

General Chemistry I – CHEM 2101
Fall 2008

Pauli Exclusion Principle

In a given atom no two electrons can have the same four quantum numbers (n , l , m_l , and m_s).

Hund's Rule

The most stable arrangement of electrons in subshells is the one with the greatest number of parallel spins.

The Aufbau Principle (The building-up principle)

As protons are added one by one to the nucleus to build up the elements, electrons are similarly added to the atomic orbitals.

Paramagnetic Substances: These substances are attracted to a magnet. They have **unpaired or parallel spins**.

Diamagnetic Substances: These substances are slightly repelled by a magnet. They have **paired spins**.

Note: Remember that if the substance has an **odd number of electrons**, the substance **must be paramagnetic**, **BUT** if it has an **even number of electrons** the substance may **either be paramagnetic or diamagnetic**.

Atom	Ground State e ⁻ Configuration and Orbital Diagram	P/D	Noble Gas Core Configuration
₁ H			
₂ He			
₃ Li			
₄ Be			

Atom	Ground State e ⁻ Configuration and Orbital Diagram	P/D	Noble Gas Core Configuration
⁵ B			
⁶ C			
⁷ N			
⁸ O			
⁹ F			
¹⁰ Ne			
¹¹ Na			
¹⁵ P			
²⁴ Cr			
²⁹ Cu			
⁵⁶ Ba			
⁵⁷ La			
⁵⁸ Ce			
⁶⁴ Gd			