Electronic Transitions (Excitation and Relaxation):

- **Excitation** - The process when electron absorbs energy and jumps to a higher energy level
  - **Convergence limit** \((n = \infty)\) - Energy required to remove the electron from an atom (ionisation)

- **Relaxation** - The process when electron releases energy and falls to a lower energy level
  - Relaxation to:
    - **Lyman Series** - relaxation to first ionisation energy \((n = 1)\)
    - **Balmer Series** - relaxation to second ionisation energy \((n = 2)\)
    - **Paschen Series** - relaxation to third ionisation energy \((n = 3)\)

**Procedures:**

- Supply energy (heat, electricity, etc)
- Electrons absorbs energy
- Excited - Jump to a higher energy level
- Electron falls back to lower energy level
- Electron loses energy
- Some energy loses as photon (discrete frequency)
- Identical to the energy difference between the two energy level

**Line Spectrum** is one of the evidence to the existence of energy level.

**First Ionisation Energy**: Energy required to remove a mole of electron from a mole of gaseous atom, ion or molecule.

Depends on: