Contents

Parameter represented by fore finger in fleming's left hand rule

Magnetic field

Parameter represented by middle finger in fleming's left hand rule

Current

Parameter represented by thumb finger in fleming's left hand rule

Force

Finger representing magnetic field in fleming's left hand rule

Fore finger

Finger representing current in fleming's left hand rule

Middle finger

Finger representing force in fleming's left hand rule

Thumb

Hand used in flemming's rule

Left

Expression for force in electron in motion of electron in uniform magnetic field

$$F = evB$$

Path of electron in motion of electron in uniform magnetic field

Circular

Direction of force experienced by the electron in motion of electron in uniform magnetic field

Towards the center

Derivation for expression of radius of the circular path in motion of electron in uniform magnetic field

- $$Bev = \frac{mv^2}{r}$$
- $$r = \frac{mv}{Be}$$

Expression for radius of circular path in motion of electron in uniform magnetic field

$$r = \frac{mv}{Be}$$

Derivation for expression of angular velocity in motion of electron in uniform magnetic field

- $$v = \omega r$$
- $$\omega = \frac{v}{r}$$
- $$\omega = \frac{v}{\frac{mv}{Be}}$$
- $$\omega = \frac{Be}{m}$$

Expression for angular velocity in motion of electron in uniform magnetic field

$$\omega = \frac{Be}{m}$$

Derivation for expression of time period in motion of electron in uniform magnetic field

- $$\omega = \frac{2\pi}{T}$$
- $$\omega = \frac{Be}{m}$$
- $$\frac{2\pi}{T} = \frac{Be}{m}$$
- $$T = \frac{2\pi m}{Be}$$

Expression for time period in motion of electron in uniform magnetic field

$$T = \frac{2\pi m}{Be}$$

Path of electron on the condition of angle between velocity and magnetic field

Helical

Expression for radius of helical path in terms of angle in motion of electron in uniform magnetic field

$$r = \frac{mv \sin\theta}{Be}$$

Expression for pitch in terms of time period in motion of electron in uniform magnetic field

$$\text{Pitch} = v \cos\theta \times T$$

Expression for pitch in terms of magnetic field in motion of electron in uniform magnetic field

$$\text{Pitch} = \frac{2\pi mv \cos\theta}{Be}$$