



Properties of Cathode Rays

They Travel in a straight line as they cast sharp shadow of the opaque object placed in their path.

It consists of material particle, when a light paddle wheel is placed in their path it starts rotating. Cathode ray particles have momentum and energy. This shows that

They have heating effect as kinetic energy is converted into heat energy on collision.

In the presence of electric and magnetic field they show deflection as they are negatively charged particles. These negatively charged particles were named as negatrons.

Cathode rays ionized the gas in discharge tube.

Particles carrying negative charge were called negatrons by Thomson. The name negatrons was changed to 'electron' by Stoney.

Cathode Ray particles (electrons) does not depend on the material of the electrode and nature of the gas taken in discharge tube.



1 Charge

$$1.6 \times 10^{-19} \text{ C.}$$



2 Mass

$$9.1 \times 10^{-28} \text{ g}$$

$$9.1 \times 10^{-31} \text{ kg}$$

$$0.00055 \text{ amu}$$



ELECTRON

(e/m) specific charge / Charge to mass ratio -

$$\frac{1.6 \times 10^{-19} \text{ C}}{9.1 \times 10^{-28} \text{ g}} = 1.76 \times 10^8 \text{ C/g.}$$

* e/m ratio of electrons is always remain same.