## Subatomic Particles

| Particle | Mass | Charge |
|---|---|---|
| Electron | $9.1*10^{-31}$kg | $-1.6*10^{-19}$C |
| Proton | $1.6*10^{-27}$kg | $+1.6*10^{-19}$C |
| Neutron | $1.6*10^{-27}$kg | Neutral |

## Energy

$$E = h\nu = \frac{hc}{\lambda}$$

$\mathrm{E} = \text{energy}$

$\mathrm{h} = \text{planck's constant}$

$\nu = \text{frequency}$

$\mathrm{c} = \text{speed of light}$

$\lambda = \text{wavelength}$

## Atomic Number

Z is used to denote the *Atomic Number* of an element.

Z= Number of protons in the nucleus

## Constants

| Constant | Symbol | Value |
|---|---|---|
| Planck's Constant | h | $6.6*10^{-34}$Js |
| Rydberg Constant | R | 109678 $cm^{-1}$ |

## Photoelectric Effect

**Photoelectric Effect**

(i) $\mathrm{E} = \mathrm{W} + \mathrm{K.E.}$

(ii) $\mathrm{h}\nu = \mathrm{h}\nu_0 + \frac{1}{2}\mathrm{mu}^2$

(iii) $\mathrm{h}\nu = \mathrm{h}\nu_0 + (stopping\ potential) * (charge)$

$\mathrm{h}\nu_0$ *is aka 'threshold energy'*

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