electron spin were different from $1/2$.
4. Be able to do all the assigned exercises